

**ҚОРАҚАЛПОҒИСТОНДА
ФАН ВА ТАЪЛИМ**

**ҚАРАҚАЛПАҚСТАНДА
ИЛИМ ҲӘМ ТӘЛИМ**

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В КАРАКАЛПАКСТАНЕ**

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SOME PROPERTIES OF LINEAR MAPPINGS ON SFS-SPACES

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Summary: In this paper, the properties of geometric Peirce projectors in strongly facially symmetric spaces were studied, and it was shown that linear isometries map orthogonal geometric tripotents into mutually orthogonal tripotents.

Key words: strongly facially symmetric space, symmetric face, geometric tripotent, geometric Peirce projections, linear isometry.

1. Introduction. In the early 1980s, the development of the theory of JB*-triples began in the works of Kaup; in many respects, these triples are parallel to the function-analytical aspects of the theory of operator algebras [1], [2]. The JB*-triples that are characterized by holomorphic properties of their unit balls form a wide class of Banach spaces based on ternary algebraic structures, which contains C*-algebras, Hilbert spaces, and spaces of rectangular matrices. Many axioms used by Alfsen and Schultz show that there are disordered analogs of JB*-triples [3]. In 1989, the paper [4] of Friedman and Russo was published, in which facially symmetric spaces were introduced; the main purpose for introducing these spaces was a geometric characterization of the predual spaces of JB*-triples admitting an algebraic structure. Many properties required in these characterizations are natural assumptions for state spaces of physical systems. These spaces are considered as a geometric model for states in quantum mechanics.

It was proved that the predual space of a complex von Neumann algebra and more general JB*-triples is a neutral strongly facially symmetric space (see [5]). In [6], a geometric characterization was given for complex Hilbert spaces and complex spin factors, and also a description of JBW*-triples of ranks 1 and 2 and of Cartan factors of types 1 and 4 was presented. Later, Friedman and Russo [7] obtained a description of atomic facially symmetric spaces and showed that a neutral strongly facially symmetric space is isometrically isomorphic to the predual space of one of the Cartan factors of types 1-6. Neil and Russo [8] found geometric conditions under which a facially symmetric space is isometric to the predual space of a complex JBW* triple. In [9], a complete description of strongly facially symmetric spaces that are isometrically isomorphic to the predual space of an atomic commutative von Neumann algebra was obtained. In [10], it was proved that the predual space of the real part of a von Neumann algebra is a strongly facially symmetric space if and only if this algebra is the direct sum of an Abelian algebra and an algebra of type I₂. In [11], it was proved that the predual space of a JBW-algebra is a strongly facially symmetric space if and only if the algebra is the direct sum of an Abelian algebra and an algebra of type I₂.

In this paper, the properties of geometric Peirce projectors in strongly facially symmetric spaces were studied, and it was shown that linear isometries map mutually orthogonal geometric tripotents into mutually orthogonal tripotents.

2. Preliminaries. Let Z be a real or complex normed space. We say that elements $x, y \in Z$ are *orthogonal* and write $f \diamond g$ if $\|f + g\| = \|f - g\| = \|f\| + \|g\|$. A face F of the unit ball $Z_1 = \{f \in Z : \|f\| \leq 1\}$ is said to be *norm exposed* if $F = F_u = \{f \in Z_1 : u(f) = 1\}$ for some $u \in Z^*$ with $\|u\| = 1$. An element $u \in Z^*$ is called a *projective unit* if $\|u\| = 1$ and $u(g) = 0$ for all $g \in F_u^\diamond$ (see [12]).

Definition 1 [12]. A norm exposed face F_u in Z is called a *symmetric face* if there exists a linear isometry S_u from Z to Z such that $S_u^2 = I$ whose fixed point set coincides with the topological direct sum of the closure $\overline{sp} F_u$ of the linear hull of the face F_u and its orthogonal complement $F_u^\diamond$, i.e., with $(\overline{sp} F_u) \oplus F_u^\diamond$.

Definition 2 [12]. A space Z is said to be *weakly facially symmetric* (WFS) if each norm exposed face in Z_1 is symmetric.

For each symmetric face F_u , contractive projections $P_k(u)$, $k=0,1,2$, on Z are defined as follows. First, $P_1(u) = (I - S_u)/2$ is the projection onto the eigenspace corresponding to the eigenvalue -1 of the symmetry S_u . Next, $P_2(u)$ and $P_0(u)$ are defined as projections of Z onto $\overline{sp} F_u$ and $F_u^\diamond$, respectively. The projections $P_k(u)$ are called the *geometric Peirce projections*. A projective unit u from Z^* is called a *geometric tripotent* if F_u is a symmetric face and $S_u^* u = u$ for the symmetry S_u corresponding to F_u . By GU and SF we denote the sets of all geometric tripotents and symmetric faces, respectively; the correspondence $GU \ni u \mapsto F_u \in SF$ is one-to-one (see [4, Proposition 1.6]).

Definition 3 [12]. A WFS space Z is said to be *strongly facially symmetric* (SFS) if, for each norm exposed face F_u of Z and each $y \in Z^*$ satisfying the conditions $\|y\|=1$ and $F_u \subset F_y$, we have $S_u^* y = y$, where S_u is the symmetry corresponding to F_u .

In [13], it was introduced the linear operator $D(u) = P_2(u) + \frac{1}{2}P_1(u)$ and was proved that $P_k(u)Z = \left\{ f : f \in Z, D(u)f = \frac{1}{2}kf \right\}$ and $P_k(u)^* Z^* = \left\{ x : x \in Z^*, D(u)^* x = \frac{1}{2}kx \right\}$ for all $k=0, 1, 2$.

Lemma 1. For each geometric tripotent u in U , the associated Peirce projections are polynomials in $D(u)$:

$$\begin{aligned} P_2(u) &= 2D(u)^2 - D(u), \\ P_1(u) &= 4(D(u) - D(u)^2) \\ P_0(u) &= I - 3D(u) + 2D(u)^2. \end{aligned}$$

Lemma 2. For each geometric tripotent u :

- 1) $\|P_2(u)^* - P_0(u)^*\| \leq 1$.
- 2) $\|D(u)^*\| \leq 1$.

Proof. Let u geometric tripotent, then by [4, Proposition 1.5] we have $P_2(u)Z \diamond P_0(u)Z$. Therefore, $P_2(u)^* Z^* \diamond P_0(u)^* Z^*$. Then by [12, Lemms 2.1] we have

$$\|P_2(u)^* x - P_0(u)^* x\| = \max \left\{ \|P_2(u)^* x\|, \|P_0(u)^* x\| \right\} \leq \|x\|.$$

Hence, $\|P_2(u)^* - P_0(u)^*\| \leq 1$. Therefore,

$$\begin{aligned}\|D(u)^*\| &= \left\| P_2(u)^* + \frac{1}{2} P_1(u)^* \right\| = \left\| P_2(u)^* + \frac{1}{2} (I - P_2(u)^* - P_0(u)^*) \right\| = \\ &= \frac{1}{2} \|P_2(u)^* - P_0(u)^* + I\| \leq \frac{1}{2} (\|P_2(u)^* - P_0(u)^*\| + \|I\|) = 1.\end{aligned}$$

Hence, $\|D(u)^*\| \leq 1$.

Proposition 3. The following conditions are equivalent for geometric tripotents u and v :

$$1) P_i(u)^* P_j(v)^* = P_j(u)^* P_i(v)^* \text{ for all } i, j \in \{0, 1, 2\};$$

$$2) D(u)^* D(v)^* = D(v)^* D(u)^*.$$

Proof. 1) $\Rightarrow$ 2).

$$\begin{aligned}D(u)D(v) &= \left(P_2(u) + \frac{1}{2} P_1(u) \right) \left(P_2(v) + \frac{1}{2} P_1(v) \right) = \\ &= P_2(u)P_2(v) + \frac{1}{2} P_1(u)P_2(v) + P_2(u)\frac{1}{2} P_1(v) + \frac{1}{2} P_1(u)\frac{1}{2} P_1(v) = \\ &= P_2(v)P_2(u) + P_2(v)\frac{1}{2} P_1(u) + \frac{1}{2} P_1(v)P_2(u) + \frac{1}{2} P_1(v)\frac{1}{2} P_1(u) = \\ &= P_2(v) \left(P_2(u) + \frac{1}{2} P_1(u) \right) + \frac{1}{2} P_1(v) \left(P_2(u) + \frac{1}{2} P_1(u) \right) = \\ &= \left(P_2(v) + \frac{1}{2} P_1(v) \right) \left(P_2(u) + \frac{1}{2} P_1(u) \right) = D(v)D(u).\end{aligned}$$

2) $\Rightarrow$ 1).

$$\begin{aligned}P_2(u)P_1(v) &= (2D(u)^2 - D(u))(4D(v) - 4D(v)^2) = \\ &= 8D(u)^2 D(v) - 4D(u)D(v) - 8D(u)^2 D(v)^2 + 4D(u)D(v)^2 = \\ &= 8D(v)D(u)^2 - 4D(v)D(u) - 8D(v)^2 D(u)^2 + 4D(v)^2 D(u) = \\ &= (2D(v)^2 - D(v))(4D(u) - 4D(u)^2) = P_2(v)^* P_1(u)^*,\end{aligned}$$

$$\begin{aligned}P_2(u)P_0(v) &= (2D(u)^2 - D(u))(I - 3D(v) + 2D(v)^2) = \\ &= (I - 3D(v) + 2D(v)^2)(2D(u)^2 - D(u)) = P_0(v)^* P_2(u)^*,\end{aligned}$$

$$\begin{aligned}P_1(u)P_0(v) &= 4(D(u) - D(u)^2)(I - 3D(v) + 2D(v)^2) = \\ &= (I - 3D(v) + 2D(v)^2)(4D(u) - 4D(u)^2) = P_0(v)^* P_1(u)^*.\end{aligned}$$

Theorem 4. Let S be a linear isometry of Z onto Z . If $u, v \in GU$ and $u \diamond v$, then $S^*u \diamond S^*v$.

Proof. Let $u, v \in GU$ and $u \diamond v$. Then by [12. Lemma 2.4] $u \pm v \in GU$ and by [12. Lemma 2.5]

we have

$$S^*u, S^*v, S^*(u \pm v) \in GU.$$

Therefore, for all $f \in F_{S^*u}$ we have

$$\|1 \pm \langle f, S^*v \rangle\| = \|\langle f, S^*u \rangle \pm \langle f, S^*v \rangle\| = \|\langle f, S^*(u \pm v) \rangle\| \leq \|S^*(u \pm v)\| \leq 1.$$

But this inequality is valid only for $\langle f, S^*v \rangle = 0$. Therefore, $F_{S^*u} \subset F_{S^*(u \pm v)}$. Then by [12, Lemma 2.8] we have

$$\begin{aligned} S^*u \pm S^*v &= S^*(u \pm v) = S^*u + P_0(S^*u)S^*(u \pm v) = \\ &= S^*u + P_0(S^*u)S^*u \pm P_0(S^*u)S^*v = \\ &= S^*u \pm P_0(S^*u)S^*v. \end{aligned}$$

Therefore, $S^*v \in U_0(S^*u)$. Hence, $S^*u \diamond S^*v$

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Rezyume: Mazkur maqolada qirralari kuchli simmetrik fazolarda geometrik Pirs proektorlarining xossalari o'rganilib, chiziqli izometriyalar o'zaro ortogonal geometrik tripotendlarni yana o'zaro ortogonal tripotentlarga akslantirishi ko'rsatildi.

Резюме: В данной статье были изучены свойства геометрических Пирсовских проекторов в сильно гранево симметричных пространствах, и было показано, что линейные изометрии отображают ортогональные геометрические трипотенты во взаимно ортогональные трипотенты.

Kalit so'zlar: Qirralari kuchli simmetrik fazo, simmetrik qirra, geometrik tripotent, geometrik Pirs proektorlari, chiziqli izometriya.

Ключевые слова: Сильно гранево симметричное пространство, симметричная грань, геометрический трипотент, геометрический Пирсовский проектор, линейная изометрия.

THE LITHOGENIC BASIS OF THE HILLS OF THE FERGANA VALLEY AND THEIR STRUCTURE

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Summary: *This article reveals the main features of the adyr landscape of the Fergana Valley from the point of view of their stratification by Neogene and Quaternary deposits, that is, deposits of the Neogene period consist of siltstones, silts and clays, sands, sandstones, layers of conglomerates and Quaternary layers, the deposits of which are located from north to south in the form of the Sokh, Tashkent, Mirzachol and modern Syrdarya complexes. The article also describes the location, tectonics, anticlinal and synclinal structures of the adyrs.*

Key words: *Conglomerate, sandstone, marl, clay, rocks, Paleogene deposits, Cretaceous deposits, conglomerate rocks, Quaternary period, geological periods, sedimentary, loess deposits*

Introduction

Approximately 15.8% of the land fund of the Republic of Uzbekistan corresponds to the hilly regions. Of this, 4.48% belong to low hills, 6.77% to medium-height hills, 2.33% to high hills, and the remaining 2.22% to plains behind hills, depressions between hills and river valleys. will come. The hills of the Ferghana Valley are located in the eastern part of our country, in the middle part of the tectonic depression formed between the Mogultog, Kurama, Karamazor, Shotqal, Ferghana, Oto'ynogi, Aloy and Turkestan mountains in the upper reaches of the Syr Darya. is located. The area is 7,6 thousand km² within the borders of Uzbekistan. The length of the hills from west to east is 250 km, the average width is 80-100 km, and the widest part is in the eastern part, reaching 150 km.

Analysis and results

As mentioned above, the regions of the Fergana Valley are a mountain range surrounded by high mountains. Between the high mountains and the central plains, there are high relief heights, which in turn are divided into two: mountain ranges and a chain of hills. In the southern part of the Fergana valley, there are three parallel ridges separated from each other by depressions, and there are tectonic depressions between them, and there are few permanent waterways in these places. The mountain rivers and streams flowing from the south cross the chain of hills and form their (river) valleys. According to N.P.Vasilkovskii, the front mountain ranges are not very high and receive little atmospheric precipitation, and are characterized by a large number of dry water tributaries in water catchment basins [5].

Hills (relative height 100-300 m) are anticlinal tectonic structures, which are divided by transverse and longitudinal valleys and depressions. They are mainly composed of rocks of the Quaternary and Neogene periods (conglomerate, sandstone, marl, clay, etc.) and partially Paleogene and Cretaceous deposits.

The hills of Southern Fergana extend in the eastern and northeastern directions and surround the salt flats from the south. In the west of Oltiariqsoy, the hills form a single height and approach the mountains. In the east, they are two rows, in some places three rows, and they are separated from each other by interhill plains. They are characterized by gravelly and stony and gray soils with small particles and a sparse cover of wormwood, ephemera and salt marshes. Due to the fact that the groundwater lies deep, mainly automorphic, and hydromorphic landscapes were formed in some irrigated parts.

V.N.Weber described the places where the mountain rivers flowed into the plains in the southern parts of the valley as the last accumulation areas of the finished parts and the introduced rocks and called them "dry deltas" [3]. Conglomerate rocks of the Quaternary period are scattered in the

upper and lower regions of the low hills from Konibodom to Ferganagasha, and sometimes in the lower plains. The southern mountain rivers (Isfara, Sokh) deposited their conglomerate rocks (in dry deltas) from the places where they flowed from the mountains.

The hills in the south of the Fergana Valley were formed in the Neogene and Quaternary periods. At the same time as the mountain ranges were rising, the plain part of the valley began to sink. Rocks brought by rivers begin to be deposited between two formations that are moving opposite to each other. After that, hills are formed by folding. The tops of the hills rise to a height of 1200 m. Their surface is composed of conglomerates of the Sokh and Tashkent complexes covered with thin fine-grained rocks, and the foothills are covered with gravel. Behind the hills and between the hills, in the distance from Shimyan to Kuvasoykasha, there are plains consisting of sometimes wide and sometimes slightly narrowed valleys.

The hilly areas are rocky and sparsely vegetated, and this is also the case in the hills located in the north-western part of the valley. In the current Quaternary period, the areas where conglomerate rocks are located, streams were deeply cut by "gorges".

The hills of Southern Fergana start from the meridian of the city of Khojand and extend east and north-east to Isfayramsoygasha. Aksuv and Isfara-Khojaabad hills are located to the south of the city of Khojand in the west. As you go to the east, the highlands begin from the meridian of the Konibodom river. In the southern part of the Isfara and Sokh plains, the Sokh-Isfara hills lie flat. In the east, from the eastern hills of the Sokh plains, a double chain of flat peaks begins. These are parallel to each other. Altariq in the north and Shimyan hills in the south. The northern slopes of these hills are connected to the central plain part of the Fergana valley, and their slopes form steep hills and connect with the valley behind the hills and lowlands. Among them are the valleys of Fayziabad and Margilonsoy [4].

The South Fergana hilly region has created unique agrolandscapes: the former mountain ranges are made of Paleozoic and Mesozoic rocks, most of the hilly surface is covered with deposits of the Quaternary period. The former mountain ranges extend to the east and form a series of anticlinal folds, with transverse river valleys. Starting from the Shahimardan river, hilly landscapes are located on the slopes of the former mountain ranges. A separate fold of hills begins around the city of Fergana, and from here the plains behind the hills continue to the east. Soil science scientists Ismanov A.J., Akhmedov A.U., Ko'ziev R., Abdurakhmanov N.Yu. according to the opinion, the hills of the southern part of the valley, the northern parts of the highlands, loess, gravel and hard rock (conglomerate) are sometimes found in the form of mixed layers, most of them are proluvial-alluvial rocks distributed in the hills of Arsif and Kuva. mixed, the chain of hills to the eastern part of the valley, the tendency of the layer of loess rocks to thicken in hilly areas is observed [8].

Shala salt hills, formed from Paleogene-Cretaceous deposits, occupy the southern region of Fergana region. Their absolute height is 850-1200 m. The activity of new tectonic movements is observed in this area. Due to its influence, the process of denudation of different levels took place in the hills. For example, the Belshust hill, located in the western part of the Shimyan hills, formed a "love" hill structure under the influence of the denudation process. This feature is clearly expressed in the complex cross-section of the hill, which became concave as a result of the washing of the rocks. The latter are young hill anticlines composed of molasses, and older deposits have not yet been raised. Different geological deposits and their different relief have complicated the morphological structure of the hills.

In the stratigraphic structure of Southern Fergana (Weber, 1937), the thickness of the subsoil layers of the region, flora and fauna, mineral resources and their age have been relatively less analyzed [6]. According to him, the Cambrian strata are scattered in the area, and they are 30-175 m thick outcrops, in which remains of trilobite animals were found. Silurian layers consist of thick shale plates, yellow and black marbles, limestone sand and conglomerate rocks, sometimes 245-2200 meters thick in places.

If the sea left the Fergana valley in the Paleogene period, from this period, the processes of silt erosion were formed on land and conglomerate deposits were separated and deposited. Even now, tectonic movements continue on the scale of the area, so it remains a problem to clearly distinguish between Neogene and Quaternary rocks (Weber, 1937). From the above, it can be concluded that in the southern Fergana zone, as a result of tectonic and denudation movements of the earth, the sedimentary rocks formed in different years are mixed together, causing difficulties in determining their age (in some places) and period.

In the tectonics of the Southern Fergana regions, various folds of the relief are noticeable, and it is found that the sedimentary rocks, which were deposited during geological periods, are mixed or overlaid. It is recognized by geologists that the tectonic movements continue in the present time, due to the fact that these movements lasted for a long time, it is observed that the mountain rivers eroded the solid rocks of the Paleozoic era and filled the river valleys. Adirorti plains are located in the Vodil graben-syncline between Shimyon-Avval-Kuvasay hills and the northern foothills of the Oloy ridge. It is made of Mirzashol deposits with a thickness of 50 m. Towards the northern part of the plain, the rocks decrease and the fine-grained rocks become thicker. Especially in lands that have been irrigated for many years, the thickness of the fine particle layer increases due to agro-irrigation. Groundwater is deep in the southern parts of the plain. In the vicinity of Adir, as a result of being blocked by bedrock, springs have formed in some places.

Abduganiev O.I. according to his researches, between Kapshugai-So'qoq-Kuva hills and Shimyon-Avval-Arsif hills, from west to east, there are Khanqiz, Yormozor and Arsif depressions (graben-synclines). They are filled with stony and fine-grained alluvial-proluvial and proluvial-deluvial deposits of the Mirzashol complex. Deposits of the Syrdaryo complex are mainly distributed in the riverbeds, ridges and I-II terraces of Isfayramsoy (Beshalisoy, Akbarabadsoy, Kuvasoy) and Shahimardonsoy (Margilonsoy, Fayzaobodsoy, Oltiariqsoy) and residual valleys. The surface of the interhill depressions is flat, slightly inclined to the north and northwest. Its accumulative relief has been greatly changed under anthropogenic influence. In the plains, intensive agriculture is carried out [2].

"Shimyon-Avval" shallow groundwater zone is located in Avval basin, bounded by Shimyan, Akbilol, Avval and Tolmazor hills from the north, the foothills of the Aloy ridge from the south, and Burbalik hill from the west. is bordered. Its width is 15 km in the center, 6-9 km in the west, and 60 km in the northeast. Porous sedimentary layers of the Sokh, Tashkent, Mirzashol and partially Syrdarya complexes are found in the shallows. Through these rocks, Shahimardan, Isfayram and many of their branches, as well as irrigation systems and rainwater seepage formed a large reserve of underground water. Different layers filling the depression form a single water complex. The largest amount of underground shushuk waters can be found in the 100 m thick layer covering Mirzashol, Tashkent and partly the Sokh complex. The amount of water absorbed from rivers and irrigation systems reaches 6 m³/sec. The main part of the underground waters are sulfate, hydrocarbonate, calcium, magnesium waters, with little mineralization (0.5-0.8 g/l). [1].

The chain of hills of Northern Fergana, the land is orographically different from the hills of the southern part of the valley [9]. There are no solid mountains in Northern Fergana, Namangan and Kosonsoy hills occupy large areas in this area. The area has the following orographical features: hillocks approaching the Norin River in the northeast, and Namangan and Kosonsoy hillocks separated by slopes in the north. Towards the Norin River, the high and low hills are cut by many dry riverbeds, and these areas are covered with Paleozoic deposits, only in a small part the rocks of the Cretaceous age are exposed. received Boyaston high hills, stretching from the northeast to the southwest, begin in the northwestern Burshak, and its highest point reaches 1170 meters. To the south-east of the Boyaston hills, between the Namangan hills, there is the Kosonsoy-Pishkaron junction. Its height is 780-1000 m, the slope decreases to the south-west, and it is filled with the rocks of the rivers and is expressed in the structure cut by the valleys of the mountain rivers. The steepest descending part is the Kosonsoy basin, where the Kosonsoy river created a plain formed by the sedimentary rocks of the river at the Kosonsoy-

Pishkurgan basin. Proluvial rocks and eroded rocks from the upper hills are sometimes observed in the riverbeds of the Kosonsoy River. At present, the Kosonsoy river with its deep (10-15 m) bed has crossed the Kosonsoy-Pishkurgan basin from the west and deposited or deposited the river sediments south of the Namangan hills, i.e., in the modern reach of the Kosonsoy river. In addition, the Karasuv river, which does not have such a large riverbed, crosses the Kosonsoy-Pishkurgan branch. The eastern part of the Kosonsoy-Pishkurgan basin is considered to be the upper reaches of the Podshuta River, and it was filled with rocks brought by the river and created a wide flat plain.

The sloping plains of the northern Fergana adirort and adirorali are covered with sandy and gravelly clay soil of different thicknesses, the thickness of the soft soils depends on the time of formation of the deposits and their location. S.A.Shuvalov divided the depressions located between the hills of Northern Fergana into the following parts: a) terraces with fine particles and almost soilless formed from ancient water deposits; b) upper terraces, which have formed spreads in the present period, and the soft soil layer is not so thick; c) soft-rock lower terraces formed from modern sedimentary rocks [10].

In Northern Fergana, the valleys of Nanay, Iskovot-Zarkent-Peshkurgan, Kosonsoy, Koqimboy, Almas-Shust-Varzik, Asht-Bobodarkhan hills stand out. The bottom of the Nanay adirola is divided by stream valleys, and some small bottoms are covered with clayey proluvial rocks 1-2 m thick.

The height of the Namangan hills in the southern part of the Kosonsoy-Pishqoron junction reaches 700-800 meters, and the activity of tectonic processes can be seen here. The Kosonsoy river valley, crossing the Kosonsoy-Pishkurgan confluence from the west, crossing the Namangan hills and moving south along a narrow riverbed with a depth of 100 meters, and from the city of Torakorgan to the wide expanse of Sirdaryogasha produced. Its plain is crossed by the modern valley of the Syrdarya river flowing from the east, and in some places the cut parts (ravines) of this plain are 10-15 meters deep.

Iskovot-Zarkent-Peshkurgan sloping plain is covered with quaternary gravels, some places with clay soils. The banks and all the tributaries of the Poshootasoy river cut across the sloping plain. In its south, the Quaternary deposits are spread to the upper part of the hills, so underground water seeps out. The slope of the Kosonsoy adirort is made up of gravel-stone mixed deposits of the Quaternary period, and its slopes are covered with fine-grained deposits with a thickness of 1-2 m and a 10 m grid.

Soil science scientist Ismanov A.J. According to the research conducted by the expedition (2017), the Shust-Pop hills exchange with the Namangan hills, which are the main part of the hills in the eastern direction, and this fold of hills reaches the Fergana ridge to the east. Behind the chain of hills there are wide undulating plains behind the hills, which begins as a pre-mountain shale salt plain between the heights of Okbel, Aksha and Supatog in the west and the Kurama mountain range. These plains are considered to be proluvial-deluvial foreland deposits, and they have the appearance of a rocky shale salt marsh, sometimes divided (with dry streambeds). It is very poor in the world of plants. Proluvial-deluvial pre-mountain slope plains are eroded and fragmented by streams flowing from the mountain (Shodaksoy) and reach the valley (dry bed) of the Syrdarya river. To the east of Shodaksoy, the plain behind the hills of Shorkesar Soyigasha is folded, that is, eroded and divided into pieces. The steeply cut and folded slope plain consists of proluvial-deluvial deposits, reaching the Shust-Pop hills, and its southern part joins the Syrdarya valley. A part of the hills near the Syrdarya has been exploited.

The fact that the tectonic deformation of Northern Fergana continued not only in the Neogene period, but also in the Quaternary period was determined by the deformation of the young sedimentary rocks in the river valleys. The formation of sedimentary rocks in the Mesozoic and Cenozoic regions has undergone changes in folds and stratification in later periods, and they can be seen in different regions in the form of accumulated or stratified sedimentary rocks of the later period [7,8]. In short, the tectonic movements that have occurred and are occurring in northern Ferghana have caused a change in the sequence of layers of sedimented, deposited, deposited and collected rocks of geological periods, sometimes in a mixed form in some places. , experts noted that their separation caused relatively

complexities. In addition, during the anthropogenic period of the Quaternary period, the plain part of the Fergana valley became land. For this reason, Cretaceous rocks are found on the ground of the hills.

N.P. Vasilkovskii said that the deposits of the valley hills were formed in the Neogene and early Quaternary periods according to their age [5]. These faults have a dry continental type and sometimes correspond to lacustrine and subaerial facies. Therefore, conglomerates are found in the outer parts of the hills, and sand, clay and marl rocks are laid in the central part. These rocks are 2,500-3,000 meters thick, which are clearly visible in the northern parts of the valley, and less thick in the southern and eastern parts. Due to the rapid deposition of these faults, it is observed that they are intermingled, and this causes the researchers to assume that the mountainous regions of Ferghana are not only at the end of the glaucous period, but also continue in the present time. This is also seen in their facial changes. During the uplift of the hill chains in the Fergana region, there was a rapid accumulation of crushed materials from the plains below, and in these regions, the large volumes of water from the mountain rivers, as a result, the large crushed rocks brought from the mountains were separated and located - large gravels are laid near the mountain, and relatively small ones are laid near the slopes. Continuation of tectonic movements and deformations has affected the valley and partly flat parts. Thus, after the high mountains, the second mountain range, i.e. the foothills, and then the current chain of hills appeared. The age of the above-mentioned rocks corresponds to the whole zone of hills, foothills and inter-hill slopes. The lower part of the valley (region of the ancient plains) is filled with pore-dispersed cracks, where it can be seen that the Quaternary cracks of the Syrdarya, and then the surrounding rivers were brought. Among them, one can see the gravelly beds of the river beds, the alternate location of sand dunes, sand dunes and mud flats towards the plain. Swamp-lake formations are composed of more saline sandy loam, sometimes heavy mud [8].

It is observed that the loess deposits are formed (located) in a unique way in the Fergana valley, that is, loess rocks are not found in the central part of the valley, their location is approximately from the width of the cities of Fergana-Kuva, starting from the southern and northern hilly zones, to the eastern parts of the valley. reached and they increase in thickness. In these areas (eastern parts), thick loess deposits are preserved (on the hills), in a less folded (cut or separated) form and strengthened by vegetation, so this part of the valley is characterized by a large amount of atmospheric precipitation [7, 8].

Conclusion

In short, the peculiarity of the Fergana Valley's geological structure, endogenous and exogenous (internal and external) processes, the uneven location of its geological wounds, and the combined occurrence of changes in periods, caused complications in clearly distinguishing their age.

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Rezyume: Ушбу мақолада Фарғона водийси адир ландшафтларининг асосий хусусиятлари неоген ва тўртламчи давр ётқизиқларидан тузилганлиги, яъни неоген давр ётқизиқлари алевралит, алеврит ва гил, қум, қумтош, конгломерат қатламларидан иборатлиги, тўртламчи давр ётқизиқлари эса шимолдан жанубга томон Сўх, Тошкент, Мирзачўл ва ҳозирги Сирдарё комплекслари шаклида жойлашуви, шу билан бирга ҳудуднинг тектоникаси, антиклинал ва синклинал структуралари ҳақида фикрлар баён этилган.

Резюме: В данной статье раскрываются основные особенности адырного ландшафта Ферганской долины с точки зрения их расслоения неогеновыми и четвертичными отложениями, то есть отложения неогенового периода состоят из алевролитов, алевритов и глин, песков, песчаников, слоев конгломератов и четвертичных слоев, месторождения которых расположены с севера на юг в виде Сохского, Ташкентского, Мирзачольского и современного Сырдарьинского комплексов. Также в статье описано расположение, тектоника, антиклинальные и синклинальные структуры адыров.

Kalit so'zlar: Konglomerat, qumtosh, mergel, gil, tog' jinslari, paleogen yotqiziqlar, bo'r yotqiziqlar, konglomerat jinslar, to'rtlamchi davr, geologik davrlar, cho'kma, lyoss yotqiziqlar.

Ключевые слова: Конгломерат, песчаник, мергель, глина, горные породы, палеогеновые отложения, меловые отложения, конгломератные породы, четвертичный период, геологические периоды, осадочные, лессовые отложения.

**BIOLOGICAL BASIS OF IMPROVED CONTROL OF LEAF BEETLES
(COLEOPTERA, CHRYSOMELIDAE) FAMILY**

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Summary: *Today, the processes taking place in natural landscapes due to global climate changes and strong anthropogenic influences in the natural ecosystem have an impact on animal biodiversity. Due to natural changes, there have been great changes in the world of insects, that is, there have been opportunities for the formation of favorable environments for representatives of the family of leaf beetles (Coleoptera, Chrysomelidae). In such cases, we all know that the flora of green plants, which are important for humanity, are seriously damaged, and from this point of view, it is important to develop improved control measures against the pest.*

Key words: *beetles, plants, flora, anthropogenic, natural, landscape, improved, control.*

INTRODUCTION. The rise in temperature around the world cannot fail to affect the flora of plants, which is a concern that the negative impact of harmful insects is increasing year by year in ensuring food safety in the supply of agricultural products in the world community, which is necessary for humanity. Today, we all know that insects from the family of leaf-eating beetles (Coleoptera, Chrysomelidae) are considered one of the most dangerous pests of agricultural crops. Their control is critical to food security worldwide and is often considered one of the critical issues requiring government or international intervention.

According to the results of the literature analysis, if we give information about the Colorado beetle *Leptinotarsa decemlineata* Say., a member of the Chrysomelidae family, which is widely known as leaf rodents, the pest insect is widespread in almost all regions of Europe, as well as in the United States of America and Asian countries. The insect pest was first identified as a pest in the US state of Colorado in 1859. Later, in Europe, around the Bordeaux region of France, it seriously damaged potatoes and began to spread over the whole earth by 150-400 km every year. Barchur beetles (Coleoptera, Chrysomelidae) are large and medium-sized insects with long bodies. Representatives of this family can be found on all continents of the world. They are mainly distributed in the tropics and subtropics. Representatives of the Chrysomelidae family belong to the category of beetles, and there are more than 50,000 species in the world. About 2,000 species are common in Central Asia and CIS countries, and 240 species are common in Uzbekistan. Basically, in Uzbekistan, the Colorado beetle (*Leptinotarsa decem lineata*), poplar leaf-eaters (*Agdestica alni*) and cereal leaf-eating beetles (*Ouloma melanopus*) are known for their pest characteristics. Morphologically, their body size ranges from 1 mm to 35 mm, their whiskers are large, and their colors are shiny. Pest characteristics are mainly noted during the worm period, and beetles and worms of the insect cause serious damage by gnawing plant leaves [1; 2; 7; 8].

MATERIALS AND METHODS. The necessary materials for the research work were collected in the spring, summer and autumn seasons in the natural conditions and anthropogenically transformed places of the Southern Aral Sea of Karakalpakstan in Amudaryo, Beruniy, Ellikkala, Tortkul districts from garden plants and agrocenosis field crops during the years 2021-2023. In this case, *Ulmus densa* (Litv.), *Caragana arborescens* (Lam.), *Populus pruinosa* (Schrenk.), *Populus alba* (L.) from tree plants mainly belonging to the flora of Uzbekistan in natural conditions, *Elaeagnus angustifolia* (L.), from semi-shrub plants *Tamarix hispida* (Willd.), *Haloxylon aphyllum* (Minkw.) and in desert places *Alhagi pseudalhagi* (MB.) Desv. representatives of leaf beetles (Coleoptera, Chrysomelidae) were collected. Fauna, systematic analysis of taxonomic species composition, dominance of all collected insect samples were studied based on general entomological methods [3; 4; 5; 6].

In addition, preventive, improved mechanical and chemical pest control works were carried out in the gardens around the residents' houses.

RESULTS AND DISCUSSION. In the process of monitoring, attention was paid to the dominant species of leaf beetles (Coleoptera, Chrysomelidae) and preventive, improved mechanical and chemical control was carried out against them. In this case, it was noted that the yellow-red leaf-eating beetle *Chrysomela tremula* is the dominant species of the leaf beetle family (Coleoptera, Chrysomelidae) in the natural biotopes of the South Island, and the plum leaf pest *Agelastica al.* In addition, cabbage beetle *Phyleotreta praticola* and potato pest Colorado beetle *Leptinotarsa decemlineata* were recorded in the agroecosystem fields of residential houses.

During the researches, among the members of the leaf beetle family (Coleoptera, Chrysomelidae), the yellow-red leaf beetle - *Chrysomela tremula*, the plum leaf beetle - *Agelastica alni*, the cabbage beetle - *Phyleotreta praticola*, and the Colorado beetle - were recorded as dominant species in natural biotopes, horticulture and agroecosystem field crops. - *Leptinotarsa decemlineata* preventive, improved mechanical and chemical control measures were carried out (Table 1).

1-table

In natural conditions, the chemical against representatives of the Colorado beetle family (Coleoptera, Chrysomelidae) is "Targa Super, 5% em.K." preparati biological efficacy

№	Types of insects	The number of insects that died in a few days					Biological efficiency (%)
		3	5	7	10	15	
1	<i>Chrysomela tremula</i>	2,1±0,4	9,3±0,6	11,4±0,5	14,7±0,3	18,4±0,3	72,4±1,2
2	<i>Agelastica alni</i>	1,8±0,4	10,2±0,5	12,2±0,5	13,6±0,5	19,2±0,6	75,5±1,4
3	<i>Phyleotreta praticola</i>	1,4±0,1	9,8±0,6	11,3±0,3	13,2±0,4	16,1±0,5	63,3±1,0
4	<i>Leptinotarsa decemlineata</i>	1,7±0,1	9,4±0,4	13,2±0,2	16,1±0,4	19,3±0,6	75,9±1,5
5	Назоратда, тирик зотлар	4,3±0,2	11,7±0,4	15,3±0,4	21,2±0,5	25,4±0,4	100±0,9
P		<0,001	<0,01	<0,01	<0,03	<0,001	<0,001

Note: (n=8, M±m: P - accuracy of biological effectiveness against insects in days).

Chemical "TARGA SUPER, 5% em.k." preparation was used and the biological efficiency of the insects killed in days compared to the control was studied. As a result, the sensitivity of the chemical preparation to *Chrysomela tremula* was 72.4%, *Agelastica alni* 75.5%, *Phyleotreta praticola* 63.3%, *Leptinotarsa decemlineata* 75.9%. In the conditions of Uzbekistan, there are several methods of mechanical control against the dominant species *Chrysomela tremula*, *Agelastica alni*, *Phyleotreta praticola*, *Leptinotarsa decemlineata* of the representatives of the beetle family (Coleoptera, Chrysomelidae) and positive results are being achieved. In this regard, for example: firstly, before transporting the potatoes grown in the districts and villages where the pest is present, cleaning the product from the pest, taking quarantine measures, issuing documents and carrying out preventive measures of fumigation; secondly, in agrotechnical measures, high-level cultivation of the land and plants, increasing the tolerance of the plant by providing sufficient organo-mineral fertilizers, cutting the stem before harvesting, fully harvesting the potato crops in the field after the harvest, and deep plowing of the land; thirdly, in the implementation of biological control measures, there are more than 50 types of beetles, of which polyphagous golden-eyes, Khan's girls, jujilets, kandas, northerners, spiders are widespread in our republic. In this case, mainly introduced handcuffs "perillius, podizus" have a special place; fourthly, it is necessary to implement chemical control measures in the field.

In general, today, the world of green plants occupies one of the main places in the world community and in our republic in the anthropogenically transformed places in ensuring the food security necessary for mankind. According to the results of the experiment, it was found that in the conduct of mechanical and chemical control against the dominant species *Chrysomela tremula*, *Agelastica alni*, *Phyleotreta praticola*, *Leptinotarsa decemlineata* of representatives of the beetle family (Coleoptera, Chrysomelidae) it is necessary to take into account time units based on the phenological calendar of the pest. From this point of view, the development of improved, preventive control measures to protect our food and plant products from pests is one of the important issues.

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Rezyume: Bugungi kunda global iqlim o'zgarishi va tabiiy ekotizimdagi kuchli antropogen ta'sir tufayli tabiiy landshaftlarda sodir bo'layotgan jarayonlar hayvonlarning bioxilma-xilligiga ta'sir ko'rsatmoqda. Tabiiy o'zgarishlar tufayli hasharotlar dunyosida katta o'zgarishlar ro'y berdi, ya'ni barg qo'ng'izlar oilasi (Coleoptera, Chrysomelidae) vakillari uchun qulay yashash muhitini shakllantirish imkoniyatlari paydo bo'ldi. Bunday hollarda insoniyat uchun muhim bo'lgan yashil o'simliklar florasiga jiddiy zarar yetkazilishi barchamizga ma'lum va shu nuqtai nazardan zararkunandalarga qarshi kurash chora-tadbirlarini yaxshiroq ishlab chiqish muhim ahamiyatga ega.

Резюме: Сегодня процессы, происходящие в природных ландшафтах вследствие глобальных изменений климата и сильного антропогенного воздействия в природной экосистеме, оказывают влияние на биоразнообразие животных. В связи с природными изменениями произошли большие изменения в мире насекомых, то есть появились возможности для формирования благоприятной среды обитания для представителей семейства листоедов (Coleoptera, Chrysomelidae). В таких случаях мы все знаем, что флора важных для человечества зеленых растений серьезно повреждается, и с этой точки зрения важно разработать более совершенные меры борьбы с вредителем.

Kalit so'zlar: qo'ng'izlar, o'simliklar, flora, antropogen, tabiiy, landshaft, yaxshilangan, nazorat.

Ключевые слова: жуки, растения, флора, антропогенный, природный, ландшафтный, улучшенный, борьба.

THE IMPORTANCE OF GEOGRAPHY IN THE FORMATION OF ENVIRONMENTAL EDUCATION AND TRAINING SKILLS OF SCHOOLCHILDREN

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Summary: *Due to the drying up of the Aral Sea, the ecological disaster on the territory of the Republic of Karakalpakstan has aggravated and led to negative changes in the environment, and significantly affected all sectors of the economy. This article examines the role of geography in the formation of environmental education and skills of Karakalpakstan school children.*

Key words: *Ecological culture, ecological crisis, natural complex, natural resources, rational use, mineral resources, human factor, labourresources, agriculture, reserve.*

Nowadays, in most countries in the world, the changes that are taking place at a rapid pace in an environment that is full of scientific and technical progress do not leave time for people to think. With the sudden increase in the number of people on earth, the increase in their demand for daily consumer goods, food and drink products and drinking water, the irrational use of the natural resources of the environment, and the negative effects of modern production on human resources are causing a lot of the ecological problems in the world. In order to protect the air, soil, water and biological resources of our planet and to ensure its protection, we can stabilize the shores of ecologically equal weight by raising ecologically cultured generations.

Due to the aggravation of the environmental crisis in the polluted environment associated with the drying up of the Aral Sea, the important tasks of the formation of the ecological civilization of our people with the improvement of providing environmental education and education to the entire public, especially to school-age and school-age minors, are considered to be urgent issues of today.

President Sh.M. Mirziyoyev, made a statement at the 72nd session of the UN held on September 19, 2017. "I would like to draw your attention to one of the most acute environmental problems of today - the Aral crisis. Here, in my hand - a map of the Aral disaster. I don't think it needs any further explanation. Addressing the consequences of sea-building requires concerted international efforts. We are supporters of the full implementation of the special guidelines adopted this year by the United Nations on providing approximate assistance to the peoples affected by the Aral disaster," he mentioned.

In accordance with the requirements of the new directions in the field of education, the contents of each subject of study are being repeated in the general education schools, related to the living needs of people and our society, and new textbooks are being created. The use of modern methods and methods of ecological directions of the learning process and the activation of pupils' cognitive activity, is the emergence of a new complex of methodological and pedagogical ideas of teaching that determine the main directions of the future of schools with the renewal of new education methods.

Forming positive relationships with close people in minors is a complex socio-pedagogical process that requires a long time, and it is related to the fact that the population of our country lives in a state of environmental problems. The science of geography, compared to other subjects, has great potential in achieving the effectiveness of environmental education. For the protection and future of our planet, it is the duty of experienced teachers to educate the young generation with ecological culture and to form their ecological literacy.

In teaching geography, it is very important to create the necessary skills for everyone, while enriching the content of environmental education, paying special attention to the creation of its educational functions.

The main focus of the formation of pupils' ecological literacy is not only knowledge of the basics of ecology, understanding of environmental problems, and development of employability skills to cover and prevent damages caused by people close to a person. In the conditions of school-aged children, the protection of the natural environment that develops pupils' abilities, characteristics, judgments, accompanied by knowledge and interest, is the direction for their employability [2].

In the course of Physical geography, pupils are given valuable ideas about the relationship between the Earth and its geographical spheres, the laws of development, the relationship between society and human, and the interrelated development of human components close to a person in a hostile environment. The topics of this course on pollution of the atmosphere, lithosphere, hydrosphere, biosphere, and the surrounding environment, and environmental problems have great educational value in making pupils understand the importance of the geographical shell for human life, and to formation of point of view to the ecological world.

In studying the course of Physical geography of continents and oceans, great attention is paid to the interrelated development of soil, flora and fauna in the human zones of each continent, and the conservation of human zones. In these topics, find information about the ecological problems that are occurring in the zones of nature on the mainland, ways to protect nature, national parks and reserves, and think about the ecological world, the ability to think and work is formed.

In order to increase the ability of students to protect the natural environment and protect natural resources, first of all, we need to form pupils' understanding of the natural environment, and secondly, to protect the nature and its importance, based on the conclusions of natural events and opinions. We can form new ideas about the ratio of pupils to the environment they like.

In teaching geography, it is necessary to know valuable sources of knowledge about the environment in which they live in order to educate people with a developed environmental culture. At the same time, the importance of studying the territorial location of the local mineral resources of the productive forces of our society and its territorial organization is increasing. Most of the young people are limited to knowing information about the yield of natural resources and useful mineral wealth of our country, and do not pay attention to the broad understanding of the impact of human activity on the natural complexes where they live. In teaching geography in this subject, it is necessary to study depth the human factors, along with the study of the relationships between people and society. For example, in the course of economic and social geography of Uzbekistan, it is not limited to the study of the human factor as labor resources, but it requires careful study of its relation to natural, economic and social problems.

In the study of the Physical geography of Karakalpakstan, by deeply analyzing the current ecologically tense state of the natural components of our country, realizing the impact of nature and its imbalance on human economic activity and life, keeping nature as the apple of an eye and people's right to nature teaches that there should be contact.

One of the most important tasks in the study of the economic and social geography of Karakalpakstan is to educate the pupils about the territorial structure of the country they live in and the issues of rational organization and use of its natural resources in a science-based way that suits the interests of the population. In the study of the economic and social geography of the people of the world, pupils are introduced to the causes of environmental pollution and environmental problems in different regions of the world, and they learn about the efficient ways to solve them. Realizing the negative impact of the crisis on the social and economic development of the people who are the productive forces of our society, the need for the service of each person to solve the problems, along with the creation of the qualities of charity, efficient use of natural resources. For example, more than 2,700 large nature reserves and national parks are organized around the world. Most of them are located in developed countries, ie USA, Germany, Canada, Japan, Australia [3]. The attitude of people living in these countries to nature, their culture, and living things are not killed for nothing, plants,

meadows, water, and forests are preserved with valuable and impressive stories of the teacher. The exhibition works create an opportunity to develop an ecological culture in pupils.

The creative works of students have great educational value, for example, environmental posters, pictures, booklets, newspapers, thematic sites aimed at developing environmental literacy, artistic works on environmental topics, comparing their various sources of information, analyzing the appropriate use of natural resources forces them to analyze and think about appropriate use and share their thoughts [4].

In order for the educational character of the school geography relationship to be beneficial, it is necessary to have a friendly relationship between the teacher and the pupil, discussion, acceptance of solutions, and other tasks based on the principle of free and equal participation. In such a principle, conversational, seminar, conference and debate methods of teaching are suitable for the purpose. For this purpose, will be used to organize a debate or seminar on the environmental problems of our country. For example, 1) the effect of environmental conditions caused by drying up of the Aral Sea water on the health and life of the republic's population, 2) necessary tasks of maintaining the ecological balance in the Aral sea region, 3) the works carried out in agriculture in our country to provide our population with quality food and drink products, 4) at the present time, the implementation of healthy lifestyle of the people can be carried out in other topics, where there are necessary solutions.

Here, it is very important for the teacher to direct the pupils' thinking to the solution of today's real problems, and to instill in them the full belief in the need for selfless participation of each of them in solving these problems. The goal of current geographical education is to expand and develop pupils' world view, and to educate ecologically cultured people who can think freely, think from a geographical point of view, and evaluate the relationship of every people of the Earth with nature. By using school geography and its educational tasks in an ecological direction, we will create an opportunity for pupils to form the following ecological and educational tasks:

- Determining the relationship between nature and society and its impact on human activity and life;
- Analyzing the sources of pollution of water, air, soil and biological resources of the environment and finding out the measures to prevent them;
- To create scientific-geographical thinking, formation of geographical knowledge and ecological skills;
- Awakening the love and affection for the motherland;
- We need to know the ways to make a useful contribution to the natural resources of our country, how to preserve them and use them wisely;
- Searching for possible ways to save flora and fauna that are disappearing due to environmental threats in our country;
- Formation of environmental culture of pupils by expanding their view of the geographical world;

If we successfully carry out such responsible tasks of forming the ecological culture of young people, we will contribute to the stabilization of the ecological threat in our Republic by educating future generations who are geographically literate and ecologically cultured.

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Rezyume: *Orol dengizi ekologik inqirozning murakkablashuviga bog'liq Qoraqalpog'iston Respublikasi hududda tabiiy atirof-muhitga salbiy ta'siri vujudga kelib, churloshmoqda, shuningdek bu o'zgarislar xalq xo'jaligining barcha sohalariga salbiy ta'sirini ko'rsatmoqda. Ushbu maqolada Qoraqalpog'iston sharoitida maktab o'quvchilariga ekologik ta'lim va tarbiya ko'nikmalarini shakillantirishda geografiya fanining ahamiyati ko'rsatilgan.*

Резюме: *В связи с высыханием Аральского моря экологическая катастрофа на территории Республики Каракалпакстан усугубилась и привела к негативным изменениям в окружающей среде, а также существенно повлияла на все отрасли экономики. В данной статье рассматривается роль географии в формировании экологического образования и навыков у школьников Каракалпакстана.*

Kalit so'zlar: *Ekologik madaniyat, ekologik inqiroz, tabiiy majmua, tabiiy resurslar, ratsional foydalanish, foydali qozilma boyliklar, inson omillari, mehnat resurslari, qishloq xo'jaligi, qo'riqxona, seminar, konferentsiya.*

Ключевые слова: *Экологическая культура, экологический кризис, природный комплекс, природный ресурс, рациональное использования, полезное ископаемое, человеческий фактор, ресурсы, сельское хозяйство, заповедник, семинар, конференция.*

FAUNA AND ECOLOGY OF BIRDS OF THE COMPLEX (LANDSCAPE) SAIGACHY RESERVE

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Summary: *The article describes materials collected from ornithological research conducted in the Saigachi complex (landscape) reserve in 2020-2022. The authors list rare birds.*

Key words: *Complex (landscape) reserve Saigachy, distribution of birds, resident, nesting, migratory, wintering birds.*

In order to preserve natural objects and complexes that have special ecological value in their natural state, the Saigachinsky complex (landscape) reserve was created as an environmental institution [5].

Scientific work was carried out in all seasons 2020-2022 in the complex (landscape) reserve "Saigachiy". When studying the avifauna, generally accepted methods were used [4, 7]: route method of observation and recording (on foot, by car); methods for identifying bird species by voice, and nocturnal migrants by moonlight; for subsequent identification and analysis, shooting species using a photo and video camera; registration of main biotopic features at observation sites, etc.

Based on available literary sources [1, 2, 3, 6] and our own observations, it was determined that 107 species of birds belonging to 14 orders and 34 families are common in the Saigachy complex (landscape) reserve (Table 1).

Table 1

Species composition and habitation of birds of the complex (landscape) reserve Saigachy

Squad	Number of species		Resident		Nesting		Migrant		Wintering	
	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
<i>Podicipediformes</i>	1	0,93					1	0,93		
<i>Pelecaniformes</i>	1	0,93					1	0,93		
<i>Phoenicopteriformes</i>	1	0,93					1	0,93		
<i>Anseriformes</i>	4	3,73					4	3,73		
<i>Falconiformes</i>	17	15,88	3	2,80	9	8,41	12	11,21	9	8,41
<i>Galliformes</i>	2	1,86	2	1,86						
<i>Gruiformes</i>	4	3,73			2	1,86	4	3,73	1	0,93
<i>Charadriiformes</i>	5	4,67			1	0,93	4	3,73	1	0,93
<i>Columbiformes</i>	6	5,60	3	2,80	3	2,80	1	0,93	2	1,86
<i>Strigiformes</i>	2	1,86	2	1,86						
<i>Apodiformes</i>	1	0,93			1	0,93	1	0,93		
<i>Coraciiformes</i>	1	0,93			1	0,93	1	0,93		
<i>Upupiformes</i>	1	0,934			1	0,93	1	0,93		
<i>Passeriformes</i>	61	57,00	9	8,41	21	19,62	43	40,18	17	15,88
Total	107	100	19	17,75	39	36,44	74	69,15	30	28,03

According to the table, *Passeriformes* are the most common among the families - 61 species or 57%. The next place was taken by the *Falconiformes* family of falcons (17 species or 15.88%).

Columbiformes - 6 species (5.60%), *Charadriiformes* 5 species (4.67%), *Anseriformes*, *Gruiformes* - 4 species each (3.73%), *Galliformes* and *Strigiformes* 2 species (1.86 %), *Podicipediformes*, *Pelecaniformes*, *Phoenicopteriformes*, *Apodiformes*, *Coraciiformes* and *Upupiformes* each accounted for 1 species (from 1.28%) (Fig. 1).

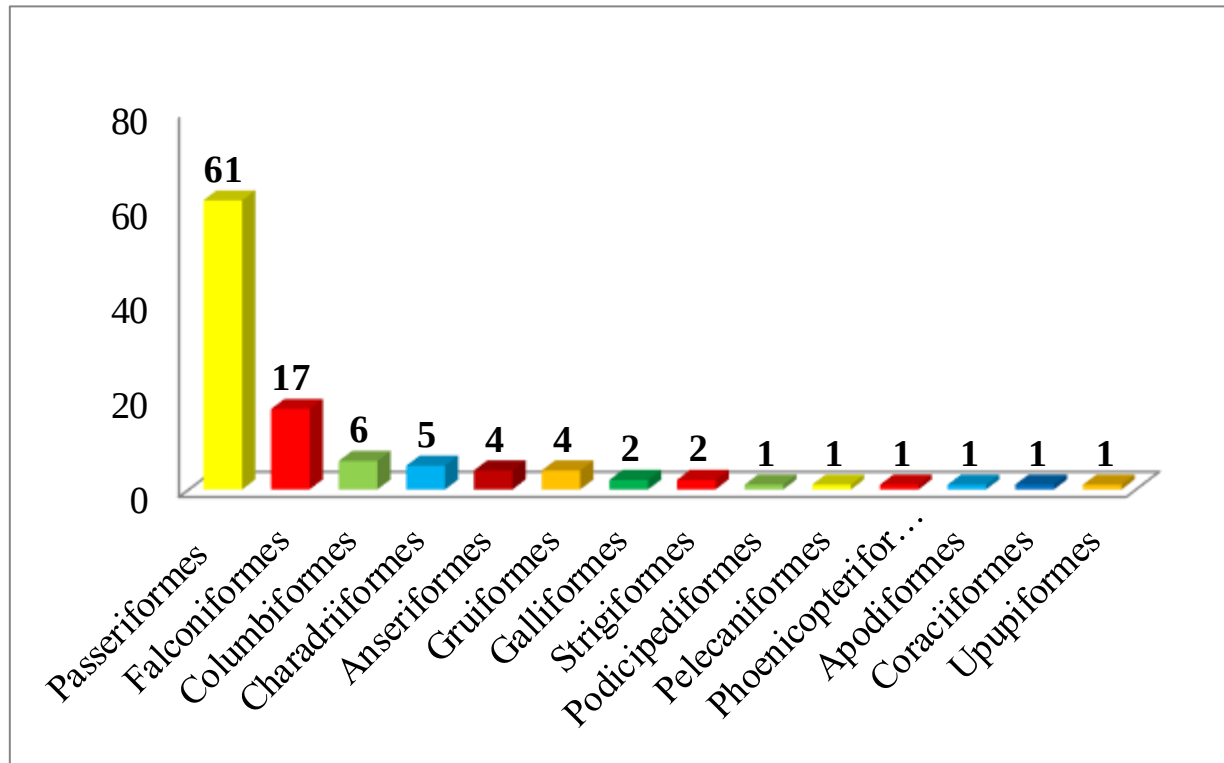


Figure 1. Number of birds in the complex (landscape) reserve “Saigachy” by squad

If we analyze birds according to their systematic composition and the nature of their stay, we can distinguish migratory bird species (69.15%), nesting birds (36.44%), resident (17.75%) and wintering bird species (28.03%).

If we analyze the living conditions of birds, 21 species of *Passeriformes* (19.62%), 9 species of *Falconiformes* (8.41%) nest. *Columbiformes* 3 species (2.80), *Gruiformes* 2 species (1.86%), the rest of the order (*Charadriiformes*, *Apodiformes*, *Coraciiformes* and *Upupiformes*) - 1 species (0.93%).

The display of migratory birds is as follows: *Passeriformes* 43 species (40,185), *Falconiformes* 12 species (11.21%), *Anseriformes*, *Gruiformes*, and *Charadriiformes* 4 species (with 3.92%), from the remaining families (*Podicipediformes*, *Pelecaniformes*, *Phoenicopteriformes*, *Columbiformes*, *Apodiformes*, *Coraciiformes* and *Upupiformes*) - 1 species (0.93%).

It should be noted that out of 107 bird species common in the territory of the Saigachy complex (landscape) reserve, 19 species lead a sedentary lifestyle. Among them are 9 species of *Passeriformes* (8.41%), 3 species of *Falconiformes* and *Columbiformes* (2.80%), and 2 species of *Galliformes* and *Strigiformes* (1.86%).

Passeriformes dominate among wintering species (17 species or 15.88%). *Falconiformes* include 9 species (8.41%), *Columbiformes* - 2 species (1.86%), the remaining 2 families (*Galliformes* and *Charadriiformes*) - 1 species each (0.93%).

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Rezyume: Maqolada 2020-2022 yillarda Saigachin kompleksi (landshaft) qo'riqxonasi hududida o'tkazilgan ornitologik tadqiqotlar davomida to'plangan materiallar tasvirlangan. Mualliflar noyob qushlarni sanab o'tishadi.

Резюме: В статье описаны материалы, собранные в ходе орнитологических исследований, проведенных на территории Сайгачинского комплексного (ландшафтного) заповедника в 2020-2022 гг. Авторы перечисляют редких птиц.

Kalit so'zlar: "Sayg'oqchi" majmua (landshaft) qo'riqxonasi, qushlarning tarqalishi, o'troq, uy quruvchi, ko'chmanchi, qishlovchi qushlar.

Ключевые слова: Комплексный (ландшафтный) заказник «Сайгачи», распространение птиц, оседлые, гнездовые, перелетные, зимующие птицы.

STUDY OF THE COMPOSITION OF ORGANIC FERTILIZERS USED DURING CULTIVATION

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Summary: *Plants grown biointensively using organic fertilizers do not require as much fertilizer as plants grown using other methods, but even so, this method allows for high yields.*

Key words: *arable land, fertility, land reclamation, salinity, fertilizers, nitrogen, phosphorus, potassium, chicken manure, composts, Aral sea, grain cultivation, clover, etc.*

Increasing the productivity of agricultural crops is important to increase the soil fertility of arable land. In the last 15-20 years, there has been a significant decrease in land productivity, its rest, deterioration of land reclamation conditions, and the increase in salinization and erosion processes. Such areas make up more than half of the areas with irrigated soils. This is an unacceptable situation.

This issue is especially important in Uzbekistan, where land is the main national wealth and the source of the population's livelihood. Therefore, it is necessary to briefly touch on organic fertilizers and their types.

Cut. Manure is formed from solid and liquid excrement of animals, bedding, water, leftovers of food that have been suppressed, and a mixture of soil and sand.

Manure contains elements of nitrogen, phosphorus and potassium. Manure is processed from the waste of large cattle, horses, pigs and sheep.

Peat. The main types of peat are found in the Russian Federation, Belarus. Peat is widely used in agriculture. It contains humic acid. This acid has adsorptive properties and contains a lot of nitrogen.

Turf is also considered to have antiseptic properties. There are a lot of organic compounds in peat, and the activity of biological processes is low and high.

Peats are formed at the expense of plants growing in swamps. Plants die due to lack of oxygen due to excessive water content. The remains of plants involved in this process begin to slowly rot and undergo complete mineralization. These processes take place in the uppermost category of wetlands.

In the Republic of Karakalpakstan, peats are abundantly formed on the slopes of residual lakes on the shores of the Aral Sea, but, unfortunately, have not been used in agriculture until now.

The degree of rotting of peat is defined as the % amount of loose substances and small particles that have not turned into silver. This indicator is in the range of 1-60%.

Chicken cutlet. Chicken manure is an organic fertilizer with the most nutrients. Chicken gizzards are good for use as fertilizer. Because geese and ducks are watery, they are similar to those of cattle, and the amount of nutrients is the same.

Liquid chicken broth has an unpleasant smell, there are many remains of weeds, flies, eggs, larvae of helminths and microorganisms.

At present, the amount of chicken droppings in chicken keeping factories is directly related to the technology of keeping birds, the method of removing excrement, and the methods of watering chickens.

Composts. Compost is a biothermal process of humification and mineralization of organic matter under the influence of heat-loving microorganisms.

When the compost is working, the temperature of organic waste decays up to - 600 0C. This heat kills larvae, pupae of flies, eggs of helminths, and non-spore-forming microorganisms. Plants grown using biointensive methods using organic fertilizers may not require as much fertilizer as plants grown using other methods, but it still allows for a high yield. Mixing compost and other beneficial fertilizers into the soil in a two-layer turnover process provides the plants with all the nutrients they

need. But even so, it is better to give them a little more fertilizer when the plants are growing. It is especially good if it is applied during the summer season to increase the heat resistance of the crops and when the demand for crop production increases.

Use of agricultural crops as compost

An important way to fertilize the soil in sustainable organic farming is to incorporate the growing crop into the soil as fertilizer. This increase in soil fertility and moisture absorption creates a rich and inexpensive source of nutrients and organic matter.

Fertilizer crops such as vetch and vetch increase soil fertility and absorb nutrients and organic matter.

Among other things, the plant protects the soil from wind and water erosion, and it can be grown even when the land is not used for planting.

There are 2 types of plants grown for fertilizer: perennials and non-perennials. Clover, alfalfa, soybean, vetch are important because they have a large amount of nitrogen. Some formers are about 70 kg per 400 ha. provides nitrogen, which is equivalent to about 5 tons of fertilizer or compost.

Non-native plants, mainly grasses, produce the organic matter needed for the soil for a short period of time. Plants such as wheat, ryegrass, and rye growing on the surface of the earth have large veins, and if they are mixed with the soil, they increase the amount of organic matter in the soil. Among them, it is possible to mow these crops according to the method of alternating cultivation of the land, and sprinkle nitrogen fertilizers on the field where their stubble remains.

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Rezyume: *Organikaliq o'g'itlarni foydalanib biointensiv usulda ekilgan o'simliklar boshqa usullar bo'yicha ekilgan o'simliklarga nisbatan o'g'itni ko'p taqozo etmaydi, lekin shunday bo'lsa ham bu usul juda ko'p zuroat olish imkonini beradi.*

Резюме: *Растения, выращенные биоинтенсивно с использованием органических удобрений, не требуют такого количества удобрений, как растения, выращенные другими методами, но даже при этом этот метод позволяет получать высокие урожаи.*

Kalit so'zlar: *ekin yerlari, unumdorliq, melioratsiya, sho'rlanish, o'g'itlar, azot, fosfor, kaliy, tovuqi qiyi, kompostlar, Orol dengizi, g'allakorlik, Klever va hokazo.*

Ключевые слова: *пашня, плодородие, мелиорация, засоление, удобрения, азот, фосфор, калий, куриный помет, компосты, Аральское море, зерноводство, клевер и др.*

UDC 564.48.01

PHOSPHOR CONTAINING IONIT FOR PEELINGS OF THE SEWAGE IS MINING INDUSTRY

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Summary: In article are considered some possibility of the chemical modification copolymers and ionits on their base, using for ioning changed peelings of the sewages is oil-referiner and chemical industry. They are shown concrete spheres of the using modified polymeric ionits.

Key words: ioning changed peelings, metal containing sewages, polymeric ionits, comonomer, copolymerization, filtrate, sorbet.

The ion exchange resins (ion exchangers) that we have developed based on quaternary phosphonium salts are typical solid hygroscopic gels, practically insoluble in water and common solvents. They belong to the class of high-molecular compounds obtained by polycondensation and polymerization of organic substances [1].

The increased sorption capacity of resins determines the ion exchange that occurs between the ion exchanger and the electrolyte solution in the event of their contact. Ion exchange is caused mainly by electrostatic forces, but the influence of the structure of the ion exchanger itself and the properties of the solvent cannot be excluded.

It has been established that each ion exchanger consists of a high-molecular spatial network of hydrocarbon chains - a “framework” (otherwise known as a “matrix”), “cross-linked” by transverse valence forces, or lattice forces, which prevents its separation. Thus, an ion exchanger grain is like one giant molecule. Divinylbenzene is most often used to form cross-links, and the degree of cross-linking of the ion exchanger is expressed as a percentage of divinylbenzene added during the polymerization of the ion exchange resin. Depending on the number of cross-links, the average pore size of the ion exchanger varies from several angstroms to values larger by two orders of magnitude (for the ion exchanger in the swollen state) [2].

In contrast to zeolites, the matrix of the synthetic ion exchange resins we synthesized does not have a regular periodic structure, but is a disordered three-dimensional system with unequal pore sizes. As a result, these ion exchangers belong to heterocapillary systems. Functional, chemically active (ionogenic) groups carrying electronegative or electropositive charges (fixed ions) are fixed in the matrix. They give the ion exchanger an acidic or alkaline character. The charge of the framework is compensated by countercharged ions (counterions), resulting in the solid remaining electrically neutral. Counterions are mobile inside the framework and are capable of exchanging with ions of the electrolyte solution [3]. According to their chemical nature, all ion exchange resins are divided into two types. Ion exchangers containing active acid groups and exchangeable cations are called cation exchangers according to generally accepted terminology, and ion exchangers containing basic active groups and mobile anions are called anion exchangers. In cation exchangers, the most common active groups are sulfonic acid, carboxyl, phosphoric acid and hydroxyl groups. Cation exchangers, all of whose mobile ions are hydrogen ions, are designated as H-cation exchangers (or H-form of cation exchanger). If hydrogen ions are replaced by other cations (Na⁺ or Ca²⁺), then the corresponding designations are used: Na- or Ca-cationite, Ca(Na)-form of the cationite, or the general term - salt form of the cationite. Anion exchangers with the same type of ionogenic groups contain aliphatic or aromatic primary and

secondary (less often tertiary) amines, quaternary ammonium and sulfonium bases as active groups [4]. For anion exchangers, similarly to cation exchangers, the following symbols are introduced: OH-anion exchanger or OH-form of anion exchanger, Cl-anion exchanger or Cl-form of anion exchanger, etc., as well as a generalized term - salt form of anion exchanger. Based on the degree of ionization, anion exchangers are divided into strongly and weakly basic. The first - with quaternary ammonium or sulfonium bases as ionogenic groups - enter into an exchange reaction in a neutral and slightly acidic environment. The latter (amino resins) participate in ion exchange only in acidic environments, and the completeness of the exchange increases with increasing acidity of the environment. The process of ion exchange consists of the diffusion of dissolved electrolyte ions to the surface of the sorbent grains, their diffusion into the sorbent, the displacement of mobile ions of the sorbent from the sphere of influence of the anionic (or cationic) complex and the diffusion of displaced mobile ions from the sorbent phase into the solution. It has been experimentally revealed that the process of ion exchange with the participation of ion exchangers developed by us has some similarities with adsorption. But, despite the significant differences, it is often difficult in practice to draw the line between these processes, since the exchange of counterions is almost always accompanied by adsorption, and most conventional adsorbents, for example aluminum oxide, activated carbon, can act as ion exchangers. The process under consideration can be carried out under static and dynamic conditions. In the first case, the test solution is brought into contact with the ion exchanger and thoroughly mixed. An ion exchange occurs, as a result of which the active group of the ion exchanger appears in a stable salt form that is not subject to hydrolysis during washing (the change in the volume of the ion exchanger is small). In production and analytical work, ion exchange under dynamic conditions is most often used. In this case, the exchange is carried out in columns filled with the required amount of prepared ion exchanger. The test solution is very slowly filtered through a layer of ion exchanger, while the ion exchanger is saturated with ions from the solution in exchange for counterions. The process is supported.

In this context, it was of interest to identify the mechanism and patterns of ion-exchange treatment of industrial wastewater from the oil refining industry using new ion exchangers developed on the basis of quaternary phosphonium salts (QPS) with divinylbenzene (DVB) and methyl methacrylate (MMA).

For a comparative analysis, various foreign-made industrial anion exchangers were used, the characteristics of which are given in Table 1. A decrease in the acid number of wastewater during treatment with an ion exchanger can occur as a result of the following reaction:



where: $ktOH^-$ - hydroxyl form of anion exchanger (activated ion exchanger - in working position); H^+An - acid in oil; $ktAn$ and H_2O - ion exchange products.

We have developed a technology for activating the ion exchanger, i.e. converting it from the salt form to the hydroxyl form. The activation method is as follows. The ion exchanger swells in distilled water for 1 hour, which is then sucked out of the column using a vacuum pump. The swollen ion exchanger is converted into the active form by treating it with a 5% NaOH solution. Then it is washed with distilled water until the wash water is neutral and the wash water is sucked off until the ion exchange resin is air-dry.

It has been experimentally established that freshly prepared ion exchanger should be used to purify oil refinery wastewater, since even slight contact with air reduces its ion-exchange capacity. It was also determined that an increase in NaOH consumption practically does not change the exchange capacity of the ion exchanger. To activate 100 g of ion exchanger, 0.5-1.0 l of 5% NaOH solution is sufficient. The optimal temperature (30°C) for the process of ion exchange wastewater treatment with the developed ion exchangers was experimentally found. At a temperature of 30°C, a relatively high efficiency of using the ion exchanger is achieved. The optimal duration of contact of wastewater containing petroleum products with the WA-17 ion exchanger (ion exchanger consumption 10%, oil temperature 40°C) is visible from the following data (Table 2) [5]:

Table 1.

Main indicators of anion exchange resins

Indicators	WA-17	WA-18	IRM-1	IRM-2
Bulk density of commercial product, g/m ³ , not less	0,068	0,74	0,6	0,55
Exchange capacity, mEq/g, not less than: Static dynamic	7	8	9	9
	150-190	400-600	480	440
Grain size, mm	0,3-2,0	0,35-1.2	0,4-1,7	0,3-1,6
Humidity of product ion exchanger, %, no more	60	30-50	15	25
Appearance	Light brown grains	Yellow spherical grains	Brown grains	Transparent grains

(WA- water analysis, IRM-indicators risk management)

Table 2

Values of the optimal duration of contact of the ion exchanger AV-17 and waste вод

Duration of contact min.	Acid number, waste water, mg/KOH/g	Duration of contact min.	Acid number, waste water, mg/KOH/g
0	0,17	30	0,030
5	0,095	45	0,030
15	0,057	60	0,030
20	0,030	75	0,030

We have also developed a method for regenerating spent ion exchanger. It was first washed with gasoline until the filtrate was colorless, and then dried in air for 24 hours. The air-dry waste resin was transferred from the salt form to the hydroxyl (active) form, treated with a 5% NaOH solution according to the accepted technology. The effectiveness of reducing the acid number of wastewater containing petroleum products decreases with repeated regenerations of the ion exchanger. For example, a fresh AW-17 ion exchanger reduces the acid number of wastewater from 0.11 to 0.015 mg KOH/g (at a flow rate of 10%), and a regenerated ion exchanger reduces it to 0.018 after the first regeneration and to 0.023 mg KOH/g after the second.

Analysis of experimental data shows that the ion exchangers used for treating wastewater containing petroleum products can be ranked in the following row according to their neutralizing ability: IRM-2, IRM-1, WA-17, WA-18. The most effective are ion exchangers IRM-1 and IRM-2; at any temperature conditions, their consumption to obtain the acid number of treated wastewater 0.05-0.02 mg KOH/g is 3-5 wt. % of the volume of purified water. With increasing contact temperature, the degree of reduction in acid number increases slightly [6, 144].

Based on the experimental studies carried out, it can be concluded that the developed ion exchangers based on monomeric quaternary phosphonium salts with divinylbenzene and methyl methacrylate can be used not only as ion exchangers that make it possible to neutralize acidic products in the composition of industrial wastewater from oil refineries, they can successfully replace expensive and hard-to-find ion exchangers, adsorbents imported from abroad and widely used for wastewater treatment in industry. It should also be noted that when industrial wastewater from oil refineries is treated with developed ion exchange resins, the efficiency of extracting metal ions is significantly increased.

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Rezyume: Maqolada neftni qayta ishlash va kimyo sanoati oqava suvlarni tozalashda qo'llaniladigan sopolimer va ionitlarni kimyoviy modifikatsiya qilish imkoniyatlari o'rganilgan. Modifikatsiya qilingan ionitlarni qo'llashning aniq soxalari aniqlangan.

Резюме: В статье рассмотрены некоторые возможности химической модификации сополимеров и ионитов на их основе, применяющихся для ионообменной очистки сточных вод нефтеперерабатывающей и химической промышленности. Показаны конкретные сферы применения модифицированных полимерных ионитов.

Kalit so'zlar: ionalmashib tozalash, metall ushlagan okava suv, polimer ionitlari, somonomer, sopolimerizatsiya, filtrat, sorbat.

Ключевые слова: ионообменная очистка, металлсодержащих сточные воды, полимерные иониты, сомономер, сополимеризация, фильтрат, сорбат.

UDK 598.292.2 (575.146)

INFORMATION ON THE NESTING OF LANIUS SCHACH LINNAEUS, 1758 IN THE BUKHARA OASIS

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Summary: The article explores the relevance of the topic, the methods used to carry out the work, the status of occurrence of *Lanius schach* in the conditions of the Bukhara Oasis, The Shape, number and location of the nests found, nesting, components of the Hive and their quantitative proportions.

Keywords: Bukhara Oasis, *Lanius schach*, nest, bird, biology, ecology, areal, agrosenosis, method, pair, occurrence status, nest building, nest location.

It is relevant to research the distribution, biology and ecology of *Lanius Schach* in Bukhara Oasis agrotsenoses, analyze its relationships in agrotsenoses, manage the number, determine the measures for protection.

In the agrotsenoses of the Bukharan Oasis, *Lanius schach* of the Laniidae family of the order Passeriformes is found [1]. As of occurrence this bird is a Breeder/Migrant species [3, 4, 5, 6, 7]. Also, the relationship of this bird with nesting on the example of the Bukhara Oasis has not been specially studied. In light of this, in this article we will cite our feedback based on the observations made in 2008-2022 on the nesting of *Lanius Schach*, the data collected. Figure 1 below shows an overview of *Lanius schach* and the nest.



Figure 1. General view of *Lanius schach* and Hive

In the study of the relationship of *Lanius schach* with nesting, in the implementation of stationary observations, G.A. Novikov (1949), A.V. Mikheyev (1975), A.S. The methods of Mal'chevsky (1959) were used. 21 nests of *Lanius Schach* were found and studied [8, 9, 10]. Further observations were also made.

In the Bukhara Oasis, this species occurs in April-October, and during this time the Flying *Lanius schachs* will part initially in pairs a little later, as well as select trees in the Oasis agrotsenoses to build nests. It is known from sources that it places its nests 5.35 (2.5-13.0) meters from the ground in

trees such as apricot, apple, poplar, pine, maple, Mulberry, Willow, Acacia (Bakayev, 1994) [2]. In the course of our observations, we found that in addition to the above trees, the nest (n=6) builds 4,785 (2.85-8.0) meters above the ground to Amygdalus, Prunus, Persica, Cerasus avium, which is planted close to the water. In subsequent years, the decrease in the height of the hive from the ground and the choice of fruit trees in more nesting is explained by the fact that ornamental, large trees in agrotsenoses decrease from year to year.

Both sexes are involved in nest construction. The construction period sometimes takes up to 7 days, depending on the arrival time of spring, weather, including temperature, raw materials. When building its nest, it mainly uses 50 m diameter Gossypium, Salicornia herbacea, Medicago sativa, brassica rapa, Convolvulus arvensis, Salix alba, Populus alba, Phragmites communis, Zea mays, Prunus armeniaca, Cynodon dactylon, Alhagi pseudalhagi, Morus alba body parts, animal wool, synthetic threads, etc. (Table 1).

Table 1.

Information on the components of the Lanius schach hive

Components	Slots			The average weight is g.
	1	2	3	
Cotton wool (mixed with powder and fine hues)	32,400	1,200	26,900	20,167
cotton stem, bark, leaf band	6,200	-	4,800	3,667
Salicornia herbacea body parts	9,000	-	-	3,000
Medicago sativa body parts	2,000	-	-	0,667
Sheep's wool, silk and synthetic resin	0,400	-	0,700	0,367
Brassica rapa body parts	0,800	-	-	0,267
Convolvulus arvensis	0,500	-	-	0,17
Salix alba, Populus alba leaves	1,000	-	-	0,33
Phragmites communis, Zea mays, wild broom body parts	0,500	-	-	0,167
Prunus armeniaca parts	0,600	-	-	0,200
Cynodon dactylon	0,400	0,400	-	0,267
Alhagi pseudalhagi and Tamarix gallica body parts	0,100	6,200	2,500	2,933
Morus alba, toifi	5,000	29,400	-	11,467
Synthetic threads, a piece of chalk and white resin	-	3,300	-	1,100
Hair, sheep's wool, animal hair	-	1,100	-	0,367
Plastic bag piece and bag thread, audio tape, pena Pieces, candy paper, cigarette filter	-	1,000	-	0,333
Zea mays straw hair	-	0,700	-	0,233
Copper wire	-	2,300	-	0,767
Bird droppings	-	1,800	-	0,600
Lanius schach skin derivatives	-	5,000	-	1,667
DVP slices	-	0,050	-	0,017
Toifi fruit part	-	1,200	-	0,400

Annual branches of cherries, leaves	-	0,500	-	0,167
Sorghum cernuum seed parts, Salicornia herbacea body parts, Zea mays leaf etc	-	13,600	-	4,533
Prunus part and leaves	-	-	2,000	0,667
Body parts of other plants, dust particles	17,300	9,000	4,600	10,300
Total	76,200	76,750	41,500	64,817

Note: The table shows that when building a bird's nest, Gossypium fiber, Salicornia herbacea and Alhagi pseudalhagi used body parts, debris, Morus alba and toifi body parts, Sorghum cernuum, Zea mays body parts, Tamarix gallica parts, more than colored wires, relatively less than the body parts of cultured plants. This can be explained by the heavy planting of acorns in the agrosenoses of the Bukhara Oasis, the increased desertification process, the pollution of the environment in kunsayin, and the shrinkage of cultivated plant crops grown as food.

Lanius schach does not make repeated use of his nests, which have been increased or used before the year. However, their old nests are equipped for use by Acridotheres tristis. The Nest does not have a clear shape, is spiral, rolled up like a turban. Although placed at points close to humans, in most cases it is not conspicuous until the autumn season.

The study of Lanius schach nesting was discovered during the period when this bird used the body parts and waste objects of weeds in nest building to limit their spread to agrosenoses as well as serve as sanitation. In the following years, there is an impact on the number of nests of Lanius schach under the influence of strong winds, updating residential areas by humans, rejuvenating gardens, giving trees an early shape, felling trees as a source of energy, an increase in invertebrates parasitizing phanerophytes.

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Rezyume: Maqolada mavzuning dolzarbligi, ishni bajarishda foydalanilgan usullar, Buxoro vohasi sharoitida uzun dumli qarqunoqning uchrash maqomi, topilgan uyalar shakli, soni va joylashishi, uyalashi, uyaning tarkibiy qismlari va ularning miqdoriy nisbatlari o'rganilgan.

Резюме: В статье рассмотрена актуальность темы, методы, применяемые при выполнении работ, статус встречи длиннохвостого сорокопута в условиях Бухарского оазиса, форма, количество и расположение найденных гнезд, гнездование, составные части гнезда и их количественные соотношения.

Kalit so'zlar: Buxoro vohasi, uzun dumli qarqunoq, uya, qush, biologiya, ekologiya, areal, agrotsenoz, usul, juft, uchrash maqomi, uya qurish, uyasining joylashishi.

Ключевые слова: Бухарский оазис, длиннохвостый сорокопут, гнездо, птица, биология, экология, ареал, агроценоз, метод, спаривание, статус встречи, строение гнезда, расположение гнезда.

UDK 598.2

MATERIALS FOR THE SPRING BIRD FAUNA OF MOUNTAIN SULTAN UVAIS AND ITS SURROUNDINGS

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Summary: *The scientific work describes the results of ornithological observations carried out in the Sultan Uwais mountains and their environs during the spring season of 2021. At the same time, the authors studied the systematic composition, distribution, abundance and habitation of the fauna of spring birds of the Sultan Uwais Mountain.*

Key words: *Mount Sultan Uwais, ornithological observations, fauna of spring birds, systematic composition, distribution, number of birds, habit of stay, Steppe eagle, Golden eagle, Red Book.*

In recent years, much attention has been paid in the world to determining the biological diversity of bird species in individual natural landscapes, substantiating the features of their adaptation to landscape elements and developing measures for their rational use.

Mount Sultan Uwais is a unique natural mountain landscape of Karakalpakstan, but the avifauna of this landscape has been practically unstudied. There is only short data in the scientific literature [1, 2, 4].

Ornithological research was carried out in the spring (March, April) of 2021, mainly in the territory of Mount Sultan Uwais and its surroundings, including in the Kyzylkum desert. The research methods were based on international recommendations, in particular, the generally accepted methods of G.A. Novikov [5]. Bird observations were carried out through 10x binoculars and 60x Viking telescopes. At all observation points, coordinates were determined using Garmin GPS.

Sultan Uwais is a mountain range in Karakalpakstan (Uzbekistan), on the right bank of the Amu Darya. The ridge is located in the extreme southwest of the Kyzylkum Mountains, separating the desert from the valley of the Amu Darya River. The length is over 50 km, width - up to 25 km [3]. The ridge has an almost latitudinal strike in the east, changing to north-west in its western part. The maximum height reaches 473 m. The southern and western slopes are steep, the northern and eastern ones are gentler. Desert landscapes dominate.

Accordingly, mountain, foothill, steppe and desert species of animals and plants live here. There are no wetlands on the property. But during the migration period you can also meet representatives of other biotopes. The ravines and slopes of the mountain are shelters for mammals and reptiles from critical temperatures, and nesting places for birds.

The largest foothill areas are occupied by wormwood formation. In areas with compacted sands, white saxauls were common. These areas are characterized by large tracts of acacia, dense saxaul and shrub thickets and herbs. This biogeocenosis is favorable for making nests, laying eggs, and for habitat and resting places for passerine bird species. A special group of territorial plants: ephemerals - annual herbaceous plants that complete their development in a very short wet period of spring, and ephemeroïds - perennial herbs that bloom in the spring; in the summer their above-ground part dies off, leaving only underground rhizomes, bulbs and tubers. Among the medicinal plants found in the sands were stinking ferula and harmala.

The fauna of the northern part of the Kyzylkum desert is represented by typical desert species. Here the theriofauna is dominated by psammophilous species. Common reptiles here are: Central Asian tortoise, steppe agama, foot-and-mouth disease, arrow-snake; Among the birds – falcons and passerines. It is important to note that livestock farming or herding is developed here, shepherds build their yurts and all year round they care for their sheep, cows, horses and camels.

According to the results of an ornithological study in the spring of 2021, 27 species of birds belonging to 6 orders were registered on the territory of Mount Sultan Uwais (Table 1).

Table 1.

List and number of bird species noted to the Sultan Uwais Mountains and their surroundings

	Bird species	Total number of individuals	Nature of stay
	<i>Circus cyaneus</i>	2	MW
	<i>Circus aeruginosus</i>	1	BMW
	<i>Buteo lagopus</i>	1	MW
	<i>Aquila nipalensis</i>	2	BMW
	<i>Aquila chrysaetos</i>	1	R
	<i>Falco vespertinus</i>	1	M
	<i>Falco tinnunculus</i>	8	R
	<i>Alektoris chukar</i>	4	R
	<i>Pterocles orientalis</i>	13	BM
	<i>Columba livia</i>	3	R
	<i>Athene noctua</i>	7	R
	<i>Merops persicus</i>	17	B
	<i>Galerida cristata</i>	70	R
	<i>Calandrella brachydactyla</i>	99	BM
	<i>Calandrella rufescens</i>	144	BMW
	<i>Anthus campestris</i>	3	BM
	<i>Motacilla alba</i>	22	MW
	<i>Motacilla personata</i>	5	B
	<i>Lanius excubitor</i>	6	R
	<i>Pica pica</i>	2	R
	<i>Corvus frugilegus</i>	200	R
	<i>Corvus cornix</i>	18	MW
	<i>Oenanthe oenanthe</i>	14	M
	<i>Oenanthe pleschanka</i>	2	B
	<i>Oenanthe deserti</i>	27	BM
	<i>Oenanthe isabellina</i>	147	BM
	<i>Phoenicurus phoenicurus</i>	2	M

Note: R – residents, W – wintering, M – migrant, B – breeding species.

It is important to note that in the spring, of the rare species listed in the Red Book of Uzbekistan [6], 2 species were discovered. These are the steppe eagle *Aquila nipalensis* and the golden eagle *Aquila chrysaetos*. Among the birds of prey, the *Circus cyaneus* and the *Circus aeruginosus*, the *Buteo lagopus*, the *Falco vespertinus* and the *Falco tinnunculus* were also recorded here. Among them, *Falco tinnunculus* is the most common species, and we consider the *Circus cyaneus* and *Circus aeruginosus* to be rare species, since we met them only once. And of the remaining 22 species, the most numerous species was the *Corvus frugilegus*. We met this colonial species only once, but in large numbers of 200 individuals. But we consider the most widespread species to be the *Oenanthe isabellina* (147), *Calandrella rufescens* (144), *Calandrella brachydactyla* (99) and *Galerida cristata* (70). Because we met them on every trip and at every observation point (Table 1).

The flight altitude of birds varied from 0-8 meters - small passerines, larks, 25-35 meters - small and medium-sized predators (Rough-legged Buzzard, Hen Harrier, Kestrel) to 150 meters (Steppe Eagle, Golden Eagle).

I would like to especially note that due to the absence of tall-trunked saxauls, which is a nesting site for birds of prey in the observation areas, we did not find their nest. According to shepherds, all tall-trunked saxaul trees were cut down by poachers. All available saxauls are young and will not hold a nest.

During the study, in addition to birds, we noted insects, reptiles - the *Testudo horsfieldi*, the *Agama sanguinolenta*, the *Eremias velox* and the *Psammophis lineolatus*. Among the mammals we often noted: the *Citellus fulvus* and the *Vulpes vulpes*. It should be noted that on the territory of Mount Sultan Uvais we saw one individual *Gazella subgutturosa* - a rare animal included in the Red Book of the Republic of Uzbekistan and the IUCN Red List.

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Rezyume: Ilmiy ishda 2021 yili bahor mavsumida Sulton Uvays tog' tizmasi va uning atrofiga olib borilgan ornitologik kuzatishlar natijalari bayon qilinadi. Bunda jumladan, mualliflar tomonidan Sulton Uvays tog' tizmasi bahorgi qushlar faunasining sistematik tarkibi, tarqalishi, soni va kelib-ketish xarakteri o'rganilgan.

Резюме: В научной работе описываются результаты проведенных в весенний сезон 2021 года орнитологических наблюдений в горах Султан Увайс и их окрестностей. При этом авторами изучен систематический состав, распространение, численность и характер пребывания фауны весенних птиц горы Султан Увайс.

Kalit so'zlar: Sulton Uvays tog'i, ornitologik kuzatishlar, bahorgi qushlar faunasi, sistematik tarkibi, tarqalishi, qushlar soni, kelib-ketish xarakteri, cho'l burguti, burgut, Qizil kitob.

Ключевые слова: гора Султан Увайс, орнитологические наблюдения, фауна весенних птиц, систематический состав, распространение, численность птиц, характер пребывания, степной орёл, беркут, Красная книга.

UDC 549.01.48

SOME WAY OF THE DECISION OF THE PROBLEM HARD INDUSTRIAL DEPARTURE

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Summary: *The Explored possibilities of the syntheses and practical application new stabilizer bore solution on base departure chemical enterprise of our republic. They are shown concrete areas of the practical application designed new stabilizer.*

Key words: *departure, conversion, salvaging, ecology, toxicity, viscosity, density, dispersing, boring, collector, bore hole.*

To ensure its existence, humanity must have food, water, shelter, clothing, etc. All this inevitably involves the formation of various types of waste that enter the environment. To avoid unnecessary and sometimes irreparable damage to the natural environment, such environmental impacts must be carefully planned. At the same time, it is necessary to combine the satisfaction of human needs at the expense of nature with the active protection of the natural environment from the consequences of human activity. As a rule, these goals are not mutually exclusive, although in some cases trade-off decisions must be made. Every day, 80% of the amount of water per inhabitant (0.6 tons) enters the city sewerage system; 150 tons of soot, fly ash and other air pollutants and 2000 tons of solid waste are generated. Theoretically, in urban conditions it is possible to avoid environmental pollution: obtain clean water from wastewater, and grow agricultural products on the sludge of wastewater. Even CO₂ and H₂O released during respiration could be converted into carbohydrates and oxygen with the help of plants and algae. However, according to the laws of thermodynamics, such an isolated existence of substances cannot continue indefinitely.

Any human activity has an impact on the total resources of the Earth. It would seem that as a result of such activities, the Earth's resources should dry up. However, we should not forget that the Earth constantly receives an influx of new energy, the source of which is the Sun [1].

Thus, human activities cause damage to the environment, regardless of their good intentions, and the task is to make the consequences of these activities the least harmful.

The main types of lithosphere pollution are solid household and industrial waste. On average, each city resident produces approximately 1 ton of solid waste per year, and this figure increases annually.

In cities, large areas are allocated for storing household waste. Waste should be removed promptly to prevent the proliferation of insects and rodents and to prevent air pollution. Many cities have factories for processing household waste, and complete recycling of waste allows a city with a population of 1 million people to receive up to 1,500 tons of metal and almost 45 thousand tons of compost per year, a mixture used as fertilizer. As a result of waste disposal, the city becomes cleaner; in addition, due to the freed up areas occupied by landfills, the city receives additional territories. A properly organized technological landfill is a storage of solid household waste that provides for constant, albeit very long-term, waste processing with the participation of atmospheric oxygen and microorganisms. At household waste incineration plants, along with neutralization, a maximum reduction in their volume occurs (up to 90% of the original). However, it is necessary to take into account that waste incineration plants themselves can pollute the environment, therefore, when designing them, it is necessary to provide for the treatment of emissions into the environment.

In Japan, a country of high everyday culture, polyethylene waste is collected in special containers, which are then pressed and used to create islands in the Pacific Ocean for the disposal of currently non-recyclable waste (for example, nuclear waste).

In many European countries, containers for cans and bottles of different colors are installed near large stores. Experts have calculated that a glass factory in a city with a population of 0.5–1.0 million people can operate a glass factory using raw materials collected in this way for a year [2].

As a result of human industrial activity, soil pollution occurs, which leads to the destruction of land suitable for agriculture. The main types of industrial waste are slag from thermal power plants and metallurgical plants, rock dumps from mining enterprises and mining and processing plants, construction waste, etc. A special group includes soil pollution with petroleum products and other chemicals (in aviation and other technologies, these are solid sediments from galvanization and metal etching products), which have a detrimental effect on soil microorganisms and the root system of plants.

Iron-containing slurries from the iron and steel industry, for example, contain more iron than the mined ore. At the same time, the building materials and construction industry produces and consumes 3.5 billion tons of non-metallic raw materials annually, most of which can be replaced by waste. The economy of our republic also suffers huge losses associated with waste storage. As a result, huge amounts of money are spent just on transporting 1 ton of waste and maintaining dumps. The construction of combined production facilities and separate technological installations for waste processing is especially advisable in industrial areas with a great need for building materials, products, and structures. For example, by the method of catalyzed glass crystallization.

Table 1

Chemical composition of Navbakhor clay containing phosphogypsum

Substance	Na ₂ O	MgO	Al ₂ O ₃	SiO ₂	K ₂ O	CaO	TiO ₂	MnO	Fe ₃ O ₃	CuO
Sod., % mass.	0,72	98	16,43	63,90	2,90	1,29	1,33	0,47	0,24	0,74

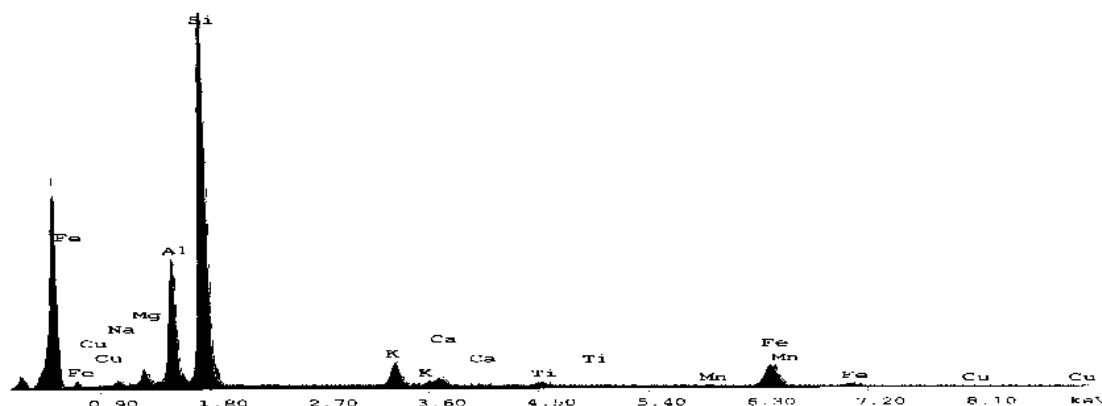


Fig. 1. Chemical composition of Navbakhor clay containing phosphogypsum

We used microwave-modified Navbakhor clay as a filler, containing phosphogypsum - a waste product of Maham-Ammophos OJSC. The resulting stabilizer is a fine powder with a number of valuable properties that determine its scope of application: high degree of dispersion; high chemical resistance in different environments; well-developed active specific surface area; environmental friendliness and safety of use.

The physicochemical properties of the original clay (IGC) and the resulting stabilizer-reagent are given in Table. 2.

Table 2
Physico-chemical properties of clay

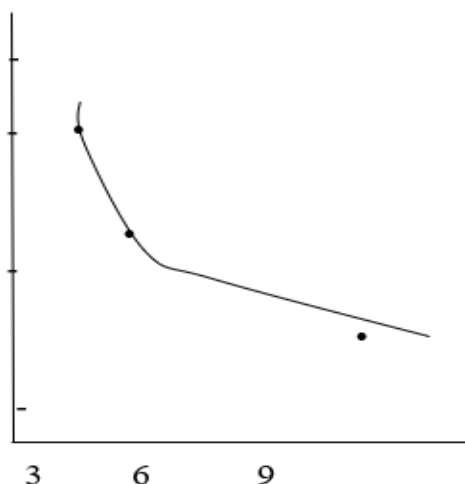
Product	Color	pH	Density, kg/m ³	Bulk volume, m ³ /kg	Size particles, mm	Specific surface, m ² /g
IPG	sandy	5,65	1420	816	0,1-0,315	196,98- 53,96
SBN- processed	brick	4,83	1289	731	0,05-0,1	211,2-67,06

We have conducted experimental studies on the use of microwave-modified clays containing phosphogypsum and lime waste as a stabilizer for drilling fluids. Laboratory studies of the properties of modified clay during drilling processes have shown that microwave treatment of natural clay increases its specific surface area, while the sorption area decreases. In accordance with the size of the sorption area, we can conclude that as a result of the sorption of the active components of the drilling fluid on the surface of clay sorbents, a monolayer is formed consisting of adsorbed molecules, the number is very small and is caused only by the dissociation (at certain pH values of the environment) of functional groups - SiOH–AlOH and SiOH–ROH formed on the crystal faces. A large negative charge is concentrated mainly on the basal surface of elementary packets and is neutralized by exchangeable cations of alkali and alkaline earth metals, located mainly in the interpacket spaces and in the form of aqua complexes that communicate between the packets. Clay minerals are highly dispersed, have a developed surface and are good stabilizers of drilling fluids.

It has been experimentally revealed that drilling fluid containing a new stabilizer has high lubricity. By lubricating the surface of pipes, bit supports, and hydraulic equipment, the solution helps reduce energy costs for drilling and reduce accidents with drill strings, which is especially important in rotary drilling.

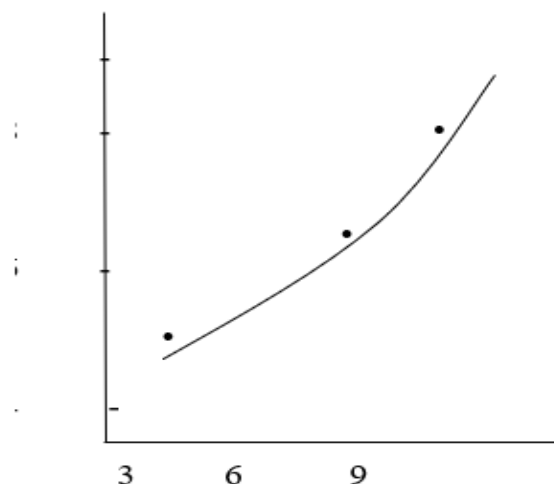
With an increase in the amount of stabilizers we have developed introduced into the composition of drilling fluids, the liquid base of drilling fluids becomes low-viscosity (Fig. 2) and has a low surface tension at the boundary with rocks, the concentration of clay particles in the solid phase of the solution is reduced to a minimum, and the volume-weighted average density value solid phase increases (Fig.2), in addition, drilling fluids are non-dispersing under the influence of changing thermodynamic conditions in wells and have stable indicators, and the aggressiveness and corrosiveness of drilling fluids is reduced, i.e. they become chemically neutral in relation to the drilled rocks and do not cause swelling and corrosion of metal parts of drilling rigs and bits. The performance of these functions depends on the interaction of the solution with the passable rocks. The nature and intensity of this interaction are determined by the nature and composition of the dispersion medium.

As can be seen from Fig. 3. with an increase in the amount of stabilizer introduced into the composition of drilling fluids, the density of the drilling fluid increases, which, together with other technological factors and techniques, provides sufficient back pressure on the passable formations, but at the same time it does not worsen the operating conditions of the bit and the operational characteristics of productive horizons and does not lead to complications. Density is also one of the main factors ensuring the stability of the well walls. With its increase, the intensity of slides and shaft collapses, as a rule, decreases, while another type of danger of complications - absorption of drilling fluid - also decreases. Therefore, the introduction of new stabilizers increases the stability of the well walls, the filtration rate, and the salinity of the drilling fluid. And a decrease in the viscosity of drilling fluids (Fig. 2) leads to an increase in the penetration of the drilling fluid filtrate into the pores of the rock due to filtration, osmosis, etc.



Stabilizer quantity, M

The influence of the amount of added stabilizer on the viscosity of the drilling fluid.



Stabilizer quantity, M

The influence of the amount of added stabilizer on the density of the drilling fluid.

An important technological quality of drilling fluid is keeping the particles in it in suspension, especially during circulation breaks. As the rheological characteristics of the drilling fluid increase, its holding capacity increases. However, this increases energy costs and time spent on circulation, and significant pressure fluctuations in the well occur during tripping operations, which can cause other complications.

The results obtained can be used in the production of stabilizing reagents, which can be used as components for quickly dispersing drilling fluid concentrates in water, as well as for other compositions with other end uses. The development involves the production of stable aqueous suspensions characterized by optimal rheological properties and making it possible to obtain such drilling fluid concentrates that quickly disperse in water. This results in a number of practical advantages, including the ability to produce and store a dry product, a powdered drilling fluid concentrate, which can later be easily redispersed during the production of drilling fluids. Dry powdered redispersible drilling fluid concentrates reduce the cost of transported materials.

Thus, we have developed new highly effective and affordable drilling fluid stabilizers based on waste from chemical enterprises of our republic and secondary local resources.

The main applied, physicochemical and rheological properties of drilling fluids have been identified. The practical application of the development can solve many economic and technological problems of the industry.

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Rezyume: *Respublikamizning kimyo korxonalari chiqindilari asosida burg'ulash suyuqliklari uchun yangi stabilizatorlarni sintez qilish va amaliyotda qo'llash imkoniyatlari o'rganildi. Ishlab chiqilgan yangi stabilizatorlarni amaliy qo'llashning o'ziga xos yo'nalishlari ko'rsatilgan.*

Резюме: *Исследованы возможности синтеза и практического применения новых стабилизаторов буровых растворов на основе отходов химических предприятий нашей республики. Показаны конкретные области практического применения разработанных новых стабилизаторов.*

Kalit so'zlar: *chiqindilar, qayta ishlash, utilizatsiya qilish, ekologiya, zaharlilik, yopishqoqlik, zichlik, disperslik, burg'ulash, rezervuar, quduq.*

Ключевые слова: *отход, переработка, утилизация, экология, токсичность, вязкость, плотность, дисперсность, бурение, коллектор, скважина.*

PRIORITY AREAS FOR IMPROVING THE MECHANISM OF STATE SUPPORT FOR ATTRACTING INVESTMENTS

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Summary: *this article will discuss the advantages of improving the mechanism of state support for attracting investments, as well as improving the prospects for its development. The existing problems in the prospects for the development of investment attraction in our country, as well as the author's approaches and proposals for their elimination are also presented.*

Keywords: *investor, portfolio investments, securities, stock market, corporate securities, bonds, financial market, financing methods.*

Introduction: In recent years, attracting foreign investments has become a pivotal focus for the government of Uzbekistan, aiming to implement projects in various sectors, support foreign investors, and strengthen the mechanisms for investment appeal. This strategic initiative is particularly vital for enhancing the economic self-sufficiency of the country and advancing overall socio-economic development.

Significance of Investment: Investments, both domestic and foreign, play a crucial role in fostering economic growth, creating new jobs, and improving the overall economic landscape. Uzbekistan, recognizing the importance of investment, especially foreign investment, has prioritized the development and implementation of projects that contribute to economic advancement and the creation of a favorable business environment.

Presidential Emphasis: President Sh. Mirziyoyev has underscored the significance of investment in the economic development of Uzbekistan. He emphasized the need for a proactive approach to attract and support foreign investors, stating that economic growth should not solely rely on traditional methods but should adapt to the changing global economic landscape.

Objectives of Investment Strategy: The primary goals of the investment strategy include boosting economic growth, ensuring financial sustainability, and facilitating the creation of new industries and jobs. The government's commitment to these objectives reflects its dedication to fostering a resilient and self-reliant economy.

Challenges and Opportunities: While foreign investments present numerous opportunities for economic development, challenges such as security, competition, and logistics must be addressed. By overcoming these challenges, Uzbekistan can capitalize on the advantages of foreign investments and leverage them for sustainable economic growth.

Trends in Investment: Current trends highlight the significance of mobile commerce (M-commerce), the integration of artificial intelligence and analytics, and the growing emphasis on environmentally sustainable investments. Understanding and adapting to these trends are essential for staying competitive in the global investment landscape.

Future Outlook: The future of investment in Uzbekistan is promising, with a focus on technological innovations, market development, and regulatory improvements. The government aims to create an environment that encourages both local and foreign investors to participate in the country's economic progress.

Conclusion: The government's efforts to enhance the state support mechanism for attracting and strengthening foreign investments are pivotal for Uzbekistan's economic transformation. By fostering a conducive investment climate, addressing challenges, and staying abreast of global trends, Uzbekistan is poised for sustained economic growth and development.

Research Methodology: In research, various scientific abstractions, grouping, comparisons, retrospective and prospective analyses, empirical analyses, and other methods were utilized. The article

employs a comparative analysis approach to evaluate the global practices and progressive nations' investment attraction mechanisms, aligning them with the existing foundations in Uzbekistan.

Analysis and Findings: The contemporary strategy of Uzbekistan places a strong emphasis on implementing designated tasks, further developing socio-economic infrastructure, elevating living standards, and creating an investment-friendly environment conducive to effective local and foreign investment utilization.

Specifically, budgetary organizations are actively involved in the planning, construction, reconstruction, and equipping of projects, with a clear focus on economic and financial sustainability. Consolidated budget funds and other centralized resources are allocated for financial support, and meticulous documentation and evaluation processes ensure transparency and efficiency in resource allocation.

To enhance the effectiveness of resource allocation, the government has introduced measures to prevent the parallel development of projects and to discourage the selection of projects without appropriate documentation. The absence of completed project (or object) documentation and the absence of tenders for project (or object) selection without public tenders are identified as issues that need attention.

The political, socio-economic, financial, organizational, legal, environmental, and other factors collectively contribute to creating an investment environment that promotes transparency, reliability, and the achievement of economic goals. The President's approval of the "Resolution on the Implementation of the Investment Program for 2021-2023 in the Republic of Uzbekistan," on December 28, 2020, underscores the government's commitment to facilitating a conducive investment climate and driving economic growth.

Conclusion: The research methodology applied in this study, along with the analysis of Uzbekistan's investment mechanisms, emphasizes the importance of aligning with global practices. The findings suggest that Uzbekistan's current approach to investment aligns with international standards, contributing to the country's economic development and creating a favorable environment for both domestic and foreign investments.

Introduction: Based on the presented table, it is evident that over the past years, the total expenditure from the budget for the direction of socio-economic development amounted to 55,833.0 billion Uzbekistani som. The primary focus of these funds is on the social sector, with 19,413.3 billion som allocated, followed by investments in transportation infrastructure with 8,252.3 billion som. Additionally, substantial resources, amounting to 4,901.4 billion som, are earmarked for the construction, reconstruction, and rehabilitation of local, engineering-infrastructure, and other significant and diversified projects.

Allocation Analysis and Findings:

The analysis reveals that the investment focus is directed towards various sectors, with a significant portion devoted to social development. Investments in education, healthcare, and infrastructure demonstrate a commitment to enhancing the well-being of the population. Notably, the allocation for the development of small industrial zones and the provision of additional funds from the local budget for the engineering-communication network for small and young industrial zones amount to 348.7 billion som.

Growth Trends and Investment Efficiency:

The data indicates dynamic growth trends in investment utilization. The growth rate, which was 138.1% until 2019 and sharply decreased to 95.6% in 2020, has rebounded to 100.9%, showcasing a resilient upward trend. This signifies a sustained effort in efficiently utilizing investments and adapting to evolving economic circumstances.

Conclusion:

The government's strategic investment allocations reflect a commitment to fostering socio-economic development, especially in critical sectors such as education, healthcare, and infrastructure.

The evident growth in investment utilization efficiency indicates the adaptability and resilience of Uzbekistan's economic strategies to external challenges. The continued focus on diverse sectors aligns with the country's commitment to holistic development and prosperity.

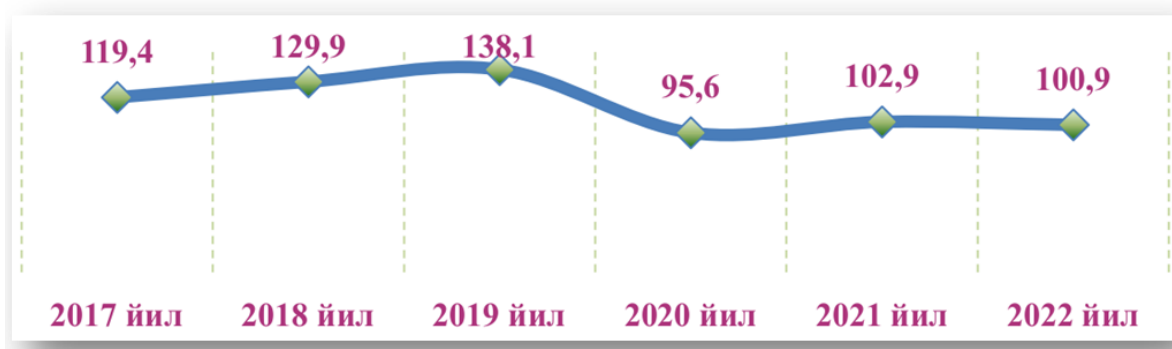


Figure 1. Dynamics of the growth rate of investment in fixed capital, in percent

Capital investment refers to a set of investments aimed at the purchase of new capital and the development of new capital. The dynamics of investment in fixed capital over the last 6 years shows that it has increased by 4 times and has a growing trend.

It is natural that the reduction of the state support for investment activity from the state budget will lead to the shift of the attention of the state investment policy to private structures: kopkhanalap, banklap and the population. In addition to the fact that the scope and number of subjects of investment activity in the private sector has increased, the role and position of the private sector in the investment activity is not able to overcome the role and role of the state in the economy.

The gradual transition of the system of financing investment activities to the responsibility of the non-state sector in Japan's economic modernization has a great influence on the organization and development of private, collective, joint ventures, as well as on the creative classification of the sources of financing investment activities.



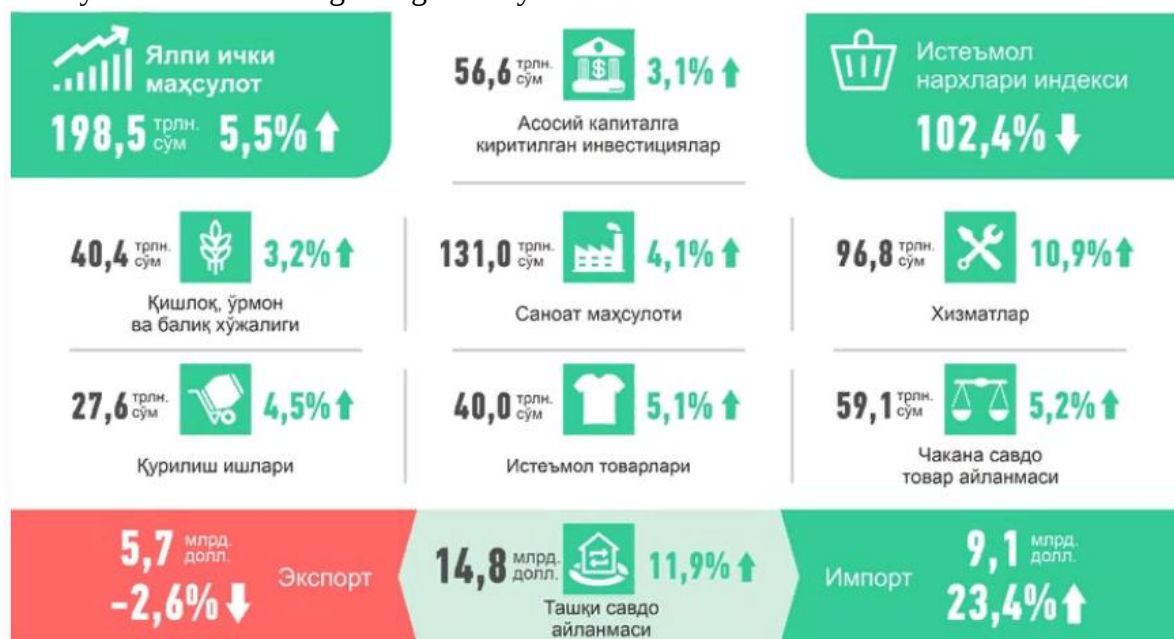
Pass 2. Funds attracted to the economy of our country

According to the mentioned information, in 2022, 59.1 percent of the capital investment or 159.6 tpln. 40.9 percent or 110.3 tpln were financed from the funds raised, while 40.9 percent or 110.3 tpln were financed from the own funds of kopkhana, organizations and residents. Sum was financed. In the total volume of investments, the share of investments in fixed capital financed from centralized financing sources decreased by 3.8 percentage points compared to 2021 and reached 15.4 percent or 41.5 tpln. amounted to soum. 228.4 tpln from the non-centralized funding source. Soums or 84.6

percent of the total investment was absorbed, which increased by 3.8 percentage points compared to 2021.

In the case of Uzbekistan, the state's involvement in Japan's investment will not continue to be dolzabp and zapupat. However, it is desirable that the state's cooperation in the investment activity should be carried out in a comprehensive manner, for example, on the basis of decentralization of investment and development of private financing sources and promotion of Ulap activity.

The gross domestic product (GDP) of Uzbekistan grew by 5.5% in the first quarter of 2023. In the neighboring country, the GDP growth rate accelerated in January-April compared to the first 3 months of last year. Thus, the economy grew by 4.9% in Kazakhstan and 4.6% in Kyrgyzstan. GDP growth in China was 4.5 percent. According to the calculation of the economic development of the Federation of Possia, in January-February, the gross domestic product of Possia decreased by 3.2% compared to the same period last year, inflation slowed down, and we can observe that the GDP increased by 1.7% since the beginning of the year.



Pass 3. The main macroeconomic multiplier of the Republic of Uzbekistan in the second half of 2023

In the first three months of 2023, according to the information from the Eurostat, Uzbekistan experienced a decline in inflation from 2.9% in January-March 2022 to 2.4%. The primary contributors to this decrease were food and non-alcoholic beverages, which decreased from 4.4% to 3.4%, non-food products decreased from 2.1% to 1.6%, and public services increased from 1.5% to 1.6%.

Simultaneously, the growth rate of investments in fixed capital slowed down from 26.3% in the first quarter of 2022 to 3.1%. The growth in the volume of state budget investments contributed to a 2.1% increase in the overall investment volume, while foreign investments and credits guaranteed by the state contributed to a 22% increase. Notably, non-allocated investments are expected to increase by 37%.

The overall analysis suggests that despite overall economic growth, there has been a slowdown in the manufacturing, construction, and service sectors, particularly in the first quarter of 2022.

In the initial three months of 2023, the production of industrial goods increased by 4.1%, compared to 5.7% in January-March 2022. Notably, the highest growth was observed in the production of electric energy, gas supply, and the purification of air and water, which increased by 5.4%. The

production volume of goods increased by 4.3%, and the growth rate in the textile industry accelerated by 2%, compared to 0.8% in the first quarter of 2022.

Overall, Uzbekistan's economy has shown resilience and maintained high growth rates. The country is actively seeking foreign investments, especially in sectors such as green economy, private-public partnerships, and industrial development. The government has implemented various measures to attract investments, including legal guarantees, the establishment of special technological parks, and the creation of additional incentives.

The President outlined several key directions for future development, including the "Green Economy," privatization of state-owned assets, enhancement of cooperation with foreign investors, industrial development, and collaboration with neighboring countries. These initiatives are expected to create ample opportunities for investors, providing specific projects in the areas of energy, infrastructure, technology, and industry.

The President also emphasized the importance of continued improvement in the banking sector, particularly in aligning investment portfolios with the economic priorities of the country. International organizations, such as the World Bank and the International Monetary Fund, have expressed confidence in Uzbekistan's economic growth, forecasting a positive outlook for the upcoming years.

In conclusion, Uzbekistan's economic resilience, coupled with its efforts to attract foreign investments and diversify its industries, positions the country as an attractive destination for investors. The recent initiatives, including the "Green Economy" and privatization projects, further demonstrate Uzbekistan's commitment to sustainable development and economic progress.

Our country is actively pursuing various strategies and initiatives in the field of business and investment, with an open and transparent policy framework. This has led to close collaboration with international financial institutions and organizations such as the World Bank, Asian Development Bank, Islamic Development Bank, European Reconstruction and Development Bank, and the Asian Infrastructure Investment Bank. The cooperation with these global financial institutions reflects the broad commitment of our country to develop a robust mechanism for supporting investment and fostering economic growth.

The Republic of Uzbekistan has been successful in attracting investment from a diverse range of countries, showcasing the effectiveness of our proactive foreign policy. Close collaboration with international financial institutions and organizations, such as the World Bank, Asian Development Bank, Islamic Development Bank, European Reconstruction and Development Bank, and the Asian Infrastructure Investment Bank, is a crucial aspect of the country's comprehensive financial and economic strategy.

In the quest to enhance the investment climate and facilitate investment inflows, the country is currently working on the improvement and implementation of mechanisms to support investment at the state level. The results of the active external policies and the consistent efforts to attract investments are evident in the geographical diversity of the countries contributing to investments in Uzbekistan.

The active involvement of various national and international financial institutions and organizations, including the World Bank, Asian Development Bank, Islamic Development Bank, European Reconstruction and Development Bank, and the Asian Infrastructure Investment Bank, indicates a significant collaboration to strengthen and implement mechanisms supporting investment at the state level. The successful outcomes of these collaborative efforts have widened the geographical scope of investment in our country.

Efforts are underway to streamline and improve the mechanism for state support in facilitating investment inflows. A newly implemented project aims to directly address the issue of assessing the effectiveness of ongoing external policies in attracting investments and to standardize the evaluation process for investment projects.

In the context of infrastructure development for investment promotion, the Republic of Uzbekistan recognizes the importance of addressing environmental concerns in the implementation of engineering

communication systems, transport, and communication networks. The focus on ecological considerations is crucial for the sustainable development of infrastructure, ensuring that the necessary precautions are taken in the development of engineering communication systems and transportation networks.

Today, the Republic of Uzbekistan considers the resolution of these challenges as a vital element in its efforts to ensure a conducive investment climate and sustainable economic development. The country places a high priority on developing its investment infrastructure, including engineering communication systems, transportation, and communication networks.

In conclusion, the Republic of Uzbekistan is actively addressing the challenges associated with investment promotion and is making significant strides in creating a supportive and transparent environment for investment. The ongoing initiatives, particularly in the realm of infrastructure development, reflect the commitment of the country to foster a robust investment climate and position Uzbekistan as an attractive destination for global investors.

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Rezyume: ushbu maqolada investitsiyalarni jalb qilishni davlat tomonidan qo'llab-quvvatlash mexanizmini takomillashtirish, shuningdek uni rivojlantirish istiqbollarini yaxshilashning afzalliklari ko'rib chiqilgan. Mamlakatimizda investitsiyalarni jalb qilishni rivojlantirish istiqbollaridagi mavjud muammolar, shuningdek, muallifning yondashuvlari va ularni bartaraf etish bo'yicha takliflari keltirilgan.

Резюме: в данной статье рассмотрены преимущества совершенствования механизма государственной поддержки привлечения инвестиций, а также улучшения перспектив его развития. Также представлены существующие проблемы в перспективах развития привлечения инвестиций в нашей стране, а также авторские подходы и предложения по их устранению.

Kalit so'zlar: investor, portfel investitsiyalari, qimmatli qog'ozlar, fond bozori, korporativ qimmatli qog'ozlar, obligatsiyalar, moliya bozori, moliyalashtirish usullari.

Ключевые слова: инвестор, портфельные инвестиции, ценные бумаги, фондовый рынок, корпоративные ценные бумаги, облигации, финансовый рынок, методы финансирования.

IMPROVING THE PRACTICE OF CREDITING FOREIGN TRADE BY COMMERCIAL BANKS: FOREIGN COUNTRIES EXPERIENCE

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Summary: *The article is based on the experience of foreign trade in improving the lending practices of commercial banks and the proposal to introduce forfeiting loans based on the guarantee of commercial banks to the practice of financing foreign trade activities of companies and the feasibility of increasing the use of forms of state guarantee of export loans and bonification of interest rates of financial support.*

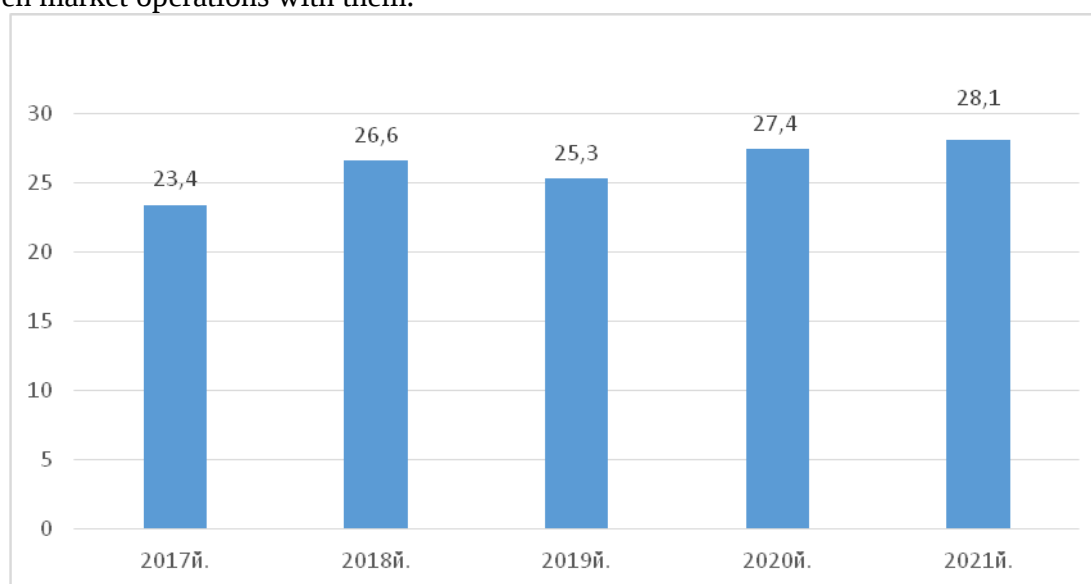
Keywords: *foreign trade, resource base, banking practice, liquidity, norm coefficient, discount credit, settlement, service provision, export, import, documented letter of credit, incasso, subsidy, exchange rate, financing.*

In the banking system of developed countries, the practice of serving foreign trade has been improved, and it is of great practical importance to evaluate the possibilities of using this experience in the banking practice of Uzbekistan.

Sufficient resource base and liquidity of commercial banks in foreign countries have a fully ensures the possibility of lending them to agricultural producers. In particular, the integration of the Basel-III standard, which embodies the Basel Committee's new requirements for Banking Supervision, into US, Japanese and European Banking Practice, increases the liquidity of commercial banks, served to strengthen the resource base. It was in banks that The introduction of the liquidity compensation norm coefficient made it possible to increase the liquidity level of banks, while the introduction of the coefficient of the net stable financing norm served to strengthen the resource base of banks.

It is one of the traditional types of services provided to foreign trade by commercial banks of progressive countries and is a lending service.

It should be noted that in progressive countries, central banks, for example, provide discount loans to commercial banks that provide financial services to agriculture, to ensure liquidity, as well as carry out open market operations with them.



1- Figure

The share of loans issued for the purpose of financing foreign trade in the total volume of loans from Barclays bank (UK), in percentage¹

It can be seen in Figure 1 that loans to the purpose of financing foreign trade occupy a relatively high salute in the total volume of Barclays bank loans. This suggests that foreign trade lending is one of the priorities of Barclays bank lending activities.

It is another of the traditional types of services provided to foreign trade by commercial banks in progressive countries, and is an accounting service.

For example, in U.S. banks, the practice of providing settlement service to foreign trade through a documented letter of credit has been improved, with stand-bay letters of credit occupying a high swing in the volume of letters of credit being opened by banks.

A key aspect of stand-bay letters of credits is that commercial bank is liable for payment only when the payer has become insolvent to the payment.

Table 1.

The amount of letters of credit opened by the Bank of America (USA) and the balance of stand-bay letters of credit in their volume²

Indicators	Years					Changes from 2021 to 2017
	2017	2018	2019	2020	2021	
Documented letters of credit opened by the Bank, in million dollars	28674	30198	33550	34961	32074	111,8%
The share of reserve letters of credit in the total volume of documented letters of credit, %	87,6	89,3	94,3	95,1	90,6	3,0 ф.п.

According to the Table 1 the total volume of letters of credit opened by the Bank of America in 2017-2021, the balance of stand-bay letters of credit was very high. This suggests that stand-by is the primary type of letter of credit for U.S. banks.

Also in 2021, there was an increase in the amount of letters of credit opened by the Bank of America compared to 2017, and a slight increase in stand-by letters of credit in the volume of these letters of credit.

The full guarantee of payment in documented letters of credit increases the attractiveness of this form of international accounting for import enterprises. Commercial banks, on the other hand, receive a commission income at a higher rate for opening a documented letter of credit.

Common types of services provided by commercial banks to foreign trade are forward Service, Currency Swap, and foreign exchange options.

Table 2.

Composition of derivative services provided by Barclays bank (UK) to foreign trade entities³

¹ This picture is formed by author on the basis of the data of the site Barclays PLS. Annual Reports. www.barckays.com

² This Table is formed by author on the basis of the data of the site Barclays PLS. Annual Reports. www.barckays.com

³ This Table is formed by author on the basis of the data of the site Barclays PLS. Annual Reports. www.barckays.com

Indicators	Years				
	2017	2018	2019	2020	2021
forward services, in million pounds	25670	25504	31883	17613	32442
Share in the volume of derivative services, %	43,3	42,9	42,9	32,2	41,1
Currency swap service, in million pounds	28007	27138	32209	30703	40083
Share in the volume of derivative services, %	47,3	45,6	43,3	56,1	50,8
Foreign exchange option services	5581	6858	10267	6436	6338
Share in the volume of derivative services, %	9,4	11,5	13,8	11,7	8,1

From the data presented in Table 2, it can be seen that in the total volume of derivative services provided by Barclays bank to foreign trade entities, the Currency Swap and Forward Services occupy a high swing. Currency options, on the other hand, occupy a small share in the volume of derivative services. This is due to the fact that, firstly, the low returns associated with forward transactions and currency swaps are balanced, and secondly, currency options are an expensive type of service for the client.

The development of international trade is taking place in an environment of fierce market economy competition from companies. Companies have developed a variety of competitive fighting tools to encourage sales, including a greater emphasis on their side, which is relatively less cost-effective than competitors when buying products by buyers. In this case, great attention is paid to the tools used during the sale of goods in the foreign market, therefore, the means of financial support for exports (EMQQ) play an important role in the development of international turnover. By encouraging the formation of additional demand in the market by borrowers, they promote an increase in World Trade. The conditions of financial support for exports are an important factor in the competitive struggle for the trade market. These tools began to be widely used in the post-World War II era. From the beginning of the 1960s, their application became the norm of international trade in many goods, first of all machinery and equipment.

In developing countries, a number of financial instruments are used in the financial incentives of the state for the export of agricultural products.

Export loans of commercial banks occupy an important place in the financing system for the export of agricultural products in developed countries.

We will analyze the export lending practices of Rabobank, the main Dutch bank that provides financial services to agriculture, below.

Table 3.

Indicators characterizing the practice of lending to agriculture and agricultural exports in Rabobank, Netherlands⁴

Indicators	2019 y.	2020 y.	2021 y.
Loans-total, in billion euros	432,6	454,5	469,8
Including: - loans to agriculture, in billion. euro	97,8	103,1	107,2

⁴ This Table is formed by the author on the basis of the data of the Rabobank. www.rabobank.com (Sustainability facts and figures)

The balance of loans to agriculture in the volume of brutto loans, %	22,6	22,7	22,8
The balance of loans for the export of agricultural products in the total volume of loans for agriculture, %	5,7	6,4	7,1

According to the Table 3, the amount of loans made by Rabobank and the amount of loans made to agriculture had a growing trend in 2019-2021.

Table 3 data shows that in 2019-2021, the balance of loans to agriculture in the volume of brutto loans remained at a high and stable level. This is considered a positive case in terms of the development of agricultural lending.

In this period there was a tendency to increase the share of loans for the export of agricultural products in the total volume of loans for agriculture. This is a positive case in terms of improving the practice of financing the export of agricultural products.

For example, in Russia, accreditation, discounting and factoring have been added to the practice of issuing export credits in order to increase the volume of export credits issued by commercial banks to exporting enterprises. The maximum amount of financing for export projects has been increased from the current 7 billion rubles to 15 billion rubles.⁵

It is significant that the letters of credit used in the practice of export lending in Russia are unsecured letters of credit, and foreign exchange funds belonging to exporting companies do not go beyond their economic turnover. On top of that, there is a state guarantee on these letters of credit.

Discounting allows exporter enterprises to increase the level of stability of cash flow. This is because exporter companies can purchase commodity documents or commercial promissory notes to a commercial bank for a certain discount and have cash.

The following conclusions were formulated on the ongoing research of foreign experience in improving the lending practice of foreign trade of commercial banks.

- the practice of export lending of commercial banks must be financially supported by the state and in this case, it is necessary to use the forms of state guarantee of export loans of financial support and bonification of interest rates;

- a prerequisite for ensuring the effectiveness of agricultural export lending is the state reimbursement (bonification) of part of the percentage of loans issued by commercial banks for the purpose of financing exports.

An analysis of the foreign experience of companies in improving the practice of lending to foreign trade activities has shown:

- Loans for the purpose of financing foreign trade in 2017-2021 occupy a relatively high balance in the total volume of Barclays bank loans, and this situation indicates that foreign trade lending is one of the priorities of Barclays bank lending activities;

- In 2017-2021, in the total volume of derivative services provided by Barclays bank to foreign trade entities, currency swap and forward Services occupy a high salute, while currency options occupy a small salute in the volume of derivative services;

- In 2019-2021, Rabobank experienced a trend in the growth of the total volume of loans for agricultural exports of agricultural products, and this situation is a positive one in terms of improving the practice of financing the export of agricultural products.

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Rezyume: maqolada tijorat banklarining tashqi savdoni kreditlash amaliyotini takomillashtirishda xorij tajribasi va kompaniyalarining tashqi savdo faoliyatini moliyalashtirish amaliyotiga tijorat banklarining kafolatiga asoslangan forfeyting kreditlarini joriy etish taklifi va moliyaviy qo'llab-quvvatlashning eksport kreditlarini davlat tomonidan kafolatlash va foiz stavkalarini bonifikatsiya qilish shakllaridan foydalanish hajmini oshirishning maqsadga muvofiqligi asoslab berilgan.

Аннотация: Статья основана на опыте внешней торговли по совершенствованию практики кредитования коммерческих банков и предложении ввести в практику финансирования внешнеторговой деятельности компаний форфейтинг кредитов, основанных на гарантии коммерческих банков, а также целесообразности расширения использования форм государственной гарантии экспортных кредитов и бонификации процентных ставок.

Kalit so'zlari: tashqi savdo, resurs baza, bank amaliyoti, likvidlilik, me'yori koeffitsient, diskont kredit, hisob-kitob, xizmati ko'rsatish,eksport, import, hujjatlashtirilgan akkreditiv, inkasso, subsidiya, valyuta kursi, moliyalashtirish.

Ключевые слова: внешняя торговля, ресурсная база, банковская практика, ликвидность, нормативный коэффициент, дисконтный кредит, расчеты, предоставление услуг,экспорт, импорт, документированный аккредитив, инкассо, субсидия, обменный курс, финансирование.

ANALYSIS OF STRUCTURAL CHANGES IN BENTONITES DEPENDING ON THE VALUE OF CATION EXCHANGE CAPACITY

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Summary: *This article provides a detailed analysis of the structural and porous properties of bentonites, differing in terms of cation exchange capacity (CEC). The study includes X-ray diffraction analysis to determine interlayer spacing and the use of low-temperature nitrogen adsorption to assess the porous structure. Significant differences in micro- and mesoporosity between samples, which correlated with their CEC. These data provide important information on the relationship between the cation exchange properties and textural characteristics of bentonites, which could be crucial for their applications in various fields.*

Key words: *bentonite, cation exchange capacity, X-ray phase analysis, adsorption, desorption, specific surface area, pore volume, pore radius.*

Introduction

Bentonites are a widely distributed natural material, representing an expanding structure aluminosilicate. The study of bentonites is of significant relevant, especially in light of their wide application in industry and technology. Bentonites are used in a various fields, including wastewater treatment, the oil and gas industry, as well as in agriculture and medicine. Their unique adsorption and binding properties make them ideal for purifying and stabilizing a variety of substances. Therefore, the study of their structural and chemical properties, as well as the development of new methods for their modification and improvement, is important for the development of effective and environmentally friendly solutions in these areas [1-3].

Clay minerals have unique crystalline structure, which consists of two main types of layers: tetrahedral and octahedral. The tetrahedral layer is formed by tetrahedra linked by silicon and oxygen, creating a hexagonal structure. The octahedral layer consists of an atom, usually aluminum, surrounded by oxygen atoms or hydroxyl groups. There are two-layered clay minerals, consisting of a combination of these two types of layers, and three-layered clay minerals, which include an additional octahedral layer, as in illite and montmorillonite. According to research [4-6], clay structures are often distorted to fit the size of mineral cells. The interlayer space in these minerals can be either electrically neutral or charged. In cases where the layers are charged, additional cations such as K^+ , Na^+ , Mg^{2+} , Ca^{2+} are introduced into the interlayer space in order to achieve electroneutrality. These cations compensate for the excess negative charge and ensure the stability of the mineral [7].

Studying the structural characteristics of bentonites with different levels of cation exchange capacity (CEC) is crucial importance, considering their extensive use in areas such as water purification, oil processing, oil extraction, food industry, pharmaceutilas and others. The variability of CEC influences the efficiency of adsorption of various substances by bentonites (molecules, ions). Therefore, understanding the relationship between the structure of bentonite and its adsorption properties is important for the development of new materials and improvement of technologies [8-10].

The main task of this research is to determine the structure of bentonite samples, which differ in their values of cation exchange capacity (CEC).

Experimental part

The object of study was an enriched form of bentonite clay (BC) with a CEC value of 104 mg*eq/100 g. As part of the research, montmorillonite samples with different levels of CEC were used. The determination of

CEC was carried out according to the method described in [11], which made it possible to more accurately measure the cation exchange capacity. To achieve different CEC values, the exchange of Na^+ ions for Li^+ was used, according to the method from [12]. As a result, samples with CEC of 86 and 70 mg Eq/100 g were obtained, designated as MM86 and MM70.

The mineralogical composition of bentonite samples was analyzed using X-ray diffraction methods (Shimadzu XRD-6100 diffractometer using CuK α radiation).

In this study, the low-temperature nitrogen adsorption method at 77 K was used to analyze the porosity of bentonites. The samples were subjected to pre-vacuum treatment at 100°C for 12 hours before adsorption measurements. BET, Langmuir, DH, DR, t-plot, As-plot and BJH methods were used to analyze adsorption/desorption curves and determine pore characteristics, including micro- and mesopore volumes. The pore size distribution was studied using density functional theory and the BJH method, and the average pore diameter was calculated through the volume of adsorbed nitrogen.

Results and Discussion

Figure 1 demonstrates diffraction patterns of selected bentonite samples. The analysis indicates that differences in the cation exchange capacity of the samples lead to changes in the interlayer spacing. The main peak d001 for samples MM and MM86 is located at 1.261 nm and 1.253 nm, respectively. In the case of the MM70 sample, a shift of the peak to a higher 2θ angle is observed, which corresponds to a smaller interlayer distance of approximately 1.199 nm. It is assumed that a decrease in the concentration of hydrophilic cations leads to a reduction in the volume of interlayer water, which leads to a decrease in the interlayer distance. This may indicate the loss of a part of the bound water and a change in the pore space by montmorillonite, which in turn affects the acidity of the surface [13].

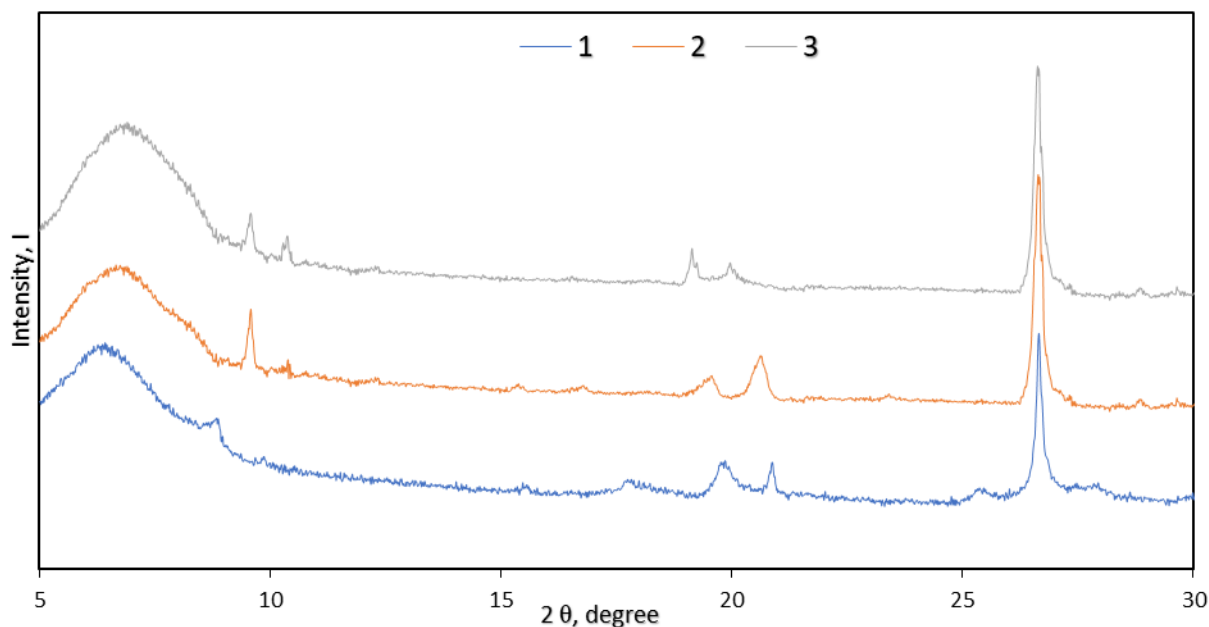
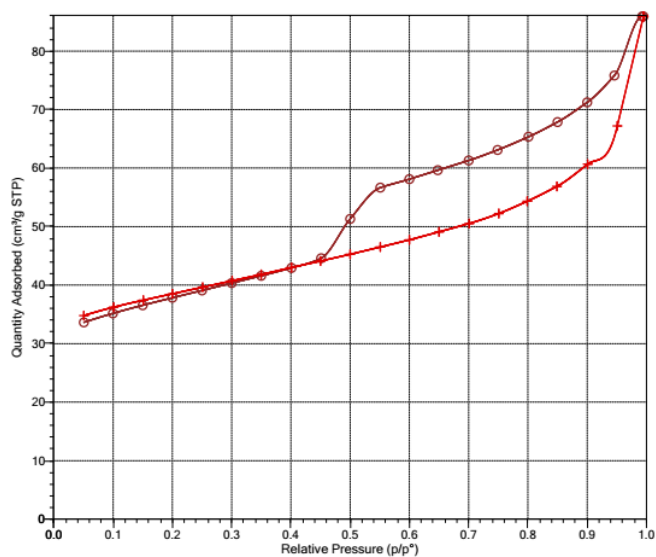
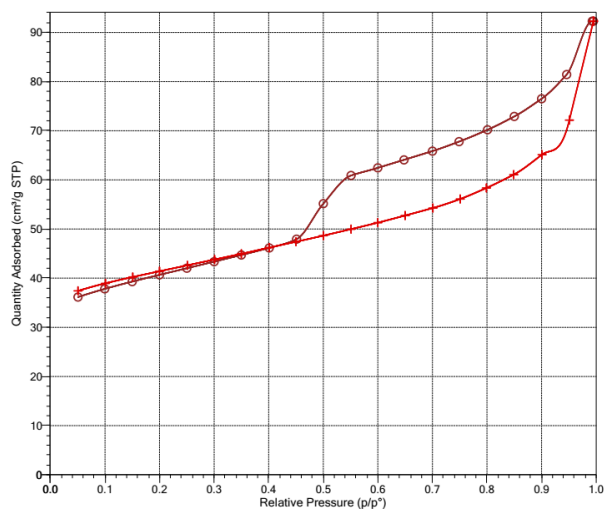


Figure . 1. X-ray diffractograms of samples: 1) BK; 2) MM86; 3) MM70.

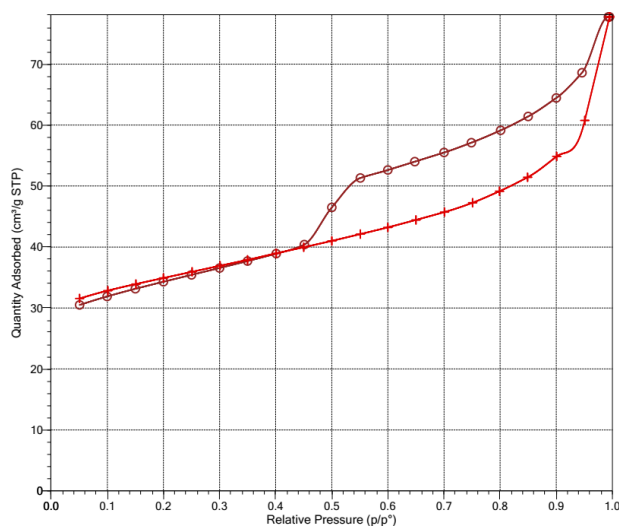
Low-temperature nitrogen adsorption is a key tool for assessing the porosity of materials, allowing the determination of pore size, shape and distribution at the micro- and meso-levels. A detailed study of the textural characteristics will allow us to better understand the mechanisms by which organic cations interact and modify the interlayer space of bentonite.



A)



B)



C)

Fig. 2. Isotherms of adsorption and desorption of nitrogen on: a) mm; c) mm86; C) MM70.

Nitrogen adsorption isotherms on the studied samples are shown in Figs. 2, and in table. 1 shows the parameters of the porous structure based on the obtained isotherms.

Table 1.

Table 1. Texture characteristics of samples based on nitrogen adsorption and desorption

Sample	$S, \text{m}^2/\text{g}$	$t\text{-Plot}^*, \text{m}^2/\text{g}$	$V_a, \text{sm}^3/\text{g}$	$V_b, \text{sm}^3/\text{g}$	$R, \text{\AA}$
MM	53,0	0,9	0,039	0,09	44,6
MM86	57,1	1,0	0,040	0,09	44,1
MM70	48,1	0,9	0,033	0,08	44,7

* - outer surface; R – average pore size.

Analysis of the table Figure 1 of the textural characteristics of the samples based on nitrogen adsorption and desorption indicates differences in porosity and structure between three bentonite samples with different CFU values. Sample MM86 has the largest specific surface area according to the BET method and the volume of mesopores, which may indicate a more developed porous structure compared to MM and MM70. The observed decrease in the cation exchange capacity (CFU) of sample MM86 compared to enriched MM does not prevent it from demonstrating higher textural properties based on nitrogen adsorption data. This may be due to the reduced content of ions in the interlayer space of MM86, which, in turn, contributes to the formation of a more developed microporous structure that effectively participates in the processes of physical adsorption of nitrogen. MM70 shows the smallest specific and external surface area, which may be an indicator of lower porosity. The average size of pores and micropores is close for all samples, which indicates the similarity of their microstructural features. A decrease in the textural characteristics for nitrogen adsorption for the MM70 sample compared to MM and MM86 may indicate lower porosity and, as a consequence, a smaller specific surface area available for adsorption. This may be due to a more dense packing of the interlayer space due to fewer ions and fewer micropores in the MM70 structure, which reduces its ability to retain nitrogen [14, 15].

Conclusion

The study shows that differences in the CEC of bentonites influence their structural and porous characteristics. The lower CEC of sample BK86 compared to BK does not prevent the formation of a more developed microporous structure, contributing to improved nitrogen adsorption. While BK70 exhibits a decrease in porosity and specific surface area, which may be due to more dense packing of the interlayer space. These results highlight the importance of considering cation exchange properties when developing bentonites for specific applications.

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Rezyume: Ushbu maqolada kation almashish qobiliyati (CFU) bo'yicha farq qiluvchi bentonitlarning strukturaviy va g'ovakli xususiyatlarining batafsil tahlili keltirilgan. Tadqiqot qatlamlar oralig'ini aniqlash va gözenekli tuzilishni baholash uchun past haroratli azot adsorbsiyasini qo'llash uchun rentgen nurlari diffraksiya tahlilini o'z ichiga oladi. Namunalar orasidagi mikro va mezoporozlikdagi sezilarli farqlar aniqlandi, bu ularning CFU bilan bog'liq. Ushbu ma'lumotlar kation almashinish xususiyatlari va bentonitlarning tekstura xususiyatlari o'rtasidagi bog'liqlik haqida muhim ma'lumotlarni beradi, bu ularning turli sohalarida qo'llanilishi uchun kalit bo'lishi mumkin.

Резюме: В данной статье проводится детальный анализ структурных и пористых свойств бентонитов, различающихся по катионообменной емкости (КОЕ). Исследование включает анализ рентгенограмм для определения межслойного расстояния и использование низкотемпературной адсорбции азота для оценки пористой структуры. Обнаружены значимые различия в микро- и мезопористости между образцами, что коррелирует с их КОЕ. Эти данные предоставляют важную информацию о взаимосвязи между катионообменными свойствами и текстурными характеристиками бентонитов, что может быть ключевым для их применения в различных областях.

Kalit so'zlar: bentonit, kation almashish qobiliyati, rentgen fazali tahlili, adsorbsiya, desorbsiya, solishtirma sirt maydoni, g'ovak hajmi, g'ovak radiusi

Ключевые слова: бентонит, катионообменная емкость, рентгенофазовый анализ, адсорбция, десорбция, удельная поверхность, объем пор, радиус пор.

UDC 666.942

LOCAL RAW MATERIALS IN QUALITY RAW MATERIALS FOR CEMENT

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Summary: The results of a study of the chemical composition of technological samples of the “Dusshebulak” limestone, the “Sheikhdzhelil” gabbroic rock, the dune sand of the “Muynak” deposit and the brown ferruginous rock “Khujakul” are presented in order to determine their compliance with the requirements of O’z DSt 2950:2015 “Materials” raw materials for the production of Portland cement clinker. Technical specifications for the chemical composition of carbonate, aluminosilicate raw materials and igneous rocks used in the production of Portland cement clinker.

Key words: limestone, gabbroid rock, brown ironstone, dune sand, chemical composition, Portland cement clinker, Portland cement

Introduction: The northernmost territory of Uzbekistan is the Republic of Karakalpakstan, which occupies a vast territory and is characterized by a variety of climatic and geographical conditions

Due to the drying of the Aral Sea, the region is characterized by high salinity of soil and groundwater. Taking into account the above-mentioned factors, in this region it is advisable to use building materials that are resistant to the effects of mineral salts and climatic fluctuations. This region is located quite far from the main cement producers in Uzbekistan, so due to high transport costs, its cost rises sharply. The emergence of new local producers will eliminate this transport margin, which will make cement more accessible and cheaper [1-3]

Materials and research methods: The objects of the study were averaged samples of limestone from the Dusshebulak deposit, gabbroic rock from the Sheikhdzhelil site, dune sand from Muynak and brown ironstone from the Khujakul site.

The chemical compositions of raw materials are determined according to GOST 5382–91 “Cements and materials for cement production. Methods of chemical analysis” [4]. Their suitability for clinker production was assessed according to O’z DSt 2950:2015 “Raw materials for the production of Portland cement clinker. Technical conditions”[5].

Results and its discussion: For the purpose of preliminary study of the raw material base in the Karakalpakstan region, samples of limestone, gabbro rock, dune sand and brown ironstone were taken from various areas where raw materials occur. The chemical and mineralogical compositions of technological samples of limestone from the Dusshebulak deposit, gabbroic rock from the Sheikhdzhelil site, dune sand from Muynak and brown ironstone from the Khudzhakul site were determined. [2, 4]. The results of chemical analysis of samples of raw materials of the Republic of Karakalpakstan are given in table. 1.

Table 1. Chemical composition of samples of raw materials of the Republic of Karakalpakstan (in terms of 100%)

№	Sample names	calcin ation limit	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	CaO	MgO	SO ₃	Na ₂ O	K ₂ O	Σ
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1	Technological sample of limestone Dusshebulak field	42,84	3,50	2,48	2,05	48,01	1,12	-	-	-	100
2	Technological sample of greenish gabbro from the Sheikhdjeli site	4,92	47,14	19,62	9,67	11,49	2,54	1,11	1,27	1,24	100
3	Technological sample of brown ferruginous rock "Khudzhakul"	17,17	37,02	6,56	16,94	14,61	2,51	2,19	1,55	1,45	100
4	Dune sand of the Muynak deposit	6,00	84,68	2,75	1,55	-	1,6	0,11	1,68	1,63	100

The content of chloride ion in the gabbroic rock sample is 0.96%.

In addition, using a special technique it was determined that the melting temperature range of the gabbroic rock sample is (1190-1200)0C. The chemical composition of the studied raw materials complies with the regulation O'z DSt 2950:2015 "Raw materials for the production of Portland cement clinker. Technical conditions"[5].

Carbonate raw materials used in the production of Portland cement clinker must meet the chemical composition requirements given in Table. 2.

Table 2 - Requirements O'z DSt 2950:2015 (clause 5.1.3) for the chemical composition of carbonate raw materials for the production of Portland cement clinker

The name of indicators	Meaning indicator	Limestone Dusshebulak field
Mass fraction of calcium oxide (CaO), %, not less	45,0	48,01
Mass fraction of magnesium oxide (MgO), %, no more	4,0	1,12
Mass fraction of phosphorus oxide (P ₂ O ₅), %, no more	0,4	-
Mass fraction of alkali oxides (Na ₂ O+0.658K ₂ O), %, no more	1,0	-
Mass fraction of sulfuric acid anhydride (SO ₃), %, no more	1,5	-

Igneous rocks are the end products of magmatic activity caused by global and uneven heat and mass transfer from the mantle to the surface of the planet. Igneous melts originate in the lower crust and mantle due to a decrease in pressure and an increase in temperature. Being less dense in relation to the host formations, they tend to "float" to the surface. During the process of ascent, magma differentiates, resulting in the observed diversity of igneous rock compositions. If the melt reaches the surface, it erupts via an effusive or explosive mechanism[6].

Several genetic series of igneous rocks are distinguished, the composition of which evolves from the ancestral deep magma, separated from the solid phase of the mantle and deep crust[7].

The chemical composition of igneous rocks, which include gabbro, used as an aluminosilicate component, and brown iron ore as an iron-containing component, meet the requirements of O'z DSt 2950:2015, given in Table. 3.

Table 3 - Requirements O'z DSt 2950:2015 (clause 5.1.8) for the chemical composition of igneous rocks for the production of Portland cement clinker

The name of indicators	Meaning indicator	Gabbro rock of the Sheikhjeli site
Silicon oxide content (SiO_2), %, not less	38,0	47,14
Content of aluminum oxide (Al_2O_3), %, not less	8,0	19,62
Content of magnesium oxide (MgO), %, no more	10,0	2,54
Content of sulfuric acid anhydride (SO_3), %, no more	2,5	1,11
Content of alkali oxides ($\text{Na}_2\text{O}+0.658\text{K}_2\text{O}$), %, no more	6,0	2,51

The aluminosilicate raw material, which is proposed to be used as dune sand in the production of Portland cement clinker, meets the chemical composition requirements of O'z DSt 2950:2015 given in Table. 3.

When comparing the data given in table. 2-3, with the results of the chemical composition of the studied raw materials, it was established that, according to the content of regulated oxides, technological samples of limestone from the Dusshebulak deposit ($\text{CaO} = 48.01$; $\text{MgO} = 1.12$; $\text{SO}_3 = 0.0$; $\text{R}_2\text{O} = 0.0$)%, gabbro The rocks of the Sheikhjeli site ($\text{SiO}_2=47.14$; $\text{Al}_2\text{O}_3=19.62$; $\text{MgO}=2.54$; $\text{SO}_3=1.11$; $\text{R}_2\text{O}=2.51$)%, brown iron ore and dune sand fully comply with the requirements of O'z DSt 2950: 2015.

Based on the studies of the tested raw materials, the compositions of raw material mixtures and clinkers were calculated for the production of general construction and sulfate-resistant cements.

Using raw material mixtures of optimal compositions (two-component: limestone + gabbroid rock; three-component: limestone + gabbroid rock + brown ironstone; four-component: limestone + gabbroid rock + brown ironstone + dune sand), experimental clinkers for general construction and sulfate-resistant cements were synthesized and chemical and mineralogical parameters were determined. clinker compositions.

Conclusion: New compositions developed on the basis of research results of previously unexplored deposits of raw materials in Karakalpakstan for suitability for producing Portland cement clinkers with the subsequent development of technology for the production of Portland cement from them is an effective solution to the localization program, by eliminating the problem of cement shortage in the region and covering the needs of the construction industry of the Republic of Karakalpakstan.

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Rezyume: *“Dusshebuloq” ohaktoshi, “Shayxdjelil” gabbroik jinsi, “Mo’ynoq” konining qumtosh qumi va “Ho’jakul” qo’ng’ir temirli jinsi texnologik namunalarining kimyoviy tarkibini o’rganish natijalari keltirilgan. ularning O’z DSt 2950:2015 “Materiallar” portlendtsement klinkeri ishlab chiqarish uchun xom ashyo talablariga muvofiqligini aniqlash. Portlend tsement klinkeri ishlab chiqarishda ishlatiladigan karbonat, aluminosilikat xomashyosi va magmatik jinslarning kimyoviy tarkibi bo’yicha texnik shartlar.*

Резюме: *Приведены результаты изучения химического состава технологических проб известняка «Дусшебулак», габброидной породы «Шейхджелил», барханного песка месторождения «Муйнак» и бурый железистый породы «Худжакул» с целью определения их соответствия требованиям, предъявляемым O’z DSt 2950:2015 «Материалы сырьевые для производства портландцементного клинкера. Технические условия» к химическому составу карбонатного, алюмосиликатного сырья и изверженных горных пород, применяемых при производстве портландцементного клинкера.*

Kalit so'zlar: *ohaktosh, gabbroid jinsi, jigarrang temirtosh, qum qumi, kimyoviy tarkibi, portlend tsement klinkeri, portlend tsement*

Ключевые слова: *известняк, габброидная порода, бурый железняк, барханный песок, химический состав, портландцементный клинкер, портландцемент*

UDK 621.313.33.001.1

ABOUT THE SYNTHESIS OF ELECTROMAGNETIC VIBRATION EXCITERS

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Summary: *Electromagnetic vibration exciters (EMVE) have significant advantages over other types of exciters; due to the absence of rubbing parts, they have high reliability and durability, and allow smooth adjustment of oscillation amplitudes over a wide range. EMVE is easily coordinated with technological processes, has ease of maintenance and wide automation capabilities.*

This article discusses the synthesis of an electromagnetic vibration exciter of mechanical vibrations used in vibration technology. When carrying out the synthesis of an electromagnetic vibration exciter, the results of the analysis of equations obtained using the Poincare method are used. As a result of the calculation, the parameters of the electromagnet are determined that develops the necessary forces with a minimum cross-sectional area.

Key words: *Emission exciter, synthesis, logarithmic decrement, working body, armature, elastic system, optimality conditions, resonance.*

Introduction

When using electromagnetic vibration exciters, in addition to the task of analysis, i.e., determining oscillations, flows and currents based on known system parameters, the task of synthesis also arises - determining the parameters of the electromagnet that provide the required vibrations of a given oscillatory system. To solve these problems, it is necessary to integrate a system of nonlinear equations regarding currents or flows and mechanical coordinates. For the case when the active resistance of the winding is small compared to the inductive resistance, this can be done using the small parameter method [2,4,9].

Here we present the synthesis procedure for the most common case. An electric power supply powered by an alternating current network is considered. The optimality criterion is taken to be the cross-sectional area of the magnetic core, i.e., as a result of the calculation, the parameters of the electric motor, which develops the necessary forces with a minimum cross-sectional area, are determined.

Methods

Initial data for the synthesis of EMVE. Before calculating the electromagnet, the following parameters must be known: the required vibration amplitude of the working body a (mm), the vibrating mass m (kg), the frequency of the supply voltage f (Hz), the detuning coefficient Z and the logarithmic decrement of vibrations δ . Initial data are determined for a two-mass vibration system. (Figure 1)

The listed quantities are associated with the circular frequency ω_0 (rad/sec) of free oscillations of the system without friction, with the reduced mass m and the rigidity of the elastic system C (N/m) by the relations:

$$Z = \frac{4\pi f}{\omega_0} = \frac{2\omega}{\omega_0}; \quad m = \frac{m_1 m_2}{m_1 + m_2}; \quad C = \frac{4\omega \omega^2}{z^2}; \quad (1)$$

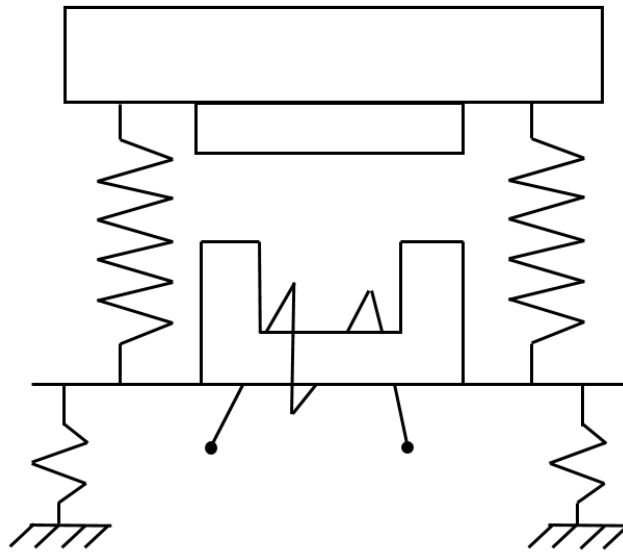


Figure 1. Schematic diagram of the electromechanical system.

Taking into account the fact that vibrations occur with a frequency of 2ω , it is possible to determine the harmonic influence coefficients k_0, k_2 phase shift Ψ_2 ;

$$\begin{cases} k_0 = \frac{1}{c} = \frac{x^2}{4m\omega^2}, \quad (\text{m/N}) \\ k_2 = [(c - 4m\omega^2)^2 + 16h^2m^2\omega^2]^{\frac{1}{2}}, \quad (\text{m/N}) \\ \Psi_2 = \arctg \frac{4h\omega}{\omega_0^2 - 4\omega^2}, \quad (\text{rad}) \end{cases} \quad (2)$$

Here the friction coefficient h is determined through the logarithmic decrement δ according to the formula:

$$h = \frac{\delta\omega_0}{\pi} \left(1 + \frac{\delta^2}{\pi^2}\right)^{-\frac{1}{2}} \approx 2\delta f_0, \quad (1/\text{sec}) \quad (3)$$

Next, we determine the amplitude of the 2nd harmonic of the electromagnetic force:

$$Q_2 = 0.001 \left(1 + \frac{m_1}{m_2}\right) \frac{a}{k_2} = 0.001 \frac{x_2}{k_2}, \quad (\text{N}) \quad (4)$$

Here $x_2 = (1 + m_1/m_2) a$ - amplitude of the 2nd harmonic of the change in the EMVE gap. The relationship for a system consisting of a mass connected by means of a spring to a fixed base is found from (1) – (4) with $m_2 \rightarrow \infty$. The quantities x_0, x_2, Ψ_2 and Q_2 characterize the mechanical oscillatory system and are subsequently used to calculate the electromagnet.

Determination of electrical and mechanical parameters of EMVE. The magnetic flux $\Phi(t)$ in the winding $i(t)$, the electromagnetic force $Q(t)$ and the movement of the armature relative to the core $x(t)$ are periodic functions of time. Displacement $x(t)$ is considered positive if the gap increases, so the instantaneous gap is equal to $\Delta + x(t)$ where Δ is the gap with an undeformed elastic element, (mm). The sign in the expression $Q(t)$ corresponds to the direction of reference $x(t)$. The direction of supply is taken as $U_m \sin \omega t$. Under these conditions, the voltage balance equation in the EMVE winding circuit and the expression for Ohm's law for the magnetic circuit have the following form.

$$\begin{cases} n_1 \frac{d\Phi}{dt} + r_1 i_1 = U_m \sin \omega t; & \Phi = \frac{F_0}{R_\mu} \\ F_c = F_1 = n_1 i_1 \end{cases} \quad (5)$$

Where n_1 is the number of turns R_μ is the value of magnetic resistance; F_1 -value n.t. windings; F_c -full n.t. electromagnet. According to the small parameter method, for $R_1 \ll \omega L$, without taking into account the term $R_1 i_1$, we have the following solutions.

$$\begin{cases} \Phi(t) = -\Phi_1 \cos \omega t; Q(t) = -\Phi^2(t) \mu_0^{-1} S^{-1} = -Q_0 - Q_2 \cos 2\omega t; \\ x(t) = x_0 - x_2 \cos(2\omega t - \Psi_2) \\ F(t) = \Phi(t) \left[R_c - 0.002 \frac{\Delta + x(t)}{\mu_0 S} \right] = F_1 \cos \omega t + F_1^* \sin \omega t + F_3 \cos 3\omega t + F_3^* \sin 3\omega t \\ i_1(t) = \frac{F(t)}{n_1} \end{cases} \quad (6)$$

Where:

$$\begin{cases} \Phi_1 = \frac{U_m}{n_1 \omega} = \frac{U_m}{4.44 n_1 f}; Q_0 = Q_2 + \frac{1}{2} \Phi_1^2 \mu_0^{-1} S^{-1}; x_0 = 1000 k_0 Q_0; x_2 = 1000 k_2 Q_2; \\ F_1 = -\Phi_1 \left[R_c - 0.002 \frac{\Delta + x(t)}{\mu_0 S} \right] - 0.001 \frac{x^2}{\mu_0 S} \cos \Psi_2; \\ F_1^* = F_3^* = 0.001 \Phi_1 \frac{x_2}{\mu_0 S} \sin \Psi_2; \\ F_3 = 0.001 \Phi_1 \frac{x_2}{\mu_0 S} \cos \Psi_2; \end{cases} \quad (7)$$

Optimality condition. The required values of Q_2 and x_2 can be calculated for different values of Φ_1 and S , so their choice is subject to an additional condition (optimality condition). The simplest synthesis technique is obtained with a minimum cross-sectional area of the magnetic circuit.

Let us denote by σ the ratio of the smallest area S_m of the cross-section of the magnetic core k, S . Then $\sigma \leq 1$ and its value is determined by the holes for studs, etc. From the conditions

$$\frac{1}{2} \Phi_1^2 \mu_0^{-1} S^{-1} = Q_2; \Phi_1 \leq \sigma S [B]; S = \min, \quad (8)$$

Where $[B]$ is the permissible induction in steel, (T) is uniquely determined by Φ_1 and S . Using the first relation we obtain:

$$\frac{\sigma^2(B)^2}{2 Q_2 \mu_0} S \geq 1, \quad S = \min, \quad \frac{\sigma^2(B)^2}{2 Q_2 \mu_0} = \Psi \quad (9)$$

The condition $S = \min$ will be satisfied when $\Psi_S = 1$ and $\Psi = \max$. Having determined the values of Φ_1 corresponding to $\Psi = \max$, we obtain the optimal values:

$$S = \frac{2 Q_2}{B^2} \quad \Phi_1 = \frac{2 Q_2}{B} \quad (10)$$

Calculation procedure.

According to the above, as well as from the constructive data, $x_2, \kappa_2, \Psi_2, Q_2, f, \kappa_0, U, \sigma, B$ is determined.

1. From (10) Φ_1 and S are calculated.
2. Using Φ_1 from the first relation (7) the number of turns n_1 is found.
3. Using $Q_0 = Q_2$ and κ_0, x_0 is calculated.
4. Selected $= (1, 2 - 1, 3)(x_0 + x_2)$.
5. According to (6), (7), the components of n.t and current are determined, the effective value of current I is determined, the winding wire is selected, etc.

On synthesis under other optimality conditions. In addition to the considered optimality condition $S = \min$, the conditions for minimum copper consumption and minimum costs for copper and steel are of interest. The latter can be written as:

$$P_c G_c + P_M G_M = \min \quad (11)$$

The synthesis technique under other optimality conditions can also be based on (6) and (7), which, however, must be supplemented with relations that replace (10). If it is impossible to write these relations, then you can do this: two parameters are chosen arbitrarily (in a certain region), for example,

S and Φ_1 , if their values are chosen taking into account the constraint $\Phi_1 \leq \sigma(B)$, then the parameters are found as indicated above. Thus, by determining the values of the optimality criterion for different choices of parameters, we can arrive at the optimal option.

Conclusion

1. When carrying out the synthesis of an electromagnetic emission exciter, the results of the analysis of equations obtained using the Poincare method were used.
2. Based on the calculation results, the parameters of an electromagnet that develops the necessary forces with a minimum cross-sectional area are determined.
3. The proposed synthesis and calculation method makes it possible to reduce the weight and dimensions of the electronic device and ensure stable operation of the device.

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Rezyume: *Mazkur ilmiy maqola binolar qurilishida qo'llaniluvchi temir betonlarni ishlab chiqarish texnologiyalarida beton mahsulotlarini zichlash texnologiyalarida elektromagnit titratgichlarni qo'llash keltirilgan bo'lib, optimal ilmiy-texnik yechim taklif qilishga qaratilgan. Elektromagnit titratgichlar texnologik jarayonlar bilan muvofiqlashtirilgan va avtomatlashtirilgan temir beton zavodlarida qo'llash tavsiya qilinadi.*

Резюме: *В данной научной статье представлено применение электромагнитных вибровозбудителей в технологиях уплотнения бетонных изделий в технологиях производства железобетона, применяемого при строительстве зданий, и направлена на предложение оптимального научно-технического решения. Электромагнитные вибровозбудители рекомендуется применять на железобетонных заводах, согласованных с технологическими процессами и автоматизированных.*

Kalit so'zlar: *temir beton, zichlash, elektromagnit titratgich, texnologik, avtomatlashtirilgan.*

Ключевые слова: *железобетон, уплотнение, электромагнитные вибровозбудитель, технологический, автоматизированный.*

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STEPS OF INVESTIGATING ATTACK INCIDENTS ON THE ORGANIZATION'S CORPORATE NETWORK

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Summary: *This article provides information on the steps involved in investigating an attack incident on an organization's enterprise network, the tasks involved in each step, and the key elements of the attack incident investigation stages.*

Key words: *information security, attack incident, log files, IP address.*

INTRODUCTION.

The complexity of detecting incidents of an attack in the corporate network of the organization causes a number of inconveniences to the employees responsible for information security. For example, a certain part of network incidents can be identified based on corporate network attacks or threat detection systems, but these systems cannot find the necessary evidence to identify the individuals who committed the incident and take appropriate measures against them. This is because incidents may not always be carried out by individuals. Because the incident includes a set of expected and unexpected events. That is why it is necessary to ban incident detection systems, classify them and identify incident elements.

MAIN PART

Another complication in identifying incidents is that employees may not have knowledge of what events may constitute incidents. This is especially important in information security incidents, which do not always disrupt normal business operations. Incident investigation is carried out in the following sequence of steps.

1. Maintain logs containing incident records;
2. Clear separation of user authority;
3. Determining responsibility for actions taken;
4. Gather evidence that shows who was involved in the incident and what actions they took.

After the consequences of incidents have been resolved and business processes have been restored, it is recommended to investigate the incident and implement preventive measures. Because it is possible to get a number of opportunities by checking the event that happened during the preventive works. There are several key objectives identified when investigating incidents. Other personal goals can be formed by studying the incident that happened in a particular case. There is no uniform methodology for conducting an investigation, but in general, the following actions are performed during an investigation:

- localization and elimination of consequences of information security incidents;
- analyzing incidents and taking measures to prevent similar incidents in the future.
- gathering evidence and analyzing it;
- identifying the culprits and setting measures of responsibility against them;
- to determine the reasons that allowed the incident to happen;

Before performing the investigation steps of an attack incident on a corporate network, it is necessary to gather evidence about the incidents that need to be investigated. Gathering evidence on an information security incident is considered the most important part of the research process, regardless of the purpose of its implementation, its success depends mainly on the quality of the evidence collected, therefore, the evidence must meet a number of mandatory requirements. In particular:

- completeness (the evidence is sufficient for an objective study of the event);
- relevance (evidence depends on the incident);
- accuracy (the evidence is from reliable sources and has not been altered);
- admissibility (evidence must be legally obtained).

At the initial stage of the investigation, it is difficult to say whether the evidence can be obtained in court or not (because the nature of the incident, the culprit and his intentions are still unknown), so it is important to pay close attention to the requirements of admissibility, accuracy and completeness. necessary. In addition, it should be remembered that it can be carried out by an investigator or an operative representative of a criminal case, and if necessary, prompt communication with law enforcement agencies is required. By identifying the causes and methods of the attack, corrective actions can be taken to prevent repeated attacks. The experience of information security specialists shows that an organization that has been attacked or infected cannot always correctly define the boundaries of the incident, and therefore it is impossible to assess and eliminate the consequences. Currently, there are general recommendations for eliminating the consequences of a network attack or virus distribution, but there is no methodology that can be used for every situation [1]. Incident investigation is one of the most important tasks in the field of security.

Stage 1. Evaluation. At this stage, preparatory work is carried out to collect information related to the information security incident, that is, research opportunities are considered (research permission is obtained, current security policies and laws are analyzed), research the composition of the conducting group is determined, the topology of the network where the incident occurred is studied, the sources of information related to criminalistics are determined, etc. In addition, the computer storage device associated with the incident is identified during the assessment phase.

Stage 2. Collect. At this stage, all information related to the incident is collected. They are as follows:

- content of non-volatile media (hard drives, compact discs, USB flash drives, etc.);
- content of power-dependent mass media (fast memory);
- network equipment, server log files;
- network traffic.

Special means of data collection include: The content of information media that does not depend on power. Before creating a copy of a device that does not depend on power, it is necessary to ensure the integrity (immutability) of the content used by software and hardware registry locks, as well as specific operating systems. If the computer to be copied (or deleted) is running, the computer will stop after the power-independent data is collected, power-independent the information is stopped immediately if it is not to be collected.

In special cases (for example, when it is not possible to shut down critical servers), it is possible to copy non-power-dependent data from a running system. Recording devices allow connecting a data carrier that is safe to write data due to errors caused by errors of the operating system or third-party programs [2-3].

These tools perform their tasks regardless of the operating systems and programs used to read the data. Specialized operating systems, as a rule, are used to copy media from the computer under investigation by installing a reliable (forensic) software environment. Typically, these operating systems are booted from a CD or USB Flash drive and include locking software entries during the boot process. Examples of such operating systems include e-fense Helix3 Pro, DEFT Linux. In addition, the following programs can be used to download data directly.

- dd (included in almost all Linux distributions);
- dc3dd- modified version of dd;
- aimage;
- FTK Imager.

Before studying, it should be noted that copying the contents of non-power media is optional - in cases where the integrity of the original contents of the medium is preserved (for example, when the device is

configured or write-locking is applied), the original learning copies instead would not be an acceptable solution. The collection of power-related data is done before the operating systems are deleted. Typically, the power-related data collection process consists of copying the following:

- the composition of the computer's fast memory;
- the content of installed encrypted files and network storage;
- a list of operating processes and services;
- list of current network connections and open ports;
- network configuration of the studied system;
- environment variables;
- the image seen by the user on the monitor screen (creating a screenshot).

External data carriers can be connected to copy this information to the operating system under study, from which a special program that collects data is launched. Sometimes a special program is loaded into the system over the network. Copied data can be stored off-site or transmitted over a network to a trusted server. Copying logs can be done in several ways:

- copy only data records related to a specific incident (for example, related to a specific IP address or time period);
- copy log files completely;
- copy all media.

The main factors in choosing one or another copying method are the following: the level of confidence in the logs and, accordingly, the amount of research aimed at determining the level of accuracy and immutability of the logs. If the possibility of malicious modification or falsification of the log files is small, it is permissible to copy only the log files or their individual entries. Otherwise, it is recommended to copy the contents of the entire media (to look for traces of unauthorized access to the system, traces of changes to log files, etc.) [4-5].

Stage 3. Analysis. The analysis of the data collected at this stage is carried out according to the following algorithm:

- getting general information about the object (disk, disk copy, network traffic dump, etc.);
- open data study;
- studying data in an indirect (remote, hidden, encrypted) form.

Studying non-volatile media and their copies often involves studying the contents of file systems and recovering data. Researching file systems consists of analyzing various traces of information resulting from the attacker's actions, analyzing the software and hardware of the investigated system. The number of these traces in file systems (as a source of forensically important data) is very large, so there are no comprehensive methods and algorithms for forensic investigation of file systems in incident investigations. The following software tools can be used for forensic investigation of file systems: The Sleuth Kit, EnCase Forensic, Forensic Toolkit. In addition to these, the following programs can be used for data transfer: Foremost, PhotoRec. Since the network packet analysis is required at the analysis stage, the analysis of the network packet dump is carried out as follows:

- to determine the characteristics of network packets and connections (for example, to search for confidential information);
- issuing messages transmitted over the network (for example, to search for information distribution channels).

In the first case, Network Miner, Wireshark, and the following can be used as network packet analyzers. In the second case, usually not specialists who analyze network packets, but legal capture systems that allow to automate the processes of searching, extracting and storing various network messages (e-mail messages, Internet pages, etc.), as well as keywords and used to enter other criteria of the data to be captured.

Stage 4. Report. At this stage, the synthesis of all the information obtained in the analysis stage is carried out, and then the report is written in a form that is understandable for the intended audience. The report may include:

- information about the causes of the incident;
- information about the persons involved in the incident;

- incident chronology;
- a detailed description of the traces (evidence) identified during the analysis;
- information about the research methods used during the process, software and hardware, and the cases of their use;
- recommendations to prevent similar incidents in the future.

As a result of researching attack incidents on an organization's corporate network, incidents can be categorized and classified. Although security incidents in general are diverse, they can be divided into several categories that make it easier to keep statistics.

1. Disclosure or threat of disclosure of confidential or inside information. For this, at a minimum, it is necessary to have a functioning system for marking the current list of classified information, electronic and paper media. For example, document samples created for almost all life situations located in the company's internal portal or internal file storage environment are usually marked as for internal use only..

2. Unauthorized access. To do this, you need to enter a list of protected resources. In other words, it is necessary to know where the information of the organization, customers or contractors is stored. In addition, this category includes not only unauthorized access to computer networks, but also unauthorized access to buildings.

3. Increased authority. This point can be combined with the previous one, but their separation is appropriate. Unauthorized access is defined as the entry of persons who do not have the right to access the organization's resources or premises. This is an unauthorized external attacker. Increased authority is the right of unauthorized access to any resources and premises of the organization's employees.

4. Virus attack. In this case, the following should be understood: a single virus attack on an employee's computer should not lead to a thorough review, as it may depend on the human factor. If an organization's computers are significantly compromised, the entire facility should be investigated for security-related sources, causes, etc.

5. Notepad Compromise. The main purpose of classifying information security incidents is to increase the level of systematization and reduce subjectivity of the response to the incident, that is, the reaction process. These processes are carried out by identifying and recording incident attributes and analyzing the information security incident management system to inform the subsequent response to the incident. It is recommended to classify information security incidents according to the following functions.

Since the investigation of an information security incident involves the identification of persons responsible for its occurrence, the collection of evidence and traces of the incident, and the description of appropriate disciplinary actions, a commission for the investigation of information security incidents is allocated (which includes the response to incidents there is also a giving employee). The final report of the commission will detail the elements used to cause the incidents. When investigating attack incidents on an organization's corporate network, it is necessary to consider 5 main elements [6-7].

Item 1. What is broken?

It is important to identify the following:

- how the system was damaged as a result of the incident;
- which service was broken;
- which information was attacked.

For this purpose, a ready-made operational response utility package can be used for rapid response. This will help you determine what was broken as a result of the incident. Below are the tools included in this package and how to use them.

First, it is necessary to identify and collect information that may disappear in a short time, it can be temporary files, cookies files.

Second, it is necessary to learn to analyze network connections and system activity to determine the presence of deviations from the normal state.

Thirdly, it is necessary to learn to analyze the processes, the code is executed in the processes, since the processes execute the code located in the executable files and libraries, the integrity of these files is taken care of here.

Fourth, the processes parameter uses the registry, its analysis reveals additional information, which can be helped by various registry browsers.

Fifth, all processes are performed in memory, so memory analysis is also important for investigation. The problem is that memory is large and malicious data is small and easily lost.

Item 2. It was broken by what means?

It is important to identify the following:

- is there an error in the configuration;
- is there an error in the application;
- has an error occurred in the system;
- is there an error in the protocol?.

For each topic, a module is devoted to a detailed study of how information about processes, registry keys, files, various dumps and logs can help. The most important thing here is the correlation between incidents, log entries and system configuration. To do this, it is important to understand that each service has its own logs, which can be stored both locally and on a remote server, and that different platforms use different log formats.

Item 3. Who was broken?

It is important to identify the following:

- through which system was hacked;
- what was the ultimate goal of the attack;
- from which computer the attack started.

The ability to correlate information from various logs with events prior to a security incident can also be used here. However, at this stage, it is necessary to determine the identity of the attacker based on the information collected in the previous stages. This identifier can be an IP address, email address, app account, media file, and other similar items.

Item 4. On the suspect's computer.

It is important to identify the following:

- what program was used;
- what files were used;
- in which sequence the attack took place.

The behavior depends on whether the suspect's computer is turned on or not. If it is turned off, according to the methodology, it is no longer turned on, but a copy of the disk is taken, and then using tools such as AccessData FTK and EnCase, find evidence and make a report. Evidence can be found not from a computer, but from other means such as a printer, mobile device [8-9].

Item 5. Grounding the previous elements.

It is important to identify the following:

- what can be evidence?
- how to collect evidence;
- how to analyze evidence;
- how to prepare a research report.

Summary. To be included in a formal investigation, logs and files must be documented as evidence and processed according to procedures that preserve the legal value of the evidence. The main purpose of this is that the specialists of the organization identify the incident or respond to the incident immediately and analyze the data and submit the analysis results to the administration or technically and legally support the research until the case is handed over to the law enforcement authorities. provide support.

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Rezyume: Ushbu maqolada tashkilotning korporativ tarmog'idagi hujum hodisasini tekshirish bosqichlari, har bir qadam bilan bog'liq vazifalar va hujum hodisasini tekshirish bosqichlarining asosiy elementlari haqida ma'lumot berilgan.

Резюме: В этой статье представлена информация о этапах расследования инцидента атаки в корпоративной сети организации, задачах, связанных с каждым шагом, а также ключевых элементах этапов расследования инцидента атаки.

Kalit so'zlar: axborot xavfsizligi, hujum hodisasi, jurnal fayllari, IP manzil.

Ключевые слова: информационная безопасность, инцидент атаки, лог-файлы, IP-адрес.

ENERGY SERVICE CONTRACT: TYPES AND EFFICIENCY

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Summary: The article examines the energy service contract and its role in consumer energy efficiency. Types of energy service contracts and their classification are presented. At the same time, the structure of energy efficiency contracts, project selection reasons, energy service contract, integrated and facility management or automation contracts is covered in detail.

Keywords. Energy service, contract, energy efficiency, energy resource, integration, energy service company, energy saving, energy management.

The field of energy service offers efficiency solutions, and this document assesses their implementation feasibility in various production enterprises. The current operational state and potential development of these solutions are tailored to the needs of agricultural enterprises and organizations. An energy service contract is a form of agreement that enhances the quality parameters of electrical energy and describes efficiency-related services. Simpler forms of energy services may include electricity consumption calculations, statistical data, or more comprehensive offerings. Typically, energy service contracts are executed according to the terms specified in the agreement.

An energy service contract is a document where the service provider assumes economic risks. It's a legal document with specific objectives to achieve energy efficiency without impacting production capabilities. Most contracts are implemented without requiring investment from energy consumers. For future competitiveness, these contracts necessitate continual improvements and measures to achieve energy efficiency. An energy service is a company based on efficiency principles, meaning that the services provided are based on energy-saving measures and are financially compensated accordingly. The savings achieved through energy efficiency measures help finance the project. A unique feature of these contracts is their guarantee of a minimum level of energy savings and responsibility for achieving it. The energy baseline is established before project implementation, and post-implementation energy consumption is compared to this baseline to determine the level of energy savings achieved (fig. 1).

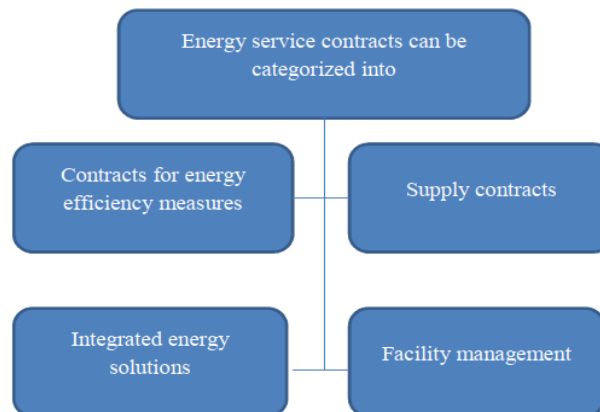


Fig.1. Types of energy service contracts

The growing demand for energy resources, their environmental impact, and decreasing availability necessitate energy conservation and judicious use. Energy service companies fulfill these tasks and are becoming key service providers for future consumers.

These contracts are developed based on market economy principles.

Contracts for energy efficiency are widely recognized models, particularly beneficial for large projects, providing comprehensive energy efficiency solutions to industrial enterprises (fig. 2). Projects typically save 20-30% of energy, sometimes up to 50%.

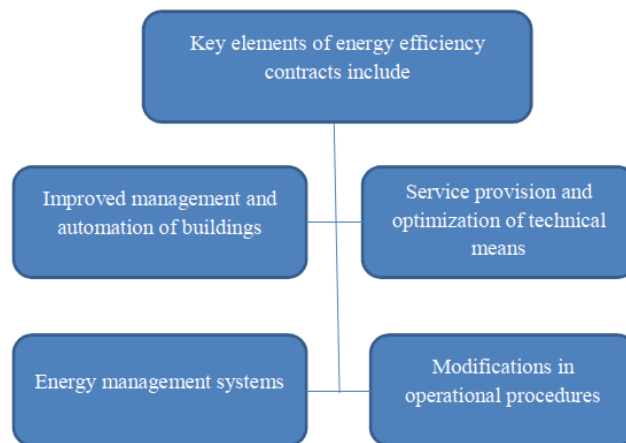


Fig.2 . Energy efficiency contract

The reasons for choosing such projects include:

- Lower costs for energy-saving measures.
- Renovation of older facilities.
- Improvements in heating, cooling, ventilation, and lighting.
- Long-term competitive enhancement.

For large-scale projects involving multiple buildings or industrial facilities, energy efficiency measures are developed group-wise, ensuring economic benefits.

Energy supply contracts provide clients with efficient energy sources like heating, cooling, steam, compressed air, etc. These contracts might include the construction and operation of power stations, technical services, and fuel supply, often guaranteeing a certain price for energy (fig. 3).

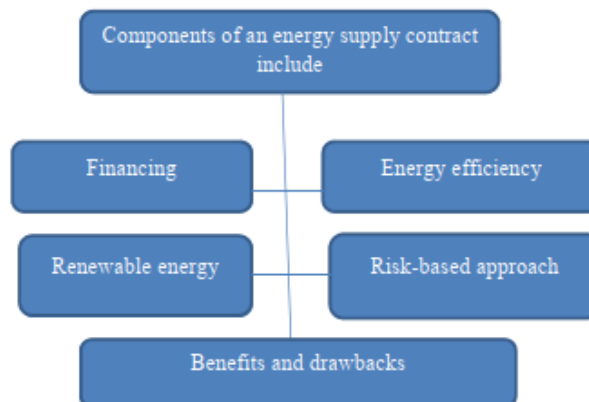


Fig.3. Energy supply contract.

Integrated solution contracts, widespread and usually having a 15-20% energy-saving potential, include (fig. 4).

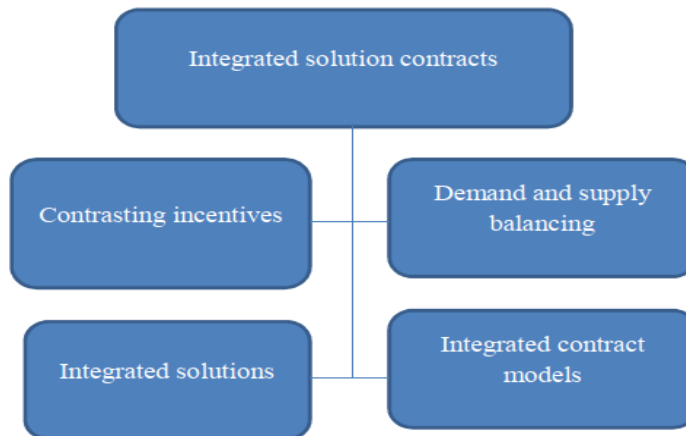


Fig.4. Integrated contract

Facility management contracts focus on controlling the quality parameters of the energy supplied, with functions like maintaining consistent temperature, lighting, and air quality (fig. 5).

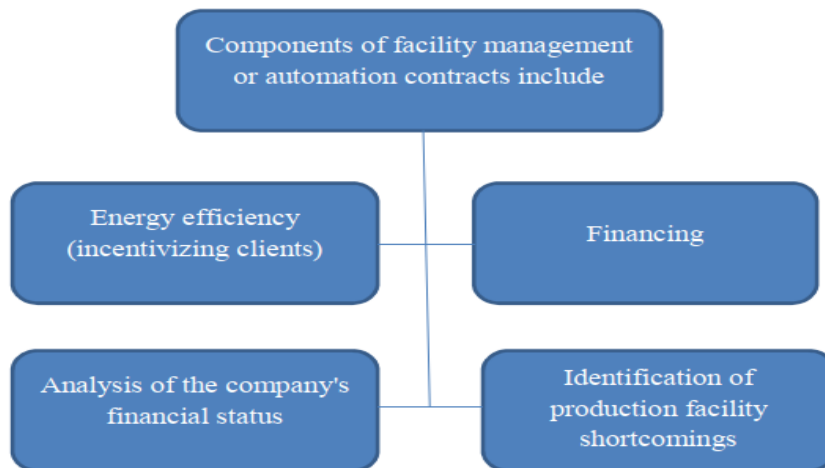


Fig.5. Facility Management Agreement

For market success, it's essential to ensure that clients trust the energy contract model and the service provider's ability to achieve the stated energy efficiency goals. Continuously maintaining high-quality service from energy service companies is crucial. These companies adapt to production processes and develop new projects to address current and future challenges using energy-efficient approaches. The growing interest in energy efficiency and its advantages influences future interest in energy services for climate issues and energy security.

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Rezyume. *Maqolada energetik servis shartnomasi va uning iste'molchilar energiyasamaradorligida tutgan o'rni masalalari ko'rib chiqilgan. Jumladan, energetik servis shartnomasi turlari, ularning tasniflanishi keltirilgan. Shu bilan birga energiya samaradorligi bo'yicha shartnomalar, loyihani tanlash sabablari, energetik servis shartnomasi, integratsiyalashgan shartnoma tarkibi va ob'ektlarni boshqarish yoki avtomatlashtirish shartnomalarining tarkibi batafsil yoritilgan.*

Резюме. *В статье рассматривается энергосервисный контракт и его роль в обеспечении энергоэффективности потребителей. В частности, представлены виды энергосервисных контрактов и их классификация. Вместе с этим подробно рассматриваются контракты на энергоэффективность, причины выбора проектов, контракты на энергетические услуги, структуры контрактов интегрированный и управление объектами или контрактов автоматизацию.*

Kalit so'zlar. *Energetik servis, shartnoma, energiya samaradorlik, energoresurs, integratsiya, energetik servis kompaniyasi, energiya tejamkorlik, energini boshqarish.*

Ключевые слова. *энергосервис, контракт, энергоэффективность, энергоресурс, интеграция, энергосервисная компания, энергосбережение, энергоменеджмент.*

RATIONALE FOR RESISTIVE GROUNDING OF THE NEUTRAL OF THE 20 kV DISTRIBUTION NETWORK.

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Summary: This article discusses the problem of choosing the neutral grounding mode in 20 kV electric networks, the use of neutral grounding through a resistor in networks of this voltage allows you to increase the reliability of networks, automate the search for a damaged network, reduce the accident rate in single-phase short circuits. The possibility of increasing the value of the resistor by an amount that reduces the single-phase short-circuit current in order to maintain the required overvoltage coefficient when the network is disconnected is being considered.

Key words: resistive neutral grounding, resistance, substation, overvoltage, electrical safety, relay protection.

Introduction. The choice of neutral grounding mode in a 20 kV distribution network is an important issue in the design, operation and reconstruction of electrical distribution networks.

The neutral grounding mode in a 20 kV network determines:

- and in the case of a single-phase short circuit, the excess voltage in the unaffected phases;
- a safety of personnel and electrical equipment in case of single-phase short circuit;
- current at the fault point in a single - phase short circuit;
- Single-phase relay short circuit protection;
- a uninterrupted and reliable supply of electricity to consumers;
- degree of insulation of electrical equipment;
- permissible resistance of the substation grounding circuit.

Thus, it is clear that in 20 kV networks, the neutral grounding mode affects many technical solutions implemented in a particular network. In 20 kV networks (medium voltage networks) around the world, two types of neutral grounding are used:

1-isolated neutral;

2 is a neutral connected to the Ground via a resistor.

As a result of studying the peculiarities of the functioning of medium-voltage distribution electric networks in developed countries, it turned out that more than 75% of 20 kV networks, for example, in Sweden, France, Italy, Germany, use neutral grounding through a resistor. The purpose of this work is to use neutral grounding through a resistor in electrical networks with a voltage of 20 kV [1].

The main part. Accumulated global and local experience indicates that switching the neutral of medium voltage networks to resistor grounding can significantly increase the reliability of 20 kV power grids by eliminating a number of dangerous processes that lead to the formation of significant overvoltage in the windings of voltage transformers or an increase in current [2].

Grounding the mains neutral with a resistor allows:

- 1) Effective limitation of excess voltage during a single-phase short circuit to an optimal level for equipment insulation;
- 2) elimination of dangerous ferroresonance phenomena caused by saturation of magnetic circuits of voltage transformers;
- 3) ensuring the selectivity of determining the short-circuit point due to protection against single-phase short circuit.

4) ensuring the correct operation of short circuit protection by suppressing resonant processes [3].

Limiting the overvoltage to earth with a single-phase short circuit when the neutral is closed to a resistor is carried out by reducing the discharge time constant of the capacitance of the intact phases with a current-free circuit and reducing the voltage on the neutral by one level.

Wiring diagrams for neutral grounding resistors.

In modern practice, three basic resistor connection schemes are widely used:

1. Connection of a 220(110)/20 kV power transformer circuit with a zero voltage sequence in the power center to the neutral (Y_0/Y_0), (Fig.1, see a).
2. Connection of resistors to a special neutral of the grounding transformer with a voltage of 20/0.4 kV and a grounding circuit Y_0/Δ -11 (Fig. 1, see b).
3. Application of the zero sequence filter (SF) with a connection scheme based on the zigzag method (Z_0) (Fig. 1, see c) [4].

Each of these schemes has its own advantages and application features in various power grid conditions, which requires further analysis and research to determine the optimal choice for specific tasks and operating conditions.

The high-voltage low-frequency neutral resistor earthing device is designed for selective rapid (during the time required for the operation of relay protection devices) disconnection of the network in which a single-phase short circuit occurs and the creation of an active component of the zero-sequence current of industrial frequency. The nominal values of low-resistance resistors are shown in Table 1 [5].

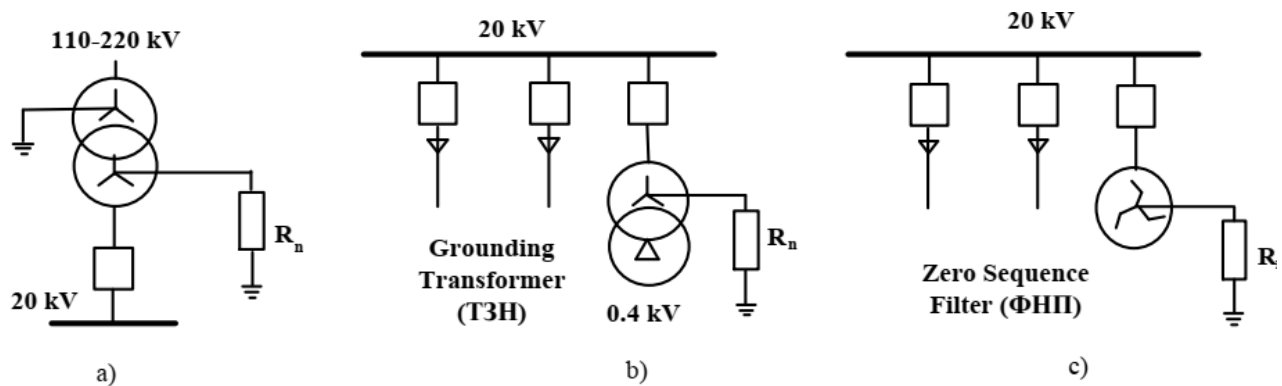


Figure 1. The grounding circuit of a 20 kV mains neutral through a resistor.

Nominal values of low resistance resistors used in 20 kV distribution networks

Table 1

Resistor power, kW	391	043	234	310	021	797	294	078	09	39	04	23
Nominal resistance of the resistor, Ohms	0	0	0	0	0	0	25	50	00	00	00	00
The current of the resistor, A	24	18	54	82	59	41	02	5	4	2	2	5

Neutral grounding through a high-voltage resistor is characterized by a decrease in the level of excess voltage in the network to an acceptable value, the organization of selective effective short-circuit protection with single-phase ground affecting the signal, and the possibility of long-term

operation of the network in short-circuit mode with single-phase ground under the action of protection. The nominal values of the high resistance resistors are shown in Table 2.

Nominal values of high-resistance resistors used in a 20 kV distribution network

Table 2

Resistor power, kW	04,3	69,5	02,1	34,8	15,5	9,8	4,7	3,9	0,4	2,3	3,1	0,2
Nominal resistance of the resistor, Ohms	00	00	00	200	400	800	500	000	000	000	000	000
The current of the resistor, A	1,8	1,2	5,9	0,6	,1	,1	,1	,2	,2	,5	,8	,6

Conditions for selecting the neutral grounding mode via a resistor.

The task of determining the type of resistor grounding of a network neutral is multifaceted and includes the following components:

- ensuring a high level of electrical safety;
- reliable and uninterrupted power supply to consumers;
- reducing the level of overvoltage in the network;
- organization of reliable relay protection against emergency situations;
- feasibility study of the use of resistive grounding;
- determination of the power of the transformer connecting the resistor [6].

Selection of the resistance value of the resistor according to the condition of ensuring electrical safety.

The condition for ensuring electrical safety is compliance with the conditions of electrical safety of people in case of a short circuit to a single-phase earth at a substation, taking into account the current standardization of permissible values of the resistance of the grounding device or tangential voltage. At a 20 kV substation grounded through a neutral resistor, if the permissible resistance value of the grounding device is R_{perm} . If the condition is met, electrical safety is ensured.

$$R_{perm} \leq \frac{R_{g.d.} \cdot R_n}{\sqrt{R_n^2 + X_C^2}}, \text{ Om} \quad (1)$$

here $R_{g.d.}$ is the value of the resistance of the grounding device, normalized by the rules of installation of electrical equipment, Ohms.

It follows from (1) that, compared with the permissible value of the grounding resistance adopted in accordance with [7], electrical safety conditions always deteriorate when grounding the network through a neutral resistor. In this case, electrical safety is ensured in two ways: by selecting the permissible resistance of the grounding device in accordance with (1) or by taking special protective measures at the substation related to the rupture of a damaged connection.

The condition of reliability of power supply to consumers.

In the case of possible single-phase short circuits where it is necessary to ensure the safe and stable operation of the electrical network, it is very important to use the high-resistance ground connection of the neutral. This ensures the minimization of short circuit currents, which in turn helps to maintain the integrity of the electrical energy system equipment and prevent possible emergencies.

The efficiency of this resistor grounding is significantly increased by detecting single-phase short circuits based on the received signal and built-in relay protection. Such an integrated approach not

only ensures the reliability of the system, but also prevents possible damage to equipment and infrastructure, ensuring the safety and uninterrupted operation of power systems [8].

Selection of the value of the resistor based on the condition of lowering the excess voltage level.

The selection of the resistance value of the resistor according to the criterion of lowering the overvoltage level is made depending on the required level of protection of the insulation of the network and electrical equipment from overvoltage, which is determined by the permissible overvoltage coefficient of the K_O :

$$K_O = \frac{\sqrt{3} \cdot U_{\max}}{U_L}, \quad (2)$$

where $U_{\max}$ is the voltage of preventive testing of equipment connected to the bus section.

In this case, the overvoltage coefficient is equal to:

- for grounding a low resistance resistor $K_O=1,0-2,2$
- for grounding a high resistance resistor $K_O=2,2-2,6$

At a known value of the overvoltage level, the resistance of the resistor is determined by the K_O coefficient.

$$R_n = X_c \cdot \frac{K_O - 1}{3,4 - K_O}, \text{ Om} \quad (3)$$

where X_c is the capacitive resistance defined as:

$$X_c = \frac{U_L}{\sqrt{3} \cdot I_c}, \text{ Om} \quad (4)$$

The determining criterion for the certification of resistors designed to reduce overvoltage is the value of the overvoltage coefficient K_O , which is calculated using the expression below.

$$K_O = \frac{2,4R_n}{R_n + X_c} + 1 \quad (5)$$

The basic level of protection of the insulation of the network and electrical equipment from overvoltage is the degree of protection $K_O = 2.6$, which corresponds to the standard of preventive testing of rotary machines. The choice of the protection level of $K_O > 2.6$ should have an appropriate basis [9].

The choice of the resistance value according to the condition of effective operation of the relay protection.

The choice of resistor value based on the criterion for the effective operation of the relay protection consists in determining the type of protection that has the required selectivity and sensitivity. In single-phase ground short-circuit mode, tens to hundreds of amperes of current flow through the short-circuit point with low-resistance resistor grounding of the neutral, and so maximum zero-sequence current protection is established with the damaged network disconnection effect. With a high-resistance resistor grounding of the neutral, both simple current protection and more complex types of protection that affect the circuit or signal can be established. Provided that the relay protection and automation work effectively, the permissible resistance of the resistor is determined by the following expression:

$$R_n \leq \frac{U_L}{\sqrt{3} \cdot I_{o.c.}}, \text{ Om} \quad (6)$$

bu yerda $I_{o.c.}$ - relay protection operating current in case of short-circuit to earth with one phase.

$I_{o.c.}$ the value is set from the maximum internal current of the protected connection:

$$I_{o.c.} = k_r K_{itcc} I_{i.\max} \quad (7)$$

where $k_r=1,2$ is the reliability coefficient; K_{itcc} is the coefficient that takes into account the increase in the capacitance current at the time of the occurrence of a one – phase short circuit (3,5-5 is acceptable for RT-40 relays, 2-3-for RTZ-51 relays, 1-1,for 5 - digit protection).

In case of a short circuit with single-phase grounding, the sensitivity of the protection is checked according to the following formula:

$$k_s = \frac{I_{sh.c}}{I_{o.c.}} \quad (8)$$

where $I_{sh.c}$ is the total short-circuit current, that is, the geometric sum of the total capacitive current flowing at the installation site of the short-circuit protection and the active grounding current of the resistor.

The sensitivity coefficient should be:

$k_s \geq 1,5$ – to protect overhead and cable lines;

$k_s \geq 2$ - for engine protection [10].

Checking the thermal resistance of the resistor.

The resistance value of the resistor should be selected under the condition of the highest operating voltage (t.h.o.v) on the bus $U_{t.h.o.v}$, voltage $U_{t.h.o.v}$ 24 kV for a 20 kV network;

The resistance value of the resistor should be selected under the condition of the highest operating voltage on the bus $U_{t.h.o.v}$, voltage $U_{t.h.o.v}$ 24 kV for a 20 kV network;

The thermal resistance of a low-resistance resistor is estimated by the permissible short-term current, $I_{perm}=8$ must meet these conditions

$$I_{perm} \geq I_r \quad (9)$$

where is the I_r current flowing through the resistor in the short-circuit mode of one phase to the ground. Its value is defined as:

$$I_r = \frac{U_L}{\sqrt{3} \cdot R_n}, \text{ A} \quad (10)$$

Determination of the power of the transformer connecting the resistor.

The simplest and most common way to connect a resistor to a neutral network is to install a special grounding transformer (TZN) with a Y/ Δ -11 lamp connection scheme (Fig.1. b) the power of this transformer is selected based on a given condition:

$$S_T \geq \frac{U^2}{3k_O \cdot R_n}, \text{ kVA} \quad (11)$$

where $k_O = 1.0-1.4$ is the permissible overload factor of the transformer.

A special zero sequence filter can also be used for grounding through a neutral resistor (Fig.1. c), [10, 11].

The effect of changing the parameters of the 20 kV power supply system on the value K_O .

For preventive maintenance of electrical equipment during operation of the 20 kV power supply system, it is possible to disconnect connections or connect an adjacent section of the tire by turning on a sectional switch. With such actions, the capacitive short-circuit current to the ground changes significantly. Based on the condition of reducing the level of K_O overvoltage, the calculations showed the following results. When the capacitance current was reduced by 2 times, the K_O Decreased by 16%, the I_r increased by 11% when the capacitive current was increased by 2 times. K_O The dependence of the value (2) on the capacitance current at a constant value calculated by the formula is shown in Figure 2.

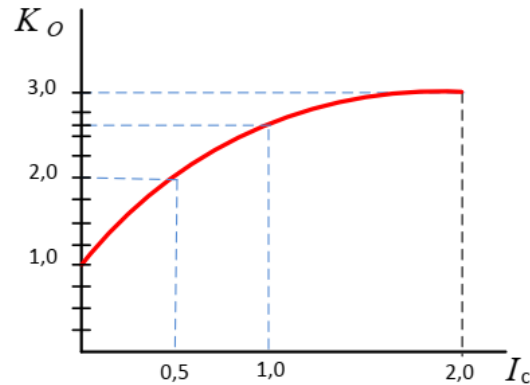


Figure 2. Dependence of the K_O value on the capacitive grounding current

When calculating the grounding parameters of a neutral resistor, when short-circuit currents to ground K_O change in cost must be taken into account. When disconnecting connections in the K_O power grid, it is very important to increase the value of the resistor (R_n) by an amount corresponding to a decrease in the short-circuit current with single-phase grounding in order to maintain the constant value of the coefficient at a set or accepted level. This approach ensures network stability and reduces the risk of equipment damage. [11].

Conclusion. Based on the above, we can formulate the following conclusions:

1. 20 kv distribution in electrical networks, the mode of connecting a neutral to the ground through a resistor is widely used in the practice of developed countries of the world, since it is this method that has many advantages over a neutral insulated network.
2. The use of neutral grounding with a resistor in 20 kV networks can significantly increase the reliability of networks, automate the process of detecting a damaged network and reduce the accident rate in case of a single-phase short circuit.
3. When disconnecting part of the networks departing from distribution substations, it is important to take into account the reduction of the overvoltage protection coefficient, in such a situation, increasing the resistance of the resistor is of important technical importance. This allows you to control the level of overvoltage and minimize possible damage to the equipment. This approach will help reduce the likelihood of accidents and ensure more stable and safe operation of the power grid.

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Rezyume: Ushbu maqolada 20 kv elektr tarmoqlarida neytralni yerga ulash rejimini tanlash muammosi ko‘rib chiqiladi, ushbu kuchlanish tarmoqlarida rezistor orqali neytralni yerga ulashdan foydalanish tarmoqlarning ishonchligini oshirishga, shikastlangan tarmoqni qidirishni avtomatlashtirishga va bir fazali qisqa tutashuvlarda avariylarni kamaytirishga imkon beradi. Tarmoq uzilish vaqtida ortiqcha kuchlanish ko‘ffitsiyentining talab qilinadigan darajada ushlab turish uchun rezistor qiymatini bir fazali qisqa tutashuv tokini kamaytiradigan miqdorga oshirish imkoniyati ko‘rib chiqiladi.

Резюме: В данной статье рассматривается проблема выбора режима заземления нейтрали в электрических сетях 20 кв, применение заземления нейтрали через резистор в сетях данного напряжения позволяет повысить надежность сетей, автоматизировать поиск поврежденной сети, снизить аварийность при однофазных коротких замыканиях. Рассматривается возможность увеличения значения резистора на величину, уменьшающую однофазный ток короткого замыкания, для поддержания требуемого коэффициента перенапряжения при отключении сети.

Kalit so‘zlar: neytralning rezistorli yerga ulanishi, qarshilik, podstantsiya, haddan tashqari kuchlanish, elektr xavfsizligi, rele himoyasi.

Ключевые слова: резистивное заземление нейтрали, сопротивление, подстанция, перенапряжение, электробезопасность, релейная защита.

THE ORIGIN OF VOLTAGE ASYMMETRY IN THE POWER GRID AND ITS IMPACT ON THE STEEL MELTING PROCESS

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Summary: This article examines the problem of voltage asymmetry in the electrical network and its impact on steel smelting processes in metallurgical enterprises. The work examines the sources of asymmetry, its consequences, as well as measures to prevent this phenomenon. Each chapter details the factors influencing asymmetry, its impact on steel melting processes, and specific steps to prevent it. The conclusion summarizes the findings and highlights the importance of effective voltage management strategies to ensure stability and efficiency of manufacturing processes.

Key words: Voltage unbalance, power supply, metallurgy, steel melting process, reactive power compensators, load balancing, voltage regulation, maintenance, personnel training.

Introduction

Power grids are an indispensable element of modern industry, providing electrical energy for various technological processes. In the context of metallurgy, electrical energy plays a particularly crucial role in metallurgical operations, such as steel melting. The efficiency and reliability of power grids have a direct impact on manufacturing processes and the quality of the final product.

However, despite rapid technological progress, power grids are subject to various anomalies that can significantly impact their operation. One such anomaly is voltage asymmetry, which occurs when the amplitudes and phases of voltages in the three phases of the power grid do not match. This can be caused by various factors, including unbalanced loads, equipment defects, short circuits, and other factors.

The objective of this study is to gain a deeper understanding of the origin of voltage asymmetry in the power grid and to identify its impact on the steel melting process. In the context of metallurgy, where the accuracy and stability of power supply are of paramount importance, voltage asymmetry can have serious consequences for technological processes and the quality of the produced metal.

During this study, we will examine the fundamental aspects of voltage asymmetry, conduct an analysis of its origin in the power grid, and explore its potential impact on metallurgical operations, especially the steel melting process. Technical solutions and measures to prevent voltage asymmetry will also be considered to ensure the stability and efficiency of manufacturing processes.

Through this research, we aim to provide valuable scientific information contributing to the understanding of the issue of voltage asymmetry in the power grid and its impact on critically important industries, such as metallurgy.

The Origin of Voltage Asymmetry [1]

Unbalanced Loads [2]. Unbalanced loads in the power grid occur when electrical consumers are not evenly distributed among the phases. This can happen due to uneven connection of equipment to different phases or due to changes in energy consumption over time. Unbalanced loads lead to uneven distribution of current and voltage, creating asymmetry in the power grid.

Equipment Defects. Defects in equipment, such as transformers, wires, switches, and other components of the power grid, can cause voltage asymmetry. For instance, insulation wear or mechanical damage can lead to current leaks, creating additional currents and altering voltage phases. These defects may arise due to natural wear and tear or inadequate technical maintenance.

Short Circuits. Short circuits occur when there is a direct connection between phases of the power grid or between a phase and the ground. This creates a brief increase in current and disrupts the

voltage stability in the system. The consequences of short circuits can lead to significant voltage fluctuations that can affect the symmetry of the network.

Imperfections in Power Generation. Irregularities in power generation can cause voltage asymmetry. For instance, issues with the distribution of magnetic fields in generators or instability in control systems can result in uneven voltage variations in the power grid. Such factors may arise due to technical malfunctions as well as natural wear and tear of equipment.

Effects of Voltage Asymmetry on the Power Grid. The effects of voltage asymmetry significantly impact the operation of the power grid. Overheating of equipment, energy losses in transmission lines, and additional loads on generators and transformers can be outcomes of asymmetric conditions. This can lead to increased equipment wear, reduced system efficiency, and higher maintenance costs.

Understanding the origin of voltage asymmetry is a key aspect in developing effective strategies for its prevention and management. In the following chapters, we will explore the impact of voltage asymmetry on metallurgical processes and propose practical methods to address this phenomenon.

The impact of voltage asymmetry on metallurgical processes

Temperature Inhomogeneities in Steel. The consequences of voltage asymmetry on metallurgical processes begin with temperature irregularities in the steel. Unbalanced distribution of current and voltage affects the uniform heating of electrodes and the crucible in metallurgical furnaces. This can lead to the formation of hot and cold zones in the melting crucible, subsequently influencing chemical reactions and the structure of the steel [3,4].

Instability of electric arc discharge. Voltage asymmetry results in the instability of the electric arc discharge, a key element in the metallurgical process. An unstable arc leads to various issues, including excessive wear of electrodes and equipment damage. This necessitates more frequent replacement of consumables and increases maintenance costs, reducing the overall efficiency of production operations.

Effects on steel quality. Voltage asymmetry can lead to inconsistencies in the structure and chemical composition of steel. Changes in temperature conditions and electric arc discharge conditions can influence metallurgical properties of steel, such as strength, hardness, and corrosion resistance. These alterations can impact the final characteristics of the metal and its suitability for specific industrial applications.

Additional energy costs. Inefficiency in system operation due to voltage asymmetry requires additional energy expenditures. Increased energy losses from excessive equipment wear and process instability lead to higher electricity expenses. This puts additional pressure on the production budget and may reduce the competitiveness of the enterprise.

The need for continuous monitoring. In conditions of voltage asymmetry, ensuring the stability and efficiency of metallurgical processes requires constant monitoring. Regular measurements and monitoring of power grid parameters become critical for promptly detecting and managing voltage asymmetry.

In this chapter, we have examined the complex impacts of voltage asymmetry on steel melting processes, ranging from temperature inconsistencies to additional energy costs. Next, we will explore approaches to prevent voltage asymmetry and its adverse consequences in metallurgy.

Measures to prevent voltage unbalance

Installation of reactive power compensators [5-8]. Installing reactive power compensators is an effective method for correcting voltage asymmetry. These devices compensate for uneven distribution of reactive power, maintaining voltage stability. Reactive power compensators can be installed at key points in the power grid, promoting phase balancing and reducing the negative impact of asymmetry.

Load balancing. Load balancing systems automatically distribute electrical loads among phases, ensuring even energy distribution. This can be achieved using modern load management

systems that analyze and regulate the connection of consumers to phases. Load balancing reduces the likelihood of voltage asymmetry.

Voltage and phase regulation [9]. Automatic voltage and phase regulation systems allow for real-time responsiveness to changes in the power grid. Modern voltage and phase regulators can adjust parameters in real-time, maintaining voltage stability and preventing asymmetry. Such systems can effectively adapt to load dynamics and network changes.

Equipment maintenance. Regular equipment maintenance is a crucial aspect of preventing voltage asymmetry. Planned checks and servicing of transformers, generators, transmission lines, and other power grid components help identify and address defects before they can lead to asymmetry. This includes checking electrical connections, insulation, and monitoring equipment parameters.

Training and education of personnel. Training personnel responsible for electrical equipment involves various aspects, ranging from technical skills to understanding control and monitoring systems. Trained staff can promptly respond to changes in the power grid, identify potential problems, and take measures to address them. This enhances the efficiency of responding to abnormal situations and improves overall metallurgical process operations.

Conclusion

In the discussed work, issues of voltage asymmetry in the power grid and its impact on electrometallurgical processes, especially the steel melting process, have been thoroughly examined. The sources of asymmetry, its influence on technological aspects, and measures for its prevention have been studied.

It is important to note that effective voltage management is an integral part of ensuring stability and productivity in metallurgical operations. The application of modern technologies, such as reactive power compensation, load balancing, and system parameter regulation, allows minimizing the risks of asymmetry and ensures the efficiency of steel melting processes.

The conclusion emphasizes the relevance and significance of further research in the fields of metallurgy and energy to find innovative solutions aimed at improving the stability of power supply and optimizing metallurgical processes. Successful voltage management strategies will contribute not only to increasing production efficiency but also to enhancing the overall stability of power systems.

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Rezyume. Ushbu maqolada elektr tarmog'idagi kuchlanish nossimetriyasi muammosi va uning metallurgiya korxonalarida po'lat eritish jarayonlariga ta'siri ko'rib chiqiladi. Ishda nossimetriya manbalari, uning oqibatlari, shuningdek, ushbu hodisaning oldini olish choralari ko'rib chiqiladi. Har bir bobda nossimetriyaga ta'sir etuvchi omillar, uning po'lat eritish jarayonlariga ta'siri va uni oldini olish bo'yicha aniq qadamlar batafsil bayon etilgan. Xulosa topilmalarni umumlashtiradi va ishlab chiqarish jarayonlarining barqarorligi va samaradorligini ta'minlash uchun kuchlanishni boshqarishning samarali strategiyalarining muhimligini takidlaydi.

Резюме. Эта статья исследует проблему несимметрии напряжения в электросети и ее воздействие на процессы плавки стали на металлургических предприятиях. В работе рассматриваются источники несимметрии, ее последствия, а также меры по предотвращению этого явления. Каждая глава подробно описывает факторы, влияющие на несимметрию, ее воздействие на процессы плавки стали и конкретные шаги по ее предотвращению. Заключение подводит итоги и подчеркивает важность эффективных стратегий управления напряжением для обеспечения стабильности и эффективности производственных процессов.

Kalit so'zlar. Kuchlanishning nomutanosibligi, elektr ta'minoti, metallurgiya, po'lat eritish jarayoni, reaktiv quvvat kompensatorlari, yuklamalarni muvozanatlash, kuchlanishni tartibga solish, texnik xizmat ko'rsatish, xodimlarni o'qitish.

Ключевые слова. Несимметрия напряжения, электроснабжение, металлургия, процесс плавки стали, компенсаторы реактивной мощности, балансировка нагрузок, регулировка напряжения, техническое обслуживание, обучение персонала.

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**STEPS TO IDENTIFY AND MANAGE INFORMATION SECURITY INCIDENTS IN
ACCORDANCE WITH THE O'Z DST 3386:2019 (ISO/IEC 27035-1:2016) STANDARD**

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Summary: *This article provides information on the stages of identifying and managing information security incidents in accordance with the O'z DST 3386:2019 (ISO/IEC 27035-1:2016) standard.*

Key words: *information security, attack incidents, international and national standards.*

INTRODUCTION. As we know, protection systems and tools used in the implementation of information security must be developed based on the requirements of international and national standards for information security. In order to create a system used to manage information security incidents in the organization's corporate network, it is appropriate to familiarize with its international national standard requirements and develop an incident management system based on these requirements. According to the principles of incident management, "UZINFOCOM is a single integrator for the creation and support of state information systems" LLC, O'z DST 3386:2019 (ISO/IEC 27035-1:2016, MOD) Methods of ensuring security . Information security incident management (Part 1) Principles of incident management (ISO/IEC27035-1:2016, MOD) The state standard of the Republic of Uzbekistan has been developed [1].

II. MAIN PART

This standard ISO/IEC 27035-1:2016 Information technology – Security techniques - Information security incident management - Part 1: Principles of incident management management principles) modified in relation to the international standard.

This standard is the basis for the ISO/IEC 27035 series of standards according to its scope of application. It describes the key steps and key concepts of information security incident detection and management, how these concepts relate to the principles of a structured approach to incident detection, reporting, assessment and response, and the application of lessons learned, and is described in this standard. The principles are general in nature and are intended to be applied by all organizations regardless of type, size or activity. Based on their type, size and type of activity, organizations can make changes to the manual presented in this standard and make corrections to the situation related to information security risks. This standard can also be applied to external organizations that provide information security incident detection and management services. The ISO/IEC 27037 standard on information security incident management has also been developed. This standard provides clear guidance on processes for dealing with potential evidence presented in digital form. These processes include: identification, collection, retrieval, and storage of digital potential evidence. These processes are necessary to ensure the integrity of digital evidence and to conduct investigations. This standard also includes general guidelines for non-digital evidence. And these can be useful when analyzing potential evidence presented numerically [1-2].

This standard is also intended to inform those determining the reliability of evidence in digital form. This standard can be used by organizations that need to display, analyze and protect potential evidence in digital form. This standard is important for regulatory bodies that develop and evaluate processes related to digital assets (in many cases large and complex assets). Potential evidence specified in the standard can be obtained from digital devices, networks, databases, and various other digital tools. Because these evidences are created in a digital format. The standard did not cover the problem of converting analog data to digital data. Based on the scope of this standard, it includes guidance on specific areas dealing with evidence in digital form (including identification, collection,

retrieval and storage of potential evidence in digital form). The actual standard provides guidance on common situations that arise when working with digital evidence. The real standard facilitates the exchange of potential evidence in digital form between jurisdictions in organizations and serves to implement disciplinary processes. The standard recommends the following devices and functions used in different situations:

- digital data carriers used in various computers, such as hard disks, diskettes, optical and magnetic disks;

- mobile phones, "Pocket" personal computers, personal electronic devices, memory cards;

- mobile navigation systems;

- digital cameras and video cameras;

- various computers connected to the network;

- networks and other digital protocols based on the TCP/IP protocol;

- devices based on the functionality of devices listed above.

As can be seen from the above information, the management of information security incidents is not only the events that occurred to the information security system, but also the sum of expected and unexpected threats. Before developing information security incident management steps based on standard requirements, the following functionalities should be performed in the detection and management of information security incidents. Information security incident management functionality (A13) is as follows:

A.13.1.1 Information Security Incident Reporting Functionality. This message should be sent as soon as possible through the control channels for which the functionality is known.

A.13.1.2 Security Vulnerability Reporting Functionality. Ensure that all information system related employees, workers and other personnel monitor and report observed vulnerabilities.

A.13.2.1 Processes and accountability functionality. In this case, the responsibility should be assigned to the departments, and it should be clarified to ensure the process of taking correct, effective and quick measures against information security incidents.

A.13.2.2 Functionality to draw conclusions from information security incidents. This means measuring the volume of information security incidents, determining their type, and implementing mechanisms that determine their value.

A.13.2.3 Evidence Collection Functionality. If a person or organization is considered as an information security incident, it ensures the collection, storage and presentation of evidence to law enforcement agencies [3-4]. The stages of identifying and managing information security incidents in the organization's corporate network are carried out in the following sequence based on the requirements of the O'z DSt 3386:2019 (ISO/IEC 27035-1:2016) standard:.

1. Planning and preparation.

2. Identification and reporting.

3. Evaluation and decision making.

4. Taking response measures.

5. Gained experience.

Some actions can be performed at several stages of the incident handling process or throughout the entire process. Such activities include the following activities.

- documentation of incidents and important information, measures taken and subsequent actions within the process of working with incidents;

- coordination of participating parties and communication between them;

- informing management and other interested parties about important incidents;

Information sharing between internal and external personnel such as stakeholders and suppliers and other information security incident response teams.

- Identifying and managing information security incidents in the organization's corporate network requires preparation for information security incident management. In order to adopt a clear

and reliable and practical and effective plan in the management of information security incidents, it is necessary for the organization to complete the following planning and preparation measures depending on the type of activity [5]. These are:

- development of the information security incident management policy in accordance with the organization's internal regulatory legal documents and familiarization of all employees in the organization with this document;
- updating the developed information security incident management policy of the organization's information security policy, including documents related to management risks both at the general level and at the system level, as well as at the level of services and networks;
- to define and formalize the general plan for managing information security incidents and warn employees about the issues of communication and information disclosure;
- organization of an information security incident response group with an appropriate training program developed and presented to the organization's employees;
- establishment of corporate relations and communication in cooperation with internal and external organizations directly involved in the management of events, incidents and vulnerabilities related to information security and practical support of this cooperation;
- providing technical, organizational and practical support and creating, implementing and using mechanisms to support information security incidents and information security incident response team activity management plan. Development and implementation of the necessary information systems to support the information security incident response team, including the database used to ensure information security.
- development of an awareness raising program for managing information security incidents and vulnerabilities;
- review how the information security incident management plan, processes and procedures are being used.

The second step of identifying and managing information security incidents in the organization's corporate network involves identifying information security incidents, summarizing information related to them, and preparing reports using automated tools on the causes of their occurrence and the presence of vulnerabilities in the system. At this stage, it is also necessary to take into account that events and vulnerabilities are not yet classified as information security incidents. The information security incident report allows for analysis, if necessary, in accordance with the organization's formal reporting policy. At the stage of identifying and reporting information security incidents, the responsible person performs the following main tasks:

- monitoring and keeping records of activities in the information system of the organization's main building and the systems and networks of the organizations within it (making appropriate reports on a daily basis);
- detection of information security incidents, preparation of a report on the discovery of an incident or information security vulnerability both by employees and in an automated manner;
- summarizing information about information security incidents;
- information affecting information security measures in internal and external databases, including system and network activity logs, current political, social or economic activity, trends related to incidents, new attack directions, summarize and analyze information on new strategies and technologies for mitigating the consequences of attacks;
- ensuring safe collection and storage of digital evidence, continuous monitoring of such safe storage, in case evidence is needed for internal disciplinary investigations;
- compliance with the change control regime, which allows updating the functions of reporting on information security incidents, as well as constant updating and control of the information security database;

All collected and aggregated information related to information security incidents must be stored in a database used to ensure information security managed by the information security incident response team [6].

The third step in the management of information security incidents in the corporate network of the organization includes the assessment of information related to information security incidents and making a decision about whether the event should be evaluated as an information security incident. After information security incidents are identified and a report is prepared, the responsible person performs the following main tasks:

- distribution of responsibility for the improvement of information security incidents, including assessment, decision-making and actions, based on the appropriate hierarchy of employees, involving both information security officers and other employees;
- it is necessary to review and change the reports made on the basis of the authorization of each informed person to use the system, to assess the damage caused. Distribution of individual actions based on the type of incident and consequences of damage;
- summarizing information, which may include test, measurement data, and other information related to identifying information security incidents. The type and amount of collected information is formed depending on the information security incidents that have occurred;
- conduct an assessment by the incident handler to determine whether the incident is an incident or a false alarm. If a false alarm (ie, an error is allowed) is raised, the report should be quality-checked by the information security incident response team to ensure that the incident has been properly assessed;
- to ensure that all actions taken by all involved, the information security incident response team, and the decisions taken in the appropriate order are recorded for later analysis;
- follow a change control regime that allows you to update the functions of finding and reporting information security incidents.

All collected and aggregated information security incidents related to the information security incident response team must be managed by the information security database to be kept secure [7].

In the corporate network of the organization, measures are taken for information security incidents in accordance with the actions specified in the fourth head of information security incident management. In accordance with the adopted decision, action may be taken immediately, in real time, and may include an information security audit. After the information security incident is confirmed and the action to be taken is determined, the responsible person performs the following main actions:

- allocating responsibility for activities related to the improvement of AX incidents, including assessment, decision-making and implementation of actions, with the help of an appropriate hierarchy of personnel, involving both security personnel and other personnel;
- review incidents as needed and according to the information security incident classification scale. This scale is subject to change as needed. In order to gain an in-depth understanding of the nature of the incidents, the audit may include various analytical methods;
- analysis by the information security incident response team to confirm the fact that the information security incident is under control and, if the result is positive, take the required response. If the incident is not under control, it can have a serious impact on the organization's activities, taking actions to minimize the damage;
- determination of internal and external resources for taking measures against incidents;
- reporting information about the existence of an information security incident and any related information (for example, information about risks, attacks and vulnerabilities) to the information transfer plan of the organization and the information security incident response team and disclosure of information disclosure to other internal and external parties in accordance with the disclosure policy. Notify internally and externally contracted information security incident response teams (such as law enforcement, ISPs, and information providers) that may assist in incident management and resolution.

After the consequences of the information security incident have been eliminated, it is necessary to start the activity based on its nature and level of seriousness. The fifth phase of information security incident management in the organization's corporate network begins after the resolution of information security incidents. This stage includes the learning of experience (knowledge) gained from dealing with incidents. At the fifth stage, the responsible person performs the following basic actions [6-7].

- identification of experience gained from information security incidents;
- analysis, definition and improvement of information security management tools (new or updated management tools), as well as information security incident management policies. An experience may consist of one or more information security incidents or reports of security vulnerabilities. Improvement of quantitative indicators that are part of the strategy of the organization developed based on the type of activity of the organization and indicate the direction of investments aimed at updating information security management tools;
- analysis and improvement of the organization's existing system of identifying and managing information security risks;
- analysis of report formats and effectiveness of organizational structure in response to information security incidents, assessment and recovery and work on information security vulnerabilities, mutual cooperation on analysis between trusted persons and sharing of results;
- to agree on the joint use of information about incidents to prevent similar incidents in the environment of partner organizations for the exchange of information based on the standards presented in the O'z DSt ISO/IEC 27010 standard;
- regularly evaluate the activity of the information security incident response team, regularly improve the information security elements of the organization, taking into account that operations for managing information security incidents are repeated operations.

Summary. An approach to the management of information security incidents in the organization's corporate network based on the stages of information security incident management in accordance with O'z DSt 3386:2019 (ISO/IEC 27035-1:2016) standard. allows. This makes it possible to raise awareness of information security breaches. Such incident management steps, which take into account the practical experience gained, allow to reduce the number of errors or inaccuracies in the investigation of incidents.

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Rezyume: *Ushbu maqola O'z DSt 3386:2019 standartiga (ISO/IEC 27035-1:2016) muvofiq axborot xavfsizligi intsidentlarini aniqlash va boshqarish bosqichlari haqida ma'lumot beradi.*

Резюме: *В данной статье представлена информация об этапах выявления и управления инцидентами информационной безопасности в соответствии со стандартом O'z DSt 3386:2019 (ISO/IEC 27035-1:2016).*

Kalit so'zlar: *axborot xavfsizligi, hujum hodisalari, xalqaro va milliy standartlar.*

Ключевые слова: *информационная безопасность, инциденты с атаками, международные и национальные стандарты.*

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STUDY PHYSIC-CHEMICAL CHARACTERISTIC POLYMER APPLICABLE IN BORE SOLUTION

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Summary: In article are brought results of the study physic-chemical characteristic new copolymers synthesized on base departure to chemical industry and local raw materials resource. Using the modern methods of the analysis are shown polyelectroliting nature water solution copolymers, as well as are shown possibility of the using designed polymer for stabilization bore solution.

Key words: polymer, sand, ground, water solution polymer, filtering, water recoil, sediment, tixotroping, viscosity, density.

Searching for and exploring the oilfields and gas in Republic Uzbekistan on new area and growing of the depths of the boring definition objective need in improvement composition bore solution. Herewith used bore to syringe liquid must possess certain rheological, physic-chemical and technological characteristic depending on geological construction of the cut of the bore hole and mineralization opened by her plasting of water steadfast to influence aggressive fluids [1]. The nature applicable polymer renders On applied characteristic bore solution enormous influence.

As is well known [2], amongst enormous amount known natural and synthetic polymer only a few possess the ability open in water. For water solution polymer characteristic of presence in chain macromolecule gidrofilings of the functional groups (the gidroxil, carboxyl, amides, sulfur and others.). The degree dissociation water solution polyelectrolyte is connected with ion power of the solution. The form changes with change last macromolecule polyelectrolyte. Consequently, must be changed and their working, for instance, coagulation, flocculation characteristic and to distend. Increase the number of the kinetic units in solution as a result dissociation and change the form macromolecules polymer brings its gidrodinamicals characteristic about change. Consequently, viscosity and density of the bore solution must be such to with other technological factor and acceptance possible was provide sufficient antipressing on passable layers, but in ditto time she must not noticeably worsen the condition of the work chisel and field-performance dates productive horizon. Other word, in each concrete event must be chosen best values to viscosity and density of the bore solution. Density also is one of the main factors, providing stability wall bore holes.

In this aspect was of interest study physic-chemical characteristic designed by us on base departure water solutions polymers, which as we seem, can find broad using in prospect in preparation bore solution, especially firm to influence aggressive fluids.

As object of the studies were applying copolymers departure of the processes delintation grain cotton plant with GIPAN, as well as some waste chemical enterprise our republics such as - lignin, lignosulfonat and others product to reactions copolymerization departure of the processes delintation grains cotton plant with GIPAN presents itself very viscous not hue or painted in amber color of the liquids, with specific scent, their physic-chemical features are completely identified.

The most wide-spread method is a determination to viscosity solution polymer. At study of viscosity powerfully diluted solution was discovered that many polymers, as from a certain "critical concentration" show the deflection brought viscosity from linear dependency. Usually in these cases extremums appear on crooked, reasons, which origin is concluded in electrostatics repulsive of the

same name charged fragment macromolecules. In diluted solution copolymer ionized nearly completely, but because of relatively small quantity free carboxyl's groups in its composition effect to ionizing not is too expressed. The study to dependencies to viscosity and pH from concentration solution copolymers and natural polymer has shown that with growing of the concentrations copolymer in solution importance pH changes small (tabl.1). Several more concentration are reflected on importance's pH lignin and lignosulfonat that probably, is connected with different methods of their reception. The nature of the change to dependencies to viscosity from concentration in solution typed out to be alike. However sharp structuring in solution copolymer with akrylonitrilings fragment occurs in the field of greater concentrations that is caused, probably, difference in function composition and value of the molecular masses polymer.

Electronic-microscopic studies is installed that for solution resent prepare copolymer typical convolute type of the structure in the manner of formless unit, changing depending on concentrations copolymer, system in this case is homogeneous. Since time (for 5 hours) in system occurs the orientation, particularly in concentrated solution. Under the most further keeping of the solution (after 24 hours), appears the second type of the structure - an fibriling over molecularing formation, due to that homogeneous system becomes microheterogen. Probably, globulin types of the structure explanatory the small degree electrolytic dissociation functional groups and low their gidrotation. The aging copolymers and their solution are connected with to lather amides of the groups that can be confirmed by increase pH water solution with reduction of the concentrations.

Table 1

Change to specific viscosity and pH solution polymer depending on concentrations copolymer

№	Concentration solution polymer, %	copolymer		lignin		lignosulphonat	
		pH	viscosity η	pH	viscosity η	pH	Viscosity η
1	0,005	6,0	0,10	7,1	-	-	-
2	0,010	6,0	0,12	7,1	-	-	-
3	0,05	6,1	0,14	7,1	-	-	-
4	0,10	6,1	0,16	7,2	0,1	0,11	0,08
5	0,5	6,2	0,20	7,2	0,11	0,12	0,09
6	1,0	6,4	0,22	7,4	0,12	0,12	0,1

Due to lather amides of the group in circuit macromolecules copolymer appear the new functional groups, degree dissociation which in over and over again more, than amides of the groups. Because of electrostatics repulsive of the same name charged groups COO^- - macromolecules are rectified. Herewith the happy circumstances for arising the relationships between macromolecules that intensifies their mutual orientation and brings about shaping fibrils. Herewith, was installed that heating renders on process of the structuring in solution copolymers such influence, either as keeping. So, at half hours heating under 60°C 10%- resent prepare solution copolymer exists such speedup fibril formed, as at keeping of the solution. The study change to viscosity and pH solution copolymers depending on concentrations has shown that they possess the fible acid a reaction, increasing with increasing of the contents copolymer in solution.

Beside water solution copolymer relative viscosity powerfully grows with increase the concentrations, anomaly to viscosity exists already in the field of powerfully diluted solution moreover for copolymer she denominated violent, than for lignin and lignosulfonat. The anomaly to viscosity copolymer, even powerfully diluted solution is conditioned presence in them over molecularing of the structures. Electronic-microscopic study lignin and lignosulfonat has shown that they are microheterogen and consist of varied unit macromolecule - a globule and fibril. They united in units of the different forms, changing depending on concentrations of the solution natural polymer. In

concentrated solution exist the clot to different density, with transition from high concentration of the happy circumstances to low for glue formed. The most further diluting brings about destruction gluing.

At keeping solution copolymers occurs sequencing a fibril structured element. For products 24-sentry of hydrolysis on electronic photomicrography of the solution, are seen filament, consisting of fibril. The appearance such fibrous structures (rectifying bunch macromolecule), probably, is conditioned by further hydrolysis amides groups in alkaline ambience, about than was spoken above.

In the course of study was installed that interaction designed by us water solution copolymer with dispersing particle depends on many factor: concentrations copolymer and mineral suspending, presences electrolyte, temperature, salting and others amongst mineral suspending systematically and in detail studied soil and ground suspending, to convey from Navbakhor, Rishtan, Chust locality. So, influence designed by us copolymer in analogy with polyakrylamid (PAA) has shown that polymeric preparations enter in interaction with soil particle in consequence of which in suspending appears structure. pH soil suspending in whiteness of these polymer does not change that probably, is connected with buffer influence of ground on change the concentrations hydrogen ion in mixture.

The relative value of the volume setting soil suspending under influence synthesized us copolymers changes equally. However, in the event of industrial polymer PAA soil suspending more. Increase the volume setting with growing of the contents considered polymer changes not simulating at the speed of filtering. The last gets through minimum at concentrations of the polymer, equal 0,05% can be connected with that that under small concentration copolymer not all particles aggregation, remained particles occlude the times and hereunder decreases the velocity of the passing to liquids through layer setting. When all particles are bound, destruction brings about increasing of the velocities to filtering the fluid phase. As to designed water solution polymer, that here with increase the concentrations of the polymer and volume setting and velocity to filtering increase. Probably, this copolymer better sorption the soil particle. This is conditioned that that under influence polyelectrolyte, first, can occur peptization soil particles, and, consequently, occlusion of the times more small particle, secondly, filming to surfaces of the particles by polymer. Hereupon the happy circumstances for slide of the particles friend for friend and arising the thick packing, holding up passing of the fluid phase through layer setting. However if occurred peptization, volume, setting must was continuously decrease, dispersion ambience was turbid, but this does not exist.

Noted in experience reduction to specific viscosity filtrate ground in contrast with source solution lignin and lignosulfonat validates the second suggestion - occurs to envelop surfaces of the soil particles polymer. Granulometric composition of ground influences upon process of the splicing microagregats. The most friable precipitation form on background of the calcium chloride of the particle of ground of the different sizes in witness of copolymer.

The Method sedimentation analysis was studied influence synthesized us copolymer on dispersing different mineral suspending. The experiences conducted with 0,2% suspending, which in 24 hours after preparation added the solutions copolymer in corresponding to dosage. The influence studied in kinetics through 5, 10, 15 and etc minutes. It is revealed that degree dispersing change under influence copolymer and the other values, connected with size of the particles suspending. The balance is fixed already after 5 minute contacts suspending with polymer. Regardless of type of the mineral system radius the best likely particles it increases that is indicative of aggregation particles dispersing phases under influence of the polymeric additive. Aggregating dispersing of the phase occurs within optimum dosage of the polymer. The most further increasing to concentrations copolymer promotes increase dispersing and, accordingly, reduction of the value of the best likely radius of the particles that can be due to disintegration unit under influence polyelectrolyte and stabilization of the particles suspending.

Thereby, structuring in mineral suspending under influence copolymer is found in complex dependency from concentration copolymer. The results of the studies physic-chemical characteristic new copolymers, as well as their influence upon shaping firm to influence aggressive fluids unit have

shown that designed by us copolymers in significant measure create the happy circumstances for provision of stability wall bore holes. They are revealed main applied, physic-chemical and rheological characteristic bore solution. The practical application of the development can, will solve many economic and technological problems to branches.

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Rezyume: *Maqolada kimyo sanoati va mahalliy xomashyo aylanmasi asosida sintez qilingan yangi sopolimerlarning fizik-kimyoviy xususiyatlarini o'rganish natijalari keltirilgan. Zamonaviy tahlil usullaridan foydalangan holda suvli eritmalarining polielektrolitik tabiiy sopolimerlari ko'rsatilgan va burg'ulash suyuqliklarini barqarorlashtirish uchun ishlab chiqilgan polimerdan foydalanish imkoniyati ko'rsatilgan.*

Резюме: *В статье приведены результаты исследования физико-химических характеристик новых сополимеров, синтезированных на основе обращения в химическую промышленность и местных сырьевых ресурсов. С использованием современных методов анализа показаны полиэлектролитические природные сополимеры водных растворов, а также показана возможность использования разработанного полимера для стабилизации буровых растворов.*

Kalit so'zlar: *polimer, qum, tuproq, polimerning suvdagi eritmasi, filtrlash, suyuqlik yo'qotilishi, cho'kma, tiksotropianish, yopishqoqlik, zichlik.*

Ключевые слова: *полимер, песок, грунт, водный раствор полимера, фильтрация, водоотдача, осадок, tiksotropirovaniye, вязкость, плотность.*

UDK: – 004

ALGORITHMS OF PRODUCTION OPTIMIZATION AND DECISION-MAKING BASED ON THE EVALUATION OF AGRICULTURAL OBJECTS

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Summary: *In this article, the issues of decision-making in optimizing the allocation of special zones for the production of agricultural products and determining the values of these zones based on pre-evaluation are outlined. The necessity to calculate the values of lower hierarchical level zones in determining the value of higher hierarchical level zones is emphasized, with the goal of achieving a hierarchically structured zoning system. Experts have identified a set of criteria that ensure the use of a comprehensive set of pre-evaluated criteria for assessing objects. The article introduces algorithmic foundations for decision-making in the theory of parametric optimization and management. The application of parametric optimization in the placement of crops in the field is considered, utilizing a two-dimensional ecological-economic model to maximize agricultural production and minimize water consumption. Pareto optimality is employed in the research, and results are presented using algorithms for sorting solutions into Pareto-optimal or strongly efficient ones.*

Key words: *Parametric optimization, Pareto-optimal, tree criterion, alternative solution.*

Introduction

In today's context of the intensification of ecological conditions, selecting optimal variants and making decisions in agricultural production in rural areas pose challenges, including identifying and addressing practical differences. These issues contribute to the complexity of the problem and require a scientifically grounded approach to finding solutions.

For tackling complex issues, making management decisions is always one of the integral aspects of solving intricate problems. The foundation of management decisions lies in selecting the most optimal variant, considering it as the best choice. This variant is determined by gathering and analyzing logical information about the current situation in the enterprise, utilizing minimal labor, financial, and technical resources, and minimizing time expenditures [1].

It is essential to adopt the necessary methods and approaches in selecting the optimal decision or the one closest to it. Decision-making in management involves multiple factors, and an objective guiding structure is often present. Typically, this guiding structure encapsulates external influences, such as constraints imposed by the external environment, in its decision-making process [2].

To formulate the decision-making problem, methods such as generating alternatives, evaluating them, and selecting them are employed.

Main part

The pre-evaluation of the values of specific zones for agricultural production instills a natural confidence in discussing the maximum degree of agricultural output for rural industry.

The decision-maker accepts the decision in the form of a goal hierarchy that reflects the hierarchical structure of the goal system when accepting the approach. This structure mirrors the complexity of the objects under consideration.

For evaluating the achievement level of each goal, a suitable criterion is employed, and in this case, a criterion that corresponds to it is used. In this way, it is appropriate to establish a hierarchy of criteria that reflects the hierarchical structure of both evaluating the object and indicating the system of predefined criteria for assessing the object.

If we return to the previously discussed issue, it is possible to outline the hierarchy of criteria for the "Quality of Agricultural Production" integral measure in the following schematic manner.

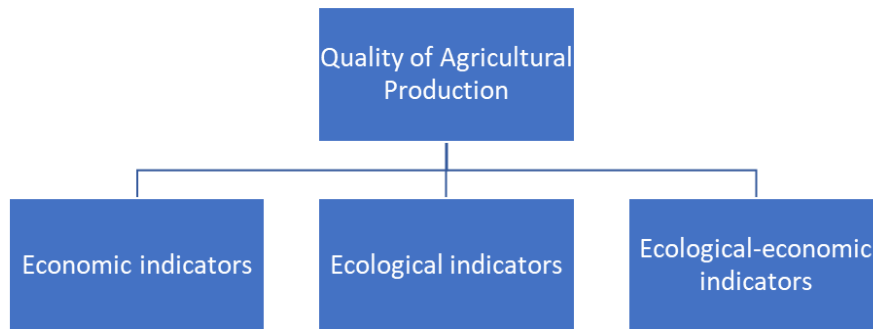


Fig 1. Schematic representation of criteria hierarchy for the quality of agricultural production

The third hierarchical level of the tree depicted in the Fig1 constitutes indicators directly describing the functional capabilities of agricultural production, economic indicators, and other relevant metrics, providing a direct specification of the capabilities of rural industry production.

In determining the value of higher hierarchical level zones for the assessment of upper-level objects, it is necessary to calculate the values of lower hierarchical level zones in advance.

Currently, well-developed methods exist for calculating criterion values based on the values of criteria at the lower hierarchical level.

A set of criteria for assessing expert objects should possess a range of properties ensuring its justified application. These properties are extensively discussed in the literature on managerial decision-making [3].

1. **Completeness.** The criteria included in the set must provide an adequate assessment of the object of examination or assess the level of achievement of the goal set for the decision maker, for which the set of criteria should be intended for this purpose.

In other words, the set of criteria must include all the main aspects of assessing the object of examination or criteria characterizing the level of achievement of the goals facing the decision maker.

2. **Efficiency.** Since the criteria are designed for assessing objects, they should be equally understandable to both experts and decision-makers, ensuring efficient decision development and making. This is because they must characterize the fundamental aspects of the analyzed situation and be clear for evaluation based on them.

3. **Distribution.** The principle of divisibility means that experts or decision makers are comfortable working with a large number of criteria. If the situation being analyzed is specific, it will need to be assessed according to a large number of criteria. Some authors indicate that there should be no more than seven evaluation criteria, otherwise it would be advisable to divide them into smaller groups so that they can be worked on simultaneously.

4. **Not too much.** There should not be too many criteria to avoid repetition in assessing the analyzed situation. This situation arises due to the simultaneous consideration of the results obtained, as well as the criteria characterizing the means of achieving the goal, or the simultaneous consideration of the system of both input and output characteristics.

5. **Minimum dimension.** This principle is aimed at making the multi-criteria evaluation event not too complicated when it is not necessary. It is appropriate to include such criteria in the set of criteria for evaluating the analyzed situation, without which such an evaluation would not be possible.

It is impossible to solve most of the strategic issues of determining the most important areas of the enterprise's activity, determining the priority of financing projects and works, evaluating the prospects of projects and other multi-criteria expert evaluation systems.

To ensure the popularity of the algorithmic methodology described above for solving multicriteria linear programming problems, two- and three-criteria problems of specialization of agricultural production and settlement development are used [4].

Results

The linear knot method for finding extreme values of the object of parametric optimization for multi-criteria problems was applied to the two-criteria ecological-economic model of the problem of maximizing agricultural production and minimizing water consumption of crop placement [4]. The process of mathematical modeling of the problem was considered, and it was determined that the land areas used for the development of maximum crop products based on the minimum water consumption of agricultural crops by region [5], [6]. When solving this problem, numerical solution results were obtained based on the interactive software tool for solving multi-criteria problems using the linear knot method (Figure 2) [7].

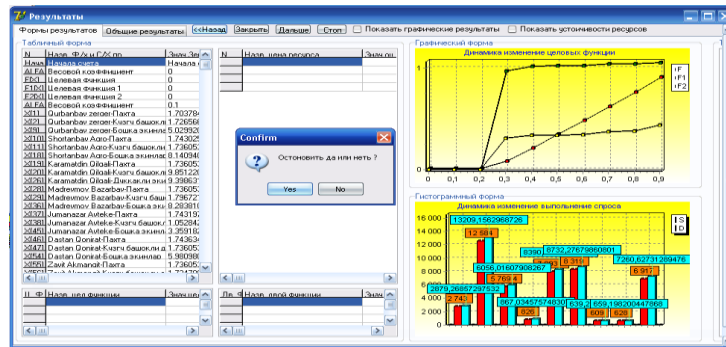


Fig 2. The numerical results window of the interactive software tool

The method of applying multi-criteria decision-making algorithms is used for the obtained results. In this case, based on the numerical solution results, one of the equally strong solutions and incompatible solutions are taken according to the methodology presented in Figure 3 [8].

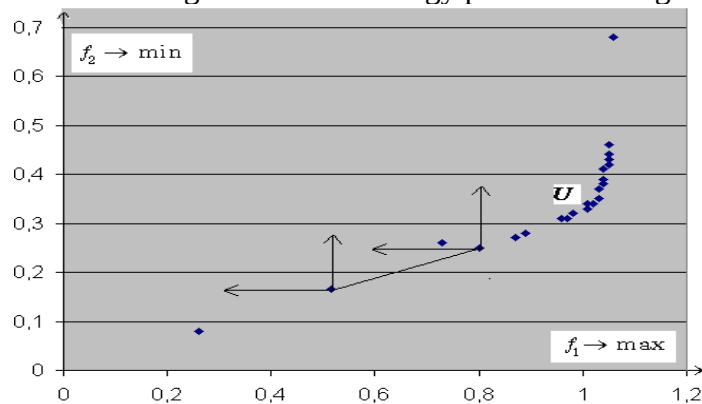


Fig 3. Pareto sets for efficient solutions

Based on the methodology presented in Figure 2, effective solutions are left and alternative decision-making options are identified. It provides effective results in analyzing the obtained results and making decisions.

Conclusion

For the issue of making management decisions based on multi-criteria parametric optimization, we present the following advantages of using the principal criterion method, linear knot method, and maximin winding methods in determining the extreme values of the optimization object:

- solving the complexity of the application of optimization methods in management decision-making;
- the possibility to choose methods for solving numerical problems for multi-criteria problems;
- the opportunity to sort the effective solutions of numerical solutions is created;

- It has the advantages of creating a Pareto set and the possibility of choosing alternative options and making a decision based on its state of optimality.

Effective solutions were obtained by applying this methodology to the numerical solution of two-criteria ecological-economic models of specialization and settlement of agricultural production.

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Rezyume: Ushbu maqolada qishloq xo'jaligi ishlab chiqarishi uchun xususiy mezonlarni tanglash va ularning qiymatlarini oldindan baholash asosida, qishloq xo'jaligi ishlab chiqarishini joylashtirish masalasining mezonlarini baholash asosida qaror qabul qilish masalalari qaraladi. Bunda ierarxik sath mezonni ob'ektlarini baholash uchun qiymatini hisoblashda quyi ierarxik sath mezonlari qiymatlarini oldindan hisoblash zarurati maqsad qilib qo'yilgan. Ekspertlar ob'ektlarni baholash uchun mo'ljallangan mezonlar to'plamini qo'llanilishini ta'minlaydigan qator xossalar keltirilgan. Unda parametrik optimallashtirish masalalarining qo'yilishi va boshqarish nazariyasida qaror qabul qilishning algoritmik asoslari keltiriladi. Parametrik optimallashtirishni ob'ektning ekstremal baholarini topishni ko'p mezonli masalalar uchun chiziqli tuguncha usuli ekinlarni joylashtirishda qishloq xo'jaligi ishlab chiqarishini maksimallashtirish va suv iste'molini minimallashtirish masalasining ikki mezonli ekologik-iqtisodiy modeliga qo'llanilgan. Masalani tadqiq qilishda Pareto tamoyili qo'llanilib, u bilan bog'liq (Pareto-optimal) yoki kuchli samarali echimlarni saralash algoritmlari asosida natijalar keltiriladi.

Резюме: В данной статье рассматриваются вопросы принятия решений на основе выбора частных критериев сельскохозяйственного производства и предварительной оценки их значений на основе оценки критериев размещения сельскохозяйственного производства. В этом случае необходимость предварительного расчета значений критериев нижнего иерархического уровня для оценки объектов иерархического уровня направлена на вычисление их значения. Эксперты выделили набор критериев, обеспечивающих использование комплексного набора предварительно оцененных критериев для оценки объектов. В статье представлены алгоритмические основы принятия решений в теории параметрической оптимизации и управления. Рассматривается применение параметрической оптимизации при размещении сельскохозяйственных культур в поле с использованием двумерной эколого-экономической модели для максимизации сельскохозяйственной продукции и минимизации потребления воды. При исследовании задачи используется принцип Парето, а результаты представляются на основе алгоритмов сортировки связанных (Парето-оптимальных) или сильно эффективных решений.

Kalit so'zlar: Parametrik optimallashtirish, Pareto-optimal, mezonlar daraxti, alternativ echim.

Ключевые слова: Параметрическая оптимизация, Парето-оптимальность, дерево критериев, альтернативное решение.

NEW ION EXCHANGERS FOR WASTEWATER TREATMENT OF OIL REFINING ENTERPRISES

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Summary: *The article discusses some possibilities of chemical modification of co-polymers and ionites based on them, which are used for ion exchange wastewater treatment in the oil refining and chemical industries. Specific applications of modified polymer ionites are shown.*

Key words: *ion exchange purification, metal-containing wastewater, polymer ionites, comonomer, copolymerization, filtrate, sorbate.*

We developed on the basis of quaternary phosphonium salts, ion exchange resins (ion exchangers) are typical solid hygroscopic gels, practically insoluble in water and common solvents. They belong to the class of high-molecular compounds obtained by polycondensation and polymerization of organic substances [1].

The increased sorption capacity of resins determines the ion exchange that occurs between the ion exchanger and the electrolyte solution in the event of their contact. Ion exchange is caused mainly by electrostatic forces, but the influence of the structure of the ion exchanger itself and the properties of the solvent cannot be excluded.

It has been established that each ion exchanger consists of a high-molecular spatial network of hydrocarbon chains - a “framework” (otherwise known as a “matrix”), “cross-linked” by transverse valence forces, or lattice forces, which prevents its separation. Thus, an ion exchanger grain is like one giant molecule. Divinylbenzene is most often used to form cross-links, and the degree of cross-linking of the ion exchanger is expressed as a percentage of divinylbenzene added during the polymerization of the ion exchange resin. Depending on the number of cross-links, the average pore size of the ion exchanger varies from several angstroms to values larger by two orders of magnitude (for the ion exchanger in the swollen state) [2].

In contrast to zeolites, the matrix of the synthetic ion exchange resins we synthesized does not have a regular periodic structure, but is a disordered three-dimensional system with unequal pore sizes. As a result, these ion exchangers belong to heterocapillary systems. Functional, chemically active (ionogenic) groups carrying electronegative or electropositive charges (fixed ions) are fixed in the matrix. They give the ion exchanger an acidic or alkaline character. The charge of the framework is compensated by countercharged ions (counterions), resulting in the solid remaining electrically neutral. Counterions are mobile inside the framework and are capable of exchanging with ions of the electrolyte solution [3].

According to their chemical nature, all ion exchange resins are divided into two types. Ion exchangers containing active acid groups and exchangeable cations are called cation exchangers according to generally accepted terminology, and ion exchangers containing basic active groups and mobile anions are called anion exchangers. In cation exchangers, the most common active groups are sulfo group, carboxyl, phosphoric acid and hydroxyl groups. Cation exchangers, all of whose mobile ions are hydrogen ions, are designated as H-cation exchangers (or H-form of cation exchanger). If hydrogen ions are replaced by other cations (Na^+ or Ca^{2+}), then the corresponding designations are used: Na- or Ca -cationite, Ca (Na)-form of the cationite, or the general term - salt form of the cationite. Anion exchangers with the same type of ionogenic groups contain aliphatic or aromatic primary and secondary (less often tertiary) amines, quaternary ammonium and sulfonium bases as active groups [4].

For anion exchangers, similarly to cation exchangers, the following symbols are introduced: OH-anion exchanger or OH-form of anion exchanger, Cl⁻-anion exchanger or Cl⁻-form of anion exchanger, etc., as well as a generalized term - salt form of anion exchanger. Based on the degree of ionization, anion exchangers are divided into strongly and weakly basic. The first - with quaternary ammonium or sulfonium bases as ionogenic groups - enter into an exchange reaction in a neutral and slightly acidic environment. The latter (amino resins) participate in ion exchange only in acidic environments, and the completeness of the exchange increases with increasing acidity of the environment.

The process of ion exchange consists of the diffusion of dissolved electrolyte ions to the surface of the sorbent grains, their diffusion into the sorbent, the displacement of mobile ions of the sorbent from the sphere of influence of the anionic (or cationic) complex and the diffusion of displaced mobile ions from the sorbent phase into the solution.

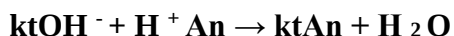
It has been experimentally revealed that the process of ion exchange with the participation of ion exchangers developed by us has some similarities with adsorption. But, despite the significant differences, it is often difficult in practice to draw the line between these processes, since the exchange of counterions is almost always accompanied by adsorption, and most conventional adsorbents, for example aluminum oxide, activated carbon, can act as ion exchangers.

The process under consideration can be carried out under static and dynamic conditions. In the first case, the test solution is brought into contact with the ion exchanger and thoroughly mixed. Ion exchange occurs , as a result of which the active group of the ion exchanger appears in a stable salt form that is not subject to hydrolysis during washing (the change in the volume of the ion exchanger is small).

In production and analytical work, ion exchange under dynamic conditions is most often used . In this case, the exchange is carried out in columns filled with the required amount of prepared ion exchanger. The test solution is filtered very slowly through a layer of ion exchanger, while the ion exchanger is saturated with ions from the solution in exchange for counterions . The process is accompanied by a very small thermal effect (1 kcal/mol); exchange rates are high both for ion exchangers in acidic and basic forms, as well as in salt forms (during regeneration).

In this context, it was of interest to identify the mechanism and patterns of ion-exchange treatment of industrial wastewater from the oil refining industry using new ion exchangers developed on the basis of quaternary phosphonium salts (QPS) with divinylbenzene (DVB) and methyl methacrylate (MMA).

For a comparative analysis, various foreign-made industrial anion exchangers were used, the characteristics of which are given in Table 1. A decrease in the acid number of wastewater during treatment with an ion exchanger can occur as a result of the following reaction:



where: $ktOH^{-}$ - hydroxyl form of anion exchanger (activated ion exchanger - in working position); H^{+} An - acid in oil; $ktAn$ and H_2O - ion exchange products. We have developed a technology for activating the ion exchanger, i.e. converting it from the salt form to the hydroxyl form. The activation method is as follows. The ion exchanger swells in distilled water for 1 hour, which is then sucked out of the column using a vacuum pump. The swollen ion exchanger is converted into the active form by treating it with a 5% NaOH solution. Then it is washed with distilled water until the wash water is neutral and the wash water is sucked off until the ion exchange resin is air-dry.

It has been experimentally established that freshly prepared ion exchanger should be used to purify oil refinery wastewater, since even slight contact with air reduces its ion-exchange capacity. It was also determined that an increase in NaOH consumption practically does not change the exchange capacity of the ion exchanger. To activate 100 g of ion exchanger, 0.5-1.0 l of 5% NaOH solution is

sufficient. The optimal temperature (30°C) for the process of ion exchange wastewater treatment with the developed ion exchangers was experimentally found. At a temperature of 30°C, a relatively high efficiency of using the ion exchanger is achieved. The optimal duration of contact of wastewater containing petroleum products with the AB-17 ion exchanger (ion exchanger consumption 10%, oil temperature 40°C) is visible from the following data (Table 2) [5]:

Table 1.

Main indicators of anion exchange resins

indicators	AB-17	AB-18	NNA-1	NNA-2
Bulk density of commercial product, g/ m ³ , not less	0.068	0.74	0.6	0.55
Exchange capacity, mEq / g, not less: static dynamic	7	8	9	9
	150-190	400-600	480	440
Grain size, mm	0.3-2.0	0.35-1.2	0.4-1.7	0.3-1.6
Humidity of product ion exchanger, %, no more	60	30-50	15	25
Appearance	Light brown grains	Yellow spherical grains	Brown grains	Transparent grains

table 2

Values of the optimal duration of contact of the ion exchanger AV-17 and wastewater

Duration of contact, min.	Acid number, waste water, mg/KOH/g	Duration of contact, min.	Acid number, waste water, mg/KOH/g
0	0.17	thirty	0.030
5	0.095	45	0.030
15	0.057	60	0.030
20	0.030	75	0.030

We have also developed a method for regenerating spent ion exchanger. It was first washed with gasoline until the filtrate was colorless, and then dried in air for 24 hours. The air- dry waste resin was transferred from the salt form to the hydroxyl (active) form, treated with a 5% NaOH solution according to the accepted technology. The effectiveness of reducing the acid number of wastewater containing petroleum products decreases with repeated regenerations of the ion exchanger. For example, a fresh AB-17 ion exchanger reduces the acid number of wastewater from 0.11 to 0.015 mg KOH/g (at a flow rate of 10%), and a regenerated ion exchanger reduces it to 0.018 after the first regeneration and to 0.023 mg KOH/g after the second.

Analysis of experimental data shows that the ion exchangers used for treating wastewater containing petroleum products can be ranked in the following row according to their neutralizing ability: NNA-2, NNA-1, AV-17, AV-18. The most effective are ion exchangers NNA-1 and NNA-2; at any temperature conditions, their consumption to obtain the acid number of treated wastewater 0.05-0.02 mg KOH/g is 3-5 wt. % of the volume of purified water. With increasing contact temperature, the degree of reduction in acid number increases slightly.

Based on the experimental studies carried out, it can be concluded that the developed ion exchangers based on monomeric quaternary phosphonium salts with divinylbenzene and methyl

methacrylate can be used not only as ion exchangers that make it possible to neutralize acidic products in the composition of industrial wastewater from oil refineries, they can successfully replace expensive and hard-to-find ion exchangers, adsorbents imported from abroad and widely used for wastewater treatment in industry. It should also be noted that when industrial wastewater from oil refineries is treated with developed ion exchange resins, the efficiency of extracting metal ions is significantly increased.

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Rezyume: *Maqolada neftni qayta ishlash va kimyo sanoati oqava suvlarini ion almashinishda tozalash uchun ishlatiladigan sopolimerlar va ular asosidagi ion almashtirgichlarni kimyoviy modifikatsiyalashning ba'zi imkoniyatlari ko'rib chiqiladi. O'zgartirilgan polimer ion almashtirgichlarini qo'llashning o'ziga xos sohalari ko'rsatilgan.*

Резюме: *В статье рассмотрены некоторые возможности химической модификации сополимеров и ионитов на их основе, которые используются для ионообменной очистки сточных вод нефтеперерабатывающей и химической промышленности. Показаны конкретные области применения модифицированных полимерных ионитов.*

Kalit soʻzlar: *ion almashinuvi tozalash, metall saqlovchi oqava suvlar, polimer ion almashinuvchilari, komonomer, sopolimerlanish, filtrat, sorbat.*

Ключевые слова: *ионообменная очистка, металлосодержащие сточные воды, полимерные иониты, сомономер, сополимеризация, фильтрат, сорбат.*

**THE PROSPECTS OF THE USING SECONDARY RESOURCE IN DEVELOPMENT
EFFICIENT BORE SOLUTION**

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Summary: In article are brought results of the study physic-chemical characteristic new copolymers synthesized on base departure to chemical industry and local raw materials resource. Using the modern methods of the analysis are shown polyelectroliting nature water solution copolymers, as well as are shown possibility of the using designed polymer for stabilization bore solution.

Key words: polymer, sand, ground, water solution polymer, filtering, water recoil, sediment, tixotroping, viscosity, density.

Any activity of the person renders the negative influence on total facility of the Land. Seemingly, as a result such activity facility land must run short. However does not follow to forget that land constantly gets the influx to new energy, which the source is a Sun [1].

Thereby, activity of the person does harm surrounding ambience regardless of its good intentions and problem consists in that to do the consequences to this activity the most harmful.

The main harmful of a biosphere are chemical, oil and gaze industry and energy. In this plan all developed countries have plans on creation cleaner (so named cleaner) technology.

For the reason conducted by us studies is involvement departure to chemical industry and secondary raw materials resource of the Republic Uzbekistan for development new hither efficient, cheap and available stabilizer bore solution since searching for and exploring the oilfields and gas in Republic Uzbekistan on new area and growing of the depths of the boring shoos objective need in improvement composition bore solution. Herewith used bore washing liquid must possess certain rheological, physic-chemical and technological characteristic depending on geological construction of the cut of the bore hole and mineralization opened by her ground of water steadfast to influence aggressive fluids [1]. The nature applicable polymer renders on applied characteristic bore solution enormous influence.

As is well known [2], amongst enormous amount known natural and synthetic polymer only a few possess the ability open in water. For water solution polymer characteristic of presence in chain macromolecule gidrofilings of the functional groups (the gidroxil, carboxyl, amides, sulfur and others). The degree dissociation water solution polyelectrolyte is connected with ion power of the solution. The form changes with change last macromolecule polyelectrolyte. Consequently, must be changed and their working, for instance, coagulation, flocculation characteristic and to distend. Increase the number of the kinetic units in solution as a result dissociation and change the form macromolecules polymer brings its gidrodinamic characteristic about change. Consequently, viscosity and density of the bore solution must be such to with other technological factor and acceptance possible was provide sufficient ant pressing on passable layers, but in ditto time she must not noticeably worsen the condition of the work chisel and field-performance dates productive horizon [3].

Other word, in each concrete event must be chosen best values to viscosity and density of the bore solution. Density also is one of the main factors, providing stability wall bore holes [4].

In this aspect was of interest study physic-chemical characteristic designed by us on base departure water solution polymer, which as we seem, can find broad using in prospect in preparation bore solution, especially firm to influence aggressive fluids.

As object of the studies were applying copolymers departure of the processes delintation seed cotton plant with GIPAN.

The product to reactions copolymerization departure of the processes delintation seed cotton plant with GIPAN presents itself very viscous ancolloring or painted in amber color of the liquids, with specific scent, their physic-chemical features are completely identified. At study of viscosity powerfully diluted solution was discovered that many polymers, as from a certain "critical concentration" show the deflection brought viscosity from linear dependency. In diluted solution copolymer ionized nearly completely, but because of relatively small quantity free carboxyl groups in its composition effect to ionizing not is too expressed. The study to dependencies to viscosity and pH from concentration solution copolymers and natural polymer has shown that with growing of the concentrations copolymer in solution importance pH changes small (tabl.1).

Electronic-microscopic studies is installed that for solution a new copolymers typical convolute type of the structure in the manner of formless unit, changing depending on concentrations copolymer, system in this case is homogeneous. Since time (for 5 hours) in system occurs the orientation, particularly in concentrated solution. Under the most further keeping of the solution (after 24 hours), appears the second type of the structure - an fibrillating andese molecular formation, due to that homogeneous system becomes microheterogen. Probably, globular type of the structure conditions the small degree electrolytic dissociation functional groups and low their gidration. The aging copolymers and their solution are connected with soaping amides of the groups that can be confirmed by increase pH water solution with reduction of the concentrations. Herewith, was installed that heating renders on process of the structuring in solution copolymers such influence, either as keeping.

Table 1

Change to specific viscosity and pH solution polymer depending on concentrations

№	Concentration solution polymer, %	copolymer		lignin		lignosulphonate	
		pH	η	pH	η	pH	η
1	0,005	6,0	0,10	7,1	-	-	-
2	0,010	6,0	0,12	7,1	-	-	-
3	0,05	6,1	0,14	7,1	-	-	-
4	0,10	6,1	0,16	7,2	0,1	0,11	0,08
5	0,5	6,2	0,20	7,2	0,11	0,12	0,09
6	1,0	6,4	0,22	7,4	0,12	0,12	0,1

So, at half hour heating under 60°S 10% a new prepare solution copolymer exists such speedup fibriling formed, as at keeping of the solution. The study change to viscosity and pH solution copolymers depending on concentrations has shown that they possess the feeble a reaction, increasing with increasing of the contents copolymer in solution.

Beside water solution copolymer relative viscosity powerfully grows with increase the concentrations; anomaly to viscosity exists already in the field of powerfully diluted solution moreover for copolymera she denominated more strong, than for lignin and lignosulphonate. The anomaly to viscosity copolymer, even powerfully diluted solution is conditioned presence in them andese molecular of the structures.

Electronic-microscopic study lignin and lignosulphonate andese molecular has shown that they are microheterogen and consist of varied unit macromolecule – a globule and fibril. They united in units of the different forms, changing depending on concentrations of the solution natural polymer.

In the course of study was installed that interaction designed by us water solution copolymer with disperse particle depends on many factor: concentrations copolymer and mineral suspending, presences electrolyte, the temperature, salting and others amongst mineral suspending systematically and in detail studied soil and clay suspending, from Navbakhor grounds. So, influence designed by us copolymer in analogy with polyacrilamid (PAA) has shown that polymeric preparations enter in interaction with soil particle in consequence of which in suspending appears structure. pH soil

suspending in whiteness of these polymer does not change that probably, is connected with buffer influence of ground on change the concentrations hydrogen ion in mixture.

The method sedimentation analysis was studied influence synthesized us copolymer on disperse different mineral suspending. The experiences conducted with 0,2% suspending, which in 24 hours after preparation added the solutions copolymer in corresponding to dosage. The influence studied in kinetics through 5, 10, 15 and etc minutes. It is revealed that degree disperse change under influence copolymer and the other values, connected with size of the particles suspending. Aggregating disperse of the phase occurs within optimum dosage of the polymer. The further increasing to concentrations copolymer promotes increase disperse and, accordingly, reduction of the value of the perhaps radius of the particles that can be due to disintegration ad unit under influence polyelectrolyte and stabilization of the particles suspending. Experimental is revealed that bore solution, containing new stabilizer possesses high swabbing ability. Swabbing surface of the pipes, full tilts chisel, hydraulic equipment, solution promotes the reduction of the energy expenses on boring, reduction damage with boring pillar that particularly it is important at rotor boring.

Density also is one of the main factors, providing stability wall bore holes. With its increase intensity ground and collapse of the stem, as a rule, decreases, herewith also falls other type to dangers of the complications - absorptions of the bore solution. So introduction new stabilizer increase stability a wall bore holes, factor to filtering, saltiness of the bore solution. But reduction to viscosity bore solution, brings about increasing of the penetration filtrate bore solution in times of the sort to account of the filtering, osmosis and others thereby, called on by us studies on using departure to chemical industry as stabilizer bore solution has shown that designed by us new reagents on base departure and secondary resource in significant measure create the happy circumstances for provision of stability wall bore holes. They are revealed main applied, physic-chemical and rheological characteristic bore solution. The practical application of the development can will solve many economic and technological problems to branches.

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Rezyume: *Maqolada kimyo sanoati va mahalliy xomashyo aylanmasi asosida sintez qilingan yangi sopolimerlarning fizik-kimyoviy xususiyatlarini o'rganish natijalari keltirilgan. Zamonaviy tahlil usullaridan foydalangan holda suvli eritmalarining polielektrolitik tabiiy sopolimerlari ko'rsatilgan va burg'ulash suyuqliklarini barqarorlashtirish uchun ishlab chiqilgan polimerdan foydalanish imkoniyati ko'rsatilgan.*

Резюме: *В статье приведены результаты исследования физико-химических характеристик новых сополимеров, синтезированных на основе обращения в химическую промышленность и местных сырьевых ресурсов. С использованием современных методов анализа показаны полиэлектrolитические природные сополимеры водных растворов, а также показана возможность использования разработанного полимера для стабилизации буровых растворов.*

Kalit so'zlar: *polimer, qum, tuproq, polimerning suvdagi eritmasi, filtrlash, suyuqlik yo'qotilishi, cho'kma, tiksotropplanish, yopishqoqlik, zichlik.*

Ключевые слова: *полимер, песок, грунт, водный раствор полимера, фильтрация, водоотдача, осадок, tiksotropирование, вязкость, плотность.*

COLOR HARMONIES

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Summary: This article discusses color harmonies and their role in creating a harmonious composition. The basis for the creative development of the individual is the production of artistic and imaginative thinking, associative thinking - the foundations of which are laid in early childhood. Artistic practice, supported by knowledge of various forms of compositional activity, contributes to the development of creative thinking. Emotions are always closely related to the associative perception of reality.

Key words: color composition, achromatic colors, monochrome colors, related colors, related-contrasting colors, complementary colors, abstract composition, stylization, association, transformation, elements of composition, emotions.

Harmony is the basis of beauty. This term means harmony, orderliness, proportionality of the elements of form and the dialectical relationship of the components of form and content in the system of an organically unified whole.

Color harmony is an aesthetically significant, coloristic, logical relationship of colors in the composition of works of art, object-based artistic creativity and design.

Consider a 12-sector Itton circle with a triangle representing the three independent primary colors and a hexagon representing mixtures of these colors.

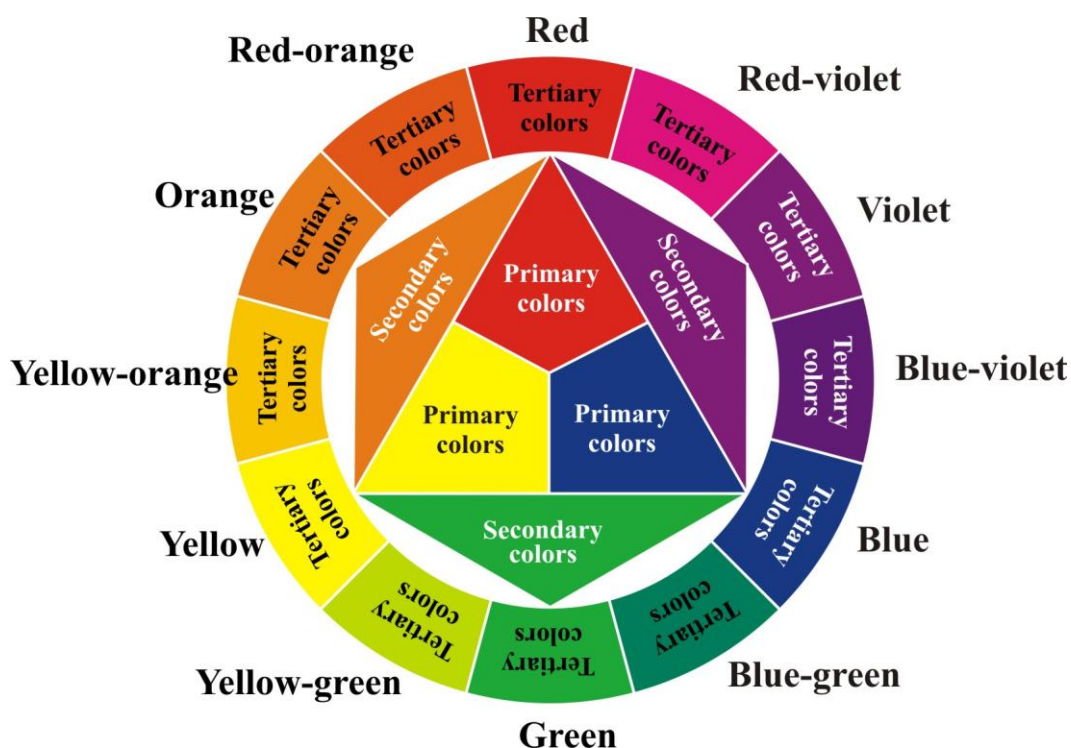


Fig.1. Itton's color wheel

To create color harmonies, we use an 18-sector color wheel and a 24-sector wheel, since these are the color wheels that make it possible to create the most harmonious color compositions.



Fig.2. 18-sector color circle

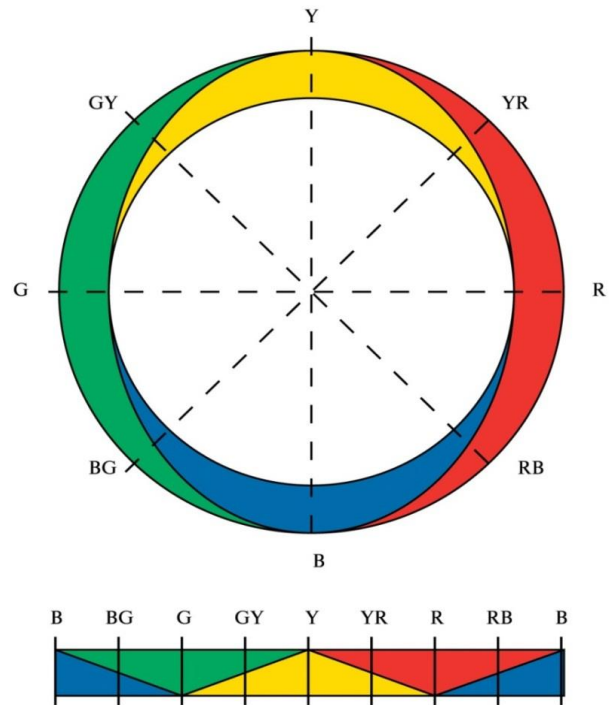


Fig.3. E. Hering's color circle

The color wheel of 18 saturated colors consists of:

- 1 – primary colors (primary),
- 2 – additional colors (secondary),
- 3 – tertiary colors.

Color wheel of 24 rich colors. The color wheel distinguishes four pure primary colors of the spectrum: yellow, red, blue, green. By human vision they are perceived as basic colors psychologically independent from others, i.e. colors that do not contain shades of other colors.

Yellow and blue, red and green are felt as pairs of colors, opposite in their qualities and mutually complementing each other.

The system of natural colors in E. Hering's color wheel, formed by four psychologically independent primary color tones: red, yellow, blue and green.

Let's look at color harmonies. There are several types of color harmonies:

- 1. Harmonies of achromatic colors
- 2. Monochrome color harmonies
- 3. Harmonies of related colors
- 4. Harmonies of related and contrasting colors
- 5. Harmonies of complementary colors
- 6. Harmonies of contrasting and complementary colors

1. Harmonies of achromatic colors

To create a harmonious achromatic composition, it is necessary to introduce a third tone into the composition. This immediately increases the expressive possibilities of lightness relationships, since the visual possibilities of three-tone compositions (compared to two-tone ones) are much richer due to the emergence of a new expressive means - the lightness interaction of colors.

Four constructive-associative compositions can be distinguished: 1. Constructive-associative composition in color based on achromatic contrast. Initial colors black + medium gray + white.

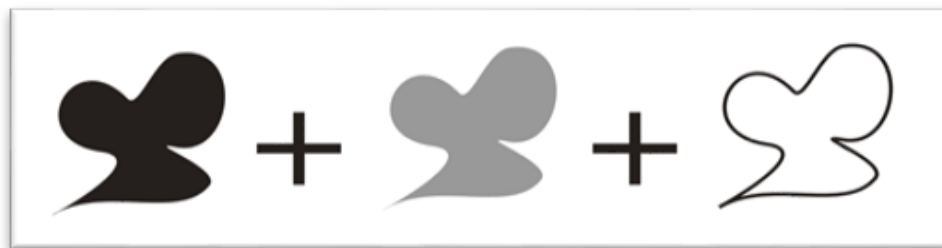


Fig.4. Achromatic contrast scheme



Fig.5. Examples of student work

Constructive and associative composition of achromatic colors in the system - heaviness, clouding with black. Initial colors black + medium gray + dark gray.



Fig.6. The composition scheme in the system is heaviness, clouding with black



Fig.7. Examples of student work

Constructive and associative composition of achromatic colors in the system - lightness, whiteness. Initial gray medium + colors white + light gray.



Fig.8. Composition scheme in the system – lightness, whiteness

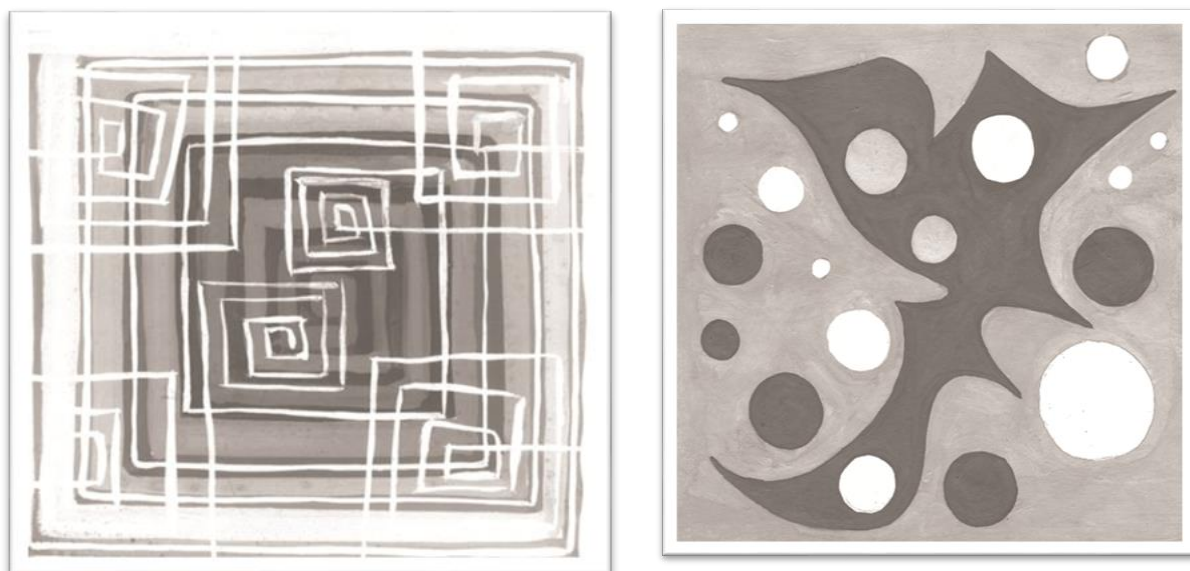


Fig.9. Examples of student work

The constructive-associative composition in the system is lethargy, cloudiness, nuances. Initial colors: medium gray + light gray + dark gray.

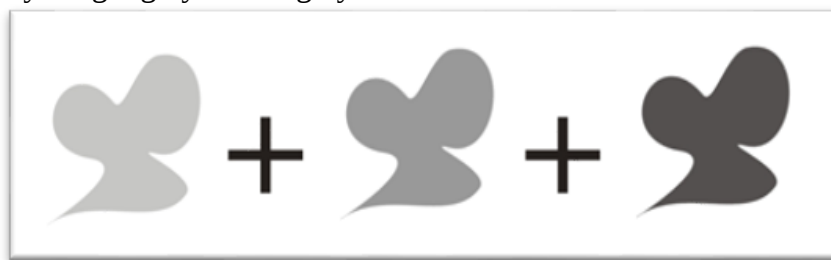


Fig. 10. Composition scheme in the system - lethargy, turbidity



Fig.11. Examples of student work

2. Monochrome color harmonies

Monochromatic color harmonies are essentially very close to the achromatic harmonies discussed above. The only difference is that the basis of harmonious color combinations is one color tone, which is present in varying quantities in each of the combined colors.

These colors contrast with one another only in lightness and saturation.

Constructive and associative composition in color based on monochrome contrast. Initial colors black + rich chromatic color + white.



Fig. 12. Monochrome contrast scheme



Fig.13. Examples of student work

The constructive and associative composition of monochrome colors in the system is heaviness, clouded with black. The original colors are black + two cloudy, to varying degrees, chromatic colors.



Fig. 14. The composition scheme in the system is heaviness, clouding with black

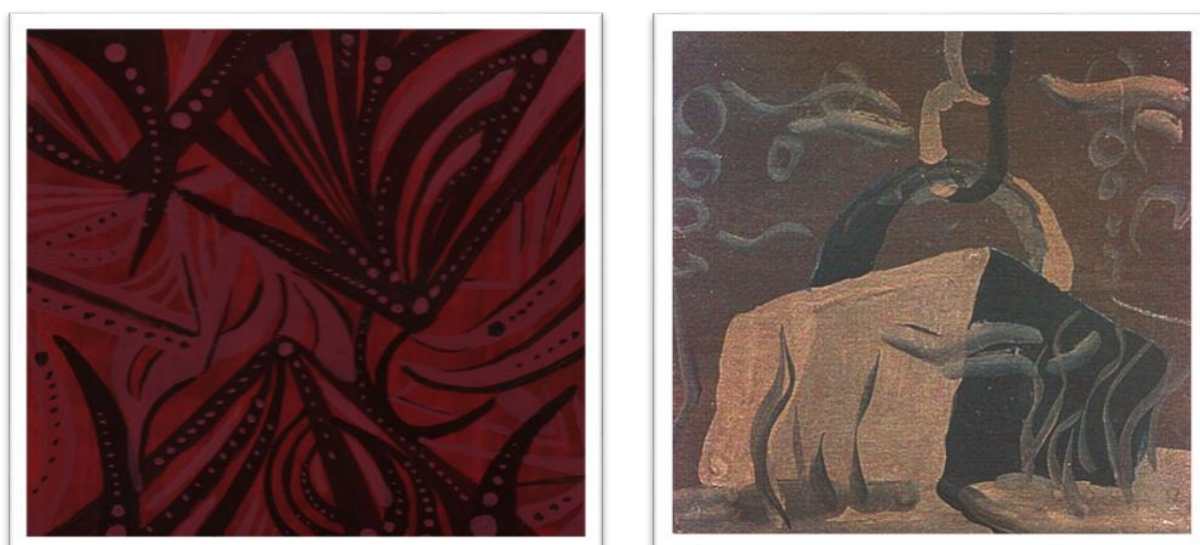


Fig.15. Examples of student work

The constructive and associative composition of monochrome colors in the system is lethargic, cloudy, nuanced. Initial colors are nuanced shades of one chromatic color.



Fig. 16. The composition scheme in the system is lethargic, nuanced



Fig.17. Examples of student work

The constructive and associative composition of monochrome colors in the system is lightness, whiteness. The original colors are white + two whitened, to varying degrees, chromatic colors.



Fig. 18. Composition scheme in the system – lightness, whiteness



Fig.19. Examples of student work

3. Harmony of related colors.

Related colors in the color wheel include all intermediate colors, including one of the two main colors that form them. Thus, related colors are united by the presence in them of admixtures of two or at least one of the main colors. The harmony of related colors is built on close nuanced relationships of color. Color harmony involves two colors, of which one becomes the leading color and is present in mixtures with others in various proportions. But two pure colors are never involved.

There are eight groups of related colors:

- yellow – red
- yellow - green
- blue - red
- blue – green
- red-yellow
- green-yellow
- red-blue
- green-blue.

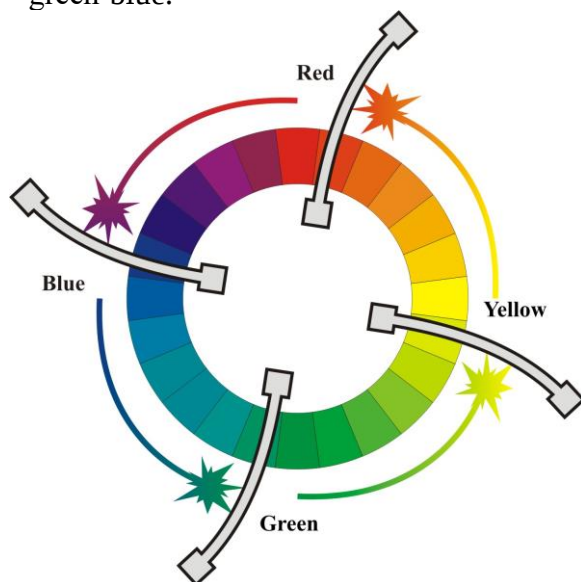


Fig.20. Counterclockwise arrangement of related color

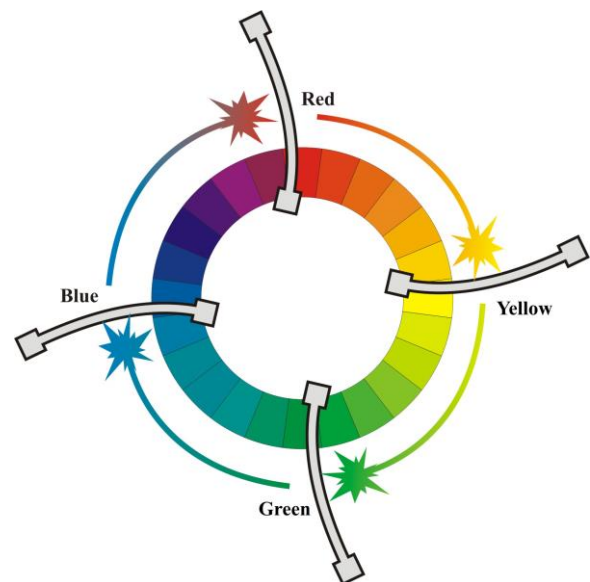


Fig.21. The arrangement of related colors in a clockwise direction.

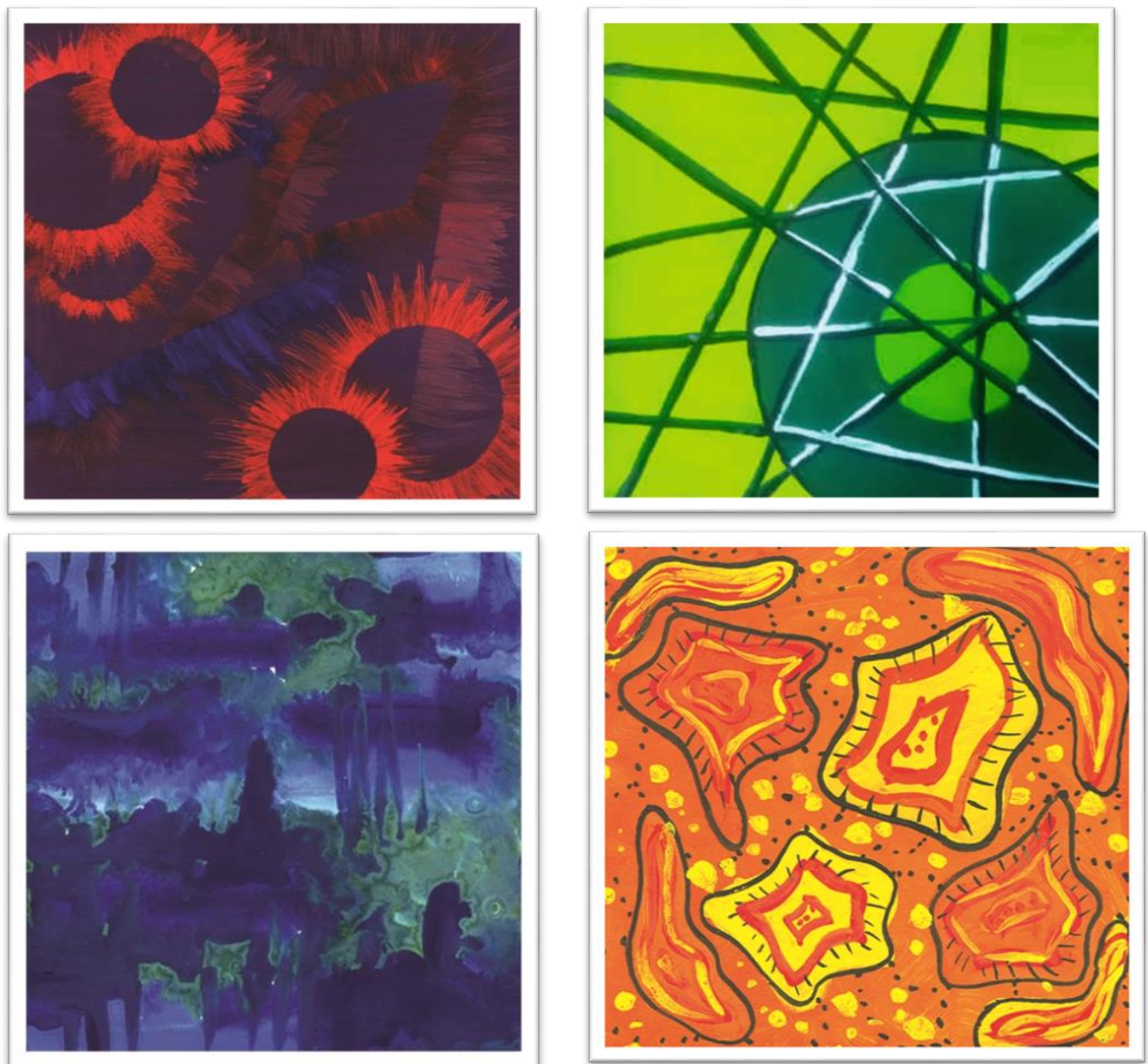


Fig.22. Examples of student work

4.Harmonies are related - contrasting colors

Combinations of related and contrasting colors represent perhaps the most extensive type of color harmonies. In the color wheel system, related and contrasting colors are located in adjacent quarters.

We have 4 groups of related and contrasting colors. Harmony is built according to the degree of equidistance between mixtures relative to the main colors. Three colors are involved in harmony. One main and two mixed with the main.

Let us analyze the essence of the harmony of related and contrasting colors. Let's consider the first of them - yellow-red and yellow-green: on the one hand, they bear a sign of relatedness, since there is a common yellow color, at the same time in yellow-red colors there is pure red, and in yellow-green - pure green, contrasting and additional to red, i.e. they carry a sign of contrast (due to the yellow color they are related, and due to the presence of red and green they contrast).

Not all combinations of related and contrasting colors are equally harmonious; colors that are located in the color wheel at the ends of vertical and horizontal chords are more harmonious. There is a

double connection between such pairs; they consist of the same amount of a unifying main color and the same amount of contrasting colors. These are yellow-green and orange-yellow.

Possible options for obtaining harmonies of related-contrasting colors, in which two such colors can be enriched by adding an achromatic color or a shadow color:

- two pure related-contrasting colors are complemented by the colors of the shadow row of one of the combined colors;
- two pure related-contrasting colors are complemented by colors from both shadow rows;
- one color is pure, the rest are from the shadow rows of related-contrasting colors, while the pure color is surrounded by the colors of the shadow row of a given color, and the rest are taken from the shadow row of another circle and are located at some distance from each other;
- all related and contrasting colors are either darkened or whitened.

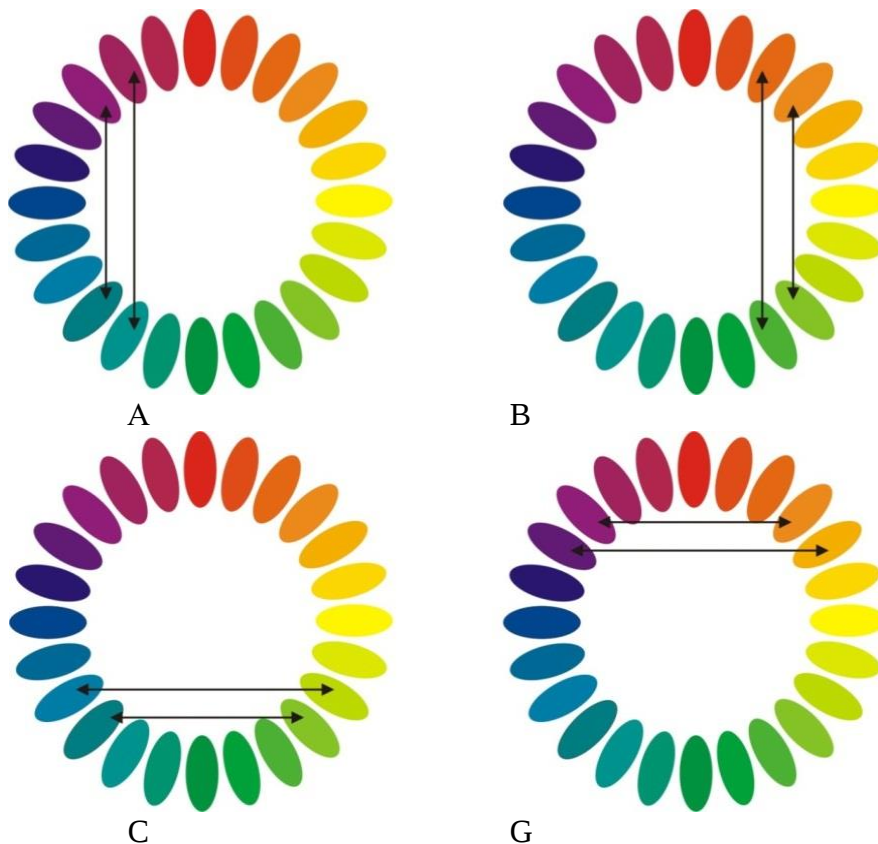


Fig. 23 Scheme for matching related and contrasting colors:

A. blue-red with blue-green, B. yellow-red with yellow-green, C. yellow-green with blue-green; G. yellow-red with blue-red

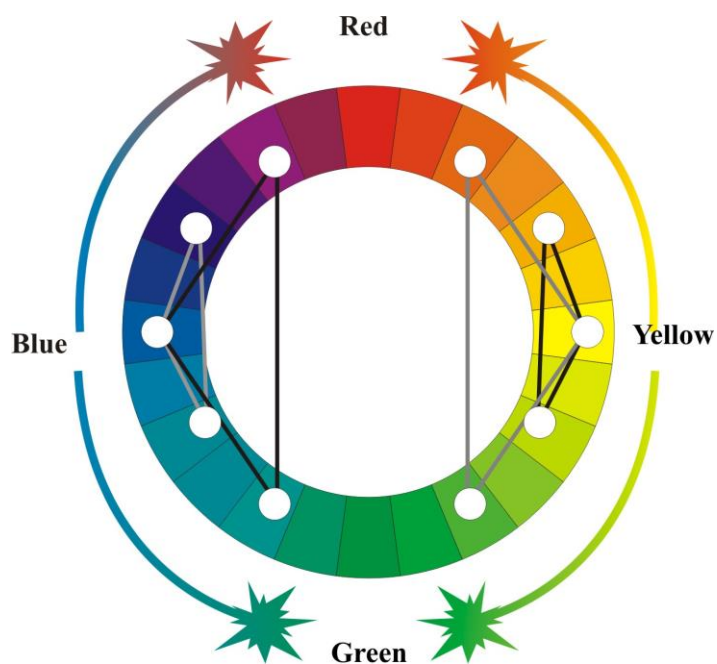


Fig.24. Scheme for coordinating related-contrasting colors based on yellow and blue colors

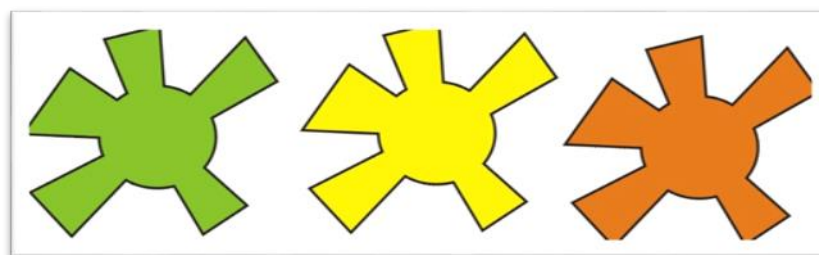


Fig.25. Scheme of composition of related-contrasting colors based on yellow.



Fig.26. Examples of student work

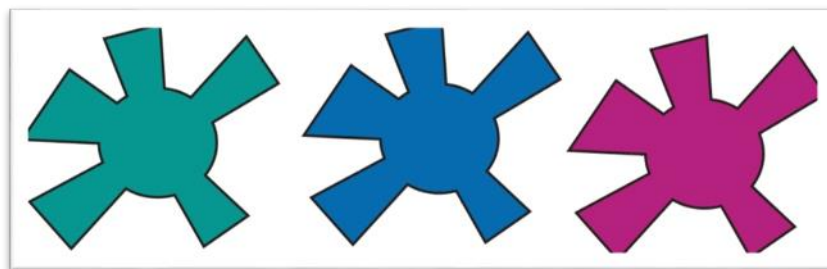


Fig.27. Scheme of composition of related and contrasting colors based on blue.



Fig.28. Examples of student work

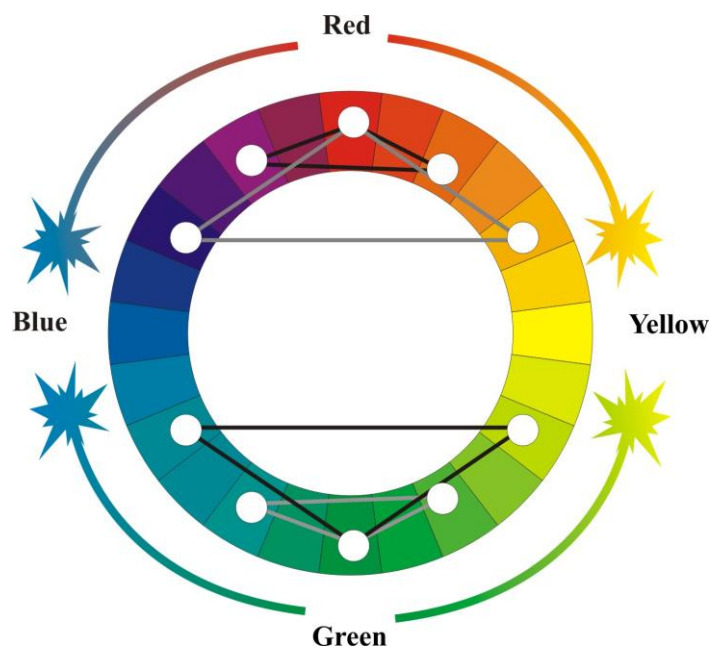


Fig.29. Scheme for coordinating related-contrasting colors based on green and red.

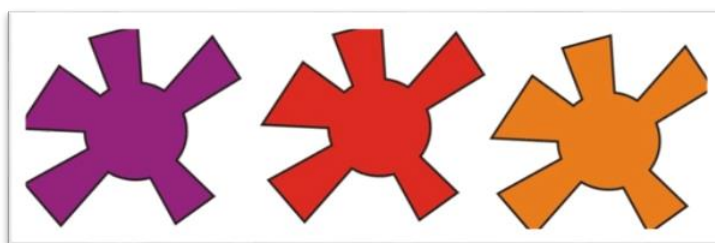


Fig.30. Scheme of composition of related-contrasting colors based on red.



Fig.31. Examples of student work



Fig.32. Scheme of composition of related-contrasting colors based on red.

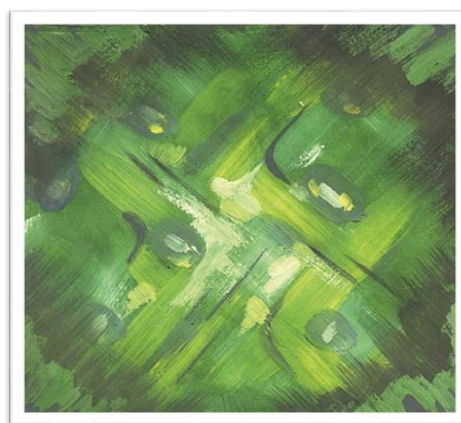


Fig.33. Examples of student work
5. Harmony of complementary colors

Two colors are called complementary if their pigments, when mixed, give a neutral gray-black, marsh, or brown color. We have a whole range of pairs of complementary colors lying at the ends of the diagonals. Harmonies of complementary colors are built on the principles of contrast and complementing color with color.

Unlike those previously discussed, neutral tints can participate in harmony, as a result of a mixture of two colors.

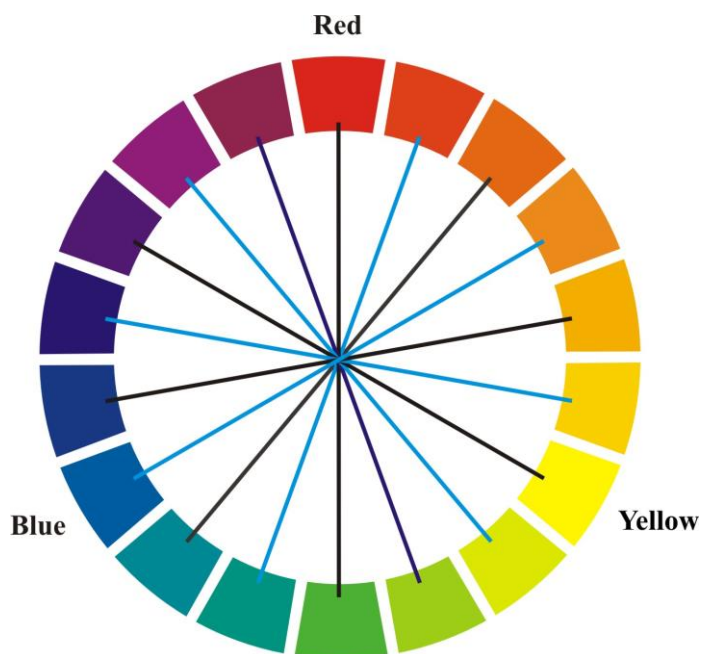


Fig.34. Arrangement of additional colors

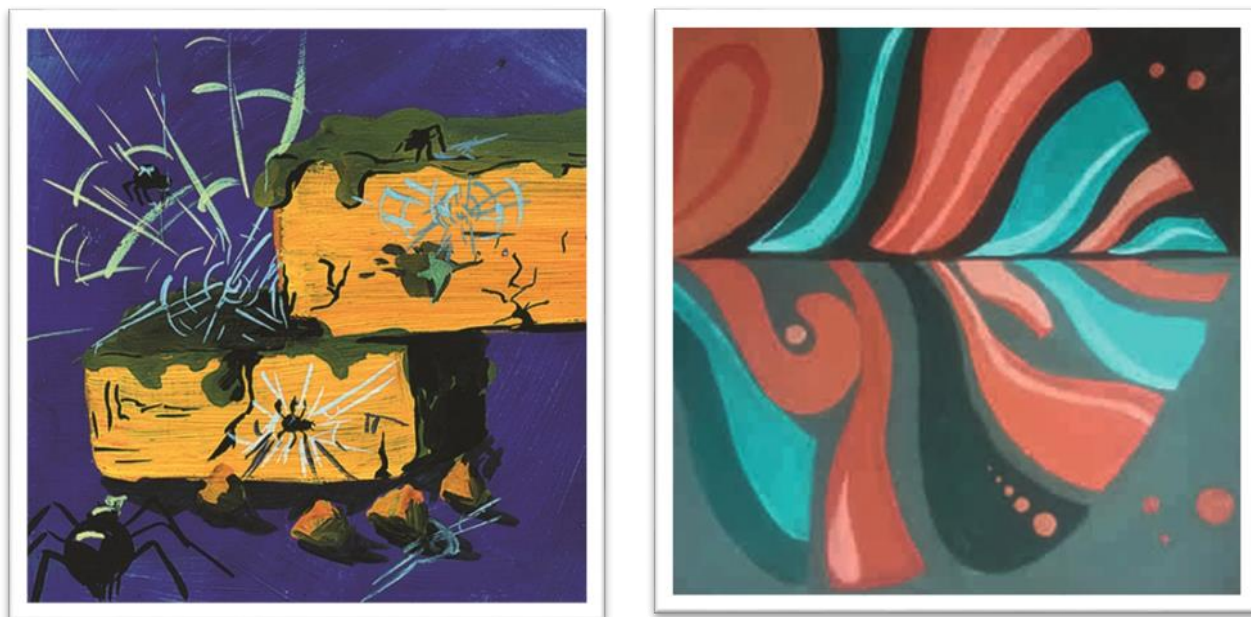


Fig.35. Examples of student work

6. Harmony of contrasting and complementary colors

Harmonies of contrasting complementary colors are the most complex in color and color.

The first type of harmonies is built on the principle of equidistant colors from each other and the presence of one primary color and two others contrasting to it. Color harmony is built on the basis of an equilateral triangle, in which one of the sides is perpendicular or parallel to the diameter of the circle.

The second type of harmony of contrasting complementary colors is based on the participation of two complementary colors and one contrasting one. An indispensable condition is that the hypotenuse of a right triangle is the diameter, at the ends of which additional colors and a third color are placed, related and contrasting to one of the additional ones.

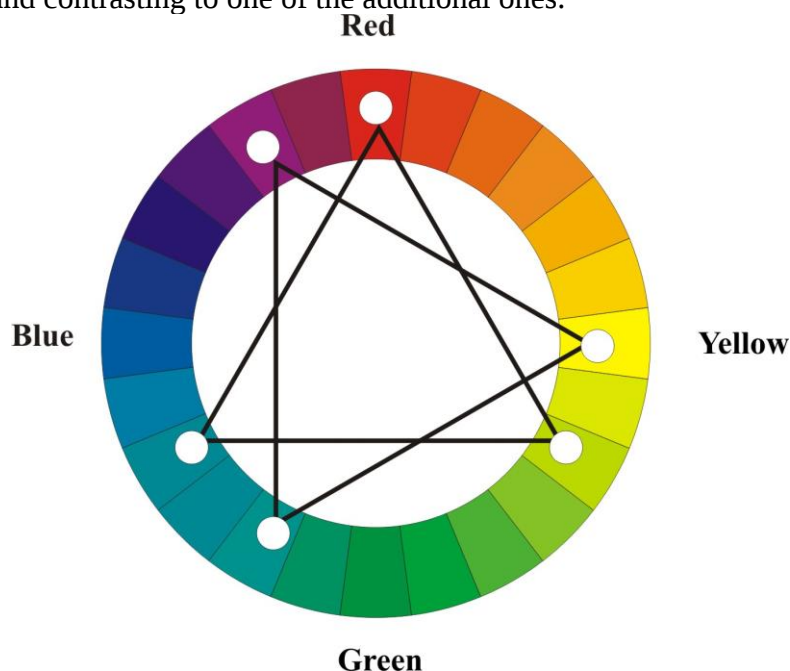


Fig.36. Harmony of contrasting and complementary colors based on an equilateral triangle

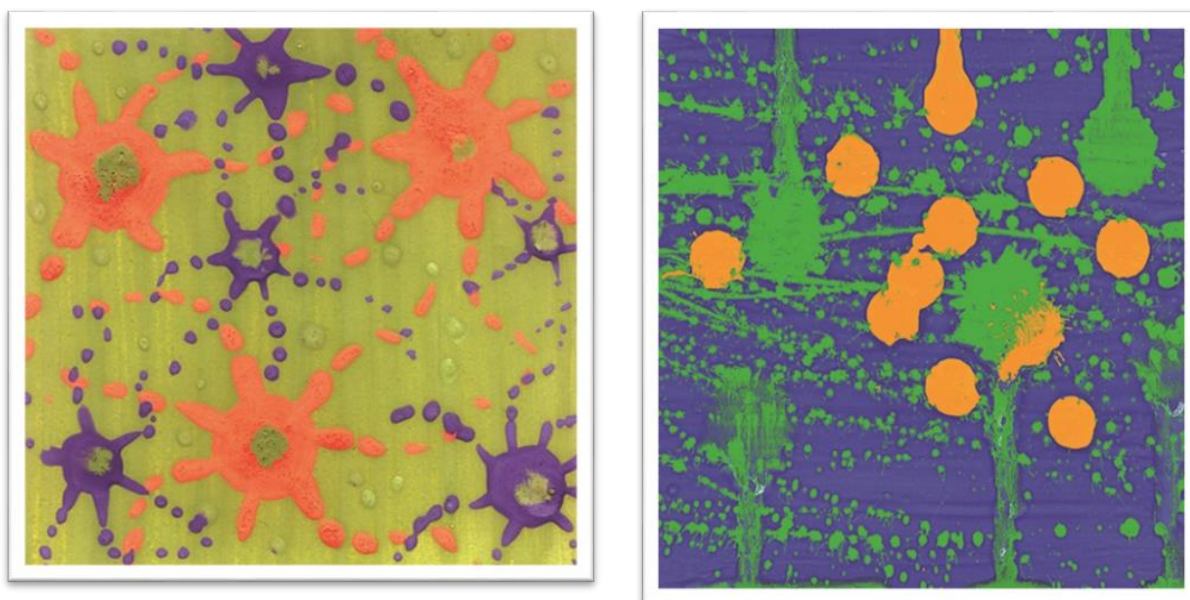


Fig.37. Examples of student work

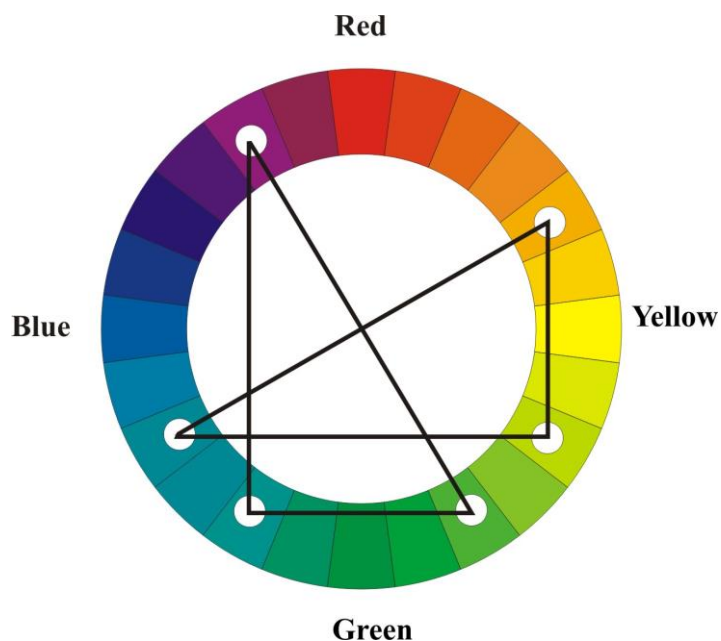


Fig.38. Harmony of contrasting and complementary colors based on a right triangle



Fig.39. Examples of student work

A type of harmonies of contrasting complementary colors are harmonies built on the basis of the coordinates of a rectangle inscribed in the color wheel. Harmony involves 4 colors, complementary to each other in pairs.

An indispensable condition: perpendicularity or parallelism to the diameter of the color wheel.

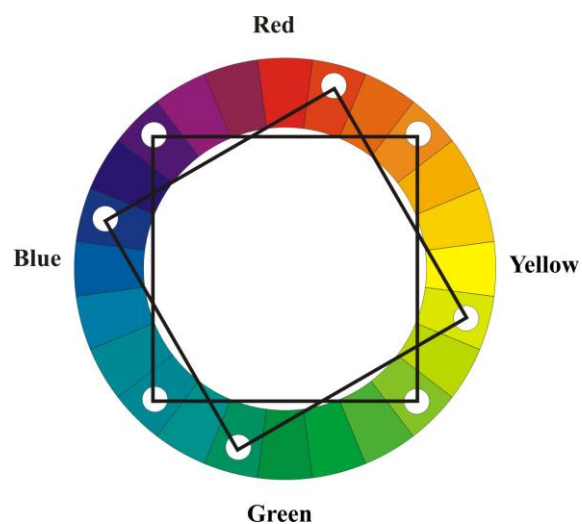


Fig.40. Harmony of contrasting and complementary colors based on a square



Fig.41. Examples of student work

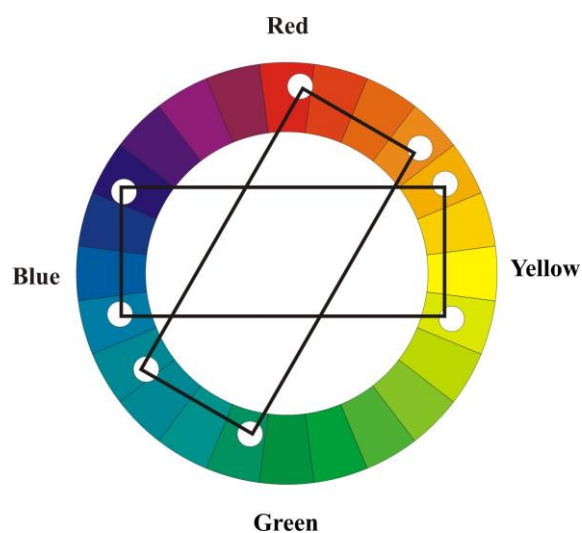


Fig.42. Harmony of contrasting and complementary colors based on a rectangle



Fig.43. Examples of student work

The article touches on important aspects of compositional knowledge, an attempt was made to provide a basis from the author's personal developments for individual reflection, to search for author's techniques for novice designers. And since one of the principles of composition is novelty, each author needs to look for his own individual developments to this basis.

The color wheel is used to form two, three, four color tones. When combining colors, people often encounter the problem of why some colors create a pleasant combination with each other, while others hurt the eye. The color wheel helps solve this problem. It gives a more complete opportunity to make the necessary combinations.

Therefore, when choosing a color for specific parts of a composition, remember that color can bring its own meaning, tying together its own associations and verbal semantic message.

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Rezyume: *Ushbu maqolada ranglar uyg'unligi va ularning uyg'un kompozitsiyani yaratishdagi roli muhokama qilinadi.*

Shaxsning ijodiy rivojlanishining asosi badiiy va xayoliy fikrlash, assotsiativ tafakkur ishlab chiqarishdir - uning asoslari erta bolalik davrida qo'yilgan. Kompozitsion faoliyatning turli shakllarini bilish bilan qo'llab-quvvatlanadigan badiiy amaliyot ijodiy fikrlashni rivojlantirishga yordam beradi. Tuyg'ular doimo voqelikni assotsiativ idrok etish bilan chambarchas bog'liq.

Резюме: *В данной статье рассматриваются цветовые гармонии и их роль в создании гармоничной композиции.*

Основой творческого развития личности, является постановка художественно-образного мышления, ассоциативного мышления – основы которого закладываются в раннем детстве. Художественная практика, подкрепленная знанием различных форм композиционной деятельности, способствует развитию творческого мышления. Эмоции всегда тесно связаны с ассоциативным восприятием действительности.

Kalit so'zlar: *rang kompozitsiyasi, akromatik ranglar, monoxrom ranglar, turdosh ranglar, turdosh-kontrast ranglar, to'ldiruvchi ranglar, mavhum kompozitsiya, stilizatsiya, assotsiatsiya, transformatsiya, kompozitsiya elementlari, hissiyotlar.*

Ключевые слова: *цветовая композиция, ахроматические цвета, монохромные цвета, родственные цвета, родственно-контрастные цвета, дополнительные цвета, абстрактная композиция, стилизация, ассоциация, трансформация, элементы композиции, эмоции.*

UDK 658.512.2

HISTORY OF COLOR MODELS CREATION

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Abstract: This article examines color models from different authors. The 12-sector color wheels of Albert Munsell and Itton are the most common. The color wheel, which consists of four crescent-shaped segments overlapping each other, was developed by Ewald Goering. Triangle combination D.K. Maxwell with a 6-sector circle I.V. Goethe. The color model helps the designer see the relationships between shades and realize ideas related to color.

Key words: color wheel, Munsell color wheel, Itton color wheel, Ewald Hering, D.K. Maxwell, additive method, subtractive method.

Since the fifteenth century, artists and scientists have been trying to create a visual model of color. The color model helps the designer see the relationships between shades and realize ideas related to color. Of all the existing methods of organizing color, the most common is the color wheel, created by the British artist and scientist Albert Munsell.

The Munsell color wheel is the two color axes, or in other words, the wavelengths that distinguish red from blue and yellow; The axes symbolize the lightness or darkness of a color (density) and its relative brightness (saturation).

Johan Itten, a Bauhaus teacher in Weimar, Germany, created the color sphere, a three-dimensional model of the Munsell color wheel, in the 1920s, which he described in his book *The Art of Color*.

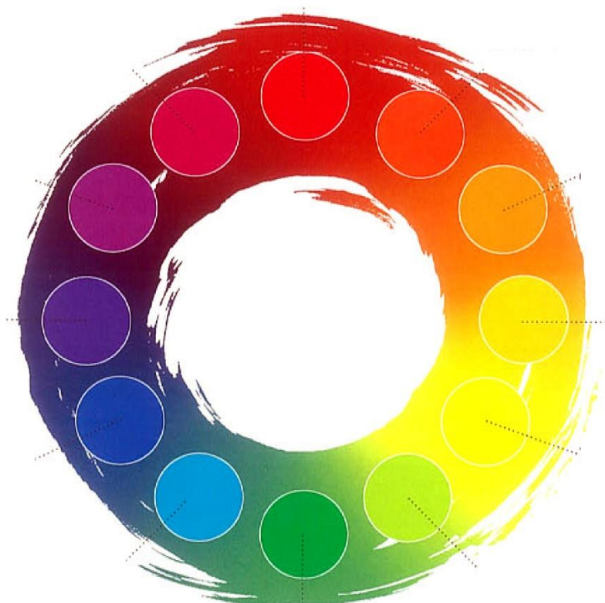


Fig.1. Munsell color wheel

Itton's 12-sector color wheel, including a triangle representing the three primary independent colors and a hexagon representing mixtures of these colors.

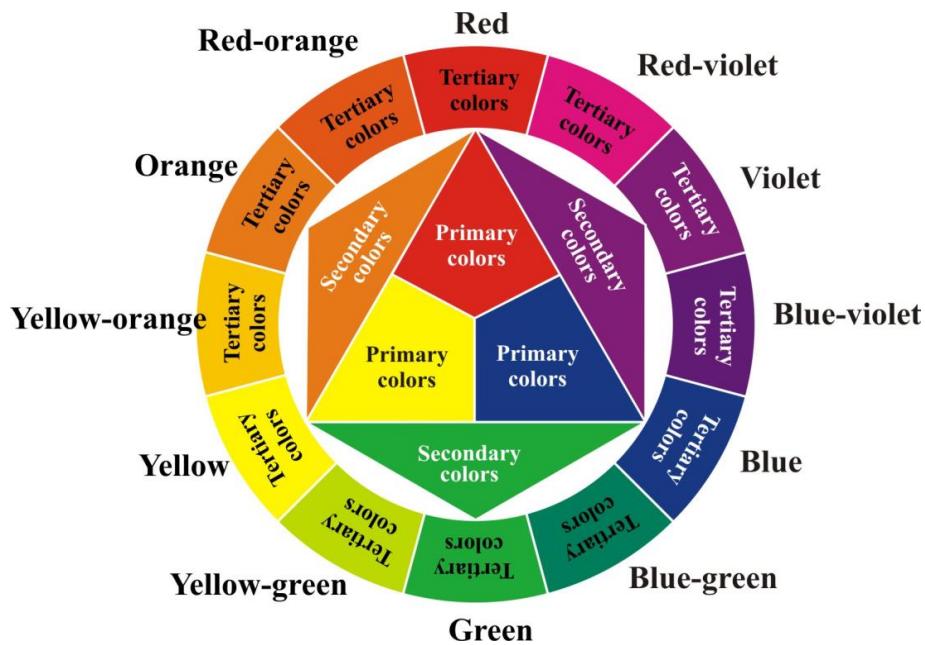


Fig.2. Itton's 12-sector color wheel

The standard 24-sector color wheel is formed by dividing the primary color tones into three shades: seven spectral (yellow, orange, red, violet, blue, cyan, green) and one purple.

Each of them is divided into three shades of a color tone: the central one is the main color tone, and those adjacent to it are a mixture of this color tone with adjacent primary color tones.

The result is a circle of 24 color tones.

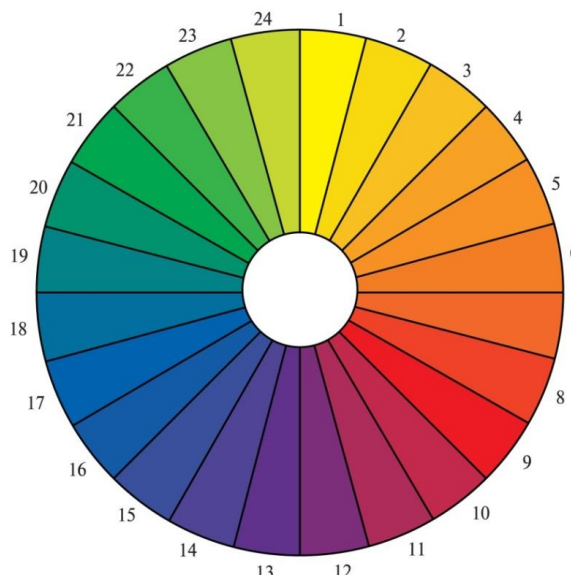


Fig.4. Standard 24 sector color wheel

Sequence of color tones:

1. Yellow; 2. Orange-yellow; 3. Yellow-orange; 4. Yellowish-orange; 5. Orange; 6. Reddish orange; 7. Orange-red; 8. Orangeish red; 9. Red; 10. Purpleish red; 11. Purple; 12. Violet-purple; 13. Purple; 14. Bluish-violet; 15. Blue-violet; 16. Purple blue; 17. Blue; 18. Greenish blue; 19. Blue-green; 20. Bluish green; 21. Green; 22. Yellowish green; 23. Yellow-green; 24. Greenish yellow

The color wheel distinguishes four pure primary colors of the spectrum: yellow, red, blue, green. By human vision they are perceived as basic colors psychologically independent from others, i.e. colors that do not contain shades of other colors.

Yellow and blue, red and green are felt as pairs of colors, opposite in their qualities and mutually complementing each other. (They are not always located in diametrically opposite sectors of it).

All intermediate opposite colors in a circle complement each other, since they are formed by equal quantities of the corresponding complementary colors. They are contrasting in color tone.

Another unique version of the color wheel, representing four crescent-shaped segments overlapping each other: red, green, yellow and blue, as psychologically primary unitary color tones, was developed in the form of a system of natural colors by Ewald Hering, a German physiologist (1834-1918).

According to his idea, two pairs of psychologically independent opposite colors: red and green, yellow and blue, in their mutual superpositions, create all other color tones (chromatic) as mixtures of these primary colors.

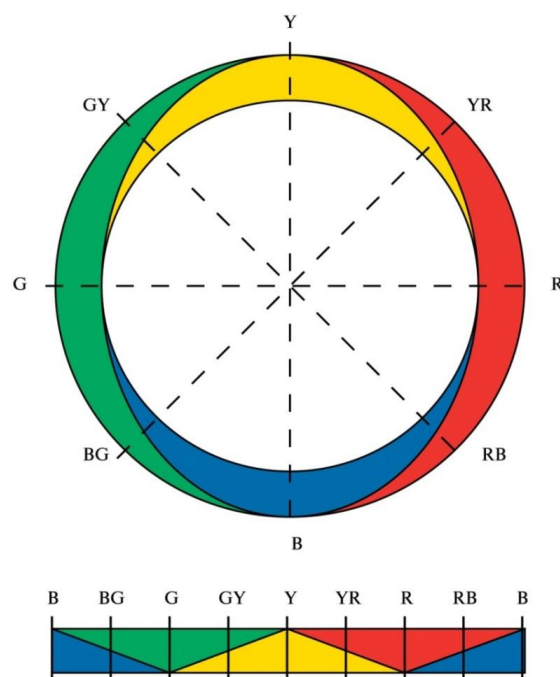


Fig.5. The system of natural colors in E. Hering's color wheel, formed by four psychologically independent primary color tones: red, yellow, blue and green.

The merits of G. Helmholtz, who is a major figure in the field of physiological optics in the 19th century, who summarized the scientific knowledge known in his time about color as a physical (optical) and psychophysiological phenomenon, were:

- firstly, in developing the basis for a strict scientific systematization of color (Helmholtz found a way to measure color by numerically expressing its three characteristics: hue, saturation and lightness);
- secondly, in the definition of two fundamentally different types of mixing of monochromatic color radiations - subjunctive (additive) and subtractive (subtractive), as well as in the difference between the results of mixing colored rays of light and paints of a similar color tone;
- thirdly, in the development of a three-component theory of color vision.

Similar studies were carried out, and similar results were obtained in the 19th century by specialists from other countries, in particular the Scottish physicist D.K. Maxwell (1831-1879) and the American artist and teacher of the Massachusetts Art School in Boston, who dealt with issues of color science, A.H. Munsell (1858-1918).

In the literature on color science published in English-speaking countries, therefore, more often they refer to color systems and research in the field of color mixing by D.K. Maxwell and A.H. Munsell than the founder of the theory of measurement and numerical designation of color characteristics, as well as color mixing - the German G. Helmholtz.

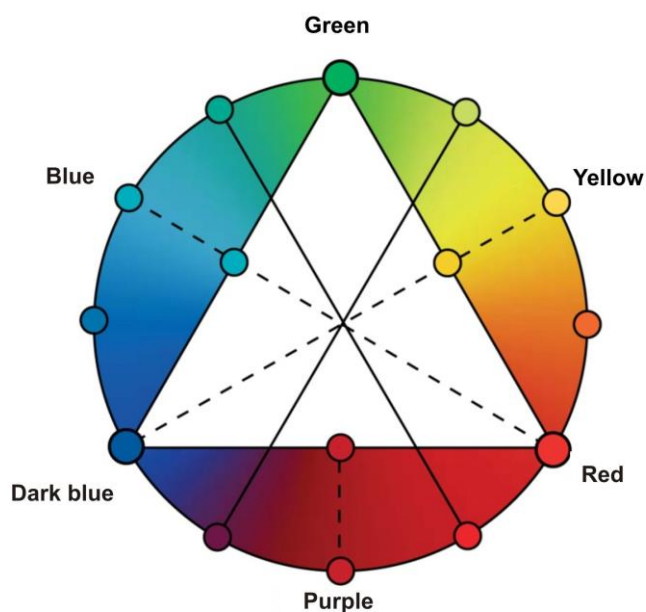


Fig.6. Triangle combination D.K. Maxwell
with a 6-sector circle I.V. Goethe

The three primary colors (red, green, blue) in the corners of the triangle on the circle are located at an angle of 120° to each other, in the center of the arc that limits the corresponding sector of the color wheel. The colors obtained by mixing monochromatic rays of light of primary colors - yellow, cyan, purple - are projected along the radius of the circle from the midpoint of each side of the triangle to the center of the arc of the corresponding sector of the circle. The sequence of colors in the triangle and the color wheel is the same.

Helmholtz's three-component theory of vision is based on the idea of the scientist Thomas Young about three kinds of nerve fibers that perceive three primary colors: red, green and blue (more precisely, blue-violet).

Helmholtz's theory explains well many facts of the physiology of color vision and is widely used in a number of branches of science and technology (including photography, color television, cinema, video, printing, computer technology, etc.).

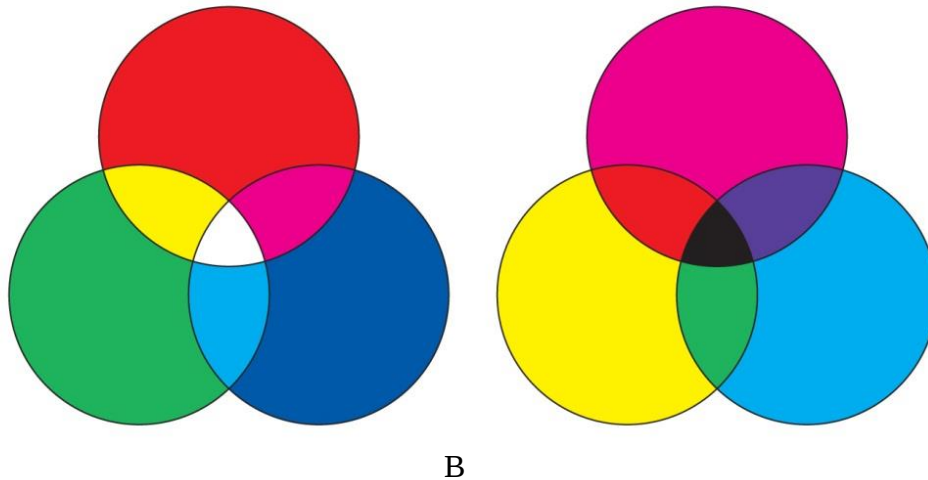


Fig.7. Additive (adjunctive) and subtractive (subtractive) methods of optical color mixing:

A) obtaining colors by adding monochromatic light fluxes of colored light sources - red, green and blue; in places of pairwise overlap, when projected onto a white screen, yellow, cyan and purple colors are formed, in the center there is a white spot;

B) obtaining colors by subtracting the corresponding radiation from white using purple, cyan and yellow filters; in places of overlap on the white screen, red, violet and green colors are formed, in the center there is a black spot.

There are options for a 12- and 24-sector circle, demonstrating not only saturated, but also unsaturated shades of all color tones with a stepped, or smooth, transition from saturated colors on the periphery to the white center of the circle.

There are even more complex two-dimensional models that show not only the brightening of saturated colors (towards the center), but also their darkening (mixing with gray) on the periphery of a circle or other figure.



Fig.8. I. Itton's 12-pointed star, demonstrating a stepwise transition from pure chromatic colors to whitened and blackened ones.

The mixture of chromatic and achromatic colors forms the entire wealth of complex (mixed) colors and their shades that we observe in nature and the human-created object-spatial environment. These are beige, brown, all light shades of gray (with varying amounts of gray of varying lightness in mixtures with chromatic colors) and many other colors.

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Rezyume: *Ushbu maqolada turli mualliflarning rang modellari ko'rib chiqiladi. Albert Munsell va Ittonning 12 sektorli rangli g'ildiraklari eng keng tarqalgan. Bir-birining ustiga chiqqan yarim oy shaklidagi to'rtta segmentdan iborat rang g'ildiragi Evald Gering tomonidan ishlab chiqilgan. Uchburchak birikmasi D.K. Maksvell 6 sektorli doira bilan I.V. Gyote. Rangli model dizaynerga soyalar orasidagi munosabatlarni ko'rishga va rang bilan bog'liq g'oyalarni amalga oshirishga yordam beradi.*

Резюме: *В данной статье рассматриваются цветовые модели разных авторов. 12-секторные цветовые круги Альберта Манселла, Иттона являются самыми распространенными. Цветовой круг, представляющий собой четыре заходящих друг на друга серпообразных сегмента был разработан Эвальдом Герингом. Совмещение треугольника Д.К. Максвелла с 6-секторным кругом И.В. Гете. Цветовая модель помогает дизайнеру увидеть взаимоотношения оттенков и воплотить идеи, связанные с цветом.*

Kalit so'zlar: *rang g'ildiragi, Munsell rang g'ildiragi, Itton rang g'ildiragi, Ewald Hering, D.K. Maksvell, additiv usul, ayirish usuli.*

Ключевые слова: *цветовой круг, цветовой круг Манселла, цветовой круг Иттона, Эвальд Геринг, Д.К. Максвелл, адитивный способ, субтрактивный способ.*

ACCUMULATION OF DAMAGE TO THE PAVEMENT WITH ASPHALT COATING

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Summary: *The article by systems approach explore the factors influencing the accumulation of damage to the pavement with asphalt coating. Based on the research made scientific hypotheses and conclusions.*

Key words: *road pavements, road network, on the main roads, global index, highway, road base, Improved,*

The implementation of the national program for the development and improvement of the road network requires improving the technical level and condition of use of the existing roads. Today, 52.3 percent of public highways are paved with asphalt concrete, and many years of experience with the use of pavements show that in some cases they do not reach the standard service life.

At present, the results of spring and autumn inspection are almost ignored in the planning and appointment of highway repair works, and are assigned based on subjective factors. In some cases, the work on improving the traffic condition of the roads lags behind the current requirements, deformations and damage are not prevented, and as a result, the repair dates of the roads have passed, and the rate of deterioration is ahead of the rate of their repair. and this difference is growing year by year.

Taking this into account, it is necessary to change the strategy of planning repair work, that is, to switch to the principle of prevention, not the elimination of deformations and distortions. Because, in the process of using the roads, various disturbances occur. This leads to a gradual deterioration of operational qualities and indicators such as stability and fluidity.

Therefore, it is an urgent issue to study the processes of accumulation of defects in asphalt-concrete pavements, to determine service terms, and to improve the planning of funds for repair work.

Currently, HDM, Rosy PMS, BMS, ROMAPS and a number of other models and programs are used in developed countries to assess and manage the operational condition of roads [1] (Table 1). In this, the main attention is paid to the regular monitoring of the condition of the roads and the prediction of the traffic-operation conditions.

Models for evaluating the condition of transport and operation of highways reflect the condition of road surfaces in the conditions of the countries where they were developed. Even if we take into account that there are specific models for different regions in one country, and the functions that optimize the resources allocated to road repair and maintenance are derived from the technical and economic conditions of those countries, it is correct to use these models in our country. ri does not give results.

Table 1

Models for assessing the condition of road surfaces

Countries name	Evaluable indicators	Models	Explanation
Italy	Sc, Sf, Rg	Improved AASHO	Not everyone is on the road
Switzerland	Sc, Rg, SC, Sf, Gl, Gk, Rv	Improved	Federal highway network
France	Rg, Sf, Sc, Gk. Rv, Rd	-	On the main roads
Belgium	Rg, Gb	Local (BRRC)	For the repair of roads

Great Britain	SC, RD, Rg, Sf	Local (TRL)	On the main roads
Netherlands	Rv, Ck, RD, Rg	Local (IVON)	On the main highways
Germany	RD, Rg, Ck, Rv	*	Federal roads have been assessed since 1993
Austria	Ck, RD, Rv. Sf Rg, SC	*	On local roads
Slovakia	SC, Ck, RD, Rg, Sf	Local models	Planning of road network repairs
Denmark	SC, Rg	Improved AASHO. Local	On national and local roads
Finland	SC, RD, Rg, Ck	AASHO. Local models	All on public roads
Norway	RD, Rg,	AASHO	On all roads
Poland	SF, SC, Ck, Rv, Rg, RD	Local models	On all roads since 1995
Australia	Rg, RD, Ck, Sf, Gl	AASHO, HDM, NOS, N1MPAC	Different states use it
Canada	Rg	AASHO	At the network level
USA	SE, RD, Rg, Ck	AASHO, VESYS	All ways
Japan	Gl	Improved AASHO	On certain national highways

The meanings of the indexes in the table are as follows: ST-serviceability; GI - global index; Sf-coating surface friction; Rg-gadir-bubbles or irregularities; RD-wheel track depth; SC-module of elasticity; Sk-decay; Rv- fluency.

From the analysis of the existing models for evaluating the role of road discharges, it can be seen that these models are based on the data obtained in the research objects. Therefore, it is necessary to develop models that can be used in the conditions of Uzbekistan based on our local conditions.

As it is known from the experience of operation of highways, various deformations and disturbances accumulate on the road surface over time. The causes of these disturbances are the influence of moving vehicles, various physical processes occurring in construction materials, and natural climatic conditions that are constantly changing.

The following physical-mechanical processes and phenomena may occur during the operation of the “road ramp - road base” system:

- depending on the construction of the road bed, the road bed changes its characteristics of strength (module of elasticity, density) and deformation (angle of adhesion and internal friction);
- residual deformations accumulate on the roadbed in any case, only at different speeds, depending on the currently specified characteristics;
- the strength of the road surface is uneven, laid on the base; it decreases as a result of the particles of the mixture of stone and gravel being rubbed by vehicles and mixed with each other as a result of the increase in soil moisture at the bottom of the road;
- under the influence of high temperature, the properties of the asphalt-concrete coating change and the modulus of elasticity decreases;
- as a result of the oxidation and polymerization process, cracks are formed in the coating as a result of wear of bitumen, and solar radiation accelerates this process;

➤ as a result of the continuous growth of heavy transit traffic on highways, various damage is observed in the pavement.

These are a part of the physical-mechanical and chemical processes in the “road base - road surface” system, which affect the formation and development of damage in road surfaces.

The following hypotheses can be accepted as a scientific hypothesis for the theoretical justification of the process of damage accumulation in asphalt-concrete pavements (assumptions determine the mechanism of damage under the influence of multiple loads):

❖ one (single) failure occurs in the structure under each impact of the standard load that falls on the bullet;

❖ when the load is repeated many times, the disturbances accumulate: they consist of the sum of individual disturbances in the current time interval: this sum is called the disturbance level;

❖ distortion level varies between 0 and 1.0. 0 means no damage, 1 means complete damage, the end of the working capacity (structural resource), the impossibility of continuing operation without repair;

❖ the resource of the structure is determined by the number of impacts of the standard loads; effects continue until the impairment level reaches 1.0;

❖ the value of a single failure depends on the construction of the road surface, the properties of the materials used in the construction may change over time.

According to the accepted assumptions, for models of accumulation of damage, after each i -loading cycle, the degree of damage V_n is the α_i of a single damage in the form of an arithmetic progression; we believe that the value will increase by:

$$B_{n+i} = V_n + \alpha_i, (i=1,2, \dots) \quad (1)$$

Where: V_n is the amount of damage accumulated during the loading cycle - n times; α_i is the value of a single failure occurring during the i -th cycle of loading.

$$\alpha \frac{l}{N}$$

N is the number of cycles of loading that lead to complete failure of the structure or the resource of the structure.

Then, the disturbance rate $B(t)$ at the current time t is defined as the sum of individual disturbances - α_i - (within time t):

$$B(t) = \sum_{i=1}^C \alpha_i = \sum_{i=1}^C \frac{1}{N} \quad (2)$$

C - the number of repetitions of the load during any time.

The change of $B(t)$ allows to assess the condition of the structure. The closer this value is to 1.0, the faster the coating will degrade and the less performance reserve or structural resource. The structural resource is used to determine the elastic bending of the structure according to the law proposed by V.P. Nosov [2]. The modulus of elasticity of asphalt pavements depends on temperature and soil moisture. Single defects also depend on these factors (temperature and humidity). For this reason, the single value is time-dependent, as temperature and humidity change over time.

So, the assumptions we accepted as a scientific hypothesis above allow us to draw the following conclusions:

1. Distortions grow uniformly over time and are defined as the sum of individual distortions that depend on the level of stress caused by the passage of the vehicle. The value of a single failure depends on the bending of the structure, which, in turn, depends on the moisture content of the subgrade soil, the temperature and the homogeneity of the pavement.

2. As a result of changes in the temperature of the asphalt concrete and the humidity of the ground of the road base, the general elasticity modulus of the road surface and the level of individual damage change. These changes should be taken into account when building a model that predicts the accumulation of disturbances.

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НАКОПЛЕНИЕ ПОВРЕЖДЕНИЙ ДОРОЖНЫХ ОДЕЖД С АСФАЛЬТОБЕТОННЫМ ПОКРЫТИЕМ

Rezyume: Maqolada tizimli yondashuvdan foydalangan holda, asfalt-beton qoplamali yo'l qoplamalarining shikastlanishining to'planishiga ta'sir qiluvchi omillar o'rganiladi. Tadqiqotlar asosida ilmiy farazlar qabul qilindi va xulosalar chiqarildi.

Резюме: в статье путем системного подхода исследованы факторы, влияющие на накопления повреждений дорожных одежд с асфальтобетонным покрытием. На основе исследований приняты научные гипотезы и сделаны выводы.

Kalit so'zlar: yo'l qoplamalari, yo'l tarmog'i, asosiy yo'llarda, global indeks, avtomagistral, yo'l bazasi, yaxshilangan.

Ключевые слова: дорожные покрытия, дорожная сеть, на основных дорогах, глобальный индекс, шоссе, дорожная база, улучшено.

STUDY OF BASALT IGNEOUS ROCKS OF THE BERKUTTOVSKOYE DEPOSIT

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Summary: In the world of thermal insulation materials, the leading place is occupied by the saving of raw materials and secondary resources of various industries. When using them, the weight of the structure is reduced by 3-4 times, and the consumption of cement and brick by 2-3 times. Based on this, improving the technology of modern materials - due to mineral additives which are sintered at relatively low temperatures using local new igneous rocks - is of particular importance.

The article presents the results of a study on the chemical-mineralogical composition and X-ray phase analysis of basalt from the Berkuttovskoye deposit. The basalt from this deposit can be used in the production of Portland cement as an active mineral additive; it can also be used to produce thermal insulation material based on basalt.

Key words: basalt, physical and mechanical properties, thermal insulation material, mineral additive, local raw materials.

Introduction. Basalt – is an igneous rock. The color of basalt is dark gray or black, and sometimes there are green shades, which indicates its secondary change Figure 1. Basalt is a mineral from Lat. basanites is a very hard stone. The term “basalt” as a name for a specific rock was first used



by the German scientist Georg Agricola, who is considered one of the founders of mineralogy.

Pic. 1

Basalt is mainly formed from small grains of plagioclase, magnetite and other natural minerals. Basalt deposits are found mainly in mountainous areas. The mineral composition of stone from different deposits can vary significantly.

Basalt is used in construction as crushed stone, facing slabs, paving stones, and as an additive to a special type of cement. In addition, thin threads of thermal insulation, pipes, reinforcement for concrete, cylinders, road nets, textile fabrics and non-woven materials, paper for filters, etc. are produced. The classification of basalts based on their chemical composition, which is in certain correspondence with their mineral composition, is of great importance: where, the SiO₂ content increases from melilitites to common basalt. Based on SiO₂ content, all basalts are divided into three groups: basic, neutral and acidic [1-3].

The group of basic basalts includes: olivine melilitite, melilitite, olivine nephelinite, nephelinite as well as limburgite and augite, which are characterized by the presence of a glassy phase. According

to the chemical composition, this group includes basalt rocks containing up to 42% SiO₂. The neutral group includes basalts with 43-46% SiO₂: basanites, leucites and olivine leucites. The group of acid basalts includes common basalt, olivine basalt and tephrites (over 46% SiO₂).

The Republic of Karakalpakstan has huge reserves of natural non-metallic raw materials, including deposits of igneous rocks of various origins, which can serve as a promising raw material resource as active additives and thermal insulation material.

Materials and research methods. Basalt from the Berkuttovo deposit, which is located in the Karauzyak region, can be used as active mineral additives to obtain high-quality cement. According to geological exploration data, the Berkuttovskoye deposit has reserves of 2.4 million tons and this provides active mineral additives for cement production. To do this, it is necessary to study the physicochemical and mineralogical properties of basalt from the Berkuttovo deposit.

Results and discussions. To increase the activity of cement, mineral additives are added. The term mineral supplement has a broader meaning. The corresponding definition is given in GOST 30515-2013. Also, according to their activity, mineral supplements differ into active mineral supplements (AMD) and inert mineral supplements (IMD). According to GOST R 56196-2014, active mineral additives for cements are divided into natural mineral additives and man-made mineral additives [3].

The basic requirements for the quality of mineral additives are set out in GOST R 56178-2014[3], GOST R 56196-2014 and GOST R 56592-2015. To increase the activity of cement, we use basalt from the Berkuttau deposit in the Aral region as a mineral additive. The mineral additive is first crushed in a jaw crusher, then in a ball mill until it becomes powdery.

As a result of semi-quantitative spectral analysis of samples of Berkuttovsky basalt, initial and when fired at 850 °C for an hour, the following chemical elements were determined, which are shown in the table. 1 and 2. Of these elements, the main rock-forming elements are silicon, aluminum, calcium, sodium, potassium, iron and other elements are present in small quantities

Tab. 1

Results of semi-quantitative spectral analysis of the original Berkuttovo basalt

Raw materials	Content of chemical elements, %								
	Si	Al	Ca	Na	K	Fe	Mg	P	Ba
Basalt	25	10	3	8	1,5	5	0,3	0,06	0,01
Raw materials	Content of chemical elements, %								
	Mn	V	Ti	Cu	Rb	Y	Zr	Sc	Ga
Basalt	0,04	0,01	0,6	0,005	0,004	0,002	0,002	0,001	0,002

Tab. 1

Results from firing at 850 °C for an hour of semi-quantitative spectral analysis of Berkuttovsky basalt

Raw materials	Content of chemical elements, %								
	Si	Al	Ca	Na	K	Fe	Mg	P	Ba
Basalt	25	8	3	10	0,8	4,5	0,7	0,04	-
Raw materials	Content of chemical elements, %								
	Mn	V	Ti	Cu	Rb	Y	Zr	Sc	Ga
Basalt	0,04	0,01	0,6	0,003	0,002	0,001	0,005	-	0,002

The chemical composition of basalt from the Berkuttovskoye deposit was studied using a device EDX-900HS (tab. 3) in the laboratory. This is expressed in a high content of SiO₂, Al₂O₃, Fe₂O₃, Na₂O, CaO and a reduced amount of MgO, SO₃, K₂O. Chemical analysis of raw materials was carried out according to GOST 26423-86 methods.

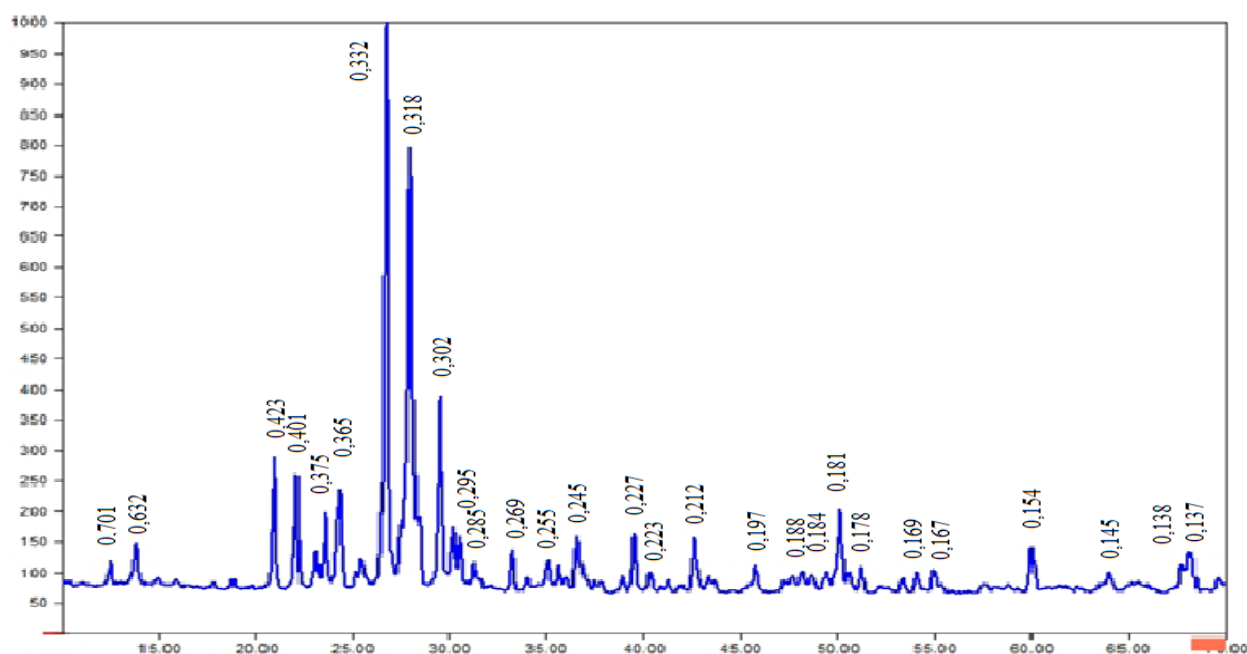
Table 3

Chemical composition of basalt from the Berkuttovskoye deposit

1	2	3	4	5	6	7	8	9	10
SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	CaO	MgO	SO ₃	Na ₂ O	K ₂ O	П.П.П.	Сумма
Mass fraction in %									
62,12	13,36	8,35	4,91	0,61	0,09	6,74	0,71	3,09	99,98

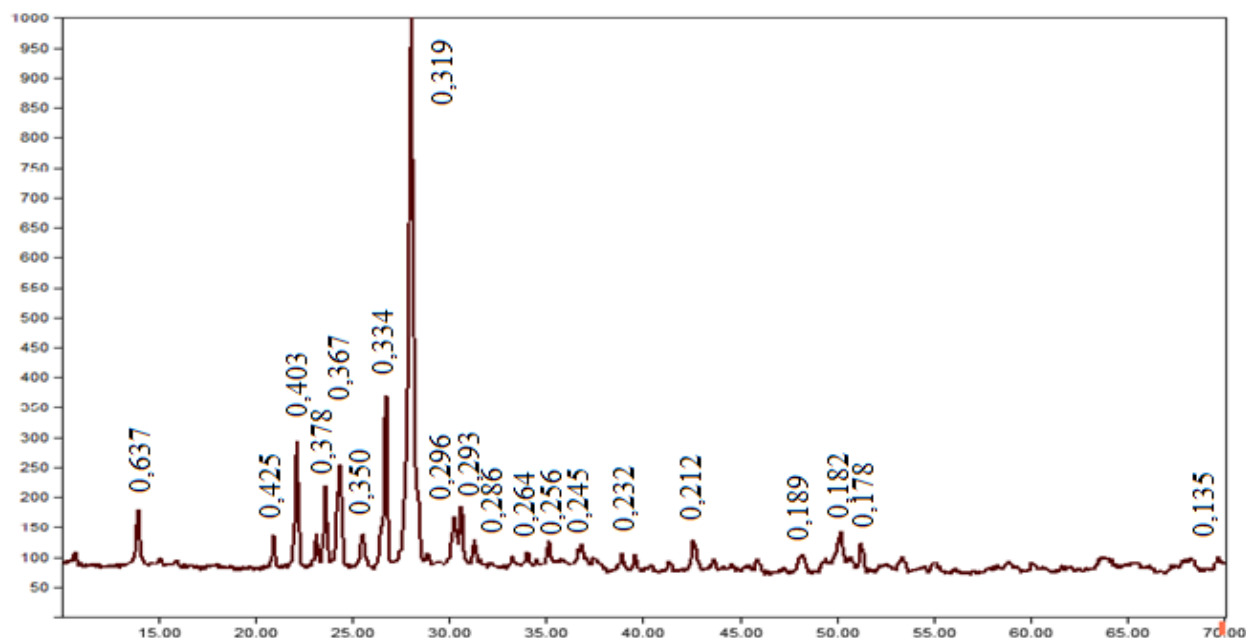
The results of X-ray phase analysis of the original (pic. 2.) and burnt (pic. 3.) basalt at a temperature of 850 °C for an hour from the Berkuttovskoye deposit are presented.

The main task of X-ray phase analysis (XPA) is the identification of different phases in their mixture based on the analysis of the diffraction pattern of the samples under study. Determination of substances in a mixture is carried out by a set of its interplanar distances and the relative intensities of the corresponding lines on the x-ray diffraction pattern [3-4].



Pic. 2. X-ray diffraction pattern of the original basalt from the Berkuttovskoye deposit

X-ray photographs (pic. 2) of the original Berkuttau basalt reflect quartz minerals d=(0.426; 0,332; 0,245; 0,227; 0,223; 0,212; 0,197; 0,181; 0,167; 0,154; 0,138; 0,137nm); albite d=(0,632; 0,401; 0,375; 0,365; 0,318; 0,295; 0,269; 0,178; 0,169; 0,145nm); cordierite d=(0,285; 0,255nm); anorthite d=(0,188; 0,184nm); chloride d=(0,701nm). The background level of diffraction peaks indicates the presence of a glass phase characteristic of igneous rocks.



Pic. 3. X-ray diffraction pattern of basalt from the Berkuttovskoye deposit when fired at 850 °C for an hour

In the X-ray diffraction photographs (pic. 3) after firing Berkuttovo basalt at 850 °C for an hour, the presence of a line of diffraction maxima corresponding to quartz minerals is observed mainly $d=(0,425; 0,334; 0,245; 0,212; 0,182; 0,178\text{nm})$; albite $d=(0,637; 0,403; 0,378; 0,367; 0,319; 0,286; 0,256; 0,232; 0,189; 0,183\text{nm})$; illite $d=(0,269; 0,293; 0,264\text{ nm})$; chloride $d=(0,350\text{nm})$.

Thus, the studied chemical and mineralogical composition of basalt from the Berkuttovskoye deposit shows that in its material and mineralogical composition it corresponds to the fact that it can also be used as a mineral additive in the production of Portland cement clinker for the production of thermal insulation material based on basalt [5].

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Rezyume: Dunyoda issiqlik izolyatsiyalash materiallari sanoatida xom ashyo va ikkilamchi resurslarini tejash etakchi o'rinni egallaydi. Ulardan foydalanganda konstruksiyalarni og'irligi 3-4 barobar, tsement va g'isht iste'moli esa 2-3 barobar kamayadi. Bundan kelib chiqqan holda, mahalliy yangi magmatik jinslar yordamida nisbatan past haroratlarda eriydigan mineral qo'shimchalar hisobiga zamonaviy materiallar texnologiyasini takomillashtirish alohida ahamiyatga ega.

Maqolada Berkuttov konidan olingan bazaltning kimyoviy-mineralogik tarkibi va rentgen fazali tahlili bo'yicha tadqiqot natijalari keltirilgan. Ushbu kondan olingan bazalt portlendtsement ishlab chiqarishda faol mineral qo'shimcha sifatida ishlatilishi mumkin, shuningdek bazalt asosidagi issiqlik izolyatsion materialini ishlab chiqarishda ham ishlatilishi mumkin.

Резюме: *В мире теплоизоляционных материалов ведущее место занимает экономия сырьевых и вторичных ресурсов различных промышленности. При их использовании масса конструкции уменьшается в 3-4 раза, а расход цемента и кирпича в 2-3 раза. Исходя из этого, усовершенствование технологии современного материала – за счет минеральной добавки который спекаемые при относительно низких температурах с использованием местного новых магматического пород приобретает особое значение.*

В статье приводятся результаты исследования по химико-минералогическим состав и рентгенофазовый анализ базальта Беркуттовского месторождения. Базальт данного месторождения можно использовать при производстве портландцемента как активная минеральная добавка также можно использовать получение теплоизоляционный материал на основа базальта.

Kalit so'zlar: *bazalt, fizik-mexanik xossalari, issiqlik izolyatsiyalovchi material, mineral qo'shimcha, mahalliy xomashyo.*

Ключевые слова: *базальт, физико-механические свойства, теплоизоляционный материал, минеральная добавка, местного сырья.*

THE MAIN ASPECTS OF THE OUTCOMES OF PROSPECTING WELL DEVELOPMENT, TESTING, AND OPENING

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Summary: *Discovering productive horizons based on research results presents the greatest difficulties. In almost all fields of Uzbekistan, opening and drilling in productive formations was carried out with a significant excess of bottomhole pressure over reservoir pressure. The possibility of absorption occurring and its intensity depend not only on the magnitude of the excess of bottomhole pressure over reservoir pressure, but also on the reservoir properties of the rocks, on what the reservoir is filled with. All other things being equal, drilling fluid flows more easily into a formation filled with gaseous hydrocarbons than with liquid ones.*

Key words: *well, trap, structural type of deposit, deflection, fold, drilling, testing, sampling, interval, liquidation, formation water, gas influx.*

Today, the world pays special attention to determining the facial features of terrigenous productive deposits and justifying the criteria for searching for structural type traps. To solve these problems, various studies are carried out, including: determining the conditions of sedimentation and patterns of distribution of sedimentary complexes, improving lithological and paleogeographic techniques for determining the genesis and morphology of sandy and other bodies, developing paleofacies reconstructions for predicting and searching for lithological traps and identifying promising areas for setting up prospecting work in order to successfully predict natural oil and gas reservoirs, which helps to increase the economic efficiency of prospecting and exploration work for oil and gas.

Many literature sources, fundamental and production reports present drilling results [1: p. 818], [2; c. 291], [3; p.168], [4; p.17-21], [5; p.199], [6; p.103-111], [7; c. 86], [8; c. 115-116], [9; c. 142-143] and others.

The development of the Karakalpak part of the Ustyurt region by deep drilling began in 1961 with the Ustyurt deep drilling expedition; wells Shakhpakhty, Assakeaudan, etc. were drilled [3; p.20].

The average specific efficiency indicators of deep drilling, characterizing the volume of increases in hydrocarbon reserves of categories C, + C2 per well and per meter of drilling, have the following values. 0.65 million toe was incremented per well. reserves of the indicated categories, per meter of penetration - 198.8 t.o.e.

Thus, from the beginning of the study until 2006, a huge range of work was carried out to study the geological structure and assess the oil and gas potential of the territory of Eastern Ustyurt. Including more than 22,500 thousand linear meters worked out. km of MOGT-2D seismic profiles, the average density of which is 58 linear meters. km per 1 km², which made it possible to prepare 64 structures for exploratory drilling. The total volume of drilling was 172 wells, 568.685 thousand m. Of the total number of drilled wells, exploratory wells account for 84.9%, parametric ones - 10.5% and reference ones - 4.6%.

As a result of more than sixty years of searching in the study area of Ustyurt, 26 gas condensate fields were discovered, one medium in reserves, the rest small, 43 areas were withdrawn from drilling. The total number of wells (exploratory, parametric and reference) that did not produce industrial hydrocarbon inflows is 91.

The carried out work made it possible to determine the main features of the geological structure and conditions for the formation of hydrocarbon deposits, in particular, the main structural elements were established, the lithology and stratigraphy of the sediment section were clarified, the main source strata were identified and the reservoir properties of Jurassic deposits were studied. Despite the

significant study of the Assakeaudian trough, there are still issues that are poorly illuminated and debatable. Many of these issues are related to the uneven study of the territory under consideration by geological and geophysical research. We will try to consider some of these issues within the framework of this review, based on the results of previous work in conjunction with work carried out in the period from 2006 to 2009. [2; p.31].

The drilling density is 495.3 km²/well. and 5.4 m/km²; The completed volume of deep drilling is 16,048 m, of which 3,560 m is parametric and 12,488 m is exploratory.

Considering the complexity and lack of study of the section, it is recommended to test the intervals in order to verify the conclusions made, as well as to study the hydrogeological features: 3488-3494 m, 3392-3402 m, 3262-3289 m, 3002-3011 m, 2794.5-2800 m, 3123 ,5-3142 m, 2949-2953.5 m, 2780-2787 m, 3402-3414.5 m, 3256-3282 m, 3111-3123.5 m. It should be noted that according to gas logging data, all described deposits are marked as low background values of gas readings [0.05-0.15%] of the drilling fluid.

The study of this territory by deep drilling was carried out in two stages: from 1962 to 1973. and 2008-2022. During the first stage, many emergency wells were observed.

As of 10/01/2023 on the territory of the Assakeaudan Pogibao region, 2 hydrocarbon deposits were identified: Shakhpakhty and Dzhel.

Productivity is associated with Jurassic deposits from the Lower to Upper Jurassic in the depth range of 1700-2400 m, gas deposits are associated with anticlinal traps.

Ultimately, this leads to undesirable complications of production development and industrial development, such as: a sharp drop in reservoir pressure, selective watering of the productive formation, skipping or leaving a more or less significant part of the residual gas outside the development due to gas being pinched by water.

A generalization of the experience of opening and testing prospecting and exploration wells in various oil and gas producing regions of the world shows that, despite the wide variety of methods, there is no universal call flow rate or inflow.

However, after the release [11; c. 56] and [12; c. 36] of governing documents, more than 35 years have passed, during which a number of studies have been carried out aimed at improving the quality and efficiency of testing operational facilities in wells [9; With. 86].

The article provides recommendations for improving the quality and efficiency of testing operational facilities in wells based on guidance documents [11; c. 56] and [12; c. 36], supplemented by the results of studies of this process in recent years.

The set of well testing works should include measures to ensure: an inflow close to the expected oil flow rate and water cut; maintaining the integrity of the formation skeleton in the near-wellbore zone; preventing the breakthrough of formation water [bottom, bottom and top] and gas from the gas “cap”, the flow of liquid between layers [perforation intervals]; safety of the production string; prevention of uncontrolled gushing manifestations; preservation, restoration or increase in the permeability of the bottomhole zone; environmental protection and compliance with safety regulations [8; c. 115-116], [12; p.86].

To analyze the drilling exploration of the Assakeaudan trough, we have compiled a table that shows: the name of the field and area; well number; design depth and actual depth, as well as the age of sediments; well altitude; date of start and end of drilling; start and end date of the test; the number of tested objects - in the open hole of the OPT points and the IPT CII; and also provides signs of oil and gas prospects.

Based on the table, we compiled a diagram (Fig. 1), which shows the main deposits and areas of the study area on the X-axis, and the years of drilled wells on the Y-axis.

As can be seen from the diagram of the study area, 18 fields and areas were drilled, mainly geological exploration work and drilling of deep reference and exploratory wells mainly began from

1963 (Shakhpakhty well No. 2) until 1977 Kindiksay (well No. 1), and on Between 1978 and 2007, no drilling operations were carried out in this region.

Since 2007, KublaAssakeudansk square. No. 1, geological and geophysical research and drilling work are still ongoing.

As of 01/01/2023, from 2007 to the present day, the studied territory has been drilled in five areas: KublaAssakeudan, Kumoy, Kossor, Karaudan, Tamarly and in the Dzhel fields.

The test results are given in Appendix No. 1-3, the results of well testing are given in Appendix No. 4-5, the condition of the wells is given in Appendix No. 6.

Table 3

Results of studying the oil and gas prospects of the Assakeaudan trough
[according to Bekmanov N.U., 2022]

№	Name of the square	№ wells	Depth, m sediment age		Signs of oil and gas prospects
			plan	fact	
1	2	3	4	5	6
1.	Assakeaudan	100	<u>3800</u> PT	<u>2750</u> J ₃	Reservoir Water
2.	Northern Assakeaudan	1	<u>3000</u> PT	<u>2624</u> PT	Water with dissolved gas
3.		2	<u>3100</u> PT	<u>2588</u> PT	Liquidated without running the production string and testing
4.		3	<u>2800</u> PT	<u>2390</u> PT	Liquidated without running casing and testing
5.	Oriental Assakeaudan	1	<u>2500</u> PT	<u>2393</u> J ₁	Water with dissolved gas
6.		2	<u>2500</u> PT	<u>2084</u> J ₂	Liquidated according to category I
7.		3	<u>2500</u> PT	<u>2466</u> PT	Water with dissolved gas
8.	Western Assakeaudan	1	<u>3900</u> PZ	<u>3902</u> C ₂ +C ₁	Weak gas that cannot be measured
9.	Kindyksai	1	<u>3500</u> PZ	<u>3501</u> PZ	Water with dissolved gas
10.	Nikolaevskaya	1	<u>3700</u> PT	<u>3292</u> J ₂	Water at Drilling
11.		2	<u>3700</u> PT	<u>2597</u> J ₂	Liquidated according to category III
12.		3	<u>3700</u> PT	<u>3704</u> J ₂	Reservoir Water
13.	Tasayuk	1	<u>2400</u> PT	<u>2247</u> PT	Water with dissolved gas
14.	South Tasayuk	1	<u>2400</u> PT	<u>2210</u> J ₂	Liquidated according to category I
15.		2	<u>2400</u> PT	<u>2480</u> PT	Reservoir Water
16.	Otyuchi	1	<u>3000</u> PZ	<u>3001</u> PZ	Water with dissolved gas
17.	Djel	1	<u>3100</u> PZ	<u>3049</u> PZ	Gas inflows
18.		2	<u>2950</u> PZ	<u>2950</u> PZ	Gas inflows
19.		3	<u>2625</u> PT	<u>2625</u> PT	Gas inflows
20.		4	<u>2750</u> PT	<u>2750</u> PT	Gas inflows
21.	Kumay	1	<u>3400</u> PZ	<u>3401</u> PZ	Weak gas

22.		2	<u>4170Pz</u>	<u>4170Pz</u>	Liquidated according to category II, paragraph "a"
23.	Karaudan	1	<u>3800PZ</u>	<u>3800PZ</u>	Liquidated according to category I
24.	Kassor	1	<u>2500 PT</u>	<u>2568 PT</u>	Liquidated according to category I
25.		2	<u>3700 PZ</u>	<u>2499J₁</u>	Liquidated according to category III
26.		3n	<u>2500 PT</u>	<u>3560 PZ</u>	Water with dissolved gas
27.	Tamarli	1	<u>3800PZ</u>	<u>3891PZ</u>	Lightly carbonated formation water during drilling
28.	Uzunkuy	1	<u>3500 PT</u>	<u>3130 J₂</u>	Liquidated according to category III

Rice. 1. Dynamics of the state of drilled areas in the Asskeaudan trough from 1961 to 2023 Bekmanov N 2023 years (Shakhpakhty well No. 2) until 1977 Kindiksay (well No. 1), and for the period 1978 to 2007 no drilling work was carried out in this region.

Since 2007, Kubla Assakeudansk square. No. 1, geological and geophysical research and drilling work are still ongoing.

As of 01/01/2023, from 2007 to the present day, the studied territory has been drilled in five areas: Kubla Assakeudan, Kumoy, Kossor, Karaudan, Tamarly and in the Dzhel fields.

The test results are given in Appendix No. 1-3, the results of well testing are given in Appendix No. 4-5, the condition of the wells is given in Appendix No. 6.

To date, a total of 43 reference, parametric and exploratory wells have been drilled, including 15 at the Shakhpakhty field [2 parametric, 2 exploratory, 11 experimental]. Of the remaining 28 wells, eleven wells were completed after testing in the column, i.e. completed their geological tasks. Four wells [Northern Assakeaudan 2, 3, Karaudan 1 and Tamarly 1] were completed without testing, in two [Karaudan and Tamarly] OPK and CII were carried out due to increased gas readings during drilling. During the study, samples of methane gas were also obtained. However, the areas were withdrawn from exploratory drilling due to lack of prospects. Nine wells [South Tasoyuk 1, 2, Kossor 1, 2, V.Assakeaudan 2, Assakeaudan 1 op,

Nikolaevskaya 1, 2, Uzunkui 1] completed construction as a result of the impossibility of continuing work, i.e. due to accidents that occurred.

The experience of opening and testing prospecting and exploration wells in various oil and gas producing regions of the world is summarized. It has been established that there is no way to call the influx. Based on global and domestic experience, the following main factors have been identified that determine the effectiveness of opening and testing during exploration of deeply submerged oil and gas fields associated with carbonate and terrigenous reservoirs: penetration of filtrate and solid phase of drilling fluid into the reservoir, i.e. reservoir clogging; closure of silica-conducting cracks; low reservoir properties.

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Rezyume: *Tadqiqot natijalari asosida samarali gorizontlarni ochish eng katta qiyinchiliklarni keltirib chiqaradi. O'zbekistonning deyarli barcha konlarida mahsuldor qatlamlarda ochish va burg'ulash ishlari quduq tubi bosimining qatlam bosimidan sezilarli oshib ketishi bilan amalga oshirildi. Yutishning paydo bo'lish ehtimoli va uning intensivligi nafaqat quduq tubi bosimining kollektor bosimidan oshib ketishiga, balki tog' jinslarining kollektorlik xususiyatlariga, rezervuar nima bilan to'ldirilganligiga ham bog'liq. Boshqa barcha narsalar teng bo'lganda, burg'ulash suyuqligi suyuq uglevodorodlarga qaraganda gazsimon uglevodorodlar bilan to'ldirilgan qatlamga osonroq oqadi.*

Резюме: *Вскрытие продуктивных горизонтов по результатам исследований представляет наибольшие трудности. Почти на всех месторождениях Узбекистана вскрытие и бурение в продуктивных пластах производились со значительным превышением забойного давления над пластовым. Возможность возникновения поглощения и его интенсивность зависят не только от величины превышения забойного давления над пластовым, но и от коллекторских свойств пород, от того, чем заполнен коллектор. При прочих равных условиях буровой раствор легче уходит в пласт, заполненный газообразными углеводородами, нежели жидкими.*

Kalit so'zlar: *quduq, qopqon, uyumning struktura turi, botiqlik, burma, burg'ulash, sinash, namuna olish, oraliq, likvidatsiya, qatlam suvi, gaz oqimi.*

Ключевые слова: *скважина, ловушка, структурный тип залежи, прогиб, складка, бурение, испытания, опробование, интервал, ликвидация, пластовая вода, приток газа.*

UDC 677.024

TARPAULIN TISSUE STRUCTURE PHASE DETERMINATION

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Summary: The scientific work presents the results of creating canvas fabrics of a new composition from recycled materials and analyzing their structure. For the canvas of a new composition of tarpaulin technical fabric, 35x2 tex yarn, produced from recycled raw materials in the ring method, and 35x2 tex yarn, produced from regenerated fibers, were used. The tensile strength of the fabric was 988.3 N for the body and 488.6 N for the thread. Elongation at break along the hull 34.7%, relative elongation along the beam 14.4%.

Key words: raw cotton thread, technical tarpaulin, canvas, tensile strength, elongation.

The position of the warp and weft filaments in the tissue determines the structural phase of the filaments. According to Professor Novikov's theory, the phases of tissue structure are between I–IX. The wave height of the threads located in the tissue is called the bending wave height.

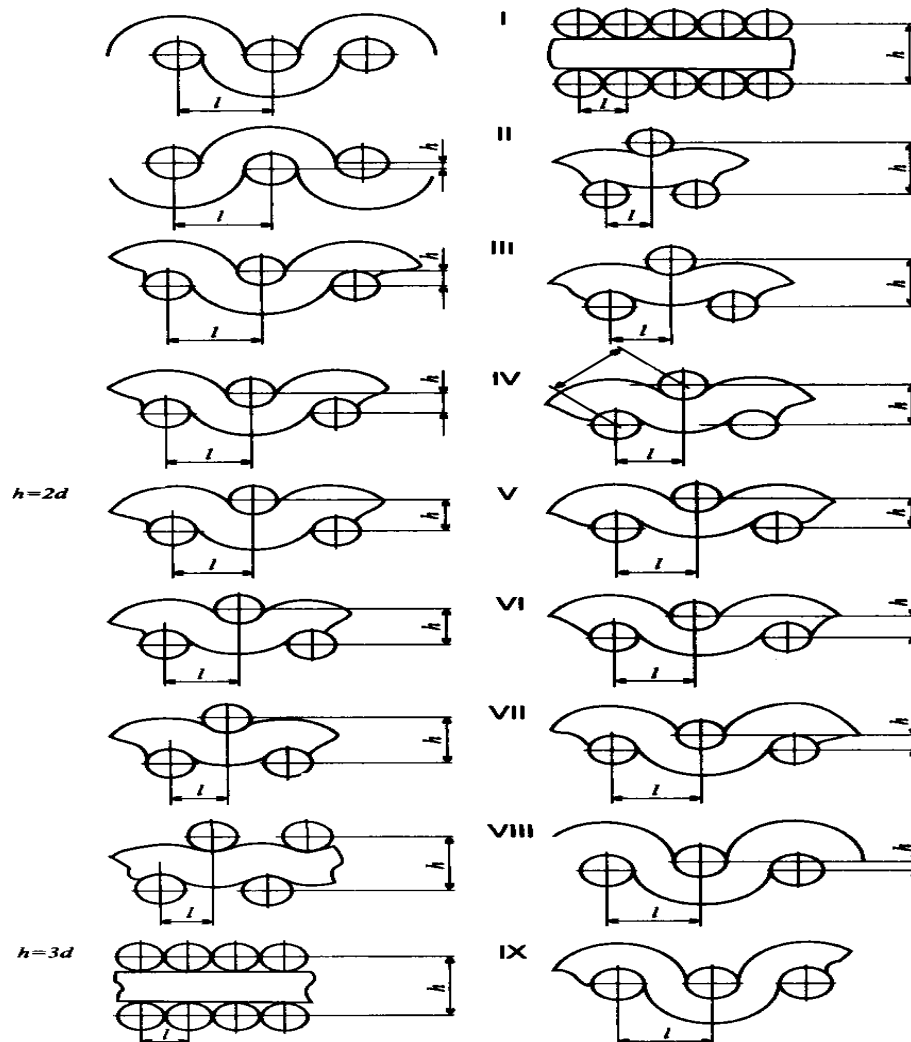


Figure 1. Tissue structure phases.

The height of the bending wave means that the distance from the center of the Warp (weft) thread, which is located at the top, to the center of the Warp (weft) thread, which is located at the bottom, is lowered vertically. In the first phase of the tissue structure, the Warp threads are located exactly in the same plane without bending, that is, their bending wave height is zero: while the $H_T = 0$ weft threads are bent at maximum around the Warp threads, settling in two planes. The distance vertically between the weft threads located above and below will be equal to the sum of the diameters of the warp and weft threads.

In the ninth phase of the tissue structure, the opposite weft filaments are located exactly in the same plane without bending, that is, their bending wave height is zero : while the $h_A = 0$ warp filaments are bent at maximum around the weft filaments, settling in two planes. The distance vertically between the warp threads located above and below will be equal to the sum of the Warp and weft thread diameters, i.e. at $h_{\Sigma} = d_T + d_A$.

In the phases of all the remaining tissue structure, the Warp and weft threads will be located slightly bent. But in all cases, regardless of the type and phase of the tissue, the sum of the bending wave heights of the Warp and weft threads is constant, equal to the sum of the Warp and weft threads diameters, i.e.: $h_T + h_A = d_T + d_A = \text{const}$.

In practice, the formation of the first and ninth phases of the tissue is quite complex, but theoretically such a structure is considered to exist.

The tissue structure phase is influenced by the bicality of the Warp and weft filaments in bending. The structure phase coefficient of the tissue, taking into account the bicrity of the strands, is determined using the formula:

$$K_{\phi} = \frac{h_T}{h_{Ay}} = \frac{0,702}{0,095} = 7,39; \quad (1)$$

Here h_T , h_A yes-the height of the bending waves of the Warp and weft threads, mm, respectively.

The height of the bending wave of the Warp and weft threads, taking into account the bicrity of the threads in bending, is determined as follows:

$$h_T = \frac{P_T^3 \cdot A_A \cdot (d_T + d_A)}{P_A^3 \cdot A_T + P_T^3 \cdot A_A}, \quad = \frac{26^3 \cdot 0,001404 \cdot (0,395 + 0,395)}{13^3 \cdot 0,001404 + 26^3 \cdot 0,001404} = 0,702; \quad (2)$$

$$h_A = \frac{P_A^3 \cdot A_T \cdot (d_T + d_A)}{P_A^3 \cdot A_T + P_T^3 \cdot A_A} = \frac{13^3 \cdot 0,001404 \cdot (0,395 + 0,395)}{26^3 \cdot 0,001404 + 13^3 \cdot 0,001404} = 0,088; \quad (3)$$

According to the table below, we determine the structure phase of the tissue according to the value of the tissue structure phase coefficient.

Since the value of the coefficient is equal to 7.39, this tissue is in the eighth structure phase.

Table 1.

Tissue structure phase coefficients

Ratio coefficient h_T/h_A	Tissue structure phase								
	I	II	III	IV	V	VI	VII	VIII	IX
	0/8=0	1/7=0,14 3	1/3=0,33 3	3/5=0,6	1	5/3=1,6 66	3/1=3	7/1=7	8/0= ∞

The height of the bending wave of the threads without taking into account the bicrity of the Warp and weft threads is determined as follows:

$$h_T = \frac{P_T \cdot (d_T + d_A)}{P_T + P_A}, = \frac{26 \cdot (0,395 + 0,395)}{26 + 13} = 0,527; \quad (4)$$

$$h_A = \frac{P_A \cdot (d_T + d_A)}{P_T + P_A}, = \frac{13 \cdot (0,395 + 0,395)}{26 + 13} = 0,263; \quad (5)$$

$$K_\phi = \frac{h_T}{h_A} = \frac{0,527}{0,263} = 2,00; \quad (6)$$

From this we can conclude that this tissue will be in the 6-7 structure phase, without taking into account its bicrity in bending the threads. And, taking into account the bicrity of the threads, it turns out that the tissue is in the eighth phase structure.

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Rezyume: Tadqiqot ishida ikkilamchi xomashyodan yangi tarkibli brezent to'qimalar yaratish va ularning tuzilishini tahlil qilish natijalari keltirilgan. Loyihalangan yangi tarkibli polotno o'rilishili texnik brezent to'qimalarining warp bo'yicha ikkilamchi xomashyodan halqali usulda yigirilgan 35x2 teks pishirilgan ip va weft bo'yicha qayta tiklangan tolalardan yigirilgan 35x2 teks ip qo'llanildi.

Резюме: В научной работе представлены результаты создания брезентовых тканей нового состава из вторичного сырья и анализа их структуры. Для полотна нового состава брезентовой технической ткани использовалась пряжа 35x2 текс, выработанная из вторичного сырья кольцевым способом, и пряжа 35x2 текс, выработанная из регенерированных волокон. Прочность на растяжение ткани составила 988,3 Н для тела и 488,6 Н для нити. Удлинение при разрыве по корпусу 34,7%, относительное удлинение по балке 14,4%.

Kalit so'zlar: paxta xom ipi, texnik brezent, polotno, uzilish kuchi, polotno, teks, to'qima.

Ключевые слова: регенерированных волокон, технический брезент, прочность на разрыв, растяжение, пряжа.

STUDY OF THE COMPOSITION OF CARBONATE MINERALS IN KARAKALPAKSTAN

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Summary: *The dolomite of the Djamansai deposit of the Republic of Karakalpakstan (Uzbekistan) has been studied. It was found that the dolomite ore of the Djamansai deposit contains a minimum amount of impurities and a sufficient magnesium content. The temperature intervals of the two stages of dolomite dissociation, as well as the temperatures at which the dissociation rate is maximal, are determined. It is shown that dolomite is suitable for the production of magnesia binding systems.*

Key words: *dolomite, Djamansai deposits, dolomite ore, dissociation of dolomite, caustic dolomite, decomposition of carbonates.*

The magnesite binders include caustic magnesite and caustic dolomite. The first is made of natural magnesite, and the second is made of natural dolomite. Magnesite is a carbon dioxide salt of magnesium (MgCO_3). Dolomite is a mineral that is a double carbon dioxide salt of calcium and magnesium ($\text{CaCO}_3 \cdot \text{MgCO}_3$). The color of the dolomite is grayish-white, sometimes with a yellowish, brownish or greenish tinge. Mohs hardness is 3.5...4, density is 2.8...2.9 g/cm³. Magnesites and dolomites are used as raw materials in refractory and some other industries. The production process of caustic magnesite and caustic dolomite consists of firing of raw materials and grinding of firing products. Magnesite decarbonizes during firing and turns into MgO. The decomposition of magnesium carbonate begins at a temperature of about 4000C, but proceeds at a sufficient rate only at 600-6500C. The practical firing temperature of magnesite in shaft furnaces is 750-8000C, and in rotating furnaces-10000C [1].

Currently, with the development of the construction industry, in many countries of the world, work is actively underway on the use of magnesia binders as a binding agent, since Portland cement currently used in construction, the production of which is more energy-intensive compared to magnesia binders. Therefore, using magnesia binders instead of Portland cement is relevant, because this allows you to reduce the energy cost of firing, and in turn reduce the cost of products based on magnesia binders.

The development and implementation of new technologies of magnesia binders for construction purposes and the production of modern building materials and products based on them are of scientific and practical interest.

It is known from the literature that during the firing of dolomite at a temperature of about 750°C, caustic dolomite is formed, which consists mainly of CaCO_3 and MgO (at least 15%). Dolomite cement and dolomite lime can be produced at higher temperatures. Dolomite cement, which includes MgO, CaO and CaCO_3 , is produced at a firing temperature of 800–850°C; dolomite lime (a mixture of MgO and CaO) is formed at a firing temperature of 900–1000°C. Higher temperatures lead to sintering of dolomite and formation of dolomite refractories [2].

It is known that the mechanism of firing and then sintering limestone, dolomites consists in the fact that small crystalline grains, under the influence of molecular cohesion forces, fuse into a crystalline body, while part of the pores close, then recrystallization (crystal growth) is observed. During sintering, in parallel with recrystallization, the process of "healing" of crystals with distortions in the original crystal structure is observed, which is accompanied by a decrease in the activity of the substance [3].

On the territory of Uzbekistan, only one deposit of dolomites has been explored as a refractory raw material – "Farkhad rocks". For other purposes, the deposits of Dehkanabad, Pachkamar, Karakiya, Mamajurgaty, Navoi and a number of others have been studied in detail. In most cases, dolomites are

primary sedimentary formations formed in saline basins. The age of dolomite rocks varies from the Lower Paleozoic to the Meso-Cenozoic inclusive. Uzbekistan has virtually unlimited reserves of dolomite, estimated at billions of tons, because It is found widely, often in combination with limestones [4].

The purpose of this work is to study the dolomite of the Jamansai deposit for the production of low-temperature binders.

Dolomite from the Jamansai deposit of the Republic of Karakalpakstan was used for the study. The birthplace of Jamansai is also used to produce limestone for soda and cement production.

A chemical analysis was carried out (Table.1) analysis of dolomite using an energy dispersive X-ray fluorescence spectrometer EDX-7000P, which measures the energy and intensity of secondary fluorescent radiation, determining the elements and their quantitative content in the sample. The chemical and mineralogical composition of dolomite is mainly a mixture of calcium and magnesium carbonates, some compounds of silica, alumina, and iron hydroxide, calcium sulfate in the form of gypsum, a small amount of soluble salts of sulfuric and hydrochloric acids. As can be seen from the chemical analysis data, the dolomite content in the sample is almost 99%, which shows the purity of the rock from clay impurities. The CaO:MgO ratio almost corresponds to the theoretical one (1:1).

Table 1. Chemical composition of dolomite samples, %

Dolomite deposit	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	CaO	MgO	SO ₃	Na ₂ O	K ₂ O	calcinat ion losses	Σ
Jamansai	0,34	0,20	0,04	26,31	24,89	0,15	0,02	0,03	47,65	99,63

The phase composition of dolomite ore samples was studied by X-ray phase analysis (Table 2). X-ray phase analysis was performed on RIGAKU Dmax - 2200 unit.

Table 2. Data of the X-ray phase analysis of the dolomite sample.

d [Å]	The intensity of the lines	Minerals
3.7006	71.9	CaCO ₃
2.8914	1000.0	CaMg(CO ₃) ₂
2.6748	34.1	CaMg(CO ₃) ₂
2.5437	32.5	CaMg(CO ₃) ₂
2.4079	121.7	CaMg(CO ₃) ₂
2.1957	243.1	CaMg(CO ₃) ₂
2.0679	27.2	CaCO ₃
1.8078	172.7	CaMg(CO ₃) ₂
1.7896	220.5	CaMg(CO ₃) ₂

The results of X-ray phase analysis of an ore sample from the Jamansai deposit show the presence of dolomite minerals (maximum peak at $2\theta = 31.2^\circ$) and calcium carbonate (Fig. 1).

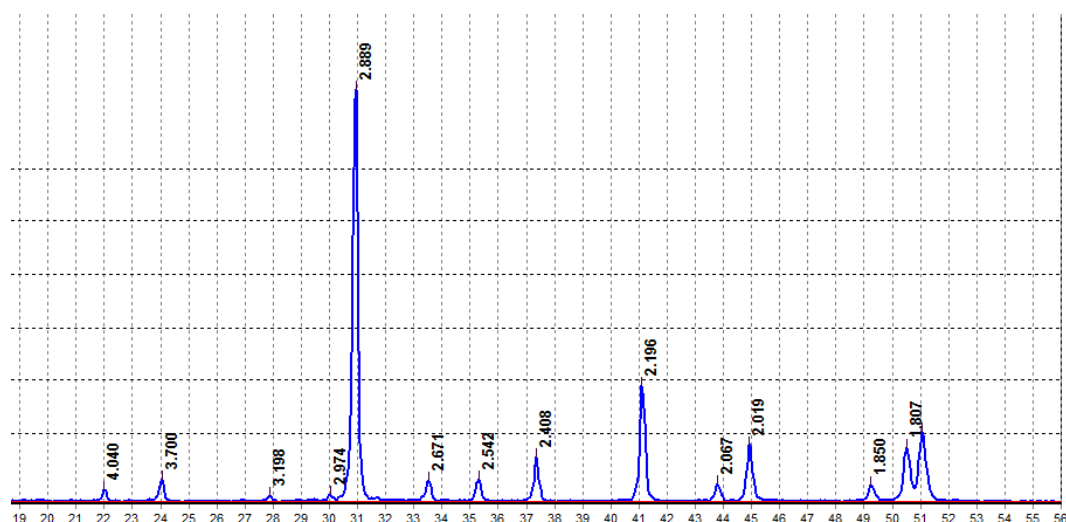


Figure 1. Radiograph of dolomite

The process of decomposition of carbonates is complex, with separate stages of which are diffusion, adsorption and desorption. During the decomposition of carbonates, chemical reactions and crystalline transformations depend on the nature of the material, as well as on the size of the pieces of the fired material, on the heating rate, and others [5]. According to A.A.Pashchenko [6], the beginning of decomposition of the magnesia component is in the temperature range 720...760°C, calcium – 895...910°C, and from the studies of V.S.Ramachandran [7], decomposition of dolomite is observed at 810°C and 900 °C. According to the authors [8,9], the firing conditions should be adjusted so as to exclude decarbonization of CaCO₃.

Many works have been devoted to the study of chemical and physico-chemical properties of carbonate minerals in the firing process and the production of carbonate binder systems based on the raw materials of Karakalpakstan [10-15].

In our case, the natural carbonate marls of the Akburly and Porlytau deposits served as the raw material for the production of carbonate binder systems and lime-belite binder (BV). In the lime-belite binder (AND B C)-calcium carbonate -water system, marble flour obtained by highly dispersed grinding of marble (96.5% CaCO₃) was used as a carbonate filler [10, 12].

It was found that the optimal mode of heat treatment of the studied marls without and with additives of quartz sand and obtaining, respectively, carbonate binder systems and lime-belite binders IBV₁ and IBV₂ is a temperature of 1000°C with an exposure time of 90 minutes.

The thermal properties of the dolomite ore of the Jamansai deposit were studied using a synchronous thermal analyzer STA409 PCLuxx. This device allows measurements of changes in mass and heat of transformations in the same experiment for the same sample. According to the thermal analysis data, two clear endothermic effects are visible on the DTA and DTG curves, which shows that the decomposition of dolomite takes place in two stages. The temperature range of the first stage of dolomite dissociation corresponds to the range 713-766°C, and the second to the range 780-820 °C.

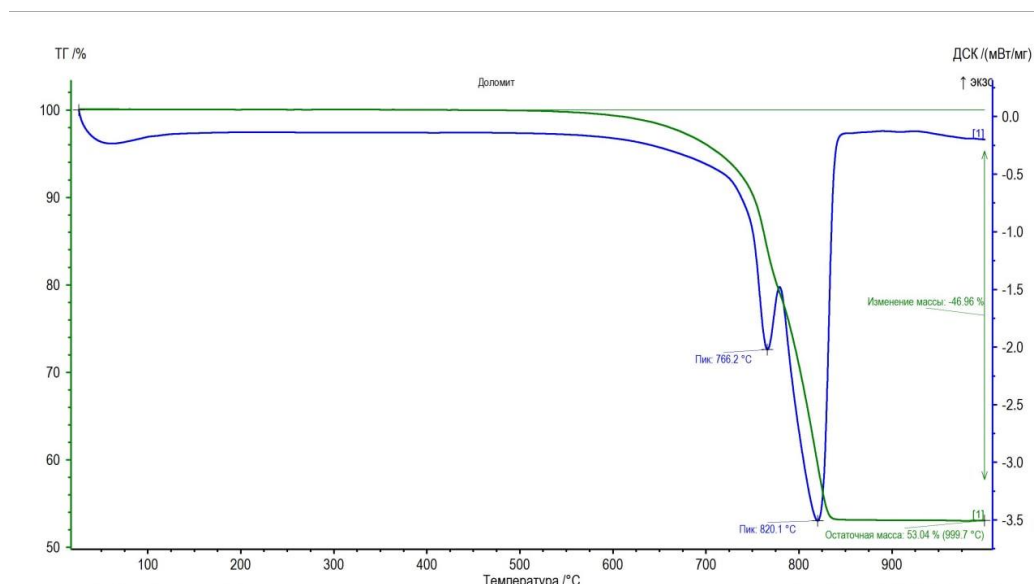


Figure 2. Thermogram of the dolomite sample

There are two steps on the TG curve, which characterizes the decrease in the mass of the substance under study. The change in mass relative to the initial mass in the first stage is 20.17%, and in the second – 26.79%, totaling 46.96%. It can also be seen from the data that an exothermic thermal effect is also observed on the DTA curve, possibly related to the crystallization of an amorphous decomposition product.

The analysis of the data obtained allows us to conclude that of all dolomite binders, dolomite lime has the maximum activity, which is obtained at a dolomite firing temperature of about 1050 °C. The data obtained are in good agreement with studies of the firing process of marl limestone and dolomites from other deposits. The presence of magnesium oxide slightly reduces the temperature at which the maximum energy level of the CaO crystal lattice is reached, and a further increase in temperature does not cause an increase in lime activity.

Conclusions

1. The chemical, physico-chemical and mineralogical properties of the dolomite of the Jamansai deposit have been studied. It can be seen from the chemical analysis data that the dolomite content in the sample is almost 99%, which shows the purity of the rock from clay impurities.
2. According to the results of thermographic analysis, it was found that the temperature intervals of two stages of dolomite dissociation were determined, the first stage of dolomite dissociation corresponds to the interval 713-766°C, and the second to the interval 780-820°C.
3. It is shown that the dolomite of the Jamansai deposit of the Republic of Kazakhstan belongs to active dolomites and can be used as a raw material in the production of magnesia binder systems.

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Rezyume: *Qoraqalpog‘iston Respublikasining Jamansay konidan olingan dolomitning kimyoviy va mineralogik tarkibi, fizik-kimyoviy xossalari o‘rganildi. Kimyoviy tahlil natijasi bo‘yicha namunadagi dolomit miqdori deyarli 99% ni tashkil qiladi. Termografik tahlil natijalariga ko‘ra, dolomit dissotsiatsiyasining ikki bosqichining harorat intervali aniqlandi, dolomit dissotsiatsiyasining birinchi bosqichi 713-766°C oralig‘iga, ikkinchisi esa 780-820°C oralig‘iga to‘g‘ri kelishi aniqlandi. Jamansay konining dolomiti magnezial bo‘g‘lovchilar ishlab chiqarishda xomashyo sifatida ishlatilishi ko‘rsatildi.*

Резюме: *Изучены химический и минералогический состав, физико-химические свойства доломита из месторождения Джамансай Республики Каракалпакстан. По результатам химического анализа, содержание доломита в минерале составляет почти 99%. По результатам термографического анализа определен температурный интервал двух стадий доломитовой диссоциации, установлено, что первая стадия доломитовой диссоциации соответствует температуре 713-766°C, а вторая-780-820°C. Было показано, что доломит месторождения Джамансай можно использовать в качестве сырья для производства магнезиальных вяжущих.*

Kalit so‘zlar: *dolomit, Jamansay koni, dolomit rudasi, dolomit dissotsiatsiyasi, kaustik dolomit, karbonatlarning parchalanishi.*

Ключевые слова: *доломит, Джамансайский месторождения, доломитовая руда, диссоциация доломита, каустический доломит, разложение карбонатов.*

SPIRITUALITY AND ETHICS

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Summary: *This article discusses issues of spirituality and ethics. The role of ethical values in enhancing the spiritual world of the individual. And also, the ideas of spiritual and ethical education and upbringing of youth are analyzed. Some positive qualities are indicated that serve to increase the spiritual and ethical level of youth. Particular attention is paid to pedagogical diagnostics and psychodiagnostics in the process of organizing and enhancing spiritual and educational work among young people. The significance and role of national education in improving the spiritual world of youth at the present stage of development of society are noted.*

Key words: *ethics, value, spirituality, education, youth, pedagogical diagnostics.*

In the process of building a new Uzbekistan, the reforms implemented in all spheres in our country are increasing the need to educate young people and the general population in terms of morals and ethics. Formation of high moral and ethical values in the minds of young people, on the one hand, serves their maturation, and on the other hand, helps to improve the spiritual and mental environment of the country and ensure the unity of the population.

Deep socio-economic and political reforms being carried out in our country require the formation of special moral and ethical norms in all citizens participating in the process of these reforms. The formation of these norms in young people plays an important role in preparing them for life. In particular, the formation of high moral and ethical norms of pupils and students is of great importance in their development as a special profession.

In Uzbekistan, the "National Personnel Training Program" was adopted in 1997, and at that time, the education system had not completely recovered from the effects of the totalitarian management principles of the former union. Therefore, it was necessary to fundamentally reform this system, to create new, modern educational institutions, curricula and programs. The new education system could not be created without being based on the modern achievements of science and advanced pedagogical experience, and on the other hand, on the ancient programs and rich spirituality of the population. "National Personnel Training Program" was adopted in order to create the most modern education system. In the creation of this system, the use of the latest achievements of the science of pedagogy, rich programs of folk pedagogy, methods and tools was envisaged.

After the adoption of the national personnel training program, the objectives and tasks set in the program have shown their viability. Academic lyceums and vocational colleges were newly established near Yue. Higher education has moved to a two-level system - bachelor's and master's. Today, general education schools, academic lyceums, vocational colleges, curricula and programs at both levels of the higher education system have been newly created, and the world's most advanced pedagogical innovation technologies are being introduced to education. The fundamental reform of the educational system is a phenomenon of great social and political importance, and its effect will have an effective impact not only on the educational system, but also on all spheres of social life. Therefore, the representatives of agriculture, industry, construction, transport, and social sectors of our country cannot remain indifferent to the reforms in the education system. The representatives of these fields will help the educational reforms as much as they can. In particular, the employees of the cultural and educational institutions can significantly help the educational reforms. The influence of employees of this field on the education system is directly felt in the effectiveness of classes, which are the main form of education. This effect can be in the form of effective use of cultural and educational activities in lessons and other activities in the educational system, and conducting activities related to the education and upbringing of students and youth in extracurricular time.

Cultural institutions are organizations that fulfill a certain spiritual and educational task, legalized by the country, and are directed to working with the masses, realizing the people's artistic and creative learning, singing, dancing, acting, and expressive reading skills, and enriching their free time with meaningful and effective activities.

Z.Ismailova writes about the systematic nature of spiritual education: "Essence of spiritual and moral education reflects the goals and aspirations of the individual and his family, the nation, harmonizes the past and future of the country and the population, helps to realize the lifelong desire and consists of a system of educational ideas that contribute directly" [1., 11.]

Our ancestors paid special attention to the importance of moral education in the development of a person. Especially in the work of our enlighteners who lived and worked in the beginning of the 20th century, the issues of education played a major role. The great scholar Abdulla Avloni said that "Education is a matter of life, or death, or death, or life, or disaster, or happiness, or catastrophe for us." In addition, Abdulla Avloni expressed very deep thoughts about spiritual and moral education: "Ethical education is the most necessary, more honorable, and high level education for people. In the previous lesson, we said that there is a difference between education and teaching, because the student is a knower, and the one who receives education is a follower" [2. 28.].

"Morality" is one of the social concepts, the meaning of which means personal behavior, behavior, lifestyle, principles and rules of living, and therefore, the content of social relations. For that reason, morality as a social phenomenon has a specific necessary importance in the spiritual and spiritual life of society. This concept serves as one of the main criteria in the process of determining the color of a particular nation and its place in human development. The concept of "ethics" was formed at the initial stage of human society in the form of work ability regulated on the basis of family opinion. Since ancient times, this concept has been used in various ways in socio-philosophical, psychological, pedagogical, historical, artistic, ethnographic and cultural studies.

Ethics (Arabic means behavior) is one of the forms of social value, a social order, which serves to regulate people's behavior in all spheres of social life. Morality can be implemented through other forms of regulation of the activities of the majority (study, production, population programs) and differs in that it is regulated based on the opinion of the majority. The requirements of morality are the same for everyone, but they are in the form of a duty to be performed at will, which is not carried out on the basis of any special command or instruction of anyone. Fulfillment of moral requirements occurs within the framework of forms of moral influence.

Morality is the ground of spiritual perfection, which is the highest stage of personal development. In a word, ethics is a set of behavioral norms accepted in society and approved by public opinion.

In the process of a person's development as a person, the level of his maturity is determined by the degree to which the elements of manners, ethics, culture and spirituality are integrated in him. In recent years, in scientific literature, published scientific and popular scientific publications, in the application of the concept of "Ethics" in the ongoing scientific research, the concept of "Ethics" is used as an independent concept, in most of them it is directly "spiritual morality", "the perfection of decency" are also used as synonyms or alternative words. The reason is that moral perfection, which is the unity and harmony of the spiritual and physical maturity of a person, cannot be formed without moral requirements and their ideas.

"Spirituality" - in the view of academician E.Yu. Yusupov, is a unitary system that positively affects the development of society, all of which are connected with each other, human morals, conscience, faith, belief, worldview, ideological changes" [3. 38].

In our view, the spirituality of a person is a mental process that is manifested in the practical application of the content of positive thoughts, intentions, ideas, theories and teachings that pass through his mind.

The organization of spiritual and moral education is the most important factor that ensures the success of social education. Spiritual and moral education and upbringing have the character of interrelationship and unity, and it is the basis of formation of spiritual and moral maturity of a person. Spiritual and moral education is a process of forming spiritual and moral consciousness, which should be organized sequentially, continuously and systematically.

Spiritual and moral education is theoretical spiritual and moral knowledge acquired by students. Because it is a complex dynamic process aimed at creating skills and competencies for the organization of social employability, creating positive spiritual and moral qualities and forming a spiritual culture. Formation of students' spiritual culture is a necessary stage of the process of legal education and upbringing.

The main criteria of moral culture in the student's behavior and actions: humanity, hard work, national pride, patriotism, kindness, faith, creativity, dedication, initiative, self-control and self-evaluation. This requirement is fulfilled by the student's attitude to his duty and duties towards the Motherland, parents, friends, community, self-sacrifice and creative features that appear in the educational process.

For him, first of all, it is necessary to determine the relationship and place of human qualities. A person's spirituality is reflected in his manners, behavior, and culture.

Raising the morale of the student youth is formed through intellectual, moral, legal, economic and political knowledge. This knowledge, in turn, leads to the perfection and expansion of positive human qualities. All the above-mentioned positive features serve to raise the spiritual and moral level of the student's personality.

The organization of spiritual and moral education of students is a holistic pedagogical process aimed at a specific goal, and the following pedagogical tasks are solved in this process:

1. To provide information to students about the nature of spiritual and moral norms and moral relations and their importance in the life of the social society.
2. Creating a need for students to acquire spiritual and moral knowledge, forming spiritual and moral consciousness.
3. Formation of positive spiritual and moral qualities in students (knowledge, hard work, politeness, love, love for the country, respect for parents and elders, humanitarianism, generosity, devotion to duty, etc.).
4. Formation of behavior, character and fortitude in moral and moral content of students.
5. Forming the spiritual and moral culture of students.

The formation of moral and moral qualities of students is seen in the historical objective conditions of the individual's positive influence on the development of society, human interaction, and the expansion of the circle of communication.

The formation of spiritual and moral qualities takes place on the basis of the following general content:

- the spiritual and moral level of the student is seen in the process of social relations, in his attitude towards society, environment and a person, close people;
- the spiritual and moral level of the student is related to the level of social and spiritual development of the society to which he belongs;
- the spiritual and moral maturity of the student appears due to the establishment of continuous, systematic education and training, which is organized on the basis of mutual harmony of objective and subjective conditions;
- spiritual and moral maturity of the student leads to positive results in establishing social relations.

The spiritual and moral education of students is based on the following principles:

-that spiritual and moral education has a social-ideological basis. This principle is reflected in the strengthening of the independence of the Republic of Uzbekistan, the promotion of the ideas of the national ideology among students;

-sequential, systematic, continuous organization of spiritual and moral education and upbringing. This principle is manifested in providing students with spiritual and moral knowledge, instilling in them the capacity for social and structural work, skills and qualifications, and ensuring the systematicity of spiritual and moral education and training;

-orientation of the ideas of spiritual and moral education to a specific goal. The only goal of spiritual and moral education organized among students is to create spiritual and moral qualities, spiritual and moral culture in them.

-"determining the importance and place, duties and tasks of the continuing education system (UTT) in the socio-economic and spiritual-ethical development of the country, society and the individual" [4. 7].

Before starting the implementation of activities aimed at raising the morale of the student youth, it is necessary to prepare a plan for those activities. When drawing up a plan, it is first necessary to determine the conditions and characteristics of the object. Pedagogical diagnosis comes in handy in the implementation of this task.

Before treating patients in medicine, they are diagnosed. Starting treatment without diagnosis is like opening fire on the enemy without knowing where he is.

In the science of agronomy, he suggests studying the soil conditions before laying eggs in the ground.

In the process of education, it is necessary to study the conditions, characteristics, and capabilities of the student before starting educational activities. Pedagogical diagnostics has great potential in fulfilling this task. Pedagogist-scientist M. Kuronov emphasizes the need to identify (diagnosis) selflessness in order to educate social selflessness in young people [5. 6].

Until now, little attention is paid to pedagogical diagnostics in ensuring the effectiveness of educational work. Most of the research conducted on pedagogy is limited to the use of psychodiagnostics (mental diagnosis), that is, as some of our researchers rightly say, our enemies, religious fanatics, are starting to diagnose the disease when attracting young people to their side" [6.,14]. True, psychodiagnostics are also necessary for the educational process. Mental diagnosis serves to determine the endurance, feelings, memory, mental characteristics and states of a person. But this is only the first step in the education process.

The task of pedagogical diagnosis at the beginning of educational activities is focused on the study and analysis of spirituality, orientation to values, behavior, manners of the student. Without studying these processes, starting educational activities is just a formality, and the probability of their completion is low. Pedagogist-scientist G.Kh. Ibragimova pointed out the shallowness of the knowledge of morals and values of students as one of the issues that need to be solved [7.,60].

In pedagogical diagnostics, it is necessary to pay attention to the following spiritual and moral qualities of a person: respect for adults, care for children, hard work, responsibility, initiative, tolerance, selflessness in education, creativity, love for the Motherland, love for the people, the existence of trust and principles, behavior culture, attitude to national culture, orientation to values, interest in the history of the Motherland, respect for one's group and community, etc.

It is difficult to achieve good results if one does not take into account the moral and moral characteristics of each specific group and individual in inculcating the national idea into the minds of the population and young people.

Pedagogical diagnostics is aimed at studying the level of spiritual and moral outlook, values orientation, morals, behavior culture of students, and certain methods are used to achieve this. The main methods of pedagogical diagnostics are: conversation, control, interview, surveys, test, study of documents. These methods are also widely used in psychodiagnostics. However, if in

psychodiagnostics these methods are used to study the mental state, in pedagogical diagnostics the purpose of studying the level of upbringing is assumed.

The possibilities and properties of using these methods in the process of education, in particular, in the promotion of the national idea, are fully discussed.

The test method of pedagogical diagnostics can be used both in the study of groups and in the study of individuals. One of the main difficulties in using the test method for pedagogical purposes is that pedagogical diagnostic tests have not been developed sufficiently in our country. Even its theoretical aspects, let alone its primary use in pedagogical tests, are poorly understood.

The main difficulty in using the tests created by the scientists of foreign countries is that the customs, programs, values, moral norms, and mentality of the people of those countries are considered and developed in this test. Psychological tests developed in foreign countries can be used in our country for the purposes of mental diagnosis. The reason is that mental processes are common to all nations and peoples. It is only necessary to slightly adapt these tests to our conditions, taking into account ethnopsychological exceptions.

In addition to developing new tests, psychologists of our country are widely using tests developed abroad. Along with the achievements made in our country in the field of psychology, it is the right way to use foreign experience adapted to our country. If it is in the field of pedagogical diagnostics, such an approach will not give much results. Often, the results of such a path can be negative. The reason is that a nation is shaped by national education. In the case of national education, it is carried out in national forms and methods. As a result, this education will be directed to the formation of national values. This does not mean that the general use of foreign experience in pedagogical diagnostics is not necessary.

We need to develop national pedagogical tests, using our own national education methods, taking into account foreign experience. For example, it is necessary to use foreign experience in promoting the national idea. However, since our national idea has national characteristics and is aimed at the people of Uzbekistan, the use of methods and forms of national education will be effective in its promotion.

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Rezyume: *Ushbu maqolada ma'naviyat va axloq masalalari muhokama qilinadi. Shaxsning ma'naviy dunyosini yuksaltirishda axloqiy qadriyatlarining roli. Shuningdek, yoshlarga ma'naviy-axloqiy ta'lim va tarbiya berish g'oyalari tahlil qilinadi. Yoshlarning ma'naviy-axloqiy saviyasini yuksaltirishga xizmat qiladigan ayrim ijobiy fazilatlar ko'rsatilgan. Yoshlar o'rtasida ma'naviy-ma'rifiy ishlarni tashkil etish va kuchaytirish jarayonida pedagogik diagnostika va psixodiagnostikaga*

alohida e'tibor qaratilmoqda. Jamiyat taraqqiyotining hozirgi bosqichida yoshlarning ma'naviy dunyosini yuksaltirishda milliy ta'limning ahamiyati va o'rni qayd etildi.

Резюме: В данной статье рассматриваются вопросы духовности и этики. Роль этических ценностей в повышении духовного мира личности. А также, анализируется идеи духовно-этическое образование и воспитание молодежи. Указаны некоторые положительные качества которые служат в повышения духовно-этического уровня молодежи. Особое внимание уделено к педдиагностике и психодиагностике в процессе организация и повышения духовно-воспитательных работ в среде молодежи. Отмечены, значения и роль национального воспитания в совершенствования духовного мира молодежи на современном этапе развития общества.

Kalit so'zlar: axloq, qadriyat, ma'naviyat, ta'lim, yoshlar, pedagogik diagnostika.

Ключевые слова: этика, ценность, духовность, воспитания, молодёжи, педдиагностика.

METHODOLOGY FOR STATISTICAL PROCESSING OF FLOW MEASUREMENT RESULTS WATER

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Summary: *Reliable operation of urban networks is a pressing and important problem. From time to time, there are reports of disruptions to the normal operation of the water supply and sewerage systems, which, in the event of major network accidents, can bring the city to the brink of an environmental disaster. It is impossible to achieve absolutely reliable operation of networks, since this is a very complex territorial system, which is under the influence of many unfavorable factors, most of which are random, practically uncontrollable. The supply of water intermittently worsens the sanitary condition of the networks. Significant material has been accumulated that requires careful analysis.*

Key words: *reliable operation of networks, water supply, sanitary condition of networks, empirical and theoretical frequencies, exponential, mathematical expectation, coefficient of variation, relative frequency, median, specific water consumption.*

INTRODUCTION

To assess water consumption, histograms of the differential and integral distribution of water consumption in apartments (households) of the same level of improvement were constructed. According to the literature, such conditions are characterized by an exponential distribution [1, 2, 3].

Exponential is the probability distribution of a continuous random variable x , which is described by density (Fig.1) [4, 5]:

$$f(x) = \begin{cases} 0, & \text{at } x < 0 \\ \lambda e^{-\lambda x}, & \text{at } x \geq 0 \end{cases} \quad (1)$$

where: λ - is a constant positive value.

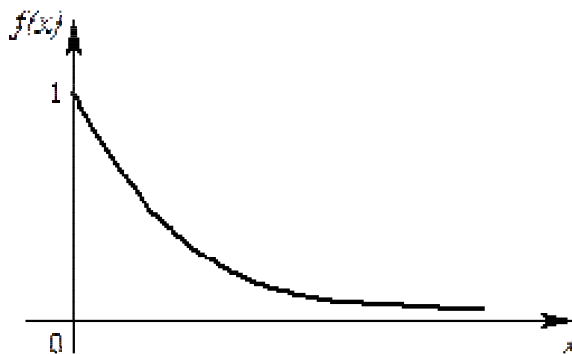


Figure.1 – Density graph of the exponential distribution

The exponential distribution is determined by one parameter λ . This the feature of the exponential distribution indicates its advantage incompared with distributions depending on a large number of parameters. The mathematical expectation and standard deviation of the exponential distribution are equal to each other and are determined by the formulas:

$$M(X) = 1/\lambda, \quad (2)$$

$$D(X) = 1/\lambda^2, \quad (3)$$

$$\sigma(X) = 1/\lambda. \quad (4)$$

The hypothesis about the exponential distribution of the population can also be tested using the Pearson test, comparing empirical and theoretical frequencies. Just like for the normal distribution, the number and length of intervals are calculated. Then the reciprocal of the sample mean is determined as an estimate of the parameter λ :

$$\lambda = \frac{1}{\bar{x}_b} \quad (5)$$

The differential form of the distribution law allows you to calculate the probability of occurrence of any calculated water flow.

Point and interval estimation of the mathematical expectation of specific daily water flows was carried out according to [4, 5]. Initially, an interval distribution series was compiled. The number of intervals is determined by the Sturges formula:

$$m = 1 + (3.322 \times \lg n) \quad (6)$$

where: n - is the number observations.

For simplicity, we can take $m=10$.

The length of the intervals determined by the formula:

$$\Delta x = \frac{x_{max} - x_{min}}{m} \quad (7)$$

Where: x_{max} - maximum value of specific daily consumption in the sample;

x_{min} - minimum value of specific daily consumption in the sample.

We divide the data range into intervals of equal width and determine absolute frequencies n_i for all intervals.

Next, the sample mean is calculated using formula 8, sample variance using formula 9, 10 and sample standard deviation using formula 11, 12.

$$\bar{x} = \frac{1}{n} \sum_{i=1}^m x_i \quad (8)$$

Where: x_i - the middle of the corresponding interval;

n - absolute frequency of the corresponding interval.

$$S^2 = \sqrt{\frac{1}{n-1} \sum_{i=1}^m (x_i - \bar{x})^2} \text{ at } n > 30. \quad (9)$$

$$S^2 = \frac{1}{n} \sum_{i=1}^1 (x_i - \bar{x})^2 \text{ at } n > 30. \quad (10)$$

$$S = \sqrt{\frac{1}{n-1} \sum_{i=1}^m (x_i - \bar{x})^2} \text{ at } n \leq 30 \quad (11)$$

$$S = \sqrt{\frac{1}{n} \sum_{i=1}^m (x_i - \bar{x})^2} \text{ at } n > 30 \quad (12)$$

The coefficient of variation is close to the relative error. This value is determined by the formula:

$$C_v = \frac{s}{\bar{x}} \quad (13)$$

The closeness of the relationship between quantities is determined by the correlation coefficient and is calculated using the formula:

$$r = \frac{1}{n-1} \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{S_x S_y} \quad r = \frac{1}{n-1} \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{S_x S_y} \quad (14)$$

The closer the correlation coefficient is to 1, the closer the relationship. Relative frequency f_i is calculated by the formula:

$$f_i = n_i / n \quad (15)$$

The weighted arithmetic mean is calculated using the formula:

$$\bar{x} = \sum_{i=1}^m \tilde{x}_i f_i \quad (16)$$

The mode is determined by the formula :

$$M_0 = x_{M_0} + i_{M_0} \frac{f_{M_0} - f_{M_{0-1}}}{(f_{M_0} - f_{M_{0-1}}) + (f_{M_0} - f_{M_{0+1}})} \quad (17)$$

Where:

$$\begin{aligned} x_{M_0} &- \text{minimum limit of the median interval;} \\ i_{M_0} &- \text{the value of the modal interval;} \\ f_{M_{0-1}} &- \text{frequency of the interval preceding the modal interval;} \\ f_{M_{0+1}} &- \text{frequency of the next modal interval;} \\ f_{M_0} &- \text{frequency of the modal interval.} \end{aligned}$$

The median interval is the interval whose cumulative (accumulated) frequency is equal to or greater than half the sum of frequencies of which is equal to or exceeds half of the sum of frequencies, the interval with the highest frequency.

The median divides the population into two equal parts.

The median is determined by the formula :

$$M_e = x_{M_i} + i_{M_i} \frac{\frac{\sum f}{2} - S_{M_{i-1}}}{f_{M_i}} \quad (18)$$

Where:

x_{M_i} – minimum limit of the median interval;

i_{M_i} – the value of the median interval;

$\sum f$ – sum of series frequencies;

$S_{M_{i-1}}$ – the sum of the accumulated frequencies of all intervals preceding median;

f_{M_i} – frequency of the median interval.

To test the hypothesis about what is distribution, we will carry out a series of preliminary calculations in the form of a table 1. The table did not include values of specific water consumption of less than 20 l/(day per person), since people apparently do not live in these apartments permanently and are

visiting or absent for a long time. In addition, the maximum value of specific water consumption is excluded.

Table 1. – Results of statistical processing of specific water consumption values (table form)

Interval, l/(day person)	n_i	$\bar{x}_i$	$\sum(x_i - \bar{x}_i)^2$	S^2	S	C_v	f_i	f_{Σ}	λ	$\bar{x}_i \times f_i$	confidence value interval
1	2	3	4	5	6	7	8	9	10	11	12
Σ											
Weighted average value of specific water consumption, l/(day per person)										Σ	

The following notations are used in the table:

n_i – absolute frequencies; the number of surveyed apartments with the value of specific $\sum(x_i - \bar{x}_i)^2$ - water consumption per resident per day within the considered interval;

$\bar{x}_i$ – sample average of specific water consumption over the interval, l/(day;person);

S^2 – sample variance;

S – sample standard deviation;

C_v – the coefficient of variation;

f_i – relative frequency;

f_{Σ} or $\sum f_i$ – accumulated frequency;

λ – the reciprocal of the sample mean.

CONCLUSION

Analyzing the applied water consumption standards, it should be recognized that they are of a general nature, since they cover all household, drinking and household needs, and do not highlight specific water consumption by the population. In addition, the regulatory documents do not contain information about the above standards for unstable water supply. To make informed decisions on this problem, it is necessary to be guided by the water balance of the water supply system, in which the real water consumption by the population and water supply to public utilities is of primary importance. In general, the establishment of real water consumption standards has social and economic significance, allowing for consensus to be reached between water suppliers and consumers. The relevance of this work lies in the need to determine the real values of drinking water consumption by the population, which will make it possible to justify water consumption standards at 6 theoretical and practical levels, including for cities and towns with an existing water supply system, especially in cases where, due to a number of objective reasons, non-24 hour water supply.

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Rezyume: Maqolada suv ta'minoti va taqsimlash tizimlarini yanada rivojlantirish asosida ilmiy tadqiqotning maqsad va vazifalarini shakllantirish imkonini beradigan tadqiqot ishlarining bosqichi ko'rsatilgan. Bu bizga muhandislik tarmoqlarining yanada optimal tizimlarini yaratish imkoniyatini beradi.

Резюме: В статье представлен этап научно-исследовательской работы, который позволит сформировать цели и задачи научных исследований на основе дальнейшего развития систем водоснабжения и распределения. Это дает нам возможность создавать более оптимальные системы инженерных сетей.

Kalit so'zlar: tarmoqlarning ishonchli ishlashi, suv ta'minoti, tarmoqlarning sanitariya holati, empirik va nazariy chastotalar, eksponensial funktsiya, matematik kutish, o'zgaruvchanlik koeffitsienti, nisbiy chastota, median, solishtirma suv sarfi.

Ключевые слова: надежная работа сетей, водоснабжение, санитарное состояние сетей, эмпирические и теоретические частоты, показательная функция, математическое ожидание, коэффициент вариации, относительная частота, медиана, удельный водопотребление.

THE FORMATION OF MODERN TRENDS IN THE SUBJECT DESIGN OF THE XXI CENTURY ON THE EXAMPLE OF THE WORK OF DESIGNER ZAHA HADID

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Summary: *This article examines and analyzes the work of the famous architect and designer Zaha Hadid in the field of object design and its influence on the formation of modern trends in the design of the XXI century.*

Keywords: *deconstructivism style, furniture design, jewelry design, industrial design, conceptual design, biometric design.*

Over time, the role of design in shaping the subject world has changed. Together with architecture and decorative and applied arts, he is responsible for the entire subject-spatial environment, which means that he is directly related to style-forming processes, to various aspects of artistic shaping, and therefore, in general, to the formation of modern trends in the subject world. And all this is in connection with industrial production in conditions of increasing influence of scientific and technological progress. Under the influence of changes in real conditions, the approach to the designer's field of activity is also changing, its boundaries are gradually emerging, and the main thing that the designer influences is revealed.

Today, many architects, as well as more than 100 years ago, at the dawn of the design profession, work not only in architecture, but also in parallel in several areas of subject design. Thanks to this, new modern stylistic directions of the artificial environment created by man are being born. And one of these most prominent architects was Zaha Hadid.

What do we know about her work? Zaha Mohammad Hadid is one of the most famous architects working in the deconstructivist style. Her authorship belongs to a large number of architectural structures around the world, characterized by an original style unlike anyone else. And of course, she is the first woman in history to be awarded the Pritzker Prize and is a Dame Commander of the Order of the British Empire in 2012.

The architect has always tried to destroy the generally accepted canons and "stretch" the framework of the familiar space, giving it a powerful dynamic impulse.

For the same purpose — to enhance internal movement and deformation — Zaha Hadid, completely rejecting conventional geometry, uses a distorted perspective that reveals sharp corners and curved lines. Hadid's most famous works in the field of architecture include the Chanel Exhibition Pavilion in Paris (2007), the University of Economics and Business in Vienna (2008), a multifunctional complex in France (2011), the Transport Museum in Glasgow (2011), the Galaxy SOHO Entertainment Complex in Beijing (2011-2012), the Opera House in Guangzhou (2011), The Opera House in Dubai, the National Stadium in Tokyo (2012), a multifunctional center in California, the Veco Complex in Serbia (2012), the Heydar Aliyev Cultural Center in Baku (2012), the Head Office of the Antwerp Port Authority - Port House (2016).



Fig. 1. Zaha Hadid. A multifunctional center in California and the Veco Complex in Serbia. 2012.

But less well-known are the architect's works in subject design. And Hadid has a lot of such works in various fields of design: interior installations, furniture design, jewelry design, fashion design, industrial and automotive design. Only the list of interests and areas of application of the great architect's talent suggests that her work undoubtedly influenced the entire subject design of the late twentieth century – early twenty-first century, and laid the foundation for modern style in the design of the twenty-first century for the coming decades.

She explored spatial concepts at all levels and sought to emphasize that "industrial design and my architecture are inextricably linked; the earliest projects included, first of all, interior design. These elements inspire me and my team by providing an opportunity to express our ideas on different scales."



Fig. 2. Biometric interior installation with furniture.

Zaha is the author of several experimental collections of futuristic furniture. The romantic names of the furniture collections: "Dune", "Moon", "Wave", "Lotus", "Zephyr", "Crystal", "Ice collection" perfectly reflect the smooth flowing, then as if carried away by the wind forms. It is as if for the designer there are no limits to her imagination of geometry, structures and materials.



Fig. 3. Zaha Hadid. A coffee table from the "Ice Collection".

The Ultrastellar furniture collection, designed by Zaha Hadid, was designed in 2016 and includes eight items of silhouettes characteristic of Hadid. This time, instead of acrylic, natural wood was used in the production.

"I've always been interested in the concept of smoothness," Zaha Hadid said. – Using new achievements in the field of furniture design, production of materials and construction technologies, now I can realize all my ideas."



Fig. 4. Zaha Hadid. Chair and table from the collection Ultrastellar. 2016

The showroom of Roca, a manufacturer of plumbing and accessories, designed by Zaha Hadid Architects, deserves attention. Everything is logical: the theme of the water element and the signature fluid architecture of Zaha Hadid met in one place. The 1,100 sq. m building, located in London, is called Roca Gallery. Its architectural image is inspired by the endless movement of water in nature. The outlines of the rounded building resemble a coastal boulder in which water has drilled holes, or a fragment of the vault of a karst cave. The facade of the showroom is equipped with three portals of organic shape - this is the main entrance. The lamps in the interior look like water droplets that accumulate on the ceiling. So the architects decided to remind the visitors of the Roca gallery about the need to save fresh water, as well as to emphasize the resource-saving nature of the manufacturer's design. The dynamic interior space of the showroom is saturated with innovative multimedia and lighting equipment.



Fig. 5. Zaha Hadid. The Roco showroom in London.

Developments in the field of fashion design are also unusual, as is everything that belongs to the authorship of Hadid. The purpose of Hadid's shoes and accessories is not always immediately recognizable due to the unusual design. The same applies to jewelry designed according to Hadid's sketches.



Fig. 6. Design of accessories and shoes.



Fig. 7. Zaha Hadid's jewelry.

Zaha Hadid has also worked in industrial design. One of her most original projects is a yacht that resembles a fantastic spaceship. This project was developed in collaboration with the Hamburg shipbuilding company Blohm+Voss. The length of the base model is 128 meters, its smaller counterparts are 90 m.



Fig. 8. Zaha Hadid. Yacht.

Zaha Hadid tried her hand at automotive design, designing the Z concept at the request of London art dealer Kenny Schachter. Car in 2005. The length of the car is 4 meters. Its outlines are strikingly different from the usual shapes, however, its ergonomics fully meets the most modern requirements. By design, the Z.Car is a compact city car. Of course, this electric car is equipped with environmentally friendly hydrogen fuel cells. Panoramic glazing gives an excellent view. The car is

equipped with rear-view video cameras. The image from them is transmitted to the control panel, which allows you to achieve 360° visibility, and the swivel wheels allow Lego to park even in cramped spaces. The concept was exhibited at the Guggenheim Museum in New York.



Fig. 9. The design of the Z.Car concept.

Today, more and more attention is being paid to two main factors of the modern world process that can influence the development of design. On the one hand, this is the rapid development of scientific and technological progress, on the other - the social and environmental problems caused by it. From the very beginning of its existence, design has set itself the task of combining beauty and expediency, technical and aesthetic principles, creating new types and types of products, organizing an integral object world corresponding to the level of development of the material and spiritual culture of society. Like architecture, Zaha Hadid's interiors, furniture and accessories push the boundaries of modern design using all the latest technical achievements and knowledge about materials. All the work of architect and designer Zaha Hadid is permeated with love for nature, which is embodied not only in the external imitation of bionic forms, but in the expression of the deepest essence of living matter, merging with it and not contrasting itself in any way.

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Rezyume: Ushbu maqolada taniqli me'mor va dizayner Zaha Hadidning mavzu dizayni sohasidagi faoliyati va uning XXI asr dizaynidagi zamonaviy tendentsiyalarni shakllantirishga ta'siri ko'rib chiqiladi va tahlil qilinadi.

Резюме: В данной статье рассматривается и анализируется творчество известного архитектора и дизайнера Захи Хадид в области предметного дизайна и его влияние на формирование современных тенденций в дизайне XXI века.

Ключевые слова: стиль деконструктивизм, дизайн мебели, ювелирный дизайн, промышленный дизайн, концептуальный дизайн, биометрический дизайн.

Kalit so'zlar: uslub dekonstruktivizm, mebel dizayni, zargarlik buyumlari dizayni, sanoat dizayni, kontseptual dizayn, biometrik dizayn.

**ANALYSIS OF THE MINERAL-RAW MATERIAL BASE OF BENTONITE CLAYS IN THE
REPUBLIC OF KARAKALPAKSTAN**

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Summary: Globally, the study of raw materials and secondary resources occupies a leading position in the thermal insulation materials industry. When using them, the weight of materials is reduced by 2-3 times, and the consumption of binders and fillers is reduced by 1.5-2 times. Based on this, improving the technology of modern materials that melt at relatively low temperatures using new local raw materials is of particular importance.

The article presents the results of studies of the chemical-mineralogical composition and X-ray phase analysis of bentonite obtained at the Ushsay deposit. The bentonite obtained from this mine can be used as a new raw material in the production of clay, and it can also be used in the production of bentonite-based thermal insulating ceramic material.

Key words: bentonite, physical and mechanical properties, thermal insulation material, mineral additive, local raw materials.

INTRODUCTION. Today, the widespread introduction of energy-saving technologies and alternative energy sources in the economic, social and construction sectors is one of the main priorities. Currently, half of energy consumption comes from the cost of heating buildings and structures, preserving this heat for as long as possible and insulating it. Therefore, one of the best ways to save energy is the production of thermal insulation materials in construction, and their widespread use in the modern construction industry allows for increased energy efficiency. By introducing energy-efficient technologies, you can save natural resources and reduce prices for building materials. For this reason, in addition to those based on functional, economic, technical and environmental requirements for the construction of buildings and structures, another important requirement should be energy efficiency requirements. In this regard, bentonite clay is considered an important and promising research object as the main and cheap natural raw material in the production of energy-efficient building materials.

RESEARCH SECTION. Bentonite was first discovered in Wyoming, USA, and bentonite clay is used in oil and gas drilling, food processing, pharmaceuticals, ceramic materials, paper making, civil engineering, poultry and animal feed, and many other industries. The largest reserves of bentonite clay on our planet were found in the United States, Italy, Australia, Russia and China. On the territory of the Republic of Uzbekistan there are also deposits of bentonite clays, which are used in various industries. There are different types of bentonites on earth; they differ from each other in chemical and mineralogical composition, as well as physical and chemical properties and appearance. Bentonites are found in blue, yellow, bluish, black, pink, green, white, cream and other forms. White bentonites are rare (Wyoming, Oglanli, etc.) [1-5].

Often, their chemical and mineralogical composition and basic properties do not allow natural bentonite clays to be widely used in practice. For this reason, a number of comprehensive studies have been carried out aimed at increasing the activity of bentonite clays and influencing changes in their structure, in turn, studying changes in their surface, structure, porosity and ion exchange capacity [6-7].

Bentonite clays are used not only in the production of building materials, but also in the production of various sorbents. In this case, much attention is paid to increasing the reactivity of bentonite clays by changing their structure by chemical means, using various methods. These processes are called activation and modification. For chemical activation, sodium compounds (sodium lye, soda) are mainly used. Bentonite clays are effectively used with various chemical reagents (acids, salts, surfactants, polymers, etc.) depending on the purpose for which they will be used in the future [8-11].

As of January 1, 2022, according to the state balance of mineral resources of the Republic of Uzbekistan, reserves of bentonite clay were calculated in 10 mines: Kattakurgan in the Samarkand region, Tamditau, Navbakhor, Sardara and Ulus in the Navoi region, Shorsu, Logon and Guzan in the Fergana region, Bebulok, Koksarek in the Namangan region, as well as Sumsar, Kasantau in the Kashkadarya region and Khavdak mines in Dekhkhanaabad, Surkhandarya region, etc. The balance reserves of bentonite clays amount to 24,649.6 thousand tons in categories A+V+S₁ and 23,492.9 thousand tons according to category S₂. In addition, in the Republic of Karakalpakstan, the Kuskanatau, Khojakol, Bestobe, and Kirantau mines have been studied as agricultural raw materials. In addition to the listed deposits, deposits of bentonite clays were found in such areas as Uchsai, Kakbakti, Kulmagambetkol, Kyzyl Jar, Urga-Aktumsuk, Shakhpakhti, Shordzha, Aibogir [3, 12].

Among them, the Uchsai bentonite deposit is located in the Moinak region of the Republic of Karakalpakstan, 20 km northwest of the city of Moinak, 5 km west of the village. As a result of the drying of the Arol Sea in recent years, the Uchsai geological region can be considered as a suitable object for a comprehensive study of the minerals it contains. For this reason, the study of this territory and its resources is one of the current areas of research (Fig. 1 and 2).



Figure 1. Overview of Uchsai bentonite clay deposits



Figure 2. Geological sample of Ushsay bentonite clay

The chemical composition of bentonite clay from the studied Uchsay mine is shown in Table 1 and compared with the chemical composition of bentonite clay from Azkamar, Navbakhor, North Jamansay, Kushkanat and other mines located on the territory of the Republic of Uzbekistan (table).

Table

Chemical properties of bentonite clay samples contents

Oxides	Amount of oxides in samples from bentonite deposits, %					GOST 32026-2012 requirements
	Azkamar	Navbakhor	Kushkanatau	Jamansay	Uchsay	
SiO₂	58,62	56.23	59 , 30	60 , 42	60.34	The amount of SiO ₂ should not exceed 70
Al₂O₃	15.92	13.56	16.42	16,21	14.60	The amount of Al ₂ O ₃ should be in the range of 10-25
Fe₂O₃	5.20	6.50	4.49	4.42	4.88	The amount of Fe ₂ O ₃ should be in the range of 2.5-12
TiO₂	0.78	0.61	0.84	0.79	0.68	The amount of TiO ₂ should be in the range of 0.1-2.0
P₂O₅	-	0.92	0.12	0.10	0.28	UNIDENTIFIED
CaO	0.84	0.69	1.77	0.88	1.60	The amount of CaO should not exceed 6
MgO	2.72	3.76	1.64	1.81	2.02	The amount of MgO should not exceed 4
SO₃	0.17	0.49	0.46	0.61	0.95	The amount of SO ₃

						should not exceed 1.5
Na₂O+K₂O	4.92	3.18	4.47	4.23	4.5	The amount of Na ₂ O+ K ₂ O should be in the range of 1.5-6
KY	10.82	14.06	8.75	8.92	10,15	UNKNOWN
Amount	99.9	100	98.26	98.39	100	-

From the table shown above, it was found that Uchsay bentonite clay is very close to the composition of bentonite clays of Azkamar, Navbakhor, Kushkanatau, and Jamansay mines. SiO₂, Al₂O₃, Fe₂O₃, TiO₂, P₂O₅, CaO, MgO, SO₃ in accordance with the requirements of GOST 32026-2012 Clay **raw materials for the production of expanded clay granules, gravel and sand**, which are practically used in the production of expanded clay, Na₂O, K₂O, and other oxides were found to be compatible with each other.

Bentonite clay shown in the table, it was found that all the samples of bentonite clay shown by the content of the samples can be used in the production of expanded clay. In addition to the chemical composition of bentonite clays, studying and analyzing their mineralogical composition is also an important part of general research. For this reason, the mineralogical composition of Uchsay bentonite samples was studied based on the results of X-ray analysis (Fig.

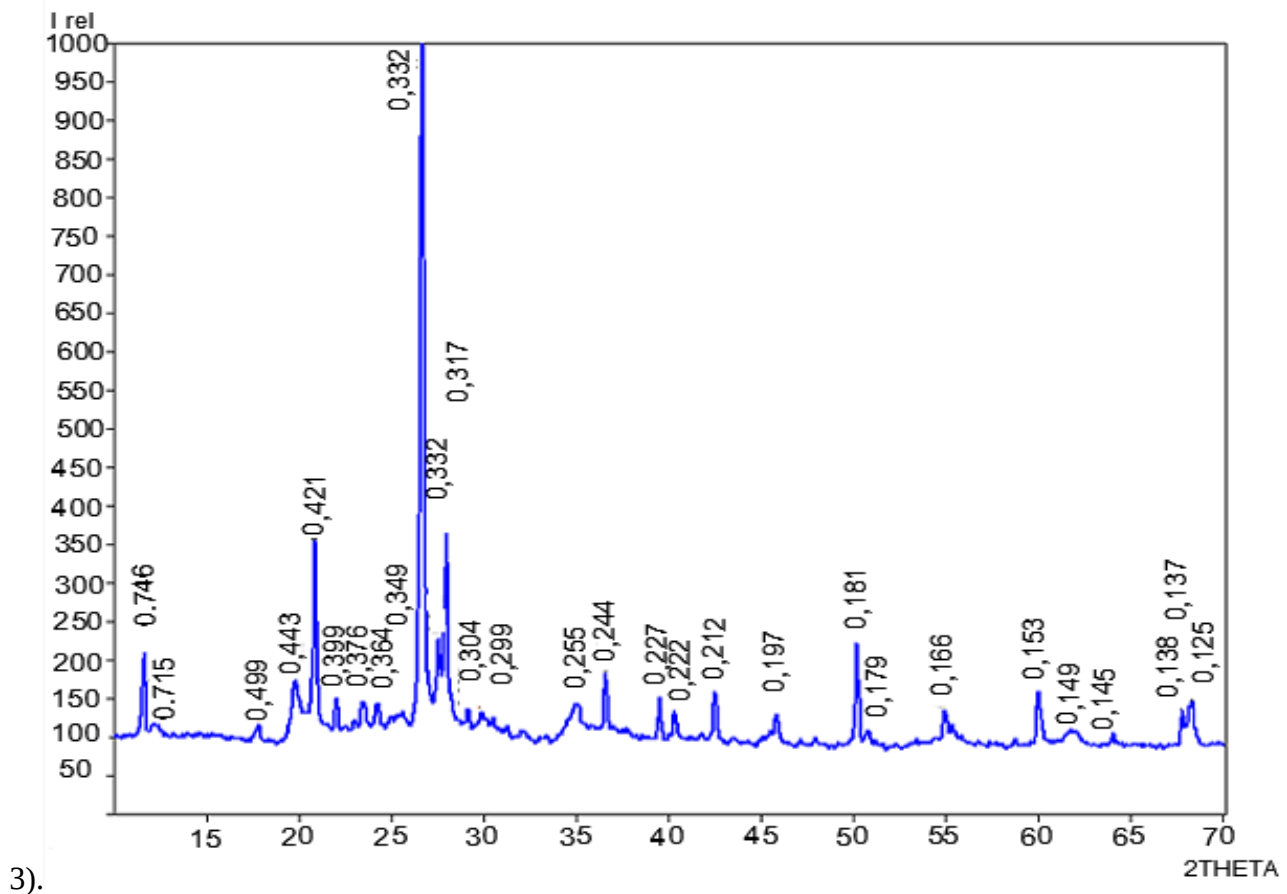


Figure 3. Radiograph of a sample of Uchsay clay

Diffraction maxima in X-ray images of bentonite clay (Fig. 3). shows : quartz (d=0.421; 0.332; 0.244; 0.227; 0.222; 0.212; 0.197; 0.181; 0.166; 0.153; 0.145; 0.138; 0.137 nm), muscovite (d=0.499; 0.443; 0.399; 0.376; 0.364; 0.332; 0.299; 0.255, nm), albite (d=0.364; 0.317; 0.294; 0.150 nm), montmorillonite (d=0.750; 0.500; 0.448; 0.304; 0.255; 0.244), chlorite –(d=0.715; 0.443; 0.349 nm)) it

is found that there are diffraction maxima belonging to minerals. Therefore, according to their chemical and mineralogical composition, they belong to the class of hydromica-montmorillonite clays.

Summary. Based on the results of chemical and X-ray analysis, it was determined that bentonite clay samples from the Uchsay mine belong to bentonite clay according to their chemical and mineralogical composition. According to the requirements of GOST 32026-2012, it was determined that these bentonite clays are suitable for use in the production of heat-insulating building materials, including expanded clay granules and gravel.

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Rezyume: Dunyoda issiqlik izolyatsiyalash materiallari sanoatida xom ashyo va ikkilamchi resurslarni o'rganish etakchi o'rinni egallaydi. Ulardan foydalanganda materiallarning og'irligi 2-3 barobar, bog'lovchilar va to'ldiruvchilar iste'moli esa 1,5-2 barobar kamayadi. Bundan kelib chiqqan holda, mahalliy yangi xom ashyolar yordamida nisbatan past haroratlarda eriydigan zamonaviy materiallar texnologiyasini takomillashtirish alohida ahamiyatga ega.

Maqolada Uchsay konidan olingan bentonitning kimyoviy-mineralogik tarkibi va rentgen fazali tahlili bo'yicha tadqiqot natijalari keltirilgan. Ushbu kondan olingan bentonit gilining ishlab chiqarishda yangi xom ashyo sifatida ishlatilishi mumkin, shuningdek bentonit asosidagi issiqlik izolyatsion keramik materialini ishlab chiqarishda ham ishlatilishi mumkin.

Резюме: В мире изучение сырья и вторичных ресурсов занимает лидирующие позиции в отрасли теплоизоляционных материалов. При их использовании вес материалов снижается в 2-3 раза, а расход связующих и наполнителей снижается в 1,5-2 раза. Исходя из этого, особое значение приобретает совершенствование технологии современных материалов, плавящихся при относительно низких температурах, с использованием нового местного сырья.

В статье представлены результаты исследований химико-минералогического состава и рентгенофазового анализа бентонита, полученного на Ушсайском месторождении. Бентонит, полученный на этом руднике, может быть использован в качестве нового сырья при производстве глины, а также его можно использовать в производстве теплоизоляционного керамического материала на основе бентонита.

Kalit so‘zlar: bentonit, fizik-mexanik xossalari, issiqlik izolyatsiyalovchi material, mahalliy xomashyo.

Ключевые слова: бентонит, физико-механические свойства, теплоизоляционный материал, минеральная добавка, местного сырья.

UDC 666.193.2 /199

**ELEMENTAL COMPOSITION AND STRUCTURE OF BASALT
OF THE ARVATEN DEPOSIT**

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Summary: The article presents the results of a study of the elemental, material composition and morphological structure of a basalt sample from the Arvaten deposit. It has been established that they are naturally suitable for the production of mineral wool, and with modifying additives they can be used in the production of basalt fiber for thermal insulation materials.

Key words: basalt, Arvatene, composition, element, structure, morphology, electron microscope, energy dispersive analysis.

It is known that the Republic of Uzbekistan has unlimited resources of igneous, in particular basalt rocks, which are valuable not only as facing materials, but for the production of basalt fibers with unique properties. Basalt fibers are non-toxic, have high physical and mechanical characteristics, have increased resistance to aggressive environments and have a higher operating temperature [1-3]. Thanks to these characteristics, basalt fibers can in many cases replace asbestos, metal, wood and plastic.

To date, in the Jizzakh region, as a result of geological exploration [4], Arvaten basalts have been explored and developed for the production of fibrous heat-insulating materials for various purposes.

The basalts of the Arvaten deposit are located in the Jizzakh region on the northeastern slopes of the mountains of Northern Nurata. The massive deposit is diabase, spillitic-diabase, dark gray, greenish-gray, fine-grained, rarely amygdaloidal, dense, fractured. It extends from SE to NW for 10-12 km with a thickness of 0.7 to 1.5 km.

As a result of geological exploration studies [5-6] carried out in 1961-1965, it was established that this deposit can be used to obtain stone foundry raw materials.

The results of the study of the material composition, calculation of the acidity and viscosity modulus of prototypes, basalt samples showed (Table 1) that with an increase in the content of iron oxide in the samples they acquire a characteristic dark color.

Table 1
Chemical compositions of Arvaten basalt samples

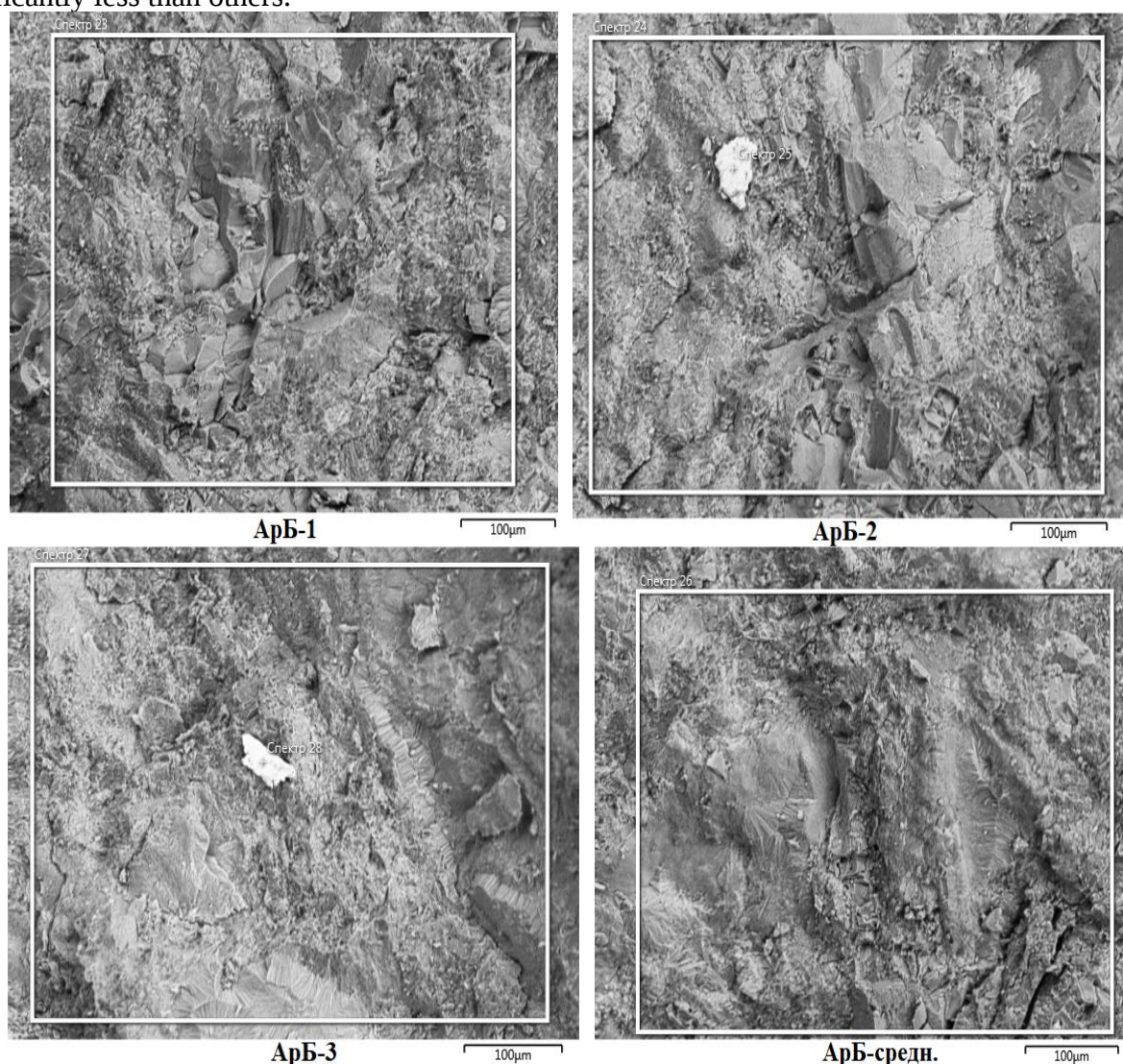
Name Sampling	Oxide content, wt. %										PPP, wt. %
	SiO ₂	Al ₂ O ₃	TiO ₂	Fe ₂ O ₃	FeO	CaO	MgO	Na ₂ O	K ₂ O	SO ₃	
ApB№1	35,59	12,38	0,11	14,09	1,17	13,38	8,11	1,94	0,77	0,22	11,43
ApB№2	35,96	11,55	0,10	15,24	1,12	12,76	7,69	1,67	0,84	0,20	11,84
ApB№3	36,55	12,18	0,13	14,87	1,18	12,89	8,26	1,73	0,74	0,26	12,07
ApB..medium	36,03	12,04	0,11	14,76	1,15	13,01	8,02	1,78	0,79	0,23	11,78

In addition, the chemical composition of the studied samples of basalt samples (ArB-1, ArB-2, ArB-3) have similar values in their material composition. In general, it can be assumed that the

chemical composition of basalt from this deposit meets the requirements for producing stone casting materials.

The mineralogical composition of Arvaten basalt samples was determined by the X-ray method. The results of X-ray phase analysis of experimental samples from basalt of the Arvaten deposit showed that the main rock-forming minerals are quartz, albite and chlorite. Since, in the X-ray diffraction patterns of the Arvaten basalt sample, there is mainly the presence of diffraction reflections corresponding to the minerals albite ($d = 0.637; 0.402; 0.366; 0.353; 0.318; 0.289$ nm), chlorite ($d = 0.709; 0.466; 0.402; 0.386; 0.293; 0.284; 0.259$ nm), quartz ($d = 0.334, 0.229, 0.182, 0.152$ nm), and calcite ($d = 0.284; 0.249; 0.210; 0.142$ nm).

The structure of Arvaten basalt samples was studied using a scanning electron microscope. The results of the analysis of samples of Arvaten basalts showed relatively homogeneous mixtures of the mineral quartz with insignificant amounts of impurities of feldspars, carbonates and chlorites. Images were acquired at different scales ranging from 100 μm and 50 μm using Smart SEM software. The measurements were carried out in the backscattered electrons detector (BSD) mode. As can be seen from Fig. 1, sample ArB-3, compared to other basalt samples, contains a relatively large amount of ferrous (13.49%), aluminum (9.09%), magnesium (5.22%) compounds, and calcium (1.83%) is significantly less than others.



**Figure 1. Electron microscopic images of samples
Arvatsky basalt, uv. x1000**

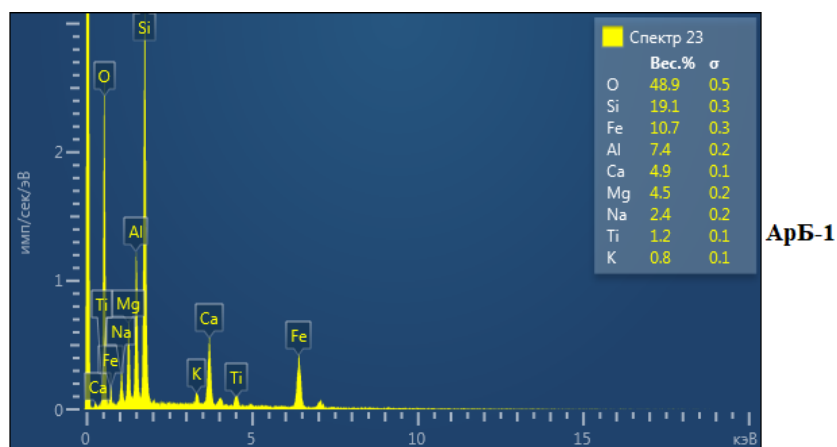
The elemental composition of the Arvaten basalt sample in a local area (image scale is 250 μm) was determined using an Energy-Dispersive X-ray spectrometer (EDS - Oxford Instrument) - Aztec Energy Advanced X-act SDD. When obtaining data on the elemental composition, electronic photographs with highlighted local areas, a composition table, and a graphic spectrum were presented.

The results of X-ray energy dispersive microanalysis showed the main diffraction lines related to the elements of silicon and oxygen, which also confirms the high quality of basalt in terms of the content of minerals of ferrous compounds and silica. The obtained results of energy-dispersive microanalysis of basalt samples are respectively shown in Table 2 and Fig. 2.

Table 2

Results of X-ray energy dispersive elemental analysis of a sample of Arvaten basalt

Sample name	Element	Weight %.	Sigma, weight%	Sample name	Element	Weight%.	Sigma, weight%
ApБ-1	O	48.95	0.51	ApБ-3	O	49.99	0.53
	Na	2.38	0.17		Na	1.63	0.19
	Mg	4.54	0.17		Mg	5.22	0.19
	Al	7.39	0.19		Al	9.09	0.22
	Si	19.10	0.28		Si	16.11	0.28
	K	0.82	0.08		K	0.99	0.10
	Ca	4.86	0.15		Ca	1.83	0.12
	Ti	1.25	0.11		Ti	0.39	0.10
	Fe	10.72	0.30		Fe	13.49	0.34
	Sum:	100.00			Sum:	100.00	
ApБ-2	O	49.81	0.46	ApБ. medium.	O	49.27	0.45
	Na	2.52	0.16		Na	2.14	0.15
	Mg	4.39	0.15		Mg	4.34	0.14
	Al	7.03	0.17		Al	7.45	0.17
	Si	18.85	0.25		Si	18.06	0.24
	K	0.74	0.08		K	1.03	0.08
	Ca	5.40	0.14		Ca	4.96	0.13
	Ti	1.42	0.11		Ti	1.61	0.11
	Fe	9.83	0.26		Fe	10.84	0.26
	Sum:	100.00			Sum:	100.00	



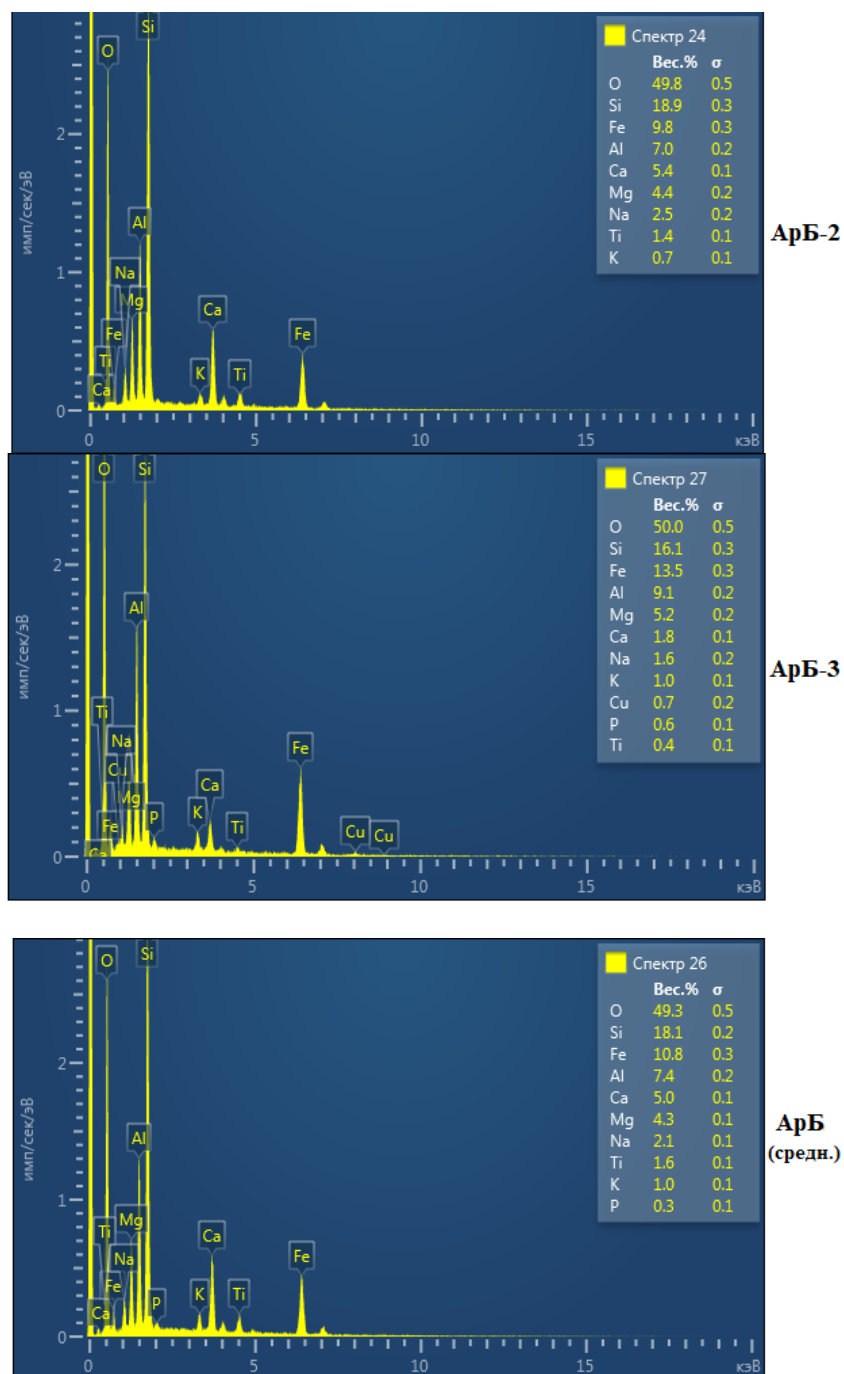


Figure 2. Results of X-ray energy dispersive elemental analysis of a sample of Arvaten basalt

From a selected section of the spectrum of a sample of Arvaten basalt by X-ray energy dispersive microanalysis, the main diffraction lines relate to the elements silicon, oxygen, iron, aluminum, calcium and magnesium. It should be noted that the ArB-3 sample is distinguished by its high iron content.

Thus, the comprehensive studies of basalts made it possible to evaluate the characteristics of the material and elemental compositions. A comparison of the Arvaten basalt rocks with the used normal basalts of Uzbekistan, as well as basalts from other regions, showed that there is a significant difference in the chemical and mineral composition and among the indicators of technological properties.

In general, based on the results of the specified parameters obtained in the process of physical and chemical research, it can be established that the basalts of the Arvaten deposit have a low suitability for use as raw material for the production of basalt fiber. However, to obtain this, it is necessary to develop basalt mixtures with modifying additives to achieve the goal. In this form, the basalts of the Arvaten deposit can be recommended for the production of mineral wool.

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Rezyume: Maqolada Arvaten koni bazaltining element, moddiy tarkiblari va morfologik strukturasining tadqiq etish natijalari keltirilgan. Ulardan mineral paxta olish uchun tabiiy holatda yaroqlidir, modifikatsiyalovchi qo‘shimchalar bilan esa issiqlikni himoyalovchi materiallar uchun bazalt tolasi olish chog‘ida foydalanish mumkinligi aniqlangan.

Резюме: В статье приведены результаты исследования элементного, вещественного состава и морфологической структуры образца базальта Арватенского месторождения. Установлено, что они в естественном пригодны для получения минеральной ваты, а с модифицирующими добавками может использованы при получении базальтового волокна для теплоизоляционных материалов.

Kalit so‘zlar: bazalt, Arvaten, tarkib, element, struktura, morfologiya, elektron mikroskop, energodispersionnyy tahlil.

Ключевые слова: базальт, Арватен, состав, элемент, структура, морфология, электрон микроскоп, энергодисперсионный анализ.

**CURRENT STATE OF STUDY OF THE PROBLEM GEOECOLOGICAL CONDITION OF
THE KARAKALPAK PART OF USTYURT**

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Summary: *The article examines modern geoecological ideas about the geodynamic processes of the Karakalpak Ustyurt in connection with the prospects for the development of mineral resources. The structural surface of the crystalline base within the Ustyurt region is distinguished by a complex, often mosaic structure. The Karakalpak Ustyurt, distinguished by its unique geological and tectonic structure, geomorphology, the presence of very deep and drainless depressions, as well as a diverse fauna, has attracted the attention of researchers since ancient times. The fact that the study area belongs to an arid zone and the absence of surface watercourses predetermined the leading role of groundwater not only for watering pastures, but also for water supply to mining and oil production facilities. Meanwhile, data on the geological, hydrogeological, geomorphological, soil and climatic conditions of the study area were obtained much later.*

Key words: *Karakalpak Ustyurt, geodynamics, geoecology, minerals, mineral development, suffusion, sedimentary basins, platform cover, geological and tectonic structure.*

Introduction. The Karakalpak Ustyurt, distinguished by its unique geological and tectonic structure, geomorphology, the presence of very deep and drainless depressions, as well as a diverse fauna, has attracted the attention of researchers since ancient times (Fig. 1.). The fact that the study area belongs to an arid zone and the absence of surface watercourses predetermined the leading role of groundwater not only for watering pastures, but also for water supply to mining and oil production facilities. Meanwhile, data on the geological, hydrogeological, geomorphological, soil and climatic conditions of the study area were obtained much later. The article examines modern ideas about the geodynamic processes of the Karakalpak Ustyurt in connection with the prospects for the development of mineral resources. The structural surface of the crystalline base within the Ustyurt region is distinguished by a complex, often mosaic structure. The activity of geodynamic movements reached its greatest magnitude at the boundary of the Early and Middle Miocene. As a result of the prevailing long-term subsidence of the territory, thick layers of sediments of the platform cover accumulated. [1, 7]. The North Ustyurt part borders on the Aral Sea from the east. It is located on the territory of a large area of troughs with a rather complex structure. From the south it is limited by the Central Ustyurt system of uplifts. In the central part of the depression there are mainly latitudinally oriented semi-isolated “small” sedimentary basins (troughs) Samsky, Kosbulaksky, Barsakelmessky and Sudochiy. The well-known Barsakelmes trough extends somewhat from NW to SE within 300 km, with a width of 120–150 km. Eastern part of the Barsakelmes trough complicated by the Kanish-Alambek uplift zone, extended in the medial direction at a distance of about 100 km with a width of up to 20 km. In addition to the above, in the study area there is an extensive landslide zone adjacent to the Ustyurt plateau with steep cliffs. The height of the chinks varies from 60 to 200 meters or more. Landslides are represented by a chaotic accumulation of blocks and individual blocks of Miocene rocks, which are excellent accumulators of atmospheric precipitation.

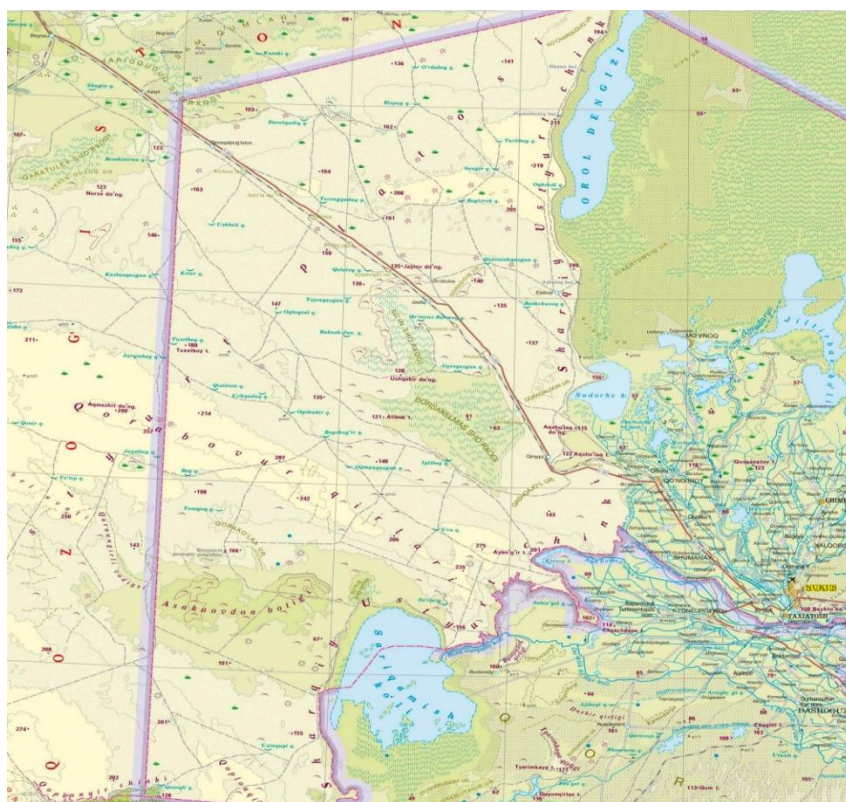


Fig.1. Overview map of Karakalpak Ustyurt

Along the entire territory of the Aral Sea coast from west to east, the main direction of hydrogeological processes such as suffusion is determined. Thus, in the study area, at the very beginning of the platform development of Ustyurt, the formation of its modern structural plan and natural boundaries took place, determining the nature of the direction of geological processes. [12]. There are mainly three depressions in the region: in the north – North-Ustyurt, in the central part – Barskelmes and in the south – Akkaaudan-Sarykamys, separated from each other by the Aktymsk and Karabayr swells. The maximum absolute surface elevations are confined to the Karabayr swell within 287 m with average plateau elevations of about 200 m, and the minimum - in the depressions of the North-Ustyurt - 50–70 m, Barskelmeskogo - 65 m and Aksakeaudansky - 26 m. Steep slopes – cliffs. Almost everywhere they are furrowed with deep ravines, canyons, landslides and extensive landslides. Pronounced geodynamic processes are also found in the internal ridges of depressions and depressions. Their formation is associated with the activity of temporary watercourses that form after atmospheric precipitation.

Initial information about the physical-geographical conditions and geological structure of it was fragmentary and was of a route-reconnaissance nature. Currently, outdated information about the Ustyurt plateau has only historical significance. As is known from historical data, the first land description of the territory of the Ustyurt plateau was compiled in the second century by Claudius Ptolemy. And information about the groundwater of the plateau was received much later. A major turning point in the study of the Ustyurt plateau occurred in the 1950–1960s. During this period, a number of important generalized studies were carried out in the Karakalpak part of Ustyurt and published, their results including in hydrogeological conditions in the textbook by G.N. Kamensky, M.M. Tolstikhin, I.N. Tolstikhin and O.K. Lange. The first major explorer of Ustyurt and the lower reaches of the Amudarya River was A.D. Arkhangelsky. As a result of two years of work (1913–1915), he compiled a geological map at a scale of 1:420,000 and, for the first time, along the eastern slope of the plateau, showed deposits of the Paleogene, Horse horizon and lower Sarmatian.

Since 1960, a large complex of regional geophysical and drilling work has been carried out within Southern Ustyurt, as a result of which large positive structures and areas have been identified. In some of them (Aginyshskaya, Uzunkuiskaya, Nikolaevskaya, Asseke-Audanskaya, Shakhpakhtinskaya, etc.), the deep drilling office and the deep exploration drilling expedition “Uzglavgeologiya” drilled the first reference and parametric wells. As a result, the presence of Permo-Triassic formations in the section was established, as well as a wide distribution of Jurassic, Cretaceous and Paleogene deposits. [4.6]. “Hydrogeological and engineering-geological conditions of Uzbekistan (in 2 volumes)”, which contained a summary description of the groundwater of eastern Ustyurt. In 1967, the fundamental work of A.M. Akramkhodzhaev “Geological structure and prerequisites for oil and gas potential of Ustyurt” was published, which summarized the results of all previous studies and analyzed the latest data from geological exploration and scientific publications. These works played a significant role in the development of ideas about the hydrogeological conditions and chemistry of groundwater in deep horizons and complexes of Cretaceous, Jurassic and Permian-Triassic deposits of Ustyurt.

In 1968–1970 A.S. Vishnyakov, G.V. Kulikov and others carried out hydrogeological exploration work in Southern Ustyurt for the purpose of technical water supply for oil and gas exploration using groundwater from Miocene deposits (Asseke-Audan party). As a result of these works, the conditions of occurrence, distribution, power, water abundance, as well as the qualitative and quantitative characteristics of groundwater of Miocene deposits of such structures as Shakhpakhty, Northern Asseke-Audan, Nikolaevskaya, Uzunkuiskaya, Aginyshskaya, Central Asseke-Audan and Western-Audan were determined. Shakhpakhtinskaya.



Fig. 2. The development of landslide and landslide processes that dismembered the marginal parts of the Karakalpak Ustyurt chink into strips 2-2.5 km wide.

In 1970, a major monographic work by K.S. Sadykov, A.S. Vishnyakov and other authors “Underground waters of the Mangyshlak-Ustyurt oil and gas province” was published [4]. It covered the issues of distribution, formation of resources and possible use of groundwater in Mangyshlak and the Ustyurt Plateau, which includes the part of Southern Ustyurt studied by the dissertation author. In this work, based on the latest data of that time, the natural and operational resources of groundwater are described, as well as the possibilities of their use for technical and drinking water supply, watering and oasis irrigation of the pasture areas of Mangyshlak and the Ustyurt Plateau. In 1976, the monographic work of Kh.Kh. Anarchodzhaev, A. Palybekov [3] “Lithology, geochemistry and minerals of Mesozoic deposits of Karakalpakstan” was published. The work examines the issues of the geological structure of the territory of Karakalpakstan and the material composition of Mesozoic deposits. [12]. A description of the facies-palaeographic and geochemical conditions of rock formation in different eras of Mesozoic time is given. In 1976–1978 S.V. Viktorov, L.M. Lyasovskaya carried out work on the Ustyurt plateau to substantiate the use of landscape-indication methods in order to obtain additional information about

hydrogeological and engineering-geological conditions of the Uzbek Ustyurt. The work describes landscape indicators, i.e. a combination of relief features and vegetation cover of Ustyurt, with the help of which, on aerial photographs and on the ground, one can roughly estimate the grain composition and salinity of soils, the depth and degree of mineralization of groundwater.

Conclusions: Thus, based on the above, it can be stated that previously conducted studies were aimed at searching and exploring groundwater and made it possible to obtain some information on the characteristics of deep aquifers of the study area, confined to Permian, Triassic, Jurassic and Cretaceous deposits. The characteristics of the chemical composition of sediments, the magnitude of their pressure are outlined, and in some cases the water abundance of the horizons is given. In general, these works are aimed at systematic regional geoecological study of Ustyurt.

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Rezyume: Maqolada yer osti boyliklarini rivojlantirish istiqbollari bilan bog'liq holda Qoraqalpog'iston Ustyurtining geodinamik jarayonlari haqidagi zamonaviy geoekologik g'oyalar muhokama qilinadi. Ustyurt ichidagi kristall asosning struktura yuzasi murakkab, ko'pincha mozaik tuzilishi bilan ajralib turadi. O'zining noyob geologik va tektonik tuzilishi, geomorfologiyasi, juda chuqur va suvsiz botiqlarning mavjudligi, shuningdek, faunasi xilma-xilligi bilan ajralib turadigan Qoraqalpog' Ustyurti qadimdan tadqiqotchilar e'tiborini tortdi. Qurg'oqchilik zonasi va er usti suv oqimlarining yo'qligi er osti suvlarining nafaqat yaylovlarni sug'orish, balki tog'-kon va neft qazib olish korxonalarini suv bilan ta'minlash uchun ham etakchi rolini oldindan belgilab berdi. Shu bilan birga, o'rganilayotgan hududning geologik, gidrogeologik, geomorfologik va tuproq-iqlim sharoitlari to'g'risidagi ma'lumotlar ancha keyinroq olingan.

Резюме: В статье рассматриваются современные геоэкологические представления о геодинамических процессах Каракалпакского Устюрта в связи с перспективами освоения минеральных ресурсов. Структурная поверхность кристаллической основы в пределах Устюрта отличается сложным, часто мозаичным строением. Каракалпакский Устюрт, отличающийся уникальным геологическим и тектоническим строением, геоморфологией, наличием очень глубоких и бессточных впадин, а также разнообразным животным миром, издревле привлекал внимание исследователей. Засушливая зона и отсутствие поверхностных водотоков предопределили ведущую роль подземных вод не только для орошения пастбищ, но и для водоснабжения горнодобывающих и нефтедобывающих предприятий. Между тем данные о геологических, гидрогеологических, геоморфологических и почвенно-климатических условиях района исследований были получены значительно позже.

Kalit soʻzlar: Qoraqalpoq Ustyurti, geodinamika, geoekologiya, foydali qazilmalar, togʻ-kon sanoati, suffuziya, choʻkindi havzalar, platforma qoplamasi, geologik va tektonik tuzilishi.

Ключевые слова: Каракалпакский Устюрт, геодинамика, геоэкология, полезные ископаемые, разработка полезных ископаемых, суфффузия, осадочные бассейны, платформенный чехол, геолого-тектоническое строение.

**ENGINEERING AND GEOLOGICAL PROCESSES RELATED TO THE RISE OF THE
GROUNDWATER LEVEL AND URBAN PLANNING ISSUES IN TASHKENT**

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Summary: *One of the main factors that make up the engineering and geological conditions of a particular territory are the features of hydrogeology. The article presents the engineering and geological processes associated with the rise of the UGV and the issues of urban development of the city of Tashkent. Identification of negative engineering-geological processes associated with the rise of the groundwater level.*

Key words: *urban planning, subsidence, soil, technogenic, flooding, loess, anthropogenic, weathering, moistening, exposure, erosion, sedimentation, ravine, erosion, suffusion.*

Introduction. Urban planning in the Republic of Uzbekistan is carried out in difficult natural conditions, deserts and semi-deserts, earthquake-prone, high mountain areas, in areas composed of weak and subsiding soils, in unfavorable hydrogeological conditions. In urban areas, as a result of technogenic impact, anthropogenic processes are activated, which are associated with up to 70% of the established deformations of buildings and structures, including historical and architectural monuments. The greatest damage to the national economy is caused by the following anthropogenic processes and phenomena: flooding, subsidence in loess soils, processes in undermined areas, slope processes.

Main part. Weathering - in loess rocks, weathering manifests itself more intensely on the slopes of erosional incisions of channels, the slopes of road cuts and quarries. Variable moisture, the root system of plants and living organisms, especially soil swarms, have a destructive effect on loess rocks. In outcrops, these rocks are broken by a system of drying cracks, often having a vertical direction, up to 10 meters deep, and up to 2-3 cm wide.

Erosion processes. They are most strongly developed in loess rocks in the ancient irrigation canals Bozsu, Salar, Burjar, Karakamysh, Kalkauz, Dzhangab, Zakh, Chukur and others.[1,2]

As a result of erosion, the beds of these channels, deeply cut into the dance of loess rocks, form peculiar valleys, predominantly v-shaped and i-shaped. Their depth ranges from 5 to 23 m, and their width at the top from 20 to 150 m. In all canals, except Salar and Karakamysh, this erosion plays a predominant role; in Salar and Karakamysh, tank erosion plays a predominant role. Due to lateral erosion, a horizontal displacement of the channel bed occurs. The meandering of the channel is especially strong along the last two channels. The displacement amplitude here reaches 180 m. Sedimentation occurs in all canals of the city - from large to small. Their significant accumulation occurs on the concave side bends of the channel, especially in the lower reaches and upper reaches of dams, where the water flow is slow. As a result of sedimentation, accumulative terraces were formed in the valleys of ancient canals, the number of which reaches 3-4: Bozsu, Karakamisha, Bozsu, Salara. These terraces are composed mainly of pebble, sand, and clayey rocks. Pebble deposits are developed in the Salar and Karakamysh valleys. Their total thickness is more than 10 m. Filling the canals with sediment causes great difficulties in their operation. Therefore, systematic cleaning is carried out on the upper reaches of hydroelectric dams.[3,4]

Gully formation - observed on the slopes of deep erosion incisions of the Bozsu, N. Bozsu, Burjar, Ankhar, Karakamysh canals and is associated mainly with used bulk, technical and sewage water discharged into the canals. The sides of deep valleys, composed of loess rocks, are quickly eroded even by small streams of waste water. The size of the ravines reaches 350-400m. in length, 50-60m. wide, 18-20m. in depth. Many ravines in the city and outside the cities are filled or are being filled with industrial and household waste.[5]

Suffusion - manifests itself in the form of failures in loess rocks, subsidence on the surface of the earth in the form of craters, wells and shafts as a result underground erosion. Such forms are formed in the dissolution and mechanical removal of small particles by surface and groundwater. Suffusion funnels of various sizes in the city are found on the surface of high abrupt slopes and slopes along the valleys of the Bozsu, Karakamysh, burjars and ravines, where significant filtration gradients and the removal of destructive particles can occur, which is usually caused by water penetrating deep into the earth through cracks and burrows land of swarms. The size of suffusion funnels is 0.5-3m, with a diameter of 2-5m. in depth. Wedging out of groundwater and waterlogging is observed in the valleys of Bozsu, Salar, Bozsu, Karakamysh, Zakh, Chukur, Burjara and others. In deep erosional incisions, groundwater wedges out at the foot of valley slopes to the surface in the form of descending springs. The flow rates of individual springs in the upper reaches of the Salar are 0.1-0.2 l/sec. The water-containing strata are loess rocks. Within the lower terraces of the Chirchik River, there is a shallow occurrence of groundwater, draining in the beds of the Salar, Karasu, etc. canals.[6]

In the low areas of the northern, northeastern and northwestern parts of the city, groundwater lies close to the surface (at a depth of 1-2 m). There are swampy areas here and there. In addition, swamping is observed in the extensions of the floodplain terraces of the Salar, Karakamysh and their tributaries. The length of wetlands reaches 150-200m, liter 20-50m.

Flooding – one of the most widely discussed processes is the process of flooding. The essence of the process is a gradual rise in the groundwater level due to excessive moisture in the rocks of the aeration zone, which leads to a decrease in the bearing properties of the foundation soils. The process of flooding is especially often observed in cities located on loess massifs. The causes of flooding are the loss of water from irrigation networks, water supply and sewerage systems, moisture condensation under the foundations of buildings and structures. In Tashkent, the process of flooding is observed in almost all areas except Sergeli and Bektemir district. Flooding is possible only if moisture enters the aeration zone from outside and water exchange is difficult.[1,7]

Subsidence phenomena that occur in loess rocks when they are moistened are observed within the proluvial plain (IV terrace above the floodplain). Proluvial loess rocks that make up certain previously unirrigated hills are prone to replanting. The phenomenon of subsidence was noted on the hilly hills along Nakkashlik street in the Chilanzar area, in the Yunusabad area, etc. In addition, in the city there are many cases of deformation of buildings and structures when their foundations, composed of proluvial loess rocks, are moistened. Also additional compaction of the base rocks. M.A. Denisov calls the external load created by the weight of buildings and structures additional subsidence. Conclusions and offers. The rise of groundwater in areas where loess species are widespread has become the main reason for the formation of numerous cases of subsidence, uneven settlement of buildings, suffusion, loess pseudokarst and other processes in Chilanzar, Shaykhantokhur, Yunusabad, Uchtepa and other areas. There is a well-known case in which, as a result of contact of groundwater enriched with heavy metals with concrete structures of the metro, toxic gases were released at the Dustlik and Mashinosozlar stations, which led to the temporary closure of these stations and the need for degassing work. To reduce damage and danger to the population, as well as rational use of the territory of Tashkent and in accordance with

The new master development plan requires conducting research to compile a large-scale geological risk map and create a unified geoinformation system of the geological environment, including a network of monitoring points for the level, salinity, chemical composition, pollution and other indicators of groundwater.

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Rezyume: Muayyan hududning muhandislik-geologik sharoitini shakllantiruvchi asosiy omillardan biri gidrogeologiyaning xususiyatlari hisoblanadi. Maqolada UGDning paydo bo'lishi bilan bog'liq muhandislik-geologik jarayonlar va Toshkent shahrining shaharsozlik masalalari ko'rsatilgan. Er osti suvlari sathining ko'tarilishi bilan bog'liq salbiy muhandislik-geologik jarayonlarni aniqlash.

Резюме: Одним из основных факторов, формирующих инженерно-геологические условия конкретной территории, являются особенности гидрогеологии. В статье представлены инженерно-геологические процессы, связанные с возникновением УГД и вопросы градостроительного развития города Ташкента. Выявление негативных инженерно-геологических процессов, связанных с подъемом уровня грунтовых вод.

Kalit so'zlar: shaharsozlik, cho'kish, tuproq, texnogen, suv toshqini, lyoss, antropogen, ob-havo, namlanish, ekspozitsiya, eroziya, cho'kindi, jar, eroziya, suffuziya.

Ключевые слова: градостроительство, проседание, почва, техногенный, затопление, лесс, антропогенный, выветривание, увлажнение, обнажение, эрозия, седиментация, овраг, эрозия, суффузия.

CHARACTERISTICS OF ENGINEERING AND GEOECOLOGICAL CONDITIONS OF THE TERRITORIES OF THE KARAKALPAK PART OF USTYURT

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Summary: Ustyurt in its geological structure is a vast territory, determined by the presence of fold movements throughout the history of the accumulation of a huge thickness of sedimentary formations. According to its geomorphological position, Ustyurt represents the western part of the Turanian plate, i.e. a platform area bounded on all sides by folded structures. The geological and geological-structural position of the study area as a whole and the features of the structural-tectonic conditions of its individual parts and sections have been described by numerous researchers. During platform development, the territory of Ustyurt experienced differentiated subsidence, interrupted by relatively short periods of regional uplift.

Keywords: Turanian plate, Karakalpak Ustyurt, geodynamics, geoecology, minerals, mineral development, suffusion, sedimentary basins, platform cover, geological and tectonic structure.

Introduction: Ustyurt in its geological structure is a vast territory, determined by the presence of fold movements throughout the history of the accumulation of a huge thickness of sedimentary formations. According to its geomorphological position, Ustyurt represents the western part of the Turanian plate, i.e. a platform area bounded on all sides by folded structures. The geological and geological-structural position of the study area as a whole and the features of the structural-tectonic conditions of its individual parts and sections have been described by numerous researchers. During platform development, the territory of Ustyurt experienced differentiated subsidence, interrupted by relatively short periods of regional uplift. The activity of tectonic movements reached its greatest magnitude at the boundary of the Early and Middle Miocene. [2,3].

As a result of the prevailing long-term subsidence of the territory, thick layers of sediments of the platform cover accumulated. Based on the nature of the behavior and the depth of the roof of the Jurassic deposits, three large zones can be distinguished, corresponding to the tectonic zones of the platform cover: northern, covering the territory of Northern Ustyurt (Aktumsuk uplift zone, Samsky trough, etc.); central, including the Central Ustyurt system of uplifts (Karabaur swell-like uplift, Kuanysh-Alambek uplift zone, Sudochi trough, etc.); the southern area occupying the territory of Southern Ustyurt (Assakeaudan trough, Uzunkun uplift, etc.) (Fig. 1).

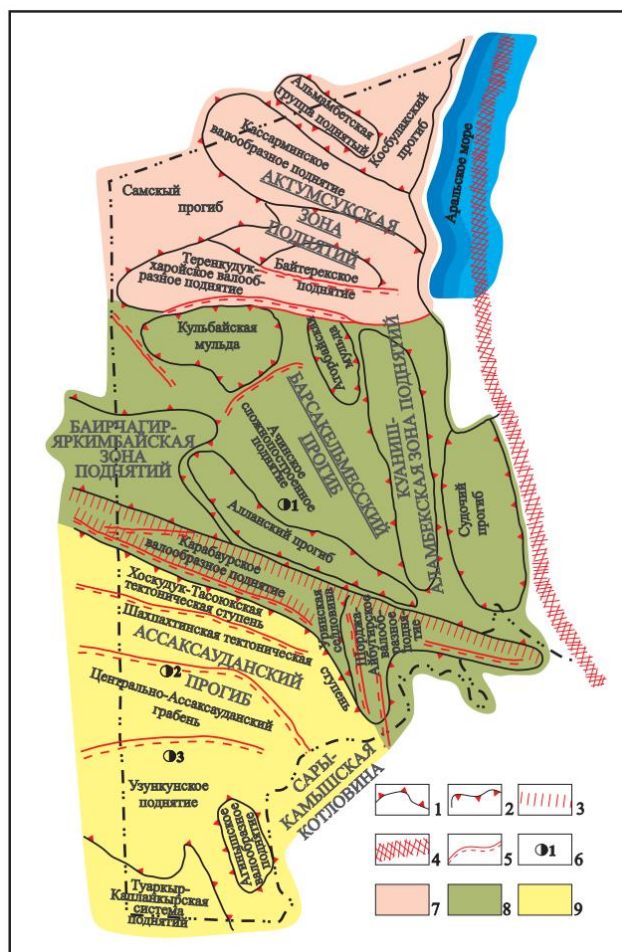


Fig. 1. Chink steep ledge in the Aktumsuk area

The North Ustyurt part borders on the Aral Sea from the east. It is located on the territory of a large area of troughs with a rather complex structure. From the south it is limited by the Central Ustyurt

system of uplifts. In the central part of the depression there are mainly latitudinally oriented semi-isolated “small” sedimentary basins (troughs) Samsky, Kosbulaksky, Barsakelmessky and Sudochiy. Barsakelmes trough somewhat elongated from northwest to southeast at a distance of 300 km with a width of 120–150 km.

In the northwestern part, the trough has an almost latitudinal direction with a simultaneous uplift of the hinge and a sharp narrowing of the depression, where a clearly defined, relatively narrow saddle is observed, separating the northwestern centrocline of the Barsakelmes depression from the southeastern closure of the Bineus trough (see Fig. 2). The eastern part of the Barsakelmes trough is complicated by the Kuanish-Alambek uplift zone, elongated in the meridional direction at a distance of about 100 km with a width of up to 20 km. In addition, the Central Ustyurt zone of uplifts is characterized by a length of 350 km and a width of 40 km; the northern and southern wings are complicated by faults with an amplitude of up to 700 m. [1,4]. Within its boundaries, the linearly elongated narrow Karabaur and Khoskuduk swells and the Shordzha-Aibugir swell-like uplift are distinguished. The southern part of the study area in geostructural terms is a large subsidence area represented by the South Ustyurt trough also with tectonic steps. The northern framing of the Assakeudan trough is the Shakhpakhty degree, covering the entire territory contained between sublatitudinal faults. One of the



Rice. 2. Schematic map of tectonic zoning of the Karakalpak Ustyurt (scale 1:500,000, 1973, Kh.H. Inagamov, V.M. Krigel et al.

- 1 – large tectonic elements; 2 – internal uplifts and deflections;
- 3 – deep faults;
- 4 – regional faults;
- 5 – other faults;
- 6 – reference wells;
- 7 – Northern Ustyurt;
- 8 – Central Ustyurt;
- 9 – Southern Ustyurt

faults runs along the southern slope of the Central Ustyurt uplift zone, and the other along the Assakeaudan trough. In the northeast, the Shakhpakhty step is separated from the Shordzha-Aibugir uplift by a fault. The Shakhpakhtinskaya step, in addition to the general inclination to the south, experiences subsidence from northwest to southeast [5,6]. In addition, there is an extensive landslide

zone in the study area. She's from the adjacent the Ustyurt plateau is separated by steep cliffs - cliffs. The height of the cliffs varies from 60 to 200 m. Landslides, landslides and fallouts are widespread in the cause zone. The zone of ancient landslides is distributed almost throughout the entire length of the chinks; cirques of young landslides are developed on the wings of positive structures (Fig. 2). The width of the landslide zone varies from 0.5 to 3.0 km. Landslides are represented by a chaotic accumulation of blocks and individual blocks of Miocene rocks, which are beautiful precipitation batteries. Throughout the entire territory of the Aral Sea coast and the highlands of the Ustyurt plateau, chinks from west to east determine the main direction of hydrogeological processes such as suffusion.



Fig. 2. Development of natural resources of Ustyurt

Conclusions: Thus, analysis of the tectonic structure of the study area makes it possible to conclude that at the very beginning of the platform development of Ustyurt, the formation of its modern structural plan and natural boundaries, which determine the nature of the direction of geological processes, took place. Currently, with the discovery of oil, gas and other solid mineral deposits, Karakalpak Ustyurt has become one of the important industrial regions of the Republic of Uzbekistan. Providing the population with high-quality drinking and technical water is an extremely urgent and priority problem.

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Rezyume: *Ustyurt o'zining geologik tuzilishiga ko'ra, cho'kindi shakllanishlarning ulkan qalinlikdagi to'planishi tarixi davomida burmalar harakati mavjudligi bilan belgilanadigan keng*

hududdir. Ustyurt o'zining geomorfologik holatiga ko'ra Turon plitasining g'arbiy qismini, ya'ni. har tomondan buklangan tuzilmalar bilan chegaralangan platforma maydoni. Umuman olganda o'rganilayotgan hududning geologik va geologik-strukturaviy holati, uning alohida qismlari va uchastkalarining struktur-tektonik holatining xususiyatlari ko'plab tadqiqotchilar tomonidan tasvirlangan. Ustyurt hududida platformani o'zlashtirish jarayonida mintaqaviy ko'tarilishlarning nisbatan qisqa muddatlari bilan uzilib qolgan differensial cho'kishlar kuzatildi.

Резюме: Устырт по своему геологическому строению представляет собой обширную территорию, определяемую наличием складчатых движений на протяжении всей истории накопления огромной мощности осадочных образований. По своему геоморфологическому положению Устырт представляет собой западную часть Туранской плиты, т.е. платформенную область, ограниченную со всех сторон складчатыми структурами. Геологическое и геолого-структурное положение исследуемой территории в целом, особенности структурно-тектонического состояния отдельных ее частей и участков описаны многочисленными исследователями. В ходе развития платформы на территории Устырта наблюдались дифференцированные опускания, прерывавшиеся относительно короткими периодами региональных поднятий.

Kalit so'zlar: Turon plitasi, Qoraqalpoq Ustyurti, geodinamika, geoeкологиya, foydali qazilmalar, tog'-kon, suffuziya, cho'kindi havzalar, platforma qoplami, geologik-tektonik tuzilish.

Ключевые слова: Туранская плита, Каракалпакский Устырт, геодинамика, геоэкология, полезные ископаемые, разработка полезных ископаемых, суфффузия, осадочные бассейны, платформенный чехол, геолого-тектоническое строение.

SOCIAL SCIENCES

ECONOMIC CLUSTERS: ESSENCE AND PROBLEMS OF FORMATION

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Summary: *This article examines in detail the essence of economic clusters and the issues of their formation. Also, from the point of view of scientists, aspects related to the content of clusters were studied.*

Key words: *Cluster, geographic concentration, competition, integration, infrastructure.*

Economics is faced with the task of knowing, describing and developing the approaches, mechanisms and principles necessary to implement such a policy that would ensure sustainable economic growth and competitiveness at all levels.

These goals are met by the methodology of forming clusters of competitiveness, which, being in their essence intersectoral complexes, are “internal points of growth” of economic sectors. Clusters make it possible to overcome structural limitations and disproportions in the development of the territory of the regions, including the single-industry structure of production that has developed in a number of economic entities. The tasks of increasing the competitiveness of economic sectors, the need to overcome the current state of the economy indicate that the development of the problem of the cotton-textile cluster is very timely and in demand. These provisions determine the choice of the topic of this study and its relevance.

This problem is complex in nature, since it is the object of study of various scientific disciplines (economic geography, world economy, marketing, regional economy, industrial economics, agricultural economics, etc.).

Based on the analysis of the literature on the problems of the formation and development of clusters, scientists have identified several aspects based on theoretical concepts that support the cluster theory. In particular, E. Berg-man and E. Fezer distinguish five main theoretical concepts: external economies of scale; innovative environment; cooperative competition; intercompany competition; path dependency.

T. Anderson identified seven aspects related to the understanding of the cluster: geographical concentration; specialization; many actors; competition and cooperation; critical mass; cluster life cycle; innovation [1].

A full description of these aspects of the cluster is presented in Table 1 [2].

Table 1.

Aspect	Description and possible effects
1	2
Geographic concentration	- specific natural resources or other local assets become more accessible; - geographical proximity helps to reduce transaction costs, especially in organizing access to knowledge and its transfer; - external economies due to economies of scale; - specialization of suppliers in factor markets of labor, capital or technological resources can be facilitated within a particular area; - means for organizing access and sharing information about market or technological changes can become more efficient within a given area; - interaction with local consumers generates a learning process and more sophisticated demand; - social proximity provides easier access to services such as informal exchange of information.
Specialization	- the parties involved are linked together through the main activity; - clusters have a limited number of transactions among firms within a given cluster, that is, in the form of seller-buyer relationships; - continuous multidimensional interaction in similar, but complementary activities, explains the process of mutual learning, experimentation and innovation; - the nature of specialization is not necessarily limited to any sector, since clusters can develop in mixed directions when subjected to internal or external influences; - interconnected specialized suppliers and qualified consumers enhance the competitiveness of the cluster in global markets.
cluster executors	-the cluster should include: ■ companies, incl. and infrastructure elements ■ public institutions, ■ public authorities, ■ research institutes, ■ financial institutions..
Competition and cooperation	- intra-industry competition acts here as a tool for Self improvement; - cooperation contributes to a better allocation of resources both within the cluster and outside.
Critical mass	- is a necessary condition for maintaining the internal dynamics; - ensures the stability of the cluster to external influences.

Cluster life cycle	A cluster goes through the following life cycle stages: ■ Agglomeration (geographical proximity); ■ Emerging cluster (cooperation along the technological chain); ■ Developing cluster (development of network interconnections); ■ Mature cluster (the presence of a critical mass and fuzziness of boundaries, tendencies of isolation are weakened); ■ Transformation (as a rule, the collapse of a cluster and the formation of new clusters).
Innovation	- increased opportunities for innovation; - improved business formation; - increased productivity.

In works on this topic, the above aspects are often linked to cluster strategies. Described in the table 1.

“At present,” notes T.B. Tsikhan, - experts described 7 main characteristics of clusters, on the combination of which the choice of a particular cluster strategy is based:

- geographic: building spatial clusters of economic activity, ranging from purely local (eg horticulture in the Netherlands) to truly global (aerospace cluster);
- horizontal: several industries/sectors can be part of a larger cluster (eg the mega-cluster system in the Dutch economy);
- vertical', clusters may contain adjacent stages of the production process. At the same time, it is important which of the network participants is the initiator and final executor of innovations within the cluster;
- lateral: a cluster brings together different sectors that can provide economies of scale, leading to new combinations (eg multimedia cluster);
- technological: a set of industries using the same technology (as, for example, a biotechnology cluster);
- focal: a cluster of firms centered around one center - an enterprise, a research institute or an educational institution;
- Qualitative: here it is not only the question of whether firms actually cooperate, but also how they do it that is significant. The network does not always automatically stimulate the development of innovation. It happens that in networks, on the contrary, innovation processes are suppressed and protective behavior is encouraged. Relationships with suppliers can stimulate innovation processes, but they can also be used to shift costs to partners and infringe them in financial terms. In the latter case, the networks are neither stable nor stimulating" [3].

Aspects make make it possible to highlight the benefits that help to realize the formation of a cluster for the business territory, to understand the nature of the cluster, the essence of the business of the processes occurring in it and characteristic of its functioning, which is very useful when comparing the cluster with other business structures.

Due to the fact that there is no single definition of a cluster, their classification is difficult, but we only indicate this issue. Clusters ca be classified according to various features, G.V.Marchenko identifies the following features of cluster classification:

product range (multi-profile, single-profile); the degree of dependence on external resources (“their own” or external resources are used); nature of the final product (raw material, semi-finished product, component, finished product); scale and structure of sales markets; share in the economic base of the region, in the volume of the regional and national market; sales geography (outside the region or in it); the degree of technological, economic and organizational isolation from other clusters in the region; efficiency for the regional budget [4]. Clusters that are oriented to the external market, G.V.

Marchenko calls regional clusters of competitiveness. I.S. Feroova proposes to classify clusters: on the basis of localization: geographical and dispersed ("project"); by the form of connections: vertically integrated companies and horizontal or network structures; on a functional basis: technological clusters, innovation and marketing (oriented to the general market of resources or the consumer market). L.S. Markov describes two main categories of clusters, formed along the spatial and functional axes [5].

Functionally connected systems, which are less limited to strictly defined regions, he refers to industrial clusters, and spatial groupings of similar and related firms and industries to regional clusters. ETHA scientists classify clusters according to the degree of maturity, highlighting strong, stable, potential and latent clusters [6].

Based on the above, let's sum up some results: firstly, the authors determine the cluster based on the goals and objectives set; secondly, among the presented points of view, it is necessary to distinguish between the definitions of the cluster itself and the specific definitions of clusters - regional, industrial, economic and innovative; thirdly, consideration as the central moments in the cluster, necessary for its formation and development, the territorial concentration of participants and their relationship based on the commonality of activities with focus on the core industry, which allows us to put forward a hypothesis about objective nature cluster and the need to interpret it through the prism of the process of territorial socialization of production; fourthly, consideration of various definitions of the phenomenon under study allows us to single out generalized positions and approaches to the interpretation of the cluster and their classification.

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Rezyume: *Ushbu maqolada iqtisodiy klasterlar mazmun-mohiyati, ularning shakllanish tartibi masalalari batafsil ʻrganilgan. Shuningdek, klasterlarning mazmuniga bogʻliq jihatlari olimlar nuqtay-nazaridan tadqiq qilingan.*

Резюме: *В данной статье подробно изучены сущность экономических кластеров и вопросы их формирования. Также с точки зрения ученых были изучены аспекты, связанные с содержанием кластеров.*

Kalit soʻzlar: *Klaster, geografik kontsentratsiya, raqobat, integrallashuv, infratuzilma.*

Ключевые слова: *Кластер, географическая концентрация, конкуренция, интеграция, инфраструктура.*

"COTTON CASE" IN KARAKALPAKSTAN

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Summary: *This work is dedicated to one of the important issues in the study of the history of Karakalpakstan - the "Cotton Case" of 1984-1989. The article analyzes the intimidating impact of the reprisals on the population during 1984-1989. In addition, the article examines the methods of investigation, and based on the memories of the residents of Karakalpakstan, pages of the history of the studied period are reconstructed.*

Key words: *reprisals, "Cotton Case," Karakalpakstan, cotton farming, investigative group, Central Committee of the CPSU.*

Repressions in the former USSR continued in the second half of the 1980s under the name "Cotton Case." In total, within the framework of the "Cotton Case," 790 criminal cases were initiated, involving 4,500 individuals brought to court. The mistakes of the union government in implementing economic reforms in the region were exacerbated by the companies that started in those years to exploit and denigrate the peoples of Uzbekistan and Karakalpakstan, finding vivid expression in the so-called "Cotton Case." In Karakalpakstan alone, 133 people were under investigation during these years.

In early April 1983, an investigative group of the General Prosecutor's Office of the USSR, led by T.Kh. Gdlyan and N.V. Ivanova, was established in accordance with the Resolution of the Politburo of the Central Committee of the CPSU to investigate abuses in cotton farming in Uzbekistan. Sh.R. Rashidov passed away suddenly on October 31, 1983. In early 1984, the investigation into the "Cotton Case" itself began: the KGB management in Moscow and the Moscow region arrested several leaders of cotton-cleaning associations in Uzbekistan and directors of cotton mills on the territory of the RSFSR. After a series of arrests in early 1984, the investigation was entrusted to V.I. Kalinichenko in June.

In the summer of 1984, a group of Central Committee members of the CPSU, led by the Secretary of the Central Committee E.K. Ligachev, arrived in Tashkent to conduct the XVI Plenum of the Central Committee of the Communist Party of the Uzbek Soviet Socialist Republic (KP USSR) to elect a new First Secretary to replace Sh.R. Rashidov. I.B. Usmanhodjaev was elected as the new First Secretary of the Central Committee of the Communist Party of Uzbekistan.

A new phase in the investigation of the "Cotton Case" unfolded after the XIX Congress of the CPSU, during which the chief editor of "Ogoniok" magazine, V. Korotich, submitted a note to the Presidium stating that among the "respected" individuals were those who deserved to be behind bars. An urgent decision led to the creation of a special brigade of investigators, mainly comprised of investigators specializing in particularly important cases from the prosecutors of union republics, autonomous republics, or regions.

Investigations into the "Cotton Case" continued until 1989. Several "high-profile" arrests were made. Those arrested and subsequently convicted included: the former Minister of Cotton-Cleaning Industry of Uzbekistan, V. Usmanov, the head of the OBKhSS of the UVD of the Bukhara Oblast A. Muzafarov; various terms of imprisonment were given to Y.M. Churbanov, the First Secretary of the Central Committee of the Communist Party of Uzbekistan I.B. Usmanhodjaev, former secretaries of the Central Committee of the republic A. Salimov, E. Aitmuratov, and R. Abdullaeva, the First Secretaries of the oblast committees: Musakhanov of Tashkent, Umarov of Fergana, Rajabov of Namangan, Kamalov of Karakalpakstan, Karimov of Bukhara, Karimov of Surkhandarya, former chairman of the Supreme Council of the republic N.D. Khudaiberdiev, head of the Papal APO of Namangan Oblast A. Adylov, generals of the Ministry of Internal Affairs of the republic Yahyaev, Norov, Norbutaev,

Jamalov, Satarov, Sabirov, and Colonel Begelman. Some of the individuals under investigation took their own lives (K. Ergashev, G. Davydov, R. Gaipov).

Having been implicated as a defendant in the case, I.B. Usmanhodjaev began providing testimony about the involvement in corruption of certain members of the Politburo of the Central Committee of the CPSU, including E.K. Ligachev, V.V. Grishin, G.V. Romanov, and M.S. Solomentsev.

Sadistic investigation methods were perfected. For instance, someone would be arrested for accepting or giving bribes, and if they denied their guilt, they were reminded that their stubbornness was putting their family, their entire kin, at risk. If the arrested person continued to remain silent, threats were carried out. The closest relatives found themselves in the same cells. Children were sometimes placed in neighboring cells away from their parents. This was done deliberately, playing on parental and familial emotions.

During the investigation, on the orders of Gdlyan's investigators, 8 innocent relatives of K. Kamalov, K. Nurumbetov, and 15 relatives of Khudaibergenov were arrested.

Yerezhep Aitmuratov: "I was arrested on August 20, 1987, in Tashkent. They kept me in investigative isolation for several days and then transferred me to Moscow. From that moment, regular interrogations began, conducted by Gdlyan and Ivanov. They explained to me for a long time about the significance of a sincere confession, advised me to confess to everything, threatening otherwise to make a 'steamroller' out of the case. They threatened to deal with attachments in the republic, to which, supposedly, I, as the Secretary of the Central Committee of the Communist Party of Uzbekistan, had a direct connection. They declared that those who did not confess to them would face execution, while those who cooperated with them would face almost nothing, and they might even release them from custody. They also intimidated me by saying that if I continued to remain silent, they would arrest my wife, son, daughter, and brother."

Kasym Nurumbetov: "Under Gdlyan's dictation, I began writing a statement about who and from whom I received bribes. It went something like this: Gdlyan would ask me who among the higher-ranking officials visited our district. And when I named them, he forced me to write that I gave them bribes. Then he ordered me to list all the chairmen of collective farms, directors of state farms, trade leaders and name them all as bribe-givers."

It appears to be a continuation of the narrative about the investigations and confessions related to the so-called "cotton affairs." Here's the translation:

"All of this I wrote. After I had written the list, again under Gdlyan's dictation, I wrote the amount of money I received from each person I named and the amounts of money I passed on to higher-ranking officials. Only after that did I have to come up with details for each bribe-giver and bribe-receiver, specifying when and for what purpose the sums of money were handed over. In other words, I lent credibility to my statements."

"Sultamurat Kanyazov: "Ivanov entered the office and in a stern tone said, 'Write a statement addressed to the Prosecutor General of the USSR, where you'll indicate that you took bribes from 45-47 individuals, not less than 500,000 rubles from each, and you'll also reveal at least 12-15 incidents 'higher up,' involving Osetrov, Orlov, Abdullaeva, Ishkov, and others.'"

"Among those convicted in the so-called 'cotton cases' were 430 directors of state farms and collective farm chairmen, 1,300 of their deputies and chief specialists; 84 directors of cotton mills and 340 chief specialists of these mills; 150 workers from the light industry of Uzbekistan, RSFSR, Ukraine, Kazakhstan, and Azerbaijan; 69 party, Soviet, and law enforcement officials; 58,000 officials were arrested, 800 criminal cases were opened, and 4,000 people were convicted. 172 employees in the nomenclature of the Central Committee of the CPSU were removed from their posts, as well as 1,813 from the nomenclature of the Central Committee of the Komsomol."

B 1980s, the top leadership of Karakalpakstan included individuals such as Yerezhep Aitmuratov, Alexander Alexandrovich Yurits, Abdulla Bekmanov, Musrep Kinbaev, Alima Gaipova,

Ulbosyn Allamuratova, Chardzhuy Abdirrov, Tazhim Davletmuratov, Atagulla Khudaibergenov, Shamil Abdulkasymov, Zholymbet Seitniyazov, Sultan Toremuratov, Salima Yusupova, Orynbay Madiyarov, Tabynbay Zhutsmamuratov, Zhalil Muyatdinov, Davletnazar Allanazarov, Davlet Zhumabaev, Zhumamurat Zhiemuratov, Alimbai Primov, Abdibai Karlybaev, Saukim Zhamangaraev, Utambet Arzymbetov, Karim Mamutov, and others.

From 1984 to 1989, Karakalpakstan was led by Kakimbek Salikov. He was an extraordinary and contradictory personality, prone to unpredictable actions and improvisations. It must be acknowledged that he was an intelligent and energetic person. He could speak rationally and sensibly, a good psychologist with enough power of suggestion, capable of lulling the vigilance of his interlocutors with verbosity, logical, and precise, which gave him an undeniable advantage over those subordinate to him. He had sufficient knowledge in various areas of human relations and expertise.

K.S. Salikov recklessly and thoughtlessly carried out a complete replacement, one might say, of the party, Soviet, and most of the economic cadres and leaders of public organizations. In a short time, he replaced four secretaries of the party committee out of five, chairmen of the Supreme Soviet and the Council of Ministers, ministers, all the first secretaries of district and city party committees, chairmen of regional executive committees, the overwhelming majority of leaders of collective farms and state farms, and enterprises.

K. Salikov, at his discretion, appointed (appealed to the Central Committee of the CPSU) his acquaintances, friends, and, in some cases, outsiders to key positions. Almost all the "temporary workers" did not surpass our personnel in terms of education, intellect, modesty, and most importantly, they did not know the Karakalpak language, ignored established national traditions and customs, sometimes causing offense to the national dignity of the people.

In the 1980s, the standard of living for the population of Karakalpak society was characterized by significant contradictions. On the one hand, there was a noticeable increase in the standard of living and satisfaction of needs in comparison to the military and post-war years; on the other hand, society was still gripped by the constraints of ideological trends and ideological stereotypes. Relative satisfaction with the standard of living gave way to stagnation not only in economic life but also in meeting the needs of the population.

Cotton, which turned into a monoculture not only in Karakalpakstan but also in the Central Asian republics as a whole, blocked the processes of diversifying its agricultural-industrial structure. In simple terms, the region, blessed in terms of bioclimate, was condemned to remain in a narrow niche of cotton common Soviet specialization. In the total arable land area, cotton occupied 50% of the land in Uzbekistan, while only 3.6% of the land was allocated for spring wheat.

The monocultural orientation of the region's agriculture led to its transformation from a productive to a consuming one. New lands were cultivated under cotton. Rapid reductions occurred in the cultivation of food crops, and the sizes of personal household plots for villagers were limited. The extensive cultivation of cotton, whose fields literally reached the windows of the homes of collective farm workers, severely limited the possibilities for the development of personal subsidiary farming. As a result, the republic's self-sufficiency in food resources diminished year after year. The republic started importing not only grains but even potatoes and some vegetables. It reached the point of paradox when apples were purchased in stores, imported from distant Moldova.

The environmental consequences of the cotton priority were also severe. Uncontrolled use of the waters of the Amu Darya and Syr Darya, with the annual flow of the latter into the Aral Sea decreasing from 42.9 cubic kilometers in 1961-1970 to 4.2 cubic kilometers in 1981-1984, became one of the main reasons for the tragedy of the Aral Sea. The lower course of the Amu Darya completely dried up, and its delta turned into a saline desert. The precious water, in the conditions of an arid natural environment, transformed into an extensive non-market economy into an almost free resource. Thousands of cubic meters of water spread across numerous irrigation structures, covering cotton and rice fields, not so much irrigating them as covering them with a crust of evaporated salt.

The exploitation of the country's natural resources had an almost unrestrained character. The developed socialism of the 60s and 70s intensified the conflict between society and nature, leading to an ecological crisis in many regions of the USSR in the 70s. The Aral Sea disaster, contamination with pesticides and defoliants, among other issues, were the most prominent manifestations of this crisis. Changes in the ecology and biology of fish and fodder organisms inhabiting the Aral Sea and Amu Darya resulted in a decline in their numbers. Species such as the Aral bream and perch started disappearing. Measures were taken to preserve these fish species, such as the construction of the Nukus Fish Farm for annual cultivation of up to 2 million perch fry and other fish. However, the plant, commissioned in 1973, practically did not operate due to unsatisfactory water supply, the absence of sturgeon production in the Aral Sea, and significant capital expenditures needed to correct substantial construction deficiencies.

The XVI Plenum of the Central Committee of the Communist Party of Uzbekistan in June 1984 highlighted significant shortcomings in cotton cultivation, including the lack of yield growth and a decrease in fiber output. Following this plenum, another one took place at the level of Karakalpakstan in August of the same year. This party forum hierarchy reflected the Soviet party's structure. Prior to this, there were plenums of the Central Committee of the Communist Party of the Soviet Union in February and April 1984, followed by the June plenum of the Central Committee of the Communist Party of Uzbekistan, and finally, in August, the Karakalpakstan Regional Committee of the Communist Party had its turn.

The first President of Uzbekistan, Islam Karimov, provided an objective assessment of the historical events of 1984-1989 when Kakimbek Salikov worked in Karakalpakstan: "In reality, at the core of all this was a bankrupt administrative-command system, a policy of ignoring the national, economic, and social interests of the republic, a policy of dictation and humiliation of the people, and a catastrophic deterioration of the economic situation, primarily due to the monoculture of cotton."

In the late 1980s, Karakalpak society, like the entire Soviet society, experienced a period of severe socio-economic and socio-political crisis. The times called for either modifying socio-political processes and ideological beliefs or completely abandoning them. The costly economic mechanism, imperfect structural and investment policies, and the slowdown in scientific and technological progress led to extensive development of social relations and public production, shaping the formation of an extensive type of thinking as the dominant factor in economic and socio-political consciousness. Essentially, the ideology of stagnation and bureaucratization reflected the lifestyle and thoughts of a specific social group, whose activities inevitably had an orientation towards extensive development. In the conditions of Karakalpakstan, this social group mainly consisted of workers in agriculture, water management, capital construction, and transport, determining the development paths of the main directions of socio-economic and public development of Karakalpak society. Their activities largely gave rise to and strengthened the system of voluntarism and bureaucratism in the Soviet system. For example, looking at the construction industry, which satisfied the basic needs of the population for housing as one of the fundamental principles of human life, housing construction in the Karakalpakstan Republic in the 1980s appeared to receive an impulse, despite serious crisis phenomena in the socio-economic development of the region. The unfolding construction industry of the republic necessitated significant capital investments and resources from the consumption funds of the production of many ministries and departments of the republic. The question of increasing construction volumes was also promoted by the production capacities of construction enterprises.

Implementing economic measures in agriculture and industry, which were also oriented towards the agrarian sector, led to the strengthening of the republic's status as a raw material appendage to the country. The problem of the Aral Sea escalated, resulting not only in the deterioration of socio-economic but also ecological conditions in Karakalpak society. Subsequently, irrational use of water resources for the development of virgin lands for agricultural crops led to the Aral Sea catastrophe.

Today, this has a negative impact on the ecology of the surrounding environment and the health of the region's population.

The 1980s marked a turning point in the history of Karakalpakstan, associated with the aspirations and hopes of Karakalpak society, which remained largely unrealized. During these years, an ideologized culture of thinking and daily life thoroughly formed in society, suppressing initiative and dissent in all spheres of life.

Despite extremely challenging conditions, the government of Uzbekistan paid special attention to the Aral Sea region, preventing the situation from becoming even more threatening. Islam Karimov noted, "Even in those difficult times, I deeply felt the nobility and courage of the Karakalpak people. I often visited here during my work at the Ministry of Finance and the State Planning Committee. However, seeing the difficult situation that this region found itself in 1989, how both people and land were tormented due to the drying of the Aral Sea, I once again felt the enormous burden on my shoulders.

And I can honestly say that this issue still resonates with deep pain in my heart to this day. Remembering the events that took place ten to twelve years ago, at a time when we had just gained independence and what was done to overcome the difficulties and problems that fell on our shoulders, I want to draw your attention to one conclusion drawn from this. It is that even in such a complex situation of those times, the Karakalpak people demonstrated their generosity and patience" [13, 134].

On July 26, 1989, during the Plenum of the Karakalpak Regional Committee of the Communist Party of Uzbekistan, S.D. Niyetullaev was elected as the first secretary. The young leader inherited a challenging legacy. In 1989, the country stood at a decisive turning point. People desired a normal human life, advocated for stabilizing the situation, and securing public order that guaranteed the safety of every individual.

On December 25, 1991 (a day before the legal dissolution of the USSR), the first President of Uzbekistan, I.A. Karimov, pardoned all those convicted in the Uzbek case who were serving their sentences within the republic.

The repressions from 1983 to 1988 had a frightening impact on the population and affected Uzbekistan and Karakalpakstan. In an attempt to curb aspirations aimed at gaining real sovereignty, the Soviet leadership, within the context of the emerging struggle against the corrupt nomenklatura, created a stir around the fabricated "cotton case." On the IV Plenum of the Karakalpak Regional Committee of the Party in June 1984, more than 90% of the composition of the party committee's leadership and 85% of leaders at the city and district levels were "renewed." Regarding the cotton complex of Karakalpakstan, 27 cases were initiated, resulting in the condemnation of individuals: 10 in 1986, 56 in 1986, 55 in 1987, 24 in 1988, and 14 in 1989, totaling 159 people.

Speaking at the VI Plenum of the Karakalpak Regional Committee of the Party on November 30, 1989, I.A. Karimov noted that "the process initiated 5-6 years ago around the cotton case in Uzbekistan, including in the Karakalpak Autonomous Republic, continues to torment everyone to this day."

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Rezyume: *Ish Qoraqalpog‘iston tarixini o‘rganishning muhim masalalaridan biri – 1984-1989 yillardagi “paxtachilik”ga bag‘ishlangan. Maqolada 1984-1989 yillardagi qatag‘onlarning aholiga dahshatli ta’siri tahlil qilinadi. Bundan tashqari, maqolada tergov usullari muhokama qilinadi, Qoraqalpog‘iston aholisining xotiralari asosida o‘rganilayotgan davr tarixi sahifalari tiklanadi.*

Резюме: *Работа посвящена одному из важных вопросов изучения истории Каракалпакстана - «хлопковому делу» 1984-1989 годов. В статье анализируется устрашающее воздействие на население репрессий 1984-1989 гг. Помимо этого в статье рассмотрены методы расследования, на основе воспоминаний жителей Каракалпакстана восстановлены страницы истории изучаемого периода.*

Kalit so‘zlar: *qatag‘on, “paxta ishi”, Qoraqalpog‘iston, paxtachilik, tergov guruhi, KPSS MK.*

Ключевые слова: *репрессия, «хлопковое дело», Каракалпакстан, хлопководство, следственная группа, ЦК КПСС.*

SEMANTICS OF THE COMPONENT “AR” IN THE KARAKALPAK LANGUAGE

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Summary. *The article gives the relationship of the unit “ar” to each other in the words aran, aral, arik from linguistic point of view.*

Key words: *aran, hydronym, arik, aral, semantics, etymology, linguistics, toponymy.*

Introduction

There are many hydronymic terms in the Karakalpak language. Among them: *teñiz, kól, dár'ya, qudıq, qoltıq, tuba, izeykesh, jap, arna, ózek, salma* (sea, lake, river, pit, bay whirlpool, manifold, big ditch, channel, watercourse, canal etc). Together with these hydronyms, the hydronym Aran is also used in our language. If we look at the grammatical form of hydronyms, we will see that the hydronyms aran, aral, arik come from the linguistic elements ar. Basically, whether this lexical unit aran has other additional meanings in our language and how much each unit in the words aran, aral, arik is related to each other, it is necessary to scientifically evaluate this issue from a linguistic point of view. point of view.

Methodology

The explanatory dictionary of the Karakalpak language gives two different definitions of the word: **aran**.

The first meaning: herbal, type of herbal, grows at the top with rain Aran. Aran menen selewdi, attıń otı der edi («Alpamıs»). Second meaning: one type of animal. For example: Aran kibi ashılǵanda awızı, sál sozılıp sawmaláǵan sawrısı. (T.Kabulov) [1.94] Also, in the language is found the phraseology “aranday awzın ashıw”

Researcher of the history of the Kazakh language, scientist G. Kosymova, comparing the words of the Sumerian language and Turkic languages, this word means: “Amar(an) means a virtuous animal, the calf of the sky, and in Turkic languages Maran (deer, ram) means deer, a sacred animal in Altai-Siberia, the author also points out that the second meaning of the word “an” in the Sumerian language: “an” is the sky, star, and “the word “an” is characteristic of the Turkic language, “the word “an” is preserved in the meaning of the moon, clear, pure, light values” [2].

Aran in the Karakalpak language means a river or body of water from a stagnant lake. There is less water in Aran than in the lake. Additionally, aran means natural water collected from the earth.

Aral is part of the toponyms of Uzbekistan, the name of the surrounding area and an ancient village in the city of Karshi, Kashkadarya region. In the toponymic dictionary, Aral, Ahrar, and Oral are also interpreted as a modified form of anthroponyms (human names). Aral is considered a Turkic word. The Aral is a land in the middle of white water (where the river branches, divides, bends), a hill separated from the white water, bare land. In the Bashkir language, an island is a small hill, height, mountain range. Aral is a village located on the banks of the rivers (Kashkadarya and Karasu). The name of the height, the hill, is given as the name of the village” [3.28].

Along with this, Aral (Ar+al) also means the term for the sea located on the territory of the Republic of Karakalpakstan.

Exploring toponyms and oikonyms in the Karakalpak language, M. Kurbanov, in his special article on the term “Aral”, sets out his views on the connection of this word with the direct word aran, that is, in the modern Altai language the word “aral” is “grove”, as well as “reeds along the banks of rivers and lakes.” In conclusion of the article, based on the opinion of E.V. Sevortyan that the island is related to the verb ar - “to separate”, “to remove”, it is named so because the island is separated from the land; Secondly, in the ancient Turkic language the verb “ar” means “to separate”, and the word “Aral” was created by adding the suffix *a (l)* to this word; thirdly, the term “Aral” may have arisen in

connection with the names of the seas, because people call the places where several currents of the Amu Darya flow into the sea “*aral*”, and the people living there - “*arallilar*” [4.30-32]. Therefore, if we take the Turkic meaning of “separation” of the word “*Aral*” as a guide from these opinions, then the logic arises that there are many names for places separated from water, land created by people and animals, and its separation from a body of water.

On the other hand, G. Kosimova expresses a completely different opinion about the element *an* according to its grammatical structure, i.e. this is an imperative verb (imperative) + *an(en)*, i.e. form of the past tense, whereas in Turkic languages this form explains the meaning of the past tense, for example, “*er – izimnen, er, eren – izimnen eriwshi*” [2.6.2]. O. Bekbaulov in his article about the hydronym “*Aral*” and the ethnonym “*islanders*” explains the term “*Aral*” (hydronym) in connection with the word “*aran*” in the Altai language, and in modern Turkic languages: *Aran* means “lower reaches, lowland”. The meaning of place in this word was then changed to the sound *l* by adding the suffix *li*. *Ara(n)li – Ara(l)i*. [5.175] He proves that the ethnonym “*aralli*” comes from the word “*aran*”.

One street (partition) of the Keneges tribe in the Karakalpak clans is called *Aranshi Keneges*. Therefore, if we take into account previous opinions, we can assume that the representatives of this tribe are not people engaged in special excavations of *Arans* (depth, water depth) but “a people who settled in the lowlands, settled near *Aran*.”

E.V. Sevortyan in the etymological dictionary of Turkic peoples expressed the following positive opinion about the meaning of water in the word *ar*: “*Aral, arqu, argı, arıg, arıq* are related to the word *ar*. In Hungarian, *ar* means “flow”, in Chagatai, *ar* means “water”, and in Iranian, *ar* means “water” [6.167].

The word “*aran*” is also preserved in the dialects of the Karakalpak language. In the dialectological dictionary of the Karakalpak language there is a compound word “*mal aran*”, related to the word *aran*.

In the northern dialectical areas of the Karakalpak language, for example, in the *Takhtakupir, Moinak, Kegeyli* regions, the word “*mal aran//mal aran*” is used, and in the language of the local population it is called a place where cattle are left and grazed in the summer [7.211]. For example: *Báhár keypine moyımay, Dáwletnazar gána onlağan diyxanğa mal aran qazdırdı.* (T.Qayıpbergenov).

In the dialectological dictionary of the Kazakh language, this word has five different meanings. “The first meaning is grass, a barn with an open roof, made of light things; the second meaning is a stable; the third meaning is lowland, depth; the fourth meaning is ruling power; the fifth meaning is a trap” [8.68].

“In the Karakalpak language, the use of each element in the Karakalpak language alternates between thin and subtle, that is, from a scientific point of view, it explains the meaning of a losing weight person and complements the number of paronyms in this language” [9.68] Also in our language we can mention a hydronym derived from the element *ar*. In the explanatory dictionary of the Uzbek language, the word *aran* is not given as an example, so we have the right to consider this word-forming unit a verbal characteristic of the Karakalpak language.

About the word “*arik*”: “A ditch is an artificially created waterway, its branch and the water in it. *Arıq aqsaqal* is a village official in Turkestan of the 19th century” [10.98].

Among the hydronyms of the Karakalpak language there are a number of appellatives derived from the word *arik*. For example, *Qamis arıq* (Chimbay district), *Arıq balıq* (Nukus district) and others. The name *arik-aksakal* official, related to the hydronym *arik*, is used in Karakalpak poems of the 19th century as a water dispenser, a person responsible for supplying water to fields and villages. Today this term is rarely used and is preserved only in the spoken language of the people and in literary works [11].

In the Karakalpak language, the appellative hydronym *arna* is productively used, from which the element *ar* is derived. For example, *Súwenli arnası* (Kanlikul, Khojeli district), *Qazanketken arnası* (Bozatau district).

The explanatory dictionary of the Karakalpak language states that “arna is a watercourse that has broken away from a large stone” [1.100]. Basically, a hydronym arna is considered to be more of a ditch, but less of a river. Scientist A.P. Dulzon points out that “in ancient Iranian languages, ar/ir means the word “water” [12].

Conclusion

In the Karakalpak language, the word “aran” means a body of water, the depth of ditch water, low-lying land, and also the meaning of a dug corral with a special place for livestock.

The element **ar** as part of the appellative hydronyms Aran, arik, aral corresponds to the meaning of the word water in the ancient Sumerian, Mongolian and Iranian languages, since most of these terms are considered waterways, reservoirs.

We believe that the use of the word “Aran” in the name of the clan “Aranshi” among the Karakalpak clans is due to the fact that representatives of this clan settled in the Aran lands, along the banks of the lower reaches, in early times.

The affix **an** in the Aran group of words means action in both Turkic languages, it can be noted that it explains the meaning of **ar** (water) + **an** (current action of water) based on the same ideas as the meaning of the past tense.

We believe that the appellatives **aran, arik, arna, aral** in the Karakalpak language are units characteristic of our national vocabulary.

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Rezyume. *Maqolada aran, oral, ariq soʻzlarida “ar” birligining oʻzaro munosabati tilshunoslik nuqtai nazaridan berilgan.*

Резюме. *В статье дано соотношение единицы «ар» друг к другу в словах аран, арал, арик с лингвистической точки зрения.*

Kalit soʻzlar: *aran, gidronim, ariq, oral, semantika, etimologiya, tilshunoslik, toponimika.*

Ключевые слова: *аран, гидроним, арик, арал, семантика, этимология, лингвистика, топонимия.*

**ATTENTION TO THE EDUCATION OF THE YOUTH IN THE EDUCATION OF JADIDCY,
AS AN IMPORTANT CONDITION OF PERFECTION AND PROVIDING THE WELFARE
OF THE COUNTRY AND THE PEOPLE**

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Summary: *The article describes the social, economic, political and spiritual state of Turkestan, the causes and consequences of its lagging behind world development, and the efforts being made to overcome it.*

Under these conditions, the advanced Muslim intelligentsia believed that the main reason for the country to fall into the chains of arbitrariness and backwardness of the country was the educational backwardness of the people. Therefore, the Jadids made the reform of education the main issue at the initial stage. They put a lot of effort into this, not only theoretically, but also practically. Philosophically and historically, the features of improving the spiritual perfection of religion, strengthening the processes of forming a market and legal space, creating modern democratic institutions, and a unique national development path are analyzed.

Key words: *perfection, enlightenment, ignorance, religious tolerance, reformism, enlightenment, national liberation, humanism, worldview, thinking.*

In world science, modern scientific research is being carried out to study the spiritual heritage of great thinkers of theoretical-fundamental, practical-methodological importance, which serves the global development. In particular, the scientific research conducted on the study of the constructive views of scholars who put forward the advanced progressive ideas of their time in the spiritual development of the society and the reform of the education system is of great importance. From this point of view, researching the socio-philosophical significance of modern ideas such as enlightening the people, political initiative and mobility, bigotry, religious tolerance, compromise is an objective necessity today.

Through their scientific and spiritual heritage, they led people to perfection through truth. The sign of perfection is to follow the right path and benefit the people. The more a person benefits people with his words, actions, and intentions, the more he can stand up to injustices, the more he sacrifices himself for the cause of truth, the more perfect he will be. A perfect person is the supreme symbol of faith and belief, honesty and purity.

Philosopher-scientist J. Tulenov acts on the basis of the intellect of a spiritually mature person. He puts forward the opinion that being loyal to one's country, people and nation is one of the signs of civilization, spirituality, integrity, and moral purity [1,294]. And Ulfat Mahkamov emphasizes that only when the greatest qualities of people, such as doing good, being honest, and being imaginative, are combined, he will become a perfect person [2,72].

So, perfection cannot be achieved by oneself. At the heart of this lies hard work and knowledge, which is its result. Science has played an extremely important role in people finding their way in life, reaching a high intellectual level, finding freedom, liberty, and justice, and in the high development of nations and states. We know that, regardless of which of the countries that are trying to dominate the world, they are achieving high theoretical and practical achievements by reforming science and paying a high level of attention to it. If the development of science is not paid attention to in a timely manner and it is considered as a second-level or next-level task, education in that society will be lost, and the emergence of innovative ideas that are important for the development of society and the state will be an obstacle. Such evils as fraud, incitement, corruption, immorality, dishonesty, injustice, disregard for laws, derailment of the management system in family and state management, and disrespect for various

professions occur. As a result of this, illiteracy reigns, fear, muteness, lack of self-awareness, dependence on others, inability to understand the concepts between truth and unreality.

In the address of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis and the people of Uzbekistan, "Salvation is in education, salvation is in upbringing, salvation is in knowledge. Because all good goals are achieved thanks to education and upbringing. The words of our enlightened forefathers should become practical actions of our deputies and senators, political parties, local councils, the entire state apparatus, and the general public" [3,3] is the truth. The reforms dreamed of by our forefathers, which were not realized, are being implemented on a large scale today, and we hope that the legacy of the enlighteners of the past will be used as an example in the education and upbringing of young people, and the rise of their scientific and intellectual potential in their scientific activities. It is important that they have been emphasized once.

It is one of the most important and urgent issues of our day to contribute to the economic and social development of our country by using the opportunities created by the President of the Republic of Uzbekistan.

In fact, at the end of the 19th century and the beginning of the 20th century, a state of depression prevailed in the peoples of Central Asia. Enlightenment is the only and powerful force capable of liberating and improving the world, taking people out of the mire of ignorance and superstition, and solving their spiritual and economic problems.

Jadidism, as it is known, occurred at the stage of a fundamental turning point in the social development of the Central Asian region. The perception of the local patriots of the crisis situation in colonial Turkestan, that the country is increasingly lagging behind the global processes, that the freedom-loving movements of the indigenous population are severely attacked and suppressed everywhere, and the stagnation in the field of spirituality is the impetus for the emergence of the idea that the society should be comprehensively reformed. It's done.

This was seen in the conceptual understanding of the main issues of social development, first of all, the ideology of breaking the foundations of feudalism and colonialism. At the first stage, the participants of this movement focused on renewing the sphere of spirituality rather than changing the entire social system. Jadidlar promoted national secularism by establishing new schools, publishing newspapers, publishing textbooks and manuals, especially on natural sciences, the need to study Western techniques and technology, and use the achievements of European culture. They created the ground for creating education, renewing and enriching spiritual life, raising awareness of national identity [4,7].

The ideology of the Jadid movement in the early years was not yet directly related to the task of the struggle for national liberation. Nevertheless, from the first years, it was aimed at preparing the conditions for national revival, familiarizing the peoples of Central Asia with the achievements of world civilization.

In the circumstances, advanced Muslim intellectuals believed that the main reason for the country's fall into the chain of tyranny and the country's backwardness is the educational backwardness of the people. Therefore, the Jadids made the reform of education the main issue at the initial stage. They spent a lot of effort in this regard not only theoretically, but also practically. In particular, the first of the new schools in the country was established in 1898 by domla (teacher) Salahiddin in Kokand. In the same year, a Jadid school was opened in Tokmok. In 1899, domla (teacher) Mannon opened schools of a new style in Tashkent and domla (teacher) Shamsiddin in Andijan.

Since 1900, the network of schools of the new method in Turkestan has been steadily expanding. In the same year, the son of the famous scientist, journalist and pedagogue Munavvar Qori Abdurashidkhan founded a new Uzbek school, which he managed and taught. In 1903, Mahmudhoja Behbudi opened a school at his own expense in Jomboy near Samarkand. Famous enlighteners such as Haji Muin and Abduqadir Shakuri taught with him.

Another direction of the Jadids' activity was the mass promotion of the ideas of enlightenment. However, due to the violence of the tsar's censorship and administrative bans, the works in this regard were limited at the beginning of the century.

The "enlightenment" ideology of the Jadids was socially rich and multifaceted. Historical tasks that are still relevant today: the nature of religion to improve spiritual maturity, strengthening the processes of market and legal space formation, creation of modern democratic institutions, unique national development path were collected and taken into account.

If we look at the theoretical views of the first Jadids from a concrete-historical point of view, it is possible to single out several important rules that formed the basis of the entire ideology of the Jadids. First of all, the enlighteners realized that Turkestan cannot develop without enlightening the people and making the general public aware of the achievements of Russian and world culture. They rightly thought that in order to improve the living conditions of the people, it is necessary to get rid of colonial-feudal oppression and heavy obligations, and to achieve spiritual freedom.

For the Jadids, they gave a scientific justification that Islam does not hinder development and acquisition of modern knowledge, on the contrary, learning and knowledge lead a person from ignorance to enlightenment. The renewal of human knowledge was seen in the acquisition of the achievements of science and advanced technology, in close connection with the beliefs of the early Muslim religion and taking into account modern conditions.

In the first stage, the leaders of the Jadidist movement opposed the medieval scholasticism, rigid religious education, and fought for a new way of education.

Modernism sought to activate secular education, and at the same time, it reflected the emerging interests of the national bourgeoisie and the conditions of the emerging commodity-market relations. They rejected some of the outdated tenets of Islam, supported the reform of traditional education, the creation of new schools and theater troupes, the opportunity for every Muslim to participate in the work of banking and financial capital, the science (mathematics, geography, grammar and others) recognized their special importance in accelerating socio-economic development.

In all times and eras, in order to lead the people out of the quagmire of error, the need for humane, educated mature scientists who love the country was felt.

Mahmudhoja Behbudi appeals to young people to fight for the development of the nation and considers them as the foundations of the nation's development. Addressing the youth on this issue, he said, "... our national press, which is also at the door of culture in Turkestan, is a herald of renaissance and reform, and the movement of enthusiastic young people is being created in the shadow of educational leaders. That's why we ask for help from our young people in the difficult work of our national affairs (some of our scholars, who have helped the nation with their goods and words, are also among the young people)", writes [5,175].

In Behbudi's view, the development and prosperity of the nation is realized, first of all, by reforming the school and enjoying national and universal culture. "Each nation," writes Behbudi, "does not enter the path of progress and use culture until it first of all reforms and increases the primitiveness of its writing system." A nation whose culture is deprived of the present, and which is not armed with industry and education, cannot see the face of pleasure and happiness in the world. He is completely defeated in the field of "combat life", he is crushed under his feet, he is a prisoner of others in religious and economic affairs, and gradually he loses his nationality and religion. His socio-philosophical thoughts [6,176] were aimed at awakening the entire population of Turkestan, the representatives of the ruling class, especially the youth, from the sleep of heedlessness.

Part of Fitrat's work "Rahbari Najot" is dedicated to family education, in which the universe is subject to the laws of development. This idea meant continuity of generations, that is, legitimate birth, living, and development in general. The family is divided into such parts as "Generation education", "Intellectual education", "Ethical education". In the upbringing of the offspring, parents think about

their pride, duty, and attitude towards their ancestors. All men are one because creation is from one gem. A person is educated if he is not indifferent to someone's grief.

It should be noted that one of the most important issues of the family is education. According to him, education is the basis of everything. Fitrat divides pre-school youth education into four:

1. Child education. 2. Physical education. 3. Mental education. 4. Moral education.

Speaking about the role of education, Fitrat said, "People should act, become statesmen, be happy and gain respect, take the world, or be helpless, weak, humiliated, trampled, mute, dependent, slave to others, states that being a prisoner depends on the lessons and education received from their parents during childhood" [7,262].

Fitrat's conclusion about youth education is as follows: "This world is a battlefield. The weapon of this field is a healthy body, mind and morals" [8,262].

That is why it is necessary to constantly strengthen the moral basis of education and enrich it with the heritage of ancestors. Fitrat writes: "...If we need happiness, honor, peace, pleasure, honor, honor and attention, we should learn the methods of raising the next generation as soon as possible and raise our children based on these methods and rules" [9,267].

He now proved himself not only as an ideological leader, but also as a sharp propagandist.

To sum up, the Jadids, who were the smart progressives of their time, were able to understand the stagnation, backwardness, bigotry in the state and society in time, in order to convey to people, the sudden changes, development and progress processes that are happening in the world. of course, they have sufficient knowledge, life experience, and at the same time, to achieve independence and development, as the only way to wake up the people from the sleep of heedlessness, to carry out scientific achievements that meet the demands of the times in accordance with national values, under the pressure of the colonial system they considered it an important task to restore all forgotten abilities, to inculcate principles such as independence, freedom, national pride, and patriotism into the minds and hearts of young people.

Correct and effective use of the scientific-philosophical heritage of our great ancestors in solving these issues, building our bright future, and educating potential young people is of urgent importance.

The President of the Republic of Uzbekistan is particularly interested in the issues of education and upbringing in the formation of the young generation, especially preschool education, secondary education and secondary special education, vocational education, higher education and post-graduate education. paying particular attention to reforms in the fields of lim. Therefore, educating young people with high morality and discipline, their quality education and growing up in the spirit of patriotism is an important condition for the country's economic and political development.

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Rezyume: *Maqolada Turkiston o'lkasining ijtimoiy, iqtisodiy, siyosiy, ma'naviy ahvoli, uning umumjahon taraqqiyotidan ortda qolish sabablari va oqibatlari, uni bartaraf etish uchun olib borgan say-harakatlari haqida bayon qilingan.*

Yuzaga kelgan sharoitlarda ilg'or musulmon ziyolilari o'lkaning istibdod zanjiriga tushushining, mamlakat qoloqligining asosiy sababini xalqning ma'rifiy qoloqligida deb bildilar. Shu bois jadidlar ta'limni isloh qilishni dastlabki bosqichidagi asosiy masala qilib qo'yishgandi. Ular bu borada nafaqat nazariy jihatdan, balki amaliy tomondan ham ko'p kuch-g'ayrat sarflashdi. Dinning ma'naviy kamolotini takomillashtiruvchilik xususiyati, bozor va huquqiy makonni shakllantirish jarayonlarini kuchaytirish, zamonaviy demokratik muassasalarni yuzaga keltirish, o'ziga xos milliy rivojlanish yo'li falsafiy-tarixiy jihatdan tahlil qilingan.

Резюме: *В статье описывается социальное, экономическое, политическое и духовное состояние Туркестана, причины и последствия его отставания от мирового развития, предпринимаемые усилия по его преодолению.*

В этих условиях передовая мусульманская интеллигенция считала, что главной причиной попадания страны в цепь произвола и отсталости страны является образовательная отсталость народа. Поэтому джадиды сделали реформу образования главным вопросом на начальном этапе. Они приложили к этому много усилий не только теоретически, но и практически. Философско-исторически анализируются особенности совершенствования духовного совершенства религии, усиления процессов формирования рыночного и правового пространства, создания современных демократических институтов, уникального национального пути развития.

Kalit so'zlar: *komillik, ma'rifat, jaholat, diniy bag'rikenglik, islohotchilik, ta'lim-tarbiya, milliy ozodlik, insonparvarlik, dunyoqarash, tafakkur.*

Ключевые слова: *совершенство, просвещение, невежество, веротерпимость, реформизм, просвещение, национальное освобождение, гуманизм, мировоззрение, мышление.*

PROBLEM-BASED LEARNING AS THE FORMATION OF DIALECTICAL THINKING

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Summary: *The importance of the problem method for philosophical education is very significant: outside of problem-based learning (that is, outside of independent mental activity), a student cannot form a scientific worldview. To an even greater extent, this applies to the basis of the worldview — scientific, dialectical thinking, for which knowledge of the laws of dialectics alone is completely insufficient, but it is the skills of dialectical thinking that are needed.*

Key words: *problem-based learning, pedagogy, educational systems, dialectical thinking.*

Introduction. Problem-based learning is commonly referred to as the driving force behind the contemporary model of developmental learning. However, what is the primary emphasis of problem-based learning? What are the primary aims and objectives at the beginning? Problem-based learning is recognized in contemporary education as a method for fostering mental resilience, cognitive engagement, creative aptitude, and autonomous thinking in individuals. When individuals are integrated into a certain collective, these factors that contribute to the growth of one's character create a culture centered around dialectical thinking, which is the focus of the study of dialectical logic. Problem-based learning primarily emphasizes the development of dialectical reasoning, wherein the subject's actions align with the fundamental and profound interpretations of both natural and social reality. Dialectical thought assumes the existence of an autonomous and self-governing individual. However, the liberty associated with this topic is not synonymous with randomness; rather, it is grounded in adhering to a personally embraced objective need. Problem-based learning, as a way of fostering dialectical thinking, cannot rely on artificially constructed subjective approaches to problematizing the content.

The educational problem lies inside the content being studied rather than being external. The issue is in the manner in which the objective contradiction of the reality under examination is conveyed to the perceiving individual. Thus, the issue of education must be framed as an inherent contradiction. The solution to this dilemma should align with the progression towards a synthesis that is comprehended through dialectical means. Put simply, problem-based learning will not yield tangible outcomes if we choose to inundate schools with a multitude of problems, some of which are entirely rhetorical in nature. An authentic outcome can only be attained when the lesson, in its structure, centers on the process of revealing a dialectical conflict that originates from the actuality being examined. The whole potential of problem-based learning can only be fully realized when the fundamental essence, the driving force behind problem-based learning, is employed as the mechanism for transitioning from abstract concepts to tangible applications in the teaching process.

However, while discussing problem-based learning as a method for developing dialectical thinking, it is important to note that we are not only referring to altering the methods of instruction. The clash between conventional and modern learning methods is evident not only in the structure of the learning process but also in its primary objectives and significance. Given the reorientation of the entire system of studied sciences, it is imperative to modify the methodology and ways of arranging the learning process. In this analysis, we want to demonstrate the shift in focus of academic disciplines in response to the emerging issues encountered by secondary and tertiary educational institutions. To illustrate this, we will examine the teaching of a social sciences course at a university.⁶

⁶ Ilina T.A., Pedagogy.M., 1984. P.318

Initially, the teaching approach to demonstrating and explaining materialism does not fully reveal the profound depth of its groundbreaking substance, which fundamentally changes the way its basic parts are connected. Presenting this instruction as a mechanical sum of philosophical, economic, and socio-political conceptions of materialism is atypical in current teaching practice. However, we often struggle to regain the inherent coherence of the several components of materialism that existed in the classical tradition. This coherence is sometimes lost in the actual process of teaching philosophy, where it is treated as a collection of separate and unrelated subjects. He consistently stressed the interconnectedness of philosophical, economic, and socio-political perspectives, highlighting that it is the scientific worldview of the proletariat, the most progressive class of the contemporary age, that serves as the comprehensive theoretical teaching of materialism. However, the proletariat's worldview is not only a comprehensive and scientific set of perspectives. Marx highlighted that the theory should be seen as the foundation for the revolutionary actions of this class, serving as a practical guide for their activities. "The objective of our theoretical perspectives," stated Kuhn, "is to provide direction for our revolutionary endeavors." The most optimal location to evaluate our theoretical perspectives is the battlefield. An essential criterion for evaluating a communist is their comprehension of how, where, and when to translate materialistic beliefs into practical implementation. The formation of a worldview extends beyond the mere acquisition of a specific quantity of information. Hence, it is imperative to exclude any form of abstract enlightenment or non-objective literature from the realm of teaching. Put simply, this implies that the first principles of materialism should not be mindlessly and rigidly remembered but rather should serve as a foundation for people's subsequent cognitive and practical endeavors, enabling them to effectively address pressing theoretical and practical issues. When applied in reality, society becomes distinct from other scientific theories as it transforms into a revolutionary worldview inside the arena of revolutionary action. The methodological orientation of the material theory is a significant factor that unifies and strengthens this instruction as a cohesive entity. What is the most effective approach to developing and instructing a fundamentally transformative perspective in the context of teaching social sciences? What are the ways to include methodological orientation in the structure of problem-based learning? The fundamentals of materialistic dialectics are taught in the course of dialectical materialism in universities. However, merely comprehending the substance of the materialistic dialectics technique in its abstract and general form, as presented in educational literature, does not equate to fully understanding and mastering it. A distinctive strategy demonstrates true dialectical technique, particularly when materialistic dialectics serves as an underlying logic for comprehending a particular reality. Students who are studying the history of philosophical thought have a distinct and exceptional chance in this aspect. Through an examination of the historical development of the inquiry into the essence of cognition, students get a comprehensive understanding of the principles governing this distinct domain of thought, characterized by its inherent universality. By attaining a deep understanding of the history of logic as the process of "thinking about thinking," individuals are able to immediately comprehend dialectics in its concrete and universal manifestation. Another approach to imparting the dialectical technique of thinking is linked to the advancement of a materialistic comprehension of history, explored within the framework of historical materialism.⁷ It is crucial that the study of historical materialism at the university goes beyond simply learning a sociological doctrine, as was the case with the pre-Marxist philosophy of history. Instead, it should focus on acquiring a set of techniques for conducting a genuinely scientific analysis of social life. This system should have "objective significance," meaning it should be based on the doctrine of the general laws that govern the development of history. When studying historical materialism, it is important for students to remember that the system of laws and categories presented in the materialistic understanding of history is considered by the classics of materialism as a collection of scientific abstractions. These abstractions are necessary for organizing historical material, but they do not offer a

⁷ Mareev S. N. The unity of method and system in materialistic philosophy //In the op R.philosophy. 1983. No. 5. p. 68.

specific recipe or scheme for adjusting historical epochs." According to K. Marx and F. Engels, these abstract concepts have no value on their own and are meaningless without real historical context"⁸.

A crucial aspect of instructing Marxist-Leninist aesthetics and ethics is to eliminate the use of illustrative methods when presenting the material. Instead, it is essential to consistently showcase the benefits of a dialectical-materialistic approach to addressing conventional aesthetic and ethical dilemmas, such as artistic creativity and individual free will. By employing the concept of the dialectic between objectification and dissection and utilizing the categories of "content" and "form," "essence" and "phenomenon," "chance" and "necessity" as explanatory frameworks for individual free will, we greatly enhance our overall comprehension of these matters. By illustrating the functioning of dialectical categories in the domains of aesthetics and ethics, we establish a connection between the instruction of these subjects and the shared objective of fostering students' proficiency in employing dialectical reasoning. However, when we consider the issue of teaching students about dialectical thinking in courses on material ethics and aesthetics, we must address it with much greater coherence. Specifically, this pertains to showcasing the creative potential of the dialectical method as a theoretical mode of thought, which is employed in this instance to address ethical and aesthetic issues. The primary objective is to ascertain the underlying principles of artistic creation and moral conduct and demonstrate that dialectical thought is equally evident in these domains as it is in theoretical and practical human endeavors. Hence, the teaching of dialectical thinking should inherently encompass the cultivation of a refined aesthetic sensibility in individuals, together with their capacity for moral action. Put simply, this implies that under the new system of teaching aesthetics and ethics, theoretical analysis should align with the education of a well-rounded individual who possesses the ability to think critically and harmoniously integrates the concepts of truth, goodness, and beauty as essential components of human excellence. To summarize, it is important to reiterate that the cohesion in teaching the many subjects within the social cycle is largely achieved through the concept of "method wrapping," which is a key aspect of a comprehensive and universally applicable methodology known as materialism dialectics. Consequently, every social science discipline studied in higher education is a combination of theory and method, and the dialectical method serves as both the objective and the technique of this process. Therefore, the crucial responsibility of a social science teacher is to structure the curriculum in a way that enables students to utilize the content as a tool for understanding other subjects and as a foundation for their own autonomous practical endeavors as adults. By examining the methodological approach of K. Marx, F. Engels, and their followers, we can observe examples of dialectical thinking in their theoretical and practical work. This allows us to remove the influence of academicism from the teaching of the social sciences and instead focus on the urgent issues of our time. By adopting a dialectical approach to economic, political, and other aspects of public life, we aim to restructure the teaching of social science. This involves implementing problem-based learning methods that eliminate any traces of academicism and instead focus on addressing the urgent issues of our time. We reconstruct the teaching of social science by applying a dialectical approach to each of the social sciences, examining their impact on economic, political, and other aspects of public life. This is done through problem-based learning.

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3. Marx K-, Engels F. Op. 2nd ed. Vol. 3. p. 26

⁸ Marx K-, Engels F. Op. 2nd ed. Vol. 3. p. 26

Rezyume: falsafiy ta'lim uchun muammoli usulning ahamiyati juda muhim: muammoli ta'limdan tashqarida (ya'ni mustaqil aqliy faoliyatdan tashqarida) talaba ilmiy dunyoqarashni shakllantira olmaydi. Bundan ham ko'proq darajada, bu dunyoqarashning asosi — ilmiy, dialektik fikrlash uchun amal qiladi, buning uchun faqat dialektika qonunlarini bilish mutlaqo etarli emas, lekin bu dialektik fikrlash qobiliyatlari zarur.

Резюме: важность проблемного метода для философского образования очень значительна: вне проблемного обучения (то есть вне самостоятельной умственной деятельности) у студента не может сформироваться научное мировоззрение. В еще большей степени это относится к основе мировоззрения — научному, диалектическому мышлению, для которого одного знания законов диалектики совершенно недостаточно, но необходимы именно навыки диалектического мышления.

Kalit so'zlar: muammoli ta'lim, pedagogika, ta'lim tizimlari, dialektik narsalar.

Ключевые слова: проблемное обучение, педагогика, образовательные системы, диалектическое мышление.

UDK: 338

PROSPECTS FOR THE DEVELOPMENT OF THE COUNTRY'S ECONOMY THROUGH COMMERCIAL BANK LOANS

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Abstract: The article analyzes the current state of investment loans allocated by commercial banks. The positive impact of investment loans on the country's economy is based on econometric analysis. Moreover, the paper discusses Mechanisms of development of the country's economy through investment loans are mentioned.

Key words: commercial banks, economy of the country, investment project, lending practice, gross domestic product, foreign transactions, loan portfolio.

Introduction

Today, investment loans play an important role in the development of the world economy and international integration. Indeed, investment loans serve as the most important factor in the implementation of the long-term strategy of commercial banks in the national and global financial markets and the development of international relations and practices through it. The research clearly confirms that investment loans, incorporating a number of traditional and modern forms of lending, are used to establish and develop cooperation with national, foreign and international financial institutions. The developed world has a rich experience in investment lending in developed countries, in particular, "the share of investment loans in total fixed capital investment in Germany is 49.5%, in the US - 62%, in the UK - 76.5%" [7]. Today, the growing demand for investment loans makes it necessary to improve the system of investment lending by commercial banks.

In recent years, the practice of investment lending in Uzbekistan has been significantly increasing. In particular, "the share of investment loans of commercial banks in the total sources of financing of investments in fixed assets has more than doubled over the past five years (2017-2022) and amounted to 46.7%" [10]. This is mainly due to the growing investment activity of commercial banks in the country and the growing volume of international loans. However, most commercial banks do not have enough experience in introducing investment credit and its modern forms. There is also a lack of long-term resources in commercial banks. The need to solve the problems of the investment lending system of banks on the basis of advanced foreign experience arises from the need to study the issue of improving the investment lending system on a scientific basis.

Law of the Republic of Uzbekistan "On Banks and Banking" (2019), Presidential Decree No. PF-5953 of March 2, 2020 "On the Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021" Decree No. PF-4947 of February 7, 2017 "On the State Action Strategy for Further Development of the Republic of Uzbekistan". PF-5877 of November 18, 2019 "On improving monetary policy through the gradual transition to inflation targeting", PF-5992 of May 12, 2020 "On the strategy of reforming the banking system of the Republic of Uzbekistan for 2020-2025" "Decrees. No. PP-4563 of January 9, 2020 "On measures to implement the Investment Program of the Republic of Uzbekistan for 2020-2022", No. PP-3270 of September 12, 2017 "On measures to further develop and increase the stability of the banking system of the Republic" An important task in the implementation of the tasks set by the decisions of the Government of the Republic of Uzbekistan and other relevant regulations in this area, as well as in-depth scientific and theoretical and methodological study of ways to solve the above problems and investment lending in commercial banks.

Review of literature on the subject

Many foreign and local economists have been working on the effectiveness of investment lending in commercial banks and their development and evaluation. Let's have some inquiry in some of foreign economists who conducted research on this issue:

According to Russian economists M.V.Alikaeva, L.O.Aslanova and others, "Investment bank loans are usually issued for a period not exceeding the project repayment period, usually for a period of not less than one year, within the approved design estimates will have a targeted nature, which must be documented with payments under concluded contracts "[8].

F.V.Mike and V.Rong (2006) suggested the need to establish external financial constraints on the effective use of investment projects and, on this basis, to encourage domestic investment projects. At the same time, scientists conclude that as the cost of external financing increases, the value of cash will increase significantly [2].

H.Wang, P.Liang, H.Li, R.Yanglar (2016) studied the interrelationship between investment projects and their sources of funding for technological development, as well as sources of funding for research, investment risk [3].

In addition, the well-known Russian economist T.Mazurina (2013) justified the existence of the following conditions for the development of lending to investment projects by loans from commercial banks:

- Existence of effective state investment and industrial policy (with clear directions of financial resources allocation);
- development of investment infrastructure, which is the main direction of risk reduction associated with the implementation of investment projects;
- increasing the investment attractiveness of enterprises [4].

According to I.Yudina's (2013) research, diversification of risks is a necessary condition for the development of investment lending practices of commercial banks in developing countries [5].

The main problems in improving the mechanism of financing investment projects through commercial banks are the problem of increasing the investment lending capacity of commercial banks, the ineffectiveness of risk management of investment activities in commercial banks, the technical aspects of business plans submitted by clients to investment projects which is economically insufficiently justified. It is also due to the fact that they are not analyzed by banks at the level of demand, and there are shortcomings in the conclusion of loan agreements, the inefficiency of the use of investment loans obtained on the basis of government guarantees [6].

Today, the country's commercial banks have a number of shortcomings in the process of investment lending. Therefore, the main purpose of this article is to identify existing problems in the practice of lending to investment projects of commercial banks, to study the priorities of lending practices of foreign banks on the basis of practical analysis, to present their best practices in the practice of lending to commercial banks in Uzbekistan.

Analysis and main results

It is well known that savings play an important role in the organization of investment activities in the economy. This is especially important for commercial banks, which carry out their investment and lending activities on the basis of attracting free funds. Accordingly, we aim to take a look at the state of savings in the economy on the example of countries whose economies are developed and at a high level of development, as well as those in transition economies.

According to the IMF, at the beginning of 2020, the savings rate in developing countries was 33.0% and remained higher than in developed countries (22.0%). This is clearly the case in China. This is more than twice as high as in 2020 compared to the United States, Germany and Russia under analysis. However, in the context of today's pandemic, all leading international organizations note that in 2020-2021 the world economy will experience a significant slowdown.

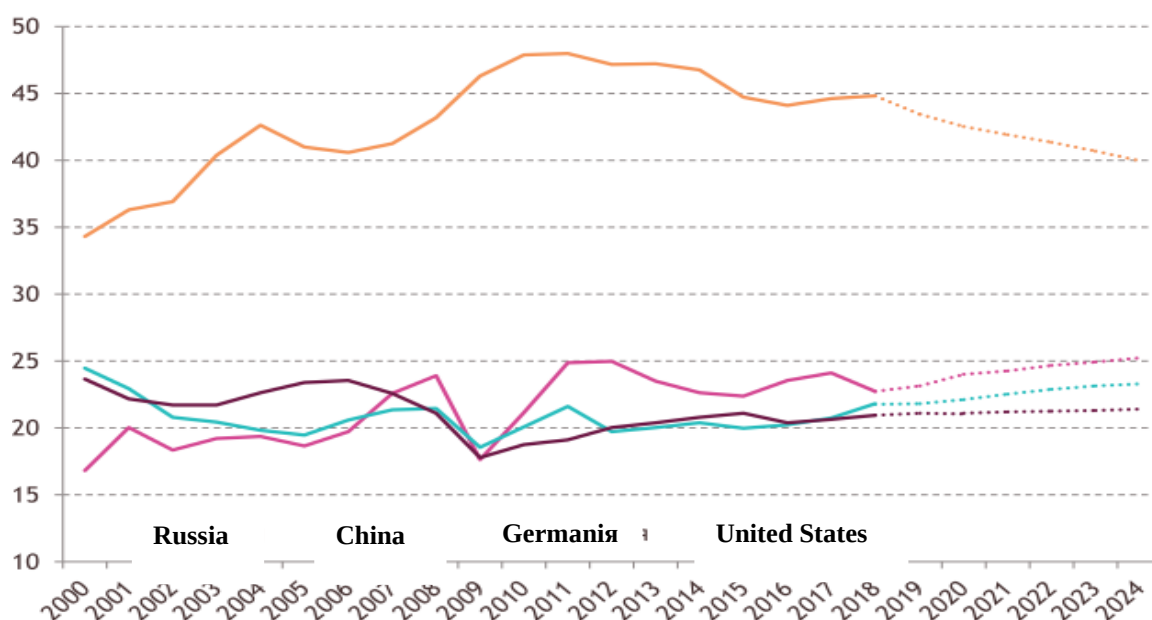


Figure 1. Accumulation rate in individual countries, 2000-2024 [9]

According to the IMF, savings play an important role in world GDP growth. This, in turn, has a positive impact on increasing the share of investment in GDP and economic development. According to the IMF report, during the “great recession” of 2008-2009, the share of investment in world GDP fell by 23-24%, which also had an impact on gross savings. Since 2011 alone, the global savings rate has been 24-25 percent of GDP, and by 2018, that figure had risen to 26 percent. During the period of that time, of course, it is important that countries that are leaders in economic development make high investments in intensive industrial development. This is directly related to the high level of the country’s savings rate (45.2% in China in 2020 and 48% in 2012) (Figure 1).

As a result, there is a growing need to increase the financing of projects to ensure the active participation of commercial banks in order to bring the economy out of the crisis and recover. This will lead to further development of investment lending practices.

According to Figure 2, due to the very low refinancing rate in developed countries, which is set at 0.0% in Germany in 2016-2020, there is an opportunity to further increase the affordability and availability of credit resources. In Russia, this figure is the highest in 2014 - 17%, which shows how expensive investment loans are, and in recent years it has been declining.

In order to develop investment lending in European countries, including Germany and Japan, banks are also pursuing a policy of negative interest rates. This is primarily due to the fact that inflation in the country is at 0.0% (as of August 2020). It is also lower than zero in Spain, Italy (-0.5%), Ireland (-1.2%), Greece (-1.9%) and Erosona (-0.8%).

Under such circumstances, European banks are forced to make interest payments to depositors. In particular, in Germany today, 58% of banks have set negative interest rates on deposits for corporate customers, and 23% of banks have set negative interest rates for retail customers. In particular, the European Central Bank lowered the interest rate on deposits from -0.4% to -0.5%. This situation with the deposit has been going on in Germany since June 2014. As a result, such practices are also the subject of much controversy [13].

Analyzes show that small uneven dynamic changes in inflation and refinancing rates in the U.S. did not have a significant impact on lending rates. This led to an increase in the share of investment lending in GDP and fixed capital investment, as shown in Figures 2.3 and 2.4. However, although the interest rate on loans increased in 2016-2022, the share of overdue loans in total U.S. bank loans remained stable, and in 2022 this figure differed from other years by only 0.9% costs.

This can be explained by the high level of competitiveness and openness of the economy, high level

of free enterprise and favorable business environment, the absence of state threats to private business, low inflow of capital and debt to the economy and the most stable currency. As a result, consumer, mortgage, commercial loans, car loans, investment loans in the United States are several times cheaper than in countries such as Uzbekistan and Russia.

The positive state of changes in the dynamics of overdue loans in the United States over the years has also reduced the need for the country to create special reserves for them (Appendices 19-20). According to him, in 2010-2022, the amount of overdue loans in the country will decrease, and by 2022 it is predicted to reach 100 billion. The fact that the amount of more than USD 1 billion is not intended to create special reserves for them, as a result, since 2010 the need for reserves for this purpose in the country has fallen insignificantly.

Conclusions and suggestions

Analyzing the practical situation of investment lending in commercial banks of developed countries, the following generalized proposals and recommendations for improving investment lending in commercial banks of Uzbekistan have been developed:

- - In order to prevent problems with the obligations of commercial banks on credit lines attracted from foreign and international financial institutions, the bank should take timely measures to strengthen investment credit monitoring and prevent its conversion into problem loans;
- Modern environment of high inflation in the economy, the use of low-interest deposit policy by commercial banks is a serious obstacle to increasing the volume of bank deposits. Therefore, commercial banks should increase the level of customer orientation in the development of their deposit policy and introduce the principle of setting deposit rates at a rate not less than the refinancing rate in the economy;
- Overcoming the problem of corruption in commercial banks, which affects the management of investment resources and the growth of problem loans, is the fight against corruption in the bank, to identify its factors, to create an effective system for its elimination, to increase the effectiveness of investment and credit policy. In order to prevent this, it is advisable to introduce an independent anti-corruption structure that reports directly to the Bank's Board. We believe that the main task of the structure should be to develop and implement a "Roadmap" for 2021-2025 to combat the shadow economy and corruption in the banking system.

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Rezyume: Maqolada tijorat banklari tomonidan berilgan investitsiya kreditlarining hozirgi holati tahlil qilinadi. Investitsion kreditlarning mamlakat iqtisodiyotiga ijobiy ta'siri ekonometrik tahlilga asoslanadi. Bundan tashqari, maqolada investitsiya kreditlari orqali mamlakat iqtisodiyotini rivojlantirish mexanizmlari haqida so'z boradi.

Резюме: В статье анализируется современное состояние инвестиционных кредитов, выделяемых коммерческими банками. Положительное влияние инвестиционных кредитов на экономику страны основано на эконометрическом анализе. Кроме того, в статье рассматриваются механизмы развития экономики страны за счет инвестиционных кредитов.

Kalit so'zlar: tijorat banklari, mamlakat iqtisodiyoti, investisiya loyihasi, kreditlash amaliyoti, yalpi ichki mahsulot, tashqi iqtisodiy operatsiyalar, kredit portfeli.

Ключевые слова: коммерческие банки, экономика страны, инвестиционный проект, практика кредитования, валовой внутренний продукт, внешнеэкономические операции, кредитный портфель.

EMBRACING GENDER EQUALITY IN EDUCATION

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Summary: *This article examines the issues of gender equality in education. In particular, the importance of gender equality in education, key factors in promoting gender equality in education, the empowerment of girls, global initiatives to ensure gender equality in education.*

Key words: *gender equality, education, opportunities, poverty, early marriages, sexual violence, social, economic, development, global development.*

Introduction

The quest for gender equality in education is a global endeavor to promote equal access to quality education for all genders. This aim is rooted in the conviction that everyone, regardless of their gender, deserves the same educational opportunities. By acknowledging gender equality in education, societies can foster assertiveness, creativity, intellectual expansion, and social progress.

Unequal Education, Unequal Opportunities

Despite the progress made over the years, gender disparities in education persist. Many girls and women worldwide continue to face barriers that hinder their access to education. These obstacles range from traditional and cultural constraints, poverty, early marriages, sexual violence to inadequate sanitary facilities, among others. At the same time, gender stereotypes and biases also affect boys and young men, resulting in lower educational attainment and limiting their full potential.

The gender disparities in education not only achieve unjust realities but also impede social and economic development. Unequal education perpetuates the cycle of poverty, leads to increased vulnerability to exploitation and abuse, and contributes to lower economic productivity.

The Importance of Gender Equality in Education

Gender equality in education is critical because it offers numerous personal and societal benefits. By ensuring equal education opportunities, societies can unlock the potential of every individual.

Furthermore, education correlates directly with several measures of better health outcomes and increased income levels. For educated women, it also contributes significantly to delayed marriages and reduced family size.

Gender equality in education can also contribute to societal cohesion and resilience. Education is regarded as a magic bullet that can conquer a host of global development challenges, from reducing poverty and curbing child malnutrition to combating climate change and sustaining peace.

Gender Equality in Education – The Way Forward

Achieving gender equality in education relies on a multifaceted approach that dismantles both visible and hidden structural barriers in the system. This requires community efforts, policy revisions, and international cooperation.

To begin with, policymakers need to adopt a gender-responsive approach to education. This means considering the distinctive needs and constraints of all genders during policy planning, implementation, monitoring, and evaluation. This includes promoting a safe and inclusive learning environment that respects and values diversity, is free of violence, and encourages the full participation of every student.

Furthermore, investing in the teaching workforce and educating them about gender biases is another important strategy. Teachers play a fundamental role in either perpetuating or challenging gender stereotypes, so it is essential they receive comprehensive gender-sensitive training.

Moreover, experts argue for the need to make curricula and learning materials gender-responsive. This can be done by eliminating stereotypes, including more examples of female and male characters in non-traditional roles, and promoting messages of equality.

Innovation and Partnership: Key Drivers in Promoting Gender Equality in Education

Beyond policy and curriculum changes, embracing innovative strategies can play a crucial role in achieving gender equality in education. This could involve leveraging technology to make education more accessible for all, regardless of gender. For example, e-learning platforms can provide a safe and convenient avenue for girls and women who might be affected by issues like domestic responsibilities, long traveling distances to schools or personal safety.

Moreover, fostering partnerships is another effective way of addressing gender inequality in education. Collaborations between governments, non-governmental organizations, international bodies, and the private sector can catalyze the required change. Such partnerships can bring together various skills, resources, and global perspectives, creating sustainable solutions to address gender inequality in education.

Community engagement is also vital in this push towards equality. By involving parents, community leaders, and even students in the planning and execution of education programs, the community ownership and acceptance of the programs can increase. This can also help in challenging and changing harmful cultural norms and practices that perpetuate gender inequality.

Empowering Girls: A Pathway to Gender Equality

While it is important to note that boys also face gender-related challenges in education, girls are often disproportionately affected. Thus, it is important to address issues specifically affecting girls' education as part of promoting gender equality.

Empowering girls through education plays a transformative role in breaking the cycle of poverty and violence. Educated girls are less likely to marry early and more likely to have healthy and educated children. They are also more likely to gain the skills required for employment, become leaders within their communities, and drive positive social change.

Measuring Progress Towards Equality

While advancing towards gender equality in education, tracking progress is vital. By monitoring gender-specific data related to enrollment, retention, achievement, and graduation rates, policymakers and educators can identify where challenges and disparities lie. Measuring progress supports accountability, informs policy and practice, and ensures transparency.

Global Initiatives: A Boost for Gender Equality in Education

In the last few decades, several global initiatives have propelled the agenda of gender equality in education to the forefront of international development.

The United Nations' Sustainable Development Goals (SDGs), specifically Goal 4 and 5, aim to achieve inclusive and quality education for all and to promote gender equality, respectively. The Education 2030 Framework for Action explicitly mentions gender equality in education as a key principle and objective.

The UNESCO's Global Partnership for Girls' and Women's Education, known as the 'Better Life, Better Future' initiative, is another ground-breaking project focusing on girls and women's empowerment through quality education.

Similarly, the Global Partnership for Education (GPE) has a gender equality policy and strategy. Its vision is to ensure that all education systems are gender-responsive to engender equitable, inclusive societies.

Various organizations like Malala Fund, Girl Rising, and Plan International also work towards promoting girls' education and gender equality worldwide.

The Challenges Involved: Leaning Towards the Solution

Yet, despite international commitments and progress, many challenges persist in achieving gender equality in education. For many low and middle-income countries, limited resources pose a

significant hurdle. Providing quality education often requires substantial investment in infrastructure, teacher training, curriculum development, and more.

Meanwhile, socio-cultural biases and beliefs about gender roles often restrict women and girls' access to education. Challenges related to security, especially in conflict-prone areas, and health issues, including menstrual hygiene management, hinder girls' school attendance.

These obstacles to gender equality in education can be tackled with tailored interventions that account for these specific contexts and challenges. Support from international donors, cooperation with local communities, and open dialogue on social norms can aid in overcoming these hurdles.

Moreover, addressing gender equality in education means not only fulfilling the minimum requirements of schooling but also ensuring quality, considerate education. It means each child receives an education that caters to their emotional, intellectual, and social development while preparing them for an evolving, varied job market.

Conclusion

While the path to achieving gender equality in education is complex, it serves as the foundation for building a better future—a future where everyone is offered the same opportunities, where potential is realized, and where no one is left behind because of their gender. The more societies ensure equalities in educational opportunities, the more forward strides can be taken in social, economic, and political sectors. Ultimately, it promises a society anchored in justice, fairness, and respect for all.

To make the dream of a just and inclusive society a reality, it is essential to nurture gender equality in education. This commitment should go beyond policies and statistical reports. It should be seen, heard, and felt in schools, homes, and communities worldwide. Only then can education effectively liberate minds, transform lives, and shape the future for the better, irrespective of gender.

Achieving gender equality in education is no small task; it requires concerted efforts, innovative strategies, and global collaboration. However, the rewards of such an endeavor far outweigh the challenges. With equal education, we can build societies where every individual, regardless of their gender, can realize their potential, contributing to a healthier, more prosperous, and just world. The vision for gender equality in education is clear, and the solutions are within reach. It is up to us to grab hold of them and make them a reality.

Rezyume: *Ushbu maqolada ta'limdagi gender tengligi masalalari ko'rib chiqiladi. Xususan, ta'limda gender tengligining ahamiyati, ta'limda gender tengligini targ'ib qilishning asosiy omillari, qiz bolalarning imkoniyatlarini kengaytirish, ta'limda gender tengligini ta'minlash bo'yicha global tashabbuslar.*

Резюме: *В этой статье рассматриваются вопросы гендерного равенства в образовании. В частности, важность гендерного равенства в образовании, ключевые факторы продвижения гендерного равенства в образовании, расширение прав и возможностей девочек, глобальные инициативы для обеспечения гендерного равенства в образовании.*

Kalit so'zlar: *gender tenglik, ta'lim, imkoniyatlar, qashshoqlik, erta nikoh, jinsiy zo'ravonlik, ijtimoiy, iqtisodiy, rivojlanish, global rivojlanish.*

Ключевые слова: *гендерное равенство, образование, возможности, бедность, ранние браки, сексуальное насилие, социальное, экономическое, развитие, глобальное развитие.*

COMPOSITION AND DYNAMICS OF CREDITS PROVIDED BY COMMERCIAL BANKS TO THE SERVICES SECTOR

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Summary: *The service sector plays an important role in the sustainable development of Uzbekistan's economy. Therefore, financial support by commercial banks through lending to business entities in the service sector, especially enterprises operating in household, educational, medical, information and communication and other popular areas, is one of the urgent tasks. This article analyzes the composition and dynamics of loans issued by commercial banks to the service sector, in particular, scientific and theoretical views on improving the practice of lending in the service sector, the share of loans in the assets of commercial banks, the sectoral structure of loans issued, the level of problem loans, as well as loans issued to the service sector by leading commercial banks, the amount of reserves for coverage of possible losses and the level of profitability.*

Key words: *credit, service sector, resource, reserve, profitability level, industry structure, credit line.*

INTRODUCTION

In Uzbekistan, special attention is being paid to the development of the service sector in the new stage of economic development. In this regard, the implementation of the presidential decrees, such as the Decree No. PQ-5113 dated May 11, 2021, "On Urgent Measures to Further Develop the Service Sector," Decree No. PQ-4752 dated June 16, 2020, "On Measures to Support and Strengthen the Service Sector," and Decree No. PQ-104 dated January 27, 2022, "On Additional Measures to Develop the Service Sector," aims to ensure rapid growth in the service sector, promote entrepreneurship, and create new job opportunities for the population.

Particularly, these measures focus on enhancing the country's economic prosperity, fully utilizing existing opportunities for service provision in various locations, expanding and improving the quality of service types, and further supporting entrepreneurial entities. The Decree No. PQ-5113 from May 11, 2021, titled "Purposeful Parameters for the Development of the Service Sector in the Republic of Uzbekistan," has been approved to set goals and monitor their implementation.

As a result of implementing the Service Sector Development Program in Uzbekistan from 2021 to 2023, the volume of service provision increased by approximately 20% in 2021. According to statistical agency data as of January 1, 2023, out of a total of 392.8 thousand active companies and organizations in the service sector, 66.3% were engaged in service provision. Small business entities accounted for 82.9% of the overall number of companies and organizations operating in the service sector. In the January-December months of 2022, small businesses contributed 48.4% to the success of market services.

The diversification of activities within the service sector contributes to the overall economic development and efficiency of production, playing a crucial role in evaluating the economic situation in Uzbekistan. The service sector encompasses international corporations, banks, airlines, computer centers, telecommunications, insurance, legal and consulting firms, as well as state and non-governmental organizations, including supervisory bodies.

LITERATURE ANALYSIS ON THE TOPIC

Issues related to the completion of the credit operations of commercial banks, especially the finalization of credit operations in the service sector, have been thoroughly researched by foreign economists such as E. Altman, P. Andrikopoulos, R. Barsky, A. Khorosghani, S. Bayer, I. Wiland, O. Blanchard, J. Sinkey, D. Furceri, A. Pescatori, R. Caballero, A. Krishnamurthy, D. Fantazzini, O. Lavrushin, F. Mishkin, N. Tkach, E. Brovkina, A. Burova, G. Penikas, S. Popova, and others.

Uzbek economists, including Sh. Abdullaev, B. Berdiyarov, D. Saidov, J. Isakov, F. Dodiiev, Sh. Mirziyoyev, J. Majidov, F. Holmamatov, and others, have conducted theoretical and practical research on the theoretical and practical aspects of credit in the field of services.

According to the views of V. Kayukov and A. Kayukov, strengthening the resource base of commercial banks is essential to optimize the mechanism of credit provision in the service sector. They emphasize the importance of ensuring the adequacy of the volume and maturity of the assets and liabilities of banks according to their credit needs for the development of the credit mechanism in the service sector.[4] According to V. Kayukov and A. Kayukov, this conclusion holds significant practical importance for banks in our country because the issue of strengthening the resource base is relevant for commercial banks.

According to the official statistics of the Central Bank of the Republic of Uzbekistan, as of January 1, 2023, the share of resources allocated by commercial banks for the issuance of valuable papers in the total volume of mandatory reserves amounted to about 2.3%.[5] This indicates an insufficient strengthening of the resource base of banks. The reason for this is that the funds received from the sale of valuable papers, obtained by commercial banks in economically developed countries, significantly affect the volume of their liabilities. For example, as of January 1, 2022, the volume of liabilities for funds received from the sale of valuable papers at Bank of America (USA) accounted for 30.3% of the total liabilities.[6]

According to O. Lavrushin, short-term credit for legal entities, which has been widely developed within the framework of a credit line, has several advantages for corporate clients. This includes exclusive access for legal entities, consideration only for large corporations, constant need for short-term resources for borrowers, the presence of the main current account of borrowers in the bank providing the credit, and credit provided only to financially stable clients.[7] According to O. Lavrushin, this conclusion is of practical importance for our country's banks operating in the service sector, as it emphasizes the need for commercial banks to allocate an independent credit line to corporations in the service sector and emphasizes the limited use of credit through the opening of credit lines.

The analysis of economic theorists suggests that the development of the service sector is closely related to various factors such as service evaluation, return on capital, investment potential, state budget, and the level of social services. According to economic theorists, the development of services in the service sector is influenced by numerous factors such as service evaluation, return on capital, investment potential, state budget, and the level of social services.

RESEARCH METHODOLOGY

In the course of scientific research, this article utilizes scientific methods such as abstract-logical, systematic analysis, synthesis, as well as analytic and comparative analysis, based on the importance of commercial banks' credit support in financing services. The identification and solution of issues are grounded in scientific observations, and proposals are presented on the basis of the nature of problem resolutions. Various methods, including analytical analysis, comparative analysis, and statistical data analysis, have been applied to analyze problems and provide scientifically based recommendations.

The scientific works of foreign and local economists on the significance of credit operations of commercial banks in financial support for services, particularly in the completion of credit operations in the service sector, have been studied. The research includes analyses of issues in the works of both foreign and local economists such as E. Altman, P. Andrikopoulos, R. Barsky, A. Khorosghani, S. Bayer, I. Wiland, O. Blanchard, J. Sinkey, D. Furceri, A. Pescatori, R. Caballero, A. Krishnamurthy, D. Fantazzini, O. Lavrushin, F. Mishkin, N. Tkach, E. Brovkina, A. Burova, G. Penikas, S. Popova, Sh. Abdullaev, B. Berdiyarov, D. Saidov, J. Isakov, F. Dodiiev, Sh. Mirziyoyev, J. Majidov, F. Holmamatov, and others.

The official reports of the Central Bank of the Republic of Uzbekistan, as well as analytical materials and research conducted by international rating agencies such as Ernst&Young, Thompson Reuters, Blossom, and others, have been used as reliable sources of information. The information obtained from these sources is analyzed using various scientific methods, contributing to the identification and solution of issues related to the importance of credit operations of commercial banks in financing services.

In summary, the research methodology involves a combination of abstract-logical reasoning, systematic analysis, synthesis, analytical and comparative analysis, and statistical data analysis, drawing from the works of both foreign and local economists and utilizing official reports and research materials from reputable international rating agencies.

ANALYSIS AND CONCLUSION

The financial provision of short-term and long-term credits by commercial banks is considered a crucial source for financing the expenses related to the development of the national economy. The efficient financial means for ensuring the smoothness of corporate activities come through short-term credits, while the reliable financial source for the technical and technological restructuring of businesses is found in their long-term investment credits.

Short-term credits provided by commercial banks serve as a vital financial tool for maintaining the continuity and efficiency of corporate operations. On the other hand, the significance of long-term investment credits lies in their role as a reliable financial resource for the technical and technological rejuvenation and restructuring of businesses.

In conclusion, the provision of credits by commercial banks is instrumental in fostering the economic development of the nation. Short-term credits ensure the ongoing operations of businesses, while long-term investment credits play a key role in the technical and technological revitalization of enterprises.

According to the information presented in Table 1, it can be observed that the assets of commercial banks in our republic are predominantly comprised of loans. Now, let's evaluate the sectoral composition of loans (Table 2).

2-table

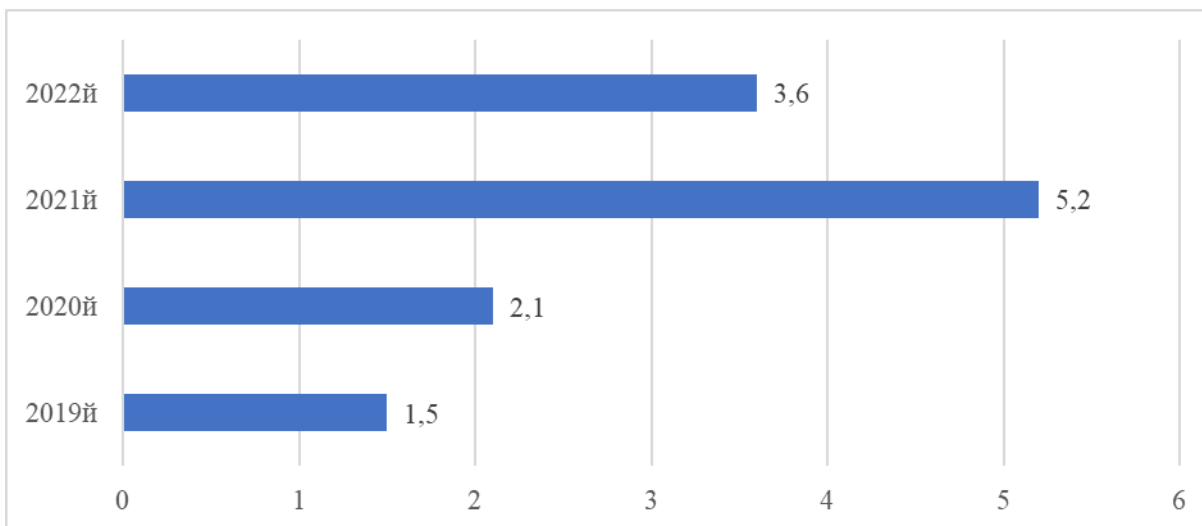
The sectoral composition of loans by commercial banks in the Republic of Uzbekistan, in percentage [5].

Sector	2018	2019	2020	2021	2022
Industry	39,8	35,7	36,9	36,0	32,5
Agriculture	5,6	8,1	10,1	10,7	10,8
Construction	3,5	2,8	2,7	2,8	2,7
Trade and General Services	6,4	6,8	7,2	8,4	7,4
Transport and Communication	12,5	11,1	9,6	8,8	7,6
Material and Technical Supply	1,6	1,5	1,4	1,2	1,0
Housing and Utilities	1,1	1,2	1,4	0,7	0,5
Individuals	14,6	18,9	19,8	21,3	25,9
Other Sectors	14,8	13,7	10,9	10,0	11,7
Loans - Total	100,0	100,0	100,0	100,0	100,0

The 2nd table indicates that in the structure of loans granted by commercial banks of the Republic of Uzbekistan from 2018 to 2022, the highest share has been allocated to the industrial sector. According to the data, the second position in the distribution of loans goes to the agricultural sector (loans allocated to individuals are included in this category). This suggests that the state has pursued a policy aimed at developing agriculture, considering it as one of the key sectors of the national economy and prioritizing rural development. The analysis of the structure of loans in the agricultural sector

during the given period indicates that credits allocated to material-technical supply and housing and communal services have dominated.

In summary, the high proportion of problematic loans in the credit portfolio of banks in our republic has a negative impact on the creditworthiness of commercial banks, as shown in Figure 1



1st figure. The percentage of problematic loans in the total volume of loans granted by commercial banks of the Republic of Uzbekistan, as of December 31 of each financial year [5].

The 1st figure indicates that the total volume of problematic loans granted by commercial banks in our country has been showing an increasing trend from 2019 to 2021, but in 2022, it decreased by 1.6 percentage points compared to 2021.

As of January 1, 2022, the outstanding amount of loans extended by banks amounted to 88.4 trillion UZS, of which 73.9 trillion UZS (84%) corresponds to legal entities and 14.5 trillion UZS (16%) to individuals. About 12.8% or 11 trillion UZS of this outstanding amount is related to problematic (substandard) loans, and 13.1% or 12 trillion UZS represents loans with a potential delay of more than 30 days, which were postponed in 2021 year-end. In total, the maturity of extended loans increased by 27% (88 trillion UZS) as of the end of 2021, and some banks have shown significant growth in this indicator compared to the average. Specifically, People's Bank has 42%, Turonbank and Uzsanoatqurilishbank have 41%, Qishloq Qurilish Bank and Asakabank have 38% each.

3-table

The credits provided for services at "Asaka Bank" and their profitability rate [8].

Indicators:	2017	2018	2019	2020	2021	2022
Amount of credits provided for services, billion UZS	11 548	17802	16 526	23 279	26 615	24 706
Profitability rate of credits provided for services, %	6,8	14,0	7,0	7,0	8,0	8,9

The information from table 3 shows that in Asaka Bank, the amount of loans provided for services has been increasing from 2017 to 2022, but in 2022, it has slightly decreased compared to 2021. This indicates a decline in the efficiency of loans provided for services in the credit portfolio. Furthermore, the profitability rate of loans provided for services in Asaka Bank has increased by 2.1 percentage points in 2022 compared to 2017.

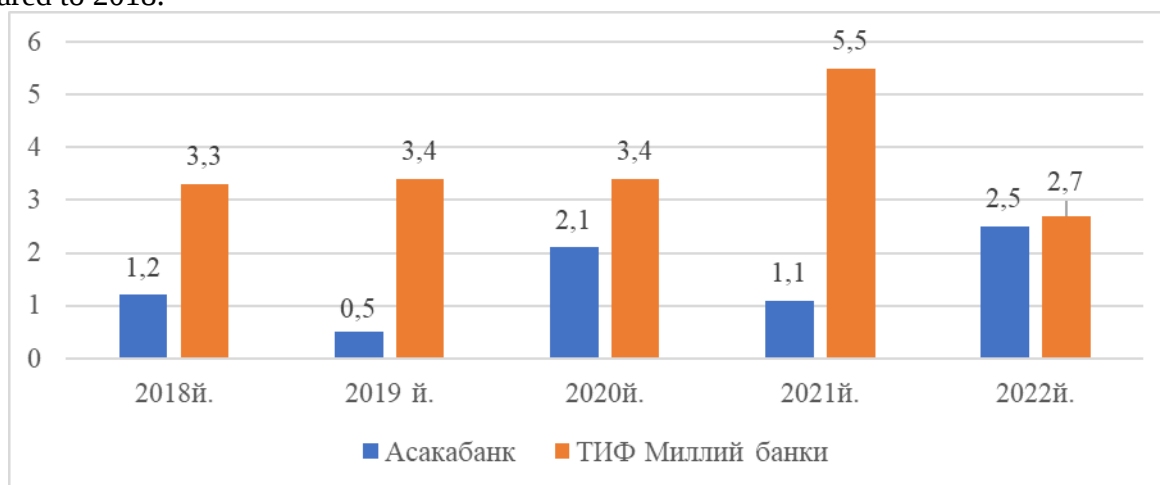
The regional breakdown of loans provided for services in "TIF Milliy Bank" demonstrates that in 2021-2022, primarily in Tashkent city and Samarkand region, loans allocated for services constitute 74.1-78.8% of the total allocated loans. This can be attributed to the fact that the Bank's main office is located in Tashkent city, and loans allocated for services are directly related to the city's development (the urban share in 2022 is 30.3%, while it was 38.8% in 2021), explaining the decrease.

4-table

Loans provided for services in "TIF Milliy Bank" AJ and their profitability rate [9].

Indicators:	2018	2019	2020.	2021	2022
Loans provided for services, billion soums	10 344	15 071	20 809	21 967	28 181
Profitability rate of loans provided for services, %	14,6	15,4	16,1	16,3	19,4

4th table. According to the information from Table 4, the amount of loans provided for services in TIF National Bank has shown an increasing trend from 2018 to 2022. Moreover, the profitability rate of loans provided for services in TIF National Bank increased by 4.8 percentage points in 2022 compared to 2018.



2nd figure. The rate of provision for loan losses for services in Asaka Bank and TIF National Bank [8]

The rate of provision for loan losses for services in Asaka Bank increased by 1.3 percentage points in 2022 compared to 2018.

For TIF National Bank, the provision for loan losses for services showed an increasing trend from 2018 to 2021. However, this indicator decreased significantly by 0.6 percentage points in 2022 compared to 2018. This suggests a positive situation in improving the credit operation efficiency of companies in the service sector.

It is noteworthy that the expansion of the lending opportunities in the service sector by commercial banks is evaluated based on the bank's resource base and the liquidity and solvency of companies in the service sector. The following table provides information on the dynamics of TIF National Bank's resource base.

5-table

The composition and dynamics of the resource base of TIF National Bank

Indicators	2018	2019	2020	2021	2022	The change from 2018 to 2022
Term deposits, billion UZS	3 287	6 515	1 089	10 227	11 696	3,6 марта
Funds received from other banks, billion UZS	37 792	35 307	42 420	43 563	43 297	114,6 %
Regulatory capital, billion UZS	5 722	13 141	13 873	14 768	16 377	2,9 марта

According to Table 5, the amount of "TIFF National Bank" JSC's long-term deposits has shown an increasing trend from 2020 to 2022. Moreover, the amount of long-term deposits in 2022 has significantly risen compared to 2018 (by 3.6 times). The amount of long-term deposits in "TIFF National Bank" JSC increased by 66.9% in 2020 compared to 2018. The credits received by "TIFF National Bank" JSC from other banks increased by 14.6% in 2022 compared to 2018 and by 12.2% in 2020 compared to 2018. This indicates an increase in the amount of foreign loans obtained during this period.

The regulatory capital amount of "TIFF National Bank" JSC has also followed an increasing trend from 2018 to 2022. The regulatory capital amount in 2022 has risen significantly compared to 2018 (by 2.9 times as of March 2.9). This reflects positively on the bank's resource provision for credit operations. Since regulatory capital is considered a stable source of financing, this development is considered favorable for improving the financial stability of the bank. This, in turn, is related to the creditworthiness of companies in the service sector, enhancing their ability to repay loans.

6-table

The composition of classified loans in "Microcreditbank" JSC by percentage [10]

	2017	2018	2019	2020	2021
Standard loans	92,03	87,20	84,83	86,91	92,03
Substandard loans	6,75	12,19	11,29	9,84	3,14
Non-performing loans	0,73	0,29	1,51	0,67	3,19
Doubtful loans	0,44	0,18	1,38	1,04	0,81
Hopeless loans	0,05	0,14	0,99	1,54	0,83
Total	100	100	100	100	100

According to the information in table 6, it is evident that the composition of classified loans of Microcreditbank deteriorated significantly from 2017 to 2021. In other words, in 2021, the volume of classified loans in the classified loan composition increased considerably compared to 2017. Additionally, during this period, the volume of classified loans, especially non-performing and doubtful loans, increased in the classified loan composition.

The diversification level of Microcreditbank's loan portfolio is low. In 2021, according to the year-end, only 48.0% of Turonbank's loans directly went to corporate clients in the service sector. Additionally, loans for agriculture constituted a significant portion of Turonbank's loan portfolio, accounting for 29.4% in 2021.

7-table

"In Microcreditbank JSC, the amount and extent of provisions formed to cover losses from loans [10]."

	2017	2018	2019.	2020 .	2021 .
"The amount of provisions formed to cover losses from loans, billion Uzbekistani so'm."	1,1	6.3	12,1	22,3	83,1
"The ratio of provisions formed to cover losses from loans to gross assets (%)."	0,1	0,2	0,2	0,3	0,8

The data in Table 7 illustrates that there has been a growing trend in the ratio of losses incurred from credits to gross assets at Microcreditbank from 2017 to 2021. This indicates a correlation between the composition of classified loans and the worsening of the situation in terms of losses.

The deterioration of the composition of classified loans contributes to the accumulation of losses incurred from credits. This, in turn, adversely affects the profitability of loans and leads to a decrease in the amount of net income.

Currently, Uzbekistan's commercial banks predominantly utilize revolving credit lines when extending credits to corporate entities in the service sector. The unique advantage of these credits lies in their long-term utilization, accompanied by a one-time formalization.

This practice enables borrowers to benefit from the extended usability of the credit, providing a distinct advantage over other credit forms.

SUMMARY AND RECOMMENDATIONS

The analysis of the credit issuance operations in the field of services by the commercial banks of the Republic of Uzbekistan reveals several key points:

- The assets of commercial banks in the Republic of Uzbekistan are predominantly composed of high-volume credits.

- The credit structure of Uzbekistan's commercial banks indicates a notable increase in credits allocated to the industrial sector between 2018 and 2022.

- Despite a general upward trend in the total volume of credits provided by commercial banks from 2019 to 2021, a slight decline of 1.6 percentage points is observed in 2022 compared to 2021.

The high interest rates on credit facilities provided by commercial banks significantly contribute to enhancing the utilization rate of these credits by entities in the service provision sector.

To further stimulate the development of the service sector, the following measures are recommended:

- Implementation of strategies to create a competitive environment in the service sector, thereby enhancing the demand for services and expanding the range of services offered.

- Establishment of conditions facilitating a stable level of investment in the service sector for entities, ensuring the sustainability of their operations.

- Creation of favorable conditions through the expansion of state budget expenditures and reduction of tax rates to meet the payment demand of entities using financial services.

- Strengthening the resource base of commercial banks to facilitate the growth of the credit issuance process in the service sector, aligning with the volume and maturity of assets and liabilities.

It is crucial to address the highlighted issues for the successful completion of the credit issuance operations in the service sector by commercial banks.

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Rezyume: O'zbekiston iqtisodiyotining barqaror rivojlanishida xizmat ko'rsatish sohasi muhim o'rin tutadi. Shu bois tijorat banklari tomonidan xizmat ko'rsatish va servis sohasi, ayniqsa, maishiy, ta'lim, tibbiyot, axborot-kommunikatsiya va boshqa ommabop sohalarda faoliyat yuritayotgan korxonalarni kreditlash orqali moliyaviy qo'llab-quvvatlash dolzarb vazifalardan biridir. Ushbu maqolada tijorat banklari tomonidan xizmat ko'rsatish sohasiga ajratilayotgan kreditlarning tarkibi va dinamikasi, xususan, xizmat ko'rsatish sohasida kreditlash amaliyotini takomillashtirishga oid ilmiy-nazariy qarashlar, kreditlarning tijorat banklari aktivlaridagi ulushi, tarmoq tuzilmasi tahlil qilinadi. berilgan kreditlar, muammoli kreditlar darajasi, shuningdek, xizmat ko'rsatish sohasiga yetakchi tijorat banklari tomonidan berilgan kreditlar, yuzaga kelishi mumkin bo'lgan yo'qotishlarni qoplash uchun rezervlar miqdori va rentabellik darajasi.

Резюме: Сектор услуг играет важную роль в устойчивом развитии экономики Узбекистана. Поэтому финансовая поддержка коммерческими банками посредством кредитования хозяйствующих субъектов в сфере услуг, особенно предприятий, работающих в бытовой, образовательной, медицинской, информационно-коммуникационной и других востребованных сферах, является одной из актуальных задач. В данной статье анализируется состав и динамика кредитов, выданных коммерческими банками сфере услуг, в частности, научно-теоретические взгляды на совершенствование практики кредитования в сфере услуг, доля кредитов в активах коммерческих банков, отраслевая структура выданных кредитов, уровень проблемных кредитов, а также кредиты, выданные сектору услуг ведущими коммерческими банками, размер резервов на покрытие возможных убытков и уровень доходности.

Kalit so'zlar: kredit, xizmat ko'rsatish sohasi, resurs, zaxira, rentabellik darajasi, tarmoq tarkibi, kredit liniyasi.

Ключевые слова: кредит, сектор услуг, ресурс, резерв, уровень доходности, отраслевая структура, кредитная линия.

THE ROLE OF BANK LOANS IN FINANCING AGRICULTURAL TECHNOLOGY IN AGRICULTURAL ENTERPRISES

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Summary: *The paper presents the analysis of existing problems of financing agro-technologies in agriculture. The mechanisms for solving the problems of financing agro-technologies through commercial bank loans are named.*

Key words: *agriculture, innovation, agro-technology, commercial banking, lending, financing, bank risk, marketing, modernization.*

Log in

One of the most important long-term goals of most countries in the world is to increase the efficiency of production in the agricultural sector and their sustainable economic growth, reduce unemployment and increase employment rates, stable prices and increase incomes of the country's population. In the context of modern globalization, these goals can be achieved by investing in new agricultural techniques and technologies, introducing new agricultural techniques and technologies in new forms of organization of management, service, production and labour in all branches of agriculture.

In our republic, a system of financing of agricultural enterprises and their financial support from the state has been established. At the moment, it is worth noting that our republic faces acute problems in terms of enhancing the role of digital technologies in financing agricultural producers. In particular, the modern agro-technological basis for lending to agricultural producers by commercial banks has not been sufficiently developed.

Today, at a time when the digital economy is developing in the world, much attention is being paid to such issues as researching the provision of banking services using modern technologies. This direction is about introducing modern integrated information systems for efficient management of banking services, ensuring transparency and protection of system data, using digital technologies, and improving the methodology for efficient implementation of mutual information integration of information systems. among the main trends. The extensive development of digital technology and innovation requires commercial banks to improve their information service systems.

The development of banking services in Uzbekistan, in particular the issue of introducing new types of banking services with extensive use of information and communication technologies, is relevant today. In particular, digital technologies are widely used to improve the services provided by commercial banks to agricultural producers. Because new competitors in the market have become a threat to older financial institutions of all sizes. At the same time, new agro-technologies offer great opportunities in the banking market.

Presidential Decree No. PF-4947 of 7 February 2017 "On the Action Strategy for the Further Development of the Republic of Uzbekistan", the highest priority tasks to be implemented under the "From the Action Strategy to the Development Strategy" of 6 November 2021, PC- of 23 March⁹ 2018. This article serves, to a certain extent, to implement the important tasks specified in Resolutions No. 3620 "On additional measures to increase the popularity of banking services" and other normative legal documents related to this area.

⁹"In the form of an infographic based on the speech by the newly elected President of the Republic of Uzbekistan, Mirziyoyev, at a joint session of the Oliy Majlis chambers dedicated to the inauguration ceremony". <https://mdo.uz/wp-content/uploads/2021/11/risola.pdf>

Today, as a result of economic reforms related to the modernization of economic sectors, the creation of new industries, agricultural and technological re-equipment, as well as the implementation of promising projects, the need for financial resources of enterprises operating in the agricultural sector is increasing. At the same time, there is a high need for commercial banks to allocate long-term loans for the implementation of new innovative technologies in production, so identifying and managing risks associated with long-term loans and investments in commercial banks is one of the relevant issues. Today it is necessary to increase the activity of commercial banks in the development of the agrarian sectors of the country economy, i.e. in the introduction of innovative technologies in the agricultural sector.

Literature analysis on the topic

Economist N. Simonyants as investment activities of commercial banks "financing investment projects through loans and shares of universal and specialized commercial banks, organization and placement of securities on the primary market, asset management, investment company management, execution of real estate operations, consulting and analysis and recognises broker-dealer oriented activities".

The study conducted by A. Naryana found that risk management processes in the investment activities of commercial banks are carried out in the following stages: identification and analysis of the nature of risk; risk assessment and calculation of losses; development of recommendations for risk management, risk reduction through the authority of officials involved in risk management; control over the preparation of reports on risk management in accordance with established criteria and rules, obtaining income depending on the level of risk (high risk

Economist O. I. Lavrushin believes that banks are the special "blood vessel" of the economy, without which it is impossible to imagine the modern economic mechanism. It is emphasized that the money of various economic entities, state-owned enterprises and foreign investors circulate in this system.

O.V.Savvina conducted research on international financial organizations and their role in the economy, and V.A.Slepova and E.A.Zvonova conducted research on international financial markets. Local economists S.S. Gulomov, I.I. Alimov, A. Khusanboev and O. Y. Rashidov researched banks, their lending procedures and improvement of their activities. D. Ismailov in his study about further improvement of methods of financing investments of commercial banks by reducing risks, "as the implementation of high-tech projects based on scientific innovations and discoveries usually has a high level of risks, and also because the demand for In our country the level of venture capital financing is high, and this risky way of investment is not developed: "To solve the problem positively it is necessary to actively attract foreign venture capital funds".

The financing of agricultural producers as a system has been scientifically investigated by foreign and Uzbek economists and relevant scientific-theoretical and practical conclusions have been formed.

According to research by O. Yastrebova and A. Subbotin, the unstable financial situation of agricultural enterprises and the low level of solvency prevent them from increasing their use of financial services from credit institutions, including microfinance services.

In our opinion, the above conclusion is of great practical importance for the practice in Uzbekistan. We believe that the unstable financial condition of agricultural enterprises and farms in our republic and the low level of solvency do not allow them to increase the use of financial services and microfinance services of banks.

In the studies by I. Petrenko and P. Chuzhinov, due to a number of specific features of agriculture (natural and climatic conditions, duration of the production cycle), the agricultural credit market cannot function continuously. This, in turn, creates a problem for the state to control this sector. Undoubtedly, agriculture needs active financial support from the state in the form of direct subsidies and soft loans. However, it is also worth noting that state lending to agriculture often fails to produce

the expected results, the repayment rates of such loans remain low, and financial institutions remain observers of the financial resources in these processes. It is known that the limited public funds allocated to agriculture cannot meet the credit needs of the agricultural sector.

C. people's analysis shows that the process by which banks grant long-term investment loans to farms and their interest rates should be regulated by the state.

K. Toshmatov researched the issue of bank lending to agriculture and, based on his research, came to the following conclusion: "creating an effective system for lending working capital and fixed assets needed by farms to grow agricultural products other than cotton and grain crops grown for state needs, and gradually - it is necessary to transfer farms that receive loans from the settlement fund for purchased for state needs agricultural products to preferential loans

But at present, farms secure their profitability through soft loans from public funds. In addition, commercial banks do not have the cheap resources necessary to provide soft loans.

The term digital economy, digital agro-technology has also been defined by a number of local economists. For example, Umarov (2018) - "The digital economy is a system of implementing economic, social and cultural relations based on the use of digital technology. Sometimes it is also expressed by the terms internet economy, new economy or web economy.

In our view, the digital economy, digital agribusiness is not a separate activity. It is, in fact, a business, an industrial facility, a service. The term 'digital' refers to the active use of information technology in all these areas. Whereas in the conventional economy the main resource is considered material goods, in the digital economy it will be information and data which can be processed and transmitted. After analysing them, the right management decision is made.

Today, innovative technologies in the context of economic knowledge formation are considered to be the main factor that ensures economic growth. Hence, we can conclude that the more active and intensive innovation and technological activity in the region, the higher the level of economic development. It is well known that it is very difficult to achieve this objective, especially in the long term, without supporting and implementing innovative changes.

It is worth emphasising the need to develop measures to stimulate innovative agro-technological activities at all levels, only in this way can certain results be achieved in the sphere of innovation and technological activities. G. H. Rozikova stated that "creation of optimal conditions for innovation development will allow to carry out modernization of technological base and radically increase competitiveness of the national economy".

Research methodology

In the research process, methods of expert judgement, induction and deduction, and economic and statistical analysis were used.

Analysis and results

The ongoing reforms to modernise agricultural production in our republic require not only updating the agricultural techniques and technological processes used in the enterprises of this area, but also an innovative approach to the organisation of management and accounting. The number of enterprises and organisations producing innovative products, works and services increased by 7.5 times from 2013 to 2021, from 289 to 2171. In particular, the number of agricultural enterprises that have mastered the production of innovative products, works and services for the first time has increased by 1,010.

The practice of financing agricultural producers is characterised by a number of characteristics. These characteristics are primarily related to the characteristics of the agricultural sector. In turn, the following characteristics characteristic of the agricultural sector can be highlighted:

- slow turnover of capital;
- the field's dependence on the weather;
- the occurrence of natural disasters such as flooding, hail, hail and drought;
- relatively low investment attractiveness;

the fact that the level of profitability is low, etc.

The above features create a need for state financial support in the process of financing agricultural producers, including the provision of financial services to them.

The financing of agricultural producers is the second important feature of the scheme, which is the small amount of financial services available to them. For example, in the US, the 504 scheme provides long-term loans of 10 to 20 years for the purchase of real estate, farm equipment and machinery to agricultural producers. The amount of this loan is 1 million dollars.

A similar situation can be observed in the practice of the Republic of Uzbekistan.

In 2013, innovative technologies in agriculture were mainly financed from the organisation's own funds (69.7%). Since 2017, the contribution from other funds has increased (55.4%). In 2021, we see that the organisation's funding from its own funds has increased by 16.4 times compared to 2013.

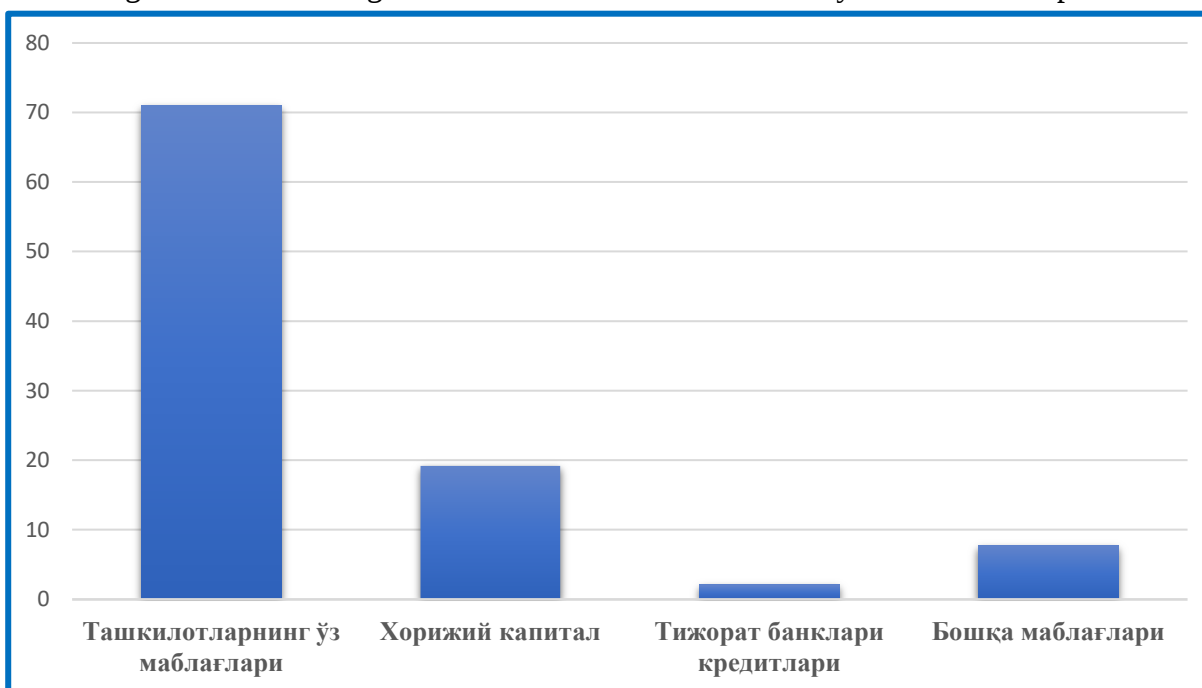


Figure 1: Sources of financing innovative technologies, in percentages¹⁰

In 2021, 71.0% (2,956.0 billion UZS) of the expenditure on technological, marketing and organizational innovations will be financed by the organization's own resources, 19.2% (799.1 billion UZS) by foreign capital, 2.1% (88.4 billion UZS) by commercial banks. In addition, 7.7% (UZS 318.8 billion) will be financed from other sources (Figure 1).

As can be seen from the above analytical data, funds for the introduction of new machinery and technologies in enterprise production are mainly financed from the enterprises' own funds, which leads to a decrease in the amount of profit of the founders of the enterprise. enterprise, i.e. the owners (shareholders). This situation can lead to some reduction of citizens' interest in starting agricultural enterprises. On this subject the economist A. Smith said: "Everyone tries to use his capital in such a way that it brings greater value. He usually has no intention of influencing the public good and is not aware of how much he is influencing it. He cares only for his own benefit, he cares only for his own profit. however, under such circumstances, an invisible slave guides him towards a goal, even if such a goal is not his intention. Instead of consciously serving society, he acts in his own interest and serves it more." Taking this idea into account, we can think that the citizens in society will try to get more profit from the money spent on setting up a company. therefore, it is advisable to distribute as much of the profit made by companies during the year as possible to the owners of the shares, and to carry out the

¹⁰ <https://stat.uz/uploads/docs/innovatsiya2021uz.pdf>

process of modernising companies, i.e. through the investment activities of commercial banks in introducing innovative technologies into production.

Digital technologies are changing the face and structure of the economy, undermining traditional business models, increasing competition and competitiveness of individual businesses and the country as a whole, and expanding markets and opportunities. This can be illustrated by a report by Mc Kinsey Global Institute (2015), which shows that the share of traditional flows of goods, services and commodities in global GDP has declined from 53% in 2007 to 39% in 2014 after the last 20 years. years of growth. Cross-border data exchange increased 45 times between 2005 and 2014. Since 2014, about 12 per cent of global trade in goods is conducted through international e-commerce.

According to The Boston Consulting Group (2016), the high level of e-commerce development in China attracts attention. With China's e-commerce turnover at \$18 billion, Chinese consumers will spend about \$750 billion on online purchases over that period, more than the US and the UK combined. Overall, the country's share of international e-commerce was 39.2 per cent by the end of 2016, according to China's Ministry of Commerce. Meanwhile, according to the country's 2016-2020 network development programme, e-commerce stands at 5.8 trillion over five years. US dollars. McKinsey & Company (2016) estimates that by 2025 digital technology will increase China's GDP by 22 per cent and Russia's by 34 per cent. By 2025, the expected cost of creating digital technology in the US could reach \$1.6-2.2 trillion.

The role and importance of digital technologies in global development are increasing every year. In particular, the widespread application of technological transformation processes in the financial sector improves the efficiency of banking systems, payment transactions, lending and other similar services. Such technologies that improve and optimise financial services are financial technologies called "Fintech".

One of the distinctive features of their financing is the increasing role of individual banks in providing microfinance services to agricultural producers. Rosselkhozbank in Russia, Agrobank and Mikrokreditbank in Uzbekistan, and Raiffeisenbank in Germany are the main providers of financial services to agricultural producers.

Characteristically, Rosselkhozbank will bonanise both the principal amount and the interest rate of loans extended to agricultural producers. On the other hand, Germany's Raiffeisenbank subsidises only the interest rate on loans to farmers.

The need to refinance loans to agricultural producers is due to the fact that other banks are not interested in lending to agriculture because of their low level of solvency.

More than 70 per cent of loans to agricultural producers in Russia belong to two banks, Rosselkhozbank and Sberbank. It is also clear that other commercial banks are not interested in lending to agricultural producers.

The object of the Bank's agricultural technology financing activities are investment projects related to the diversification or modernisation of production at enterprises in the real sector of the economy, the expansion of production or the improvement of production safety, as well as the acquisition of additional production capacity. It should be noted that employees of the State Statistics Committee of the Republic of Uzbekistan conduct surveys of enterprises on innovation activities once a year. Based on the results of these surveys, it has become known that the following problems hinder the development of innovative activities of small industrial enterprises.

First, insufficient funds for the purchase of modern, expensive machinery in small agricultural enterprises, low demand for products and the high cost of innovative technology.

Secondly, the organization of innovative infrastructures, the creation of innovative technological products, research, patenting and implementation into production requires a lot of money.

Thirdly, innovative technologies take a long time to pay off, insufficient marketing and management, and lack of information about new technologies.

To overcome the above problems, it is advisable to use loans from commercial banks to financially support innovative technologies. The sources of capital investment in the area of innovative technologies can be various: state structures, commercial banks, international firms and organizations, individuals, etc. The most favorable means for developing innovative technology activities are targeted loans from banks and other specialized financial organizations, as these funds are provided on preferential terms. Also, the main source of investment technology is the company's own funds, which are part of profits and depreciation charges. These funds are directly dependent on the efficient operation of agricultural enterprises.

One of the above-mentioned problems is the long-term coverage of funds spent on innovative technologies, which means that investment loans from commercial banks should also be allocated for the long term. To date, one of the problems of commercial banks negatively affecting the potential to provide investment loans is the lack of long-term resources to the extent of resources in the national currency in commercial banks in our country.

If we look at the term loans of commercial banks in Uzbekistan, we can see that the share of long-term loans in the total loan portfolio of commercial banks is quite high. In 2014, long-term loans accounted for more than 87 per cent of the total loan portfolio, and by 2021 we may see it rise to 90 per cent. These resources largely serve as the main source of modernization of the country's strategic industries and financial support for agricultural enterprises. If we observe the analysis of loans issued in national and foreign currency in commercial banks of our country, we will see that the share of loans issued in foreign currency in the structure of total credit deposits has increased by more than 50 percent due to liberalization of the national currency policy during 2021 these figures are much higher than those of CIS countries, which in turn may lead to increased risk of non-performing loans and problem loans (Table 1).

Table 1

Commercial bank loans by maturity in the Republic of Uzbekistan¹¹

Years	2014	2015	2016	2017	2018	2019	2020	2021
Judging by the amounts, trillion								
Individual loans	34,5	42,7	53,4	110,6	167,4	210,1	275,3	324,7
By maturity, (short-term) trillion SUM								
Short term	4,49	12,11	4,29	4,76	8,67	17,95	28,24	33,3
Of these, as a percentage								
In national currency	60,96	67,76	57,21	37,74	44,13	64,6	59,8	50,4
In foreign currency	39,04	32,24	42,79	62,26	55,87	35,4	40,2	49,6
By maturity, (long-term) trillion SUM								
Long-term	30,01	30,59	49,11	105,84	158,73	192,15	247,06	291,4
Of these, as a percentage								
In national currency	59,75	65,52	58,12	42,14	48,51	98,7	121,6	49,4
In foreign currency	40,25	34,48	41,88	57,86	51,49	93,4	125,4	50,6

Based on a study of scientific and theoretical perspectives on the financing of agricultural enterprises:

¹¹ Source: <http://cbu.uz/> - prepared by the author based on information from the official website of the Central Bank of the Republic of Uzbekistan.

First, of great practical importance for our republic is the conclusion that the financial condition of agricultural enterprises is unstable and that the low level of solvency makes it difficult for them to increase their use of financial services, including the financial services of credit institutions;

Secondly, the limited access of agricultural enterprises to financial services makes state intervention in this process necessary;

Thirdly, the mismatch between the rising prices of agricultural products and the logistics and services provided to the network leads to a worsening of their material situation;

Fourthly, due to the lack of cheap resources required for concessional loans from commercial banks in order to establish rural credit cooperatives, production enterprises and firms specializing in the processing of agricultural products, the bonification of interest rates on investment loans provided by banks (interest rates on loans provided by the state (scientific theoretical views (such as subsidies) take on a practical significance).

The coexistence of Uzbekistan's commercial banks with global banks paves the way for increased integration and globalisation processes. On the one hand, the development of integration processes requires the use of modern ICT and, on the other hand, has led to business transformation. The study of these processes from an economic and political perspective and scientific conclusions are the dictates of the times. The digital economy and technology are the main drivers of corruption and the black economy. Because numbers seal everything, store everything, quickly provide information when needed. In such an environment it is impossible to hide any information, to make secret transactions, to not provide full information about an activity, the computer will reveal everything. Abundant and systematic information prevents lying and fraudulent activities, because it is impossible to cheat the system. As a result, there is no way to launder "dirty money", steal funds, use them inefficiently and purposelessly, multiply them or hide them. That is why we believe that the role of digital technology in financing agricultural enterprises is important.

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Rezyume: Maqolada qishloq xo'jaligida agrotexnologiyalarni moliyalashtirishning mavjud muammolari tahlili berilgan. Agrotexnologiyalarni tijorat banklari kreditlari hisobidan moliyalashtirish muammolarini hal etish mexanizmlari nomlari keltirilgan.

Резюме: В статье представлен анализ существующих проблем финансирования агротехнологий в сельском хозяйстве. Приведены названия механизмов решения проблем финансирования агротехнологий за счет кредитов коммерческих банков.

Ключевые слова: сельское хозяйство, инновации, агротехнологии, коммерческий банкинг, кредитование, финансирование, банковский риск, маркетинг, модернизация.

Kalit so'zlar: qishloq xo'jaligi, innovatsiya, agrotexnologiya, tijorat banki, kreditlash, moliyalashtirish, bank riski, marketing, modernizatsiya.

INTEGRATION OF MODERN INFORMATION SYSTEMS IN THE AUDIT OF BUDGET ORGANIZATIONS

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Summary: In modern audit practice, the use of information technology is becoming increasingly important. This study is aimed at analyzing the current state of the use of IT solutions in the audit of budgetary organizations, identifying the main advantages and disadvantages of this approach. The article discusses various aspects of technology integration: from staff training to data security issues. Case studies of the successful implementation of IT in audit procedures are also given. Based on the data obtained, recommendations were formulated for practitioners and researchers in the field of audit and IT. The results of the study can serve as a basis for further improvement of the process of integrating information systems into the audit of budgetary organizations and improving the quality of audit services.

Key words: information technology, audit, budget organizations, integration, case study, data security, audit practice, IT advantages, IT disadvantages, staff training.

Introduction

An audit in budgetary organizations is a systematic process of review and evaluation of financial activities in order to determine their compliance with established legal and regulatory requirements. Budgetary organizations function at the expense of the state or municipal budget, which makes the issue of their transparency and efficient use of budgetary resources especially relevant.

The main task of an audit in such organizations is to provide stakeholders (government bodies, taxpayers, partners, etc.) with reliable information on how budget funds are used and distributed, as well as on the implementation of plans and programs. The urgency of the problem of auditing budgetary organizations stems from the need to ensure state control over the targeted and efficient use of public funds. In recent years, public pressure has increased on state and municipal structures in terms of increasing transparency and responsibility. In this context, the improvement of audit mechanisms becomes not only desirable, but also an urgent requirement of the time. However, given the rapid development of information technology and changing requirements for accounting and reporting processes, existing audit approaches need to be adapted. The introduction of modern information systems can be one of the key solutions to this problem, speeding up and optimizing audit procedures and improving their quality.

Table 1. Review of modern information systems used in audit.¹²

System name	Main functions	Advantages	Flaws
<i>AuditSoft</i>	Automation of planning and auditing processes	Intuitive interface, versatility	High license cost
<i>IDEA</i>	Big data analysis, modeling	Flexibility of customization, integration with various databases	Requires certain skills to use
<i>ACL Analytics</i>	Data analysis, risk monitoring	Ability to automate checks, data visualization	Interface complexity
<i>Caseware IDEA</i>	Audit, financial analysis	Ease of use, wide functionality	Limited integration options
<i>TeamMate+</i>	Audit management, procedure automation	Cloud solutions, mobile version, scalability	Subscription cost

From the presented table, the following conclusions can be drawn:

1. **Functional Variety:** The information systems under consideration have a variety of functionalities, from automating standard audit procedures (for example, AuditSoft) to complex analysis of large amounts of data (IDEA and ACL Analytics).

¹²Created by the author

2. **Price:** Some of the systems in question have a high license or subscription cost, which can be an obstacle for small and medium-sized audit companies (for example, AuditSoft and TeamMate+).

3. **Difficulty of use:** While some systems emphasize ease of use and an intuitive interface (eg Caseware IDEA), others require certain skills and knowledge to be effective (IDEA).

4. **Cloud technologies and mobility:** Modern requirements for mobility and data availability dictate the need to implement cloud solutions. For example, TeamMate+ offers cloud solutions and mobile versions for user convenience.

5. **Integration:** The ability to integrate with other systems and databases is very important. Some systems (eg IDEA) provide flexible integration options, while others are limited in this regard (Caseware IDEA).

The purpose of the article: to explore the possibilities and identify the benefits of integrating modern information systems into the audit of budgetary organizations in order to optimize and improve the efficiency of audit activities. The main objectives of the study:

- Analyze the current state of the use of information systems in the audit of budgetary organizations.
- To identify the potential advantages and disadvantages of various information systems in terms of their application in budgetary organizations.
- To study the basic requirements for information systems when conducting an audit in budgetary organizations.
- Consider practical cases of successful implementation and use of information systems in the audit procedures of budgetary organizations.
- Formulate recommendations on the selection and implementation of information systems in the audit of budgetary organizations, taking into account the specifics of their activities.

Materials and methods

- **Analysis:** It was used to analyze the current state of the use of information systems in the audit of budgetary organizations.
- **Synthesis:** It was used to combine various data and conclusions in an integral research image.
- **Comparative method:** The main application is when comparing various information systems and evaluating their advantages and disadvantages.
- **Statistical method:** Used to process and interpret data obtained from surveys and interviews.

Data sources:

- The practice of audit in various budgetary organizations is analyzed.
- Surveys and interviews were conducted with auditors and IT specialists to gain a deep understanding of the subject matter and identify key trends.

Software and tools:

- Tools such as Microsoft Excel and Tableau were used to analyze and visualize the data.
- Qualtrics software was used to process the results of surveys and interviews

In modern literature, the question of how digital transformation affects the audit of budgetary organizations is actively discussed. Ivanov (2018) pays attention to the integration of digital technologies, emphasizing their role in strengthening the transparency and efficiency of audit processes. In turn, Petrova (2019) understands the prospects for using blockchain technologies in audit, considering their potential impact on improving the reliability of audits. Significant attention is paid to the use of artificial intelligence in audit activities, and in this context, the work of Sidorov (2020) provides a valuable contribution, highlighting the possibilities of automating and improving audit processes thanks to AI. Smirnov (2017) draws attention to the benefits and risks of using cloud technologies, emphasizing the importance of data security. Ethical issues related to the implementation of automated systems are addressed by Volkova (2018), who highlights potential challenges for the professional community. The assessment of risks associated with the use of new technologies in audit

practice is presented in the study by Zaitsev (2017). Kuznetsov (2019) explores big data analytics and their role in modern auditing. Morozova (2020) highlights the importance of educating auditors to a new generation, emphasizing the need to master digital skills. Gorodova (2018) and Nikolaev (2019) offer a discussion of data protection issues and fundamental changes in the role of the auditor in the context of digital transformation, respectively. which highlights potential challenges for the professional community. The assessment of risks associated with the use of new technologies in audit practice is presented in the study by Zaitsev (2017). Kuznetsov (2019) explores big data analytics and their role in modern auditing. Morozova (2020) highlights the importance of educating auditors to a new generation, emphasizing the need to master digital skills. Gorodova (2018) and Nikolaev (2019) offer a discussion of data protection issues and fundamental changes in the role of the auditor in the context of digital transformation, respectively. Morozova (2020) highlights the importance of educating auditors to a new generation, emphasizing the need to master digital skills. Gorodova (2018) and Nikolaev (2019) offer a discussion of data protection issues and fundamental changes in the role of the auditor in the context of digital transformation, respectively. Morozova (2020) highlights the importance of educating auditors to a new generation, emphasizing the need to master digital skills. Gorodova (2018) and Nikolaev (2019) offer a discussion of data protection issues and fundamental changes in the role of the auditor in the context of digital transformation, respectively.

Results

The use of information systems in the audit of budgetary organizations today is becoming increasingly important and is becoming an almost integral part of the audit activity. Information systems greatly facilitate the process of collecting, processing and analyzing data, making the audit more efficient and providing a high degree of automation.

The main advantage of using information systems is the ability to quickly access large amounts of data and perform complex analytical operations in a short time. This allows auditors to focus on interpreting data and making recommendations rather than on routine information processing.

However, with the development of information technology, the level of complexity of systems is also growing, which requires auditors to constantly update their knowledge and skills. In addition, the use of information systems in auditing increases the risks associated with data security, which requires audit organizations to implement appropriate measures to protect them.

Modern audit information systems can be integrated with other corporate systems of a budgetary organization, such as ERP or CRM, providing a single source of audit data. Also, many systems provide opportunities for using artificial intelligence and machine learning for data analysis, which makes the audit process even more advanced.

Table 2

Advantages and disadvantages of using IT solutions in audit practice.

Criterion	Advantages	Flaws
Data processing	Automation allows you to process large amounts of information quickly and efficiently.	Dependence on the correctness of the initial data.
Accuracy	Reducing the human factor reduces the likelihood of errors.	The need for periodic verification of the correct functioning of the system.
Analytics	Ability to use artificial intelligence algorithms for deep data analysis.	Difficulty in interpreting the results without sufficient qualifications.
Integration	Sharing data from various sources such as ERP and CRM.	Risks associated with the incompatibility of various systems or their obsolescence.

Data access	Instant and remote access to information.	Security issues in remote access.
Training and adaptation	User interfaces and tutorials make learning the system easier.	The need for constant learning due to rapidly changing technologies.
Expenses	Long-term time and resource savings through automation.	High initial investment for the acquisition, implementation and support of IT solutions.
Technical support	Quick resolution of emerging problems thanks to qualified technical support.	Dependence on the solution provider and possible downtime in case of failures.
Relevance of technologies	Continuous system updates ensure compliance with the latest standards and requirements.	The risk of rapid obsolescence of technologies and the need to update them regularly.

Based on this analysis, it can be concluded that the introduction of IT solutions into audit practice brings many benefits, especially in terms of efficiency and accuracy of work.

Discussion

Given technological progress and digital transformation, the integration of IT solutions into audit practice is becoming not only desirable, but also necessary. Modern research in the field of audit confirms the growing interest in the use of IT technologies to improve the efficiency and accuracy of audit procedures. According to a number of studies, the use of artificial intelligence, blockchain and cloud solutions provides greater accuracy in identifying anomalies and inconsistencies in financial reporting. These technologies enable deeper data analysis that would be virtually impossible without automation. However, along with the advantages, there are certain difficulties. For example, integrating new IT systems requires significant investment, staff training, and overcoming technical challenges.

Possible reasons for the active introduction of IT in auditing may include the desire of audit firms to increase their competitiveness in the market, as well as the constant increase in the amount of data that needs to be analyzed. To further improve the process of integrating IT solutions into the audit of budgetary organizations, it is recommended:

1. To carry out continuous training and advanced training of audit personnel in the field of IT.
2. Develop and implement standards and methodologies adapted for the use of IT solutions in audit practice.
3. Assess the risks associated with the use of certain IT technologies and develop measures to minimize them.
4. Form partnerships with IT companies to develop customized solutions best suited to audit needs.

Thus, the integration of IT technologies in the audit of budgetary organizations is an urgent and promising task that requires a comprehensive and thoughtful approach.

Conclusion

Based on the study, a number of key conclusions can be drawn:

1. **Relevance of IT application in audit:** Given the constant growth in data volumes and the complexity of financial transactions, the integration of information technology into audit practice is becoming an integral part of modern auditing. IT solutions can significantly improve the quality, speed and depth of analysis, making the audit process more reliable and efficient.

2. **Identified advantages and disadvantages:** While there are many benefits, such as process automation, improved data analytics, and enhanced security, there are some challenges associated with implementing IT solutions. These include the need for staff training, investment in hardware and software, and the risks of data security breaches.

3. **Successful examples of integration:** The given case studies demonstrate real examples of the effective use of IT solutions in audit procedures, confirming their relevance and potential for further development.

For practitioners in the field of audit and information technology, the results of the study should be considered as a starting point for further improvement and adaptation of IT solutions to specific needs and tasks. The importance of maintaining up-to-date IT knowledge and skills for auditors cannot be overstated given the dynamic evolution of the technology environment. For researchers, this topic

provides a rich field for further scientific developments, studying the impact of new technologies on audit processes, as well as the formation of methodological foundations for their implementation and adaptation. In general, the integration of information technology into audit practice is not only a relevant direction in the development of the profession, but also a necessity in the modern digital world.

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Rezyume: Zamonaviy audit amaliyotida axborot texnologiyalaridan foydalanish tobora muhim ahamiyat kasb etmoqda. Ushbu tadqiqot byudjet tashkilotlari faoliyatini tekshirishda IT-yechimlardan foydalanishning joriy holatini tahlil qilishga, ushbu yondashuvning asosiy afzalliklari va kamchiliklarini aniqlashga qaratilgan. Maqolada texnologiya integratsiyasining turli jihatlari muhokama qilinadi: xodimlarni o'qitishdan tortib ma'lumotlar xavfsizligi masalalarigacha. Shuningdek, auditorlik jarayonlarida AT ni muvaffaqiyatli qo'llash misollari keltirilgan. Olingan ma'lumotlar asosida audit va IT sohasidagi amaliyotchilar va tadqiqotchilar uchun tavsiyalar ishlab chiqildi. O'rganish natijalari axborot tizimlarini byudjet tashkilotlari auditiga integratsiyalash jarayonini yanada takomillashtirish va auditorlik xizmatlari sifatini oshirish uchun asos bo'lishi mumkin.

Резюме: Использование информационных технологий в современной аудиторской практике становится все более важным. Данное исследование направлено на анализ современного состояния использования ИТ-решений при мониторинге деятельности бюджетных организаций, выявление основных преимуществ и недостатков данного подхода. В статье рассматриваются различные аспекты интеграции технологий: от обучения сотрудников до вопросов безопасности данных. Также представлены примеры успешного использования ИТ в процессах аудита. На основе полученной информации были разработаны рекомендации для практиков и исследователей в области аудита и ИТ. Результаты исследования могут стать основой для дальнейшего совершенствования процесса интеграции информационных систем при аудите бюджетных организаций и повышения качества аудиторских услуг.

Kalit so'zlar: axborot texnologiyalari, audit, byudjet tashkilotlari, integratsiya, amaliy tadqiqotlar, ma'lumotlar xavfsizligi, audit amaliyoti, AT afzalliklari, AT kamchiliklari, xodimlarni o'qitish.

Ключевые слова: информационные технологии, аудит, бюджетные организации, интеграция, тематические исследования, безопасность данных, практика аудита, преимущества ИТ, недостатки ИТ, обучение сотрудников.

IMPROVEMENT OF METHODS FOR ASSESSING THE FINANCING OF INNOVATIVE DEVELOPMENTS OF THE ENTERPRISE IN THE CONDITIONS OF MODERNIZATION OF THE ECONOMY OF THE REPUBLIC OF UZBEKISTAN.

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Summary: *This article provides a comparative analysis of methods for assessing the financing of innovative developments of an enterprise. The focus is on understanding the advantages and disadvantages of different approaches and their application in a practical context.*

Keywords: *Financing of innovations, Evaluation methods, Innovative developments, Benchmarking.*

Introduction: Financing innovative developments is the focus of attention of modern researchers and business practitioners. This is due to the growing understanding of the importance of innovation as an important factor in the competitiveness and success of an enterprise in a modern globalized economy.

Methods for assessing the effectiveness of financing innovative developments can vary significantly depending on the goals of the analysis, the specifics of the innovative project and the data used. Among the most common approaches are discounted cash flow methods, which include internal rate of return (IRR), net present value (NPV), and the payback period of the project; risk-based methods (for example, the Monte Carlo method); and methods based on ratings and indices of innovative activity.

According to international statistical studies, global investment in innovation continues to grow. The United Nations Industrial Development Organization (UNIDO) notes that global investment in science and innovation exceeded \$1.7 trillion in 2022 alone.

However, despite significant investment, the effectiveness of innovation financing remains a challenge. According to the World Intellectual Property Organization (WIPO), most innovation projects fail to achieve commercial success, and a significant portion of investments in innovation remain unrewarded.

In this context, the choice of an appropriate method for assessing the effectiveness of financing innovative developments is a key issue affecting the success of an enterprise's innovative activities. This aspect makes scientific research of various approaches to assessing the effectiveness of innovation financing relevant and important.

Methodology: In our study, we used a mixed-methods approach that included both quantitative and qualitative methods of analysis. This allowed us to conduct a deep and comprehensive analysis of the issue of the effectiveness of financing innovative developments.

First, we conducted an extensive review of the scientific literature on the topic. Research articles in leading journals, books by renowned authors in the fields of innovation and finance, and reports from various research organizations and think tanks were reviewed. This allowed us to get an idea of the current state of research in this area and identify key methods for assessing the effectiveness of financing innovative developments.

Secondly, we applied quantitative methods to analyze the data available to us on innovation projects of various companies. This included statistical analysis and modeling that helped us evaluate the effectiveness of different financing methods and identify key factors influencing the success of innovation projects.

Finally, we used qualitative methods to gain an in-depth understanding of the complex processes involved in innovation financing. This included conducting interviews with experts in the

field, analyzing case studies of successful and unsuccessful innovation projects, and examining companies' innovation and financing strategies and policies.

Using such a mixed approach allowed us to achieve a more accurate and grounded understanding of the issue of the effectiveness of financing innovative developments and offer a number of recommendations for enterprises and organizations involved in innovative activities.

Results: As a result of the study, we identified a number of key methods for assessing the effectiveness of financing innovative developments in enterprises. For each method, its main advantages and disadvantages were identified.

Table 1

Comparative analysis of methods for assessing the financing of innovative developments of an enterprise

Assessment methods	Advantages	Flaws
<i>Discounted Cash Flows (DCF)</i>	Takes into account the time factor and cost of capital	Requires accurate forecasting of future cash flows
<i>Comparative analysis method</i>	Evaluation based on comparison with similar projects	Applicability limited by availability of data for comparison
<i>Real options</i>	Considers project management flexibility	Requires complex mathematical calculations
<i>Venture Capital Valuation Method</i>	Takes into account the specifics of innovative projects and the level of risk	Depends on the quality of the input data and the experience of the appraiser
<i>Scoring method</i>	Project assessment from different angles	Requires development and implementation of an assessment system

1. Discounted Cash Flows (DCF): This method takes into account the time factor and cost of capital. However, it requires accurate forecasting of future cash flows, which can be difficult for innovation projects with high levels of uncertainty.

2. Benchmarking Method: It allows you to evaluate a project based on comparison with similar projects or companies. But the applicability of this method is limited by the availability of data for comparison.

3. Real options: This method takes into account the flexibility of project management and allows you to estimate the value of the option to delay, expand or terminate the project. However, it requires complex mathematical calculations and special skills.

4. Venture capital evaluation method: It takes into account the specifics of innovative projects and the level of risk associated with them. However, it also depends on the quality of the input data and the experience of the evaluator.

5. Scoring method: This method is based on the use of various criteria and indicators that allow you to evaluate the project from different angles. But its application requires the development and implementation of an assessment system, as well as the availability of sufficient data for its use.

Thus, each of the considered methods has its own strengths and weaknesses, and the choice of a specific method should be determined by the specifics of the project, the availability of data and the level of competence of the evaluator.

Global investment in innovation has increased significantly over recent decades. According to a report by the World Intellectual Property Organization, global investment in research and development (R&D) has increased from \$1.7 trillion in 2010 to approximately \$2.2 trillion in 2021

Table 2

Global investment in research and development (R&D): dynamics

2010 – 2021 years

Year	Global Investments
------	--------------------

	in R&D (trillions of dollars)
2010	1,7
2011	1,8
2012	1,9
2013	1,95
2014	2
2015	2,05
2016	2,1
2017	2,15
2018	2,2
2019	2,25
2020	2,3
2021	2,35

Analysis of this table confirms the trend of increasing global investment in research and development (R&D) over the past ten years. The rise in investment reflects increased recognition of the importance of innovation for economic growth and competitiveness. Note that this growth was quite uniform, which indicates the stability of this trend.

Analysis:

Innovation potential is a key parameter through which one can assess the company's current capabilities and future development prospects. That is, all areas of a company's innovative activities can be implemented only if it has innovative potential. In the scientific community of different countries, the term "innovative potential" is interpreted differently. It consists of three aspects:

- resource
- internal
- effective.[1]

In order to effectively use a PPI, it is necessary to assess its current status and capabilities, and researchers have developed a number of methods to do this. All of them have their advantages and disadvantages, which will be discussed below [2]. Despite the large number of studies on a given problem, it can be said that so far no single, universal methodology has been developed that would allow the most accurate, objective assessment of the innovative potential of an industrial enterprise. This is due to the fact that the self-concept of innovative potential is relatively new; there are contradictions regarding the issue of determining its content and structure. Most often there are definitions in which the emphasis is on the complex, complex structure of the concept. For example, B.K. Lisin and V.N. Fridlyanov [3] give the following definition: the innovative potential of an enterprise is a set of scientific, technical, technological, infrastructural, financial, legal, sociocultural and other opportunities to ensure the perception and implementation of innovations, that is, the receipt of innovations. B.A. Pateev [4] believes that the innovative potential of an enterprise is a set of information, technical and technological, intellectual, spatial, financial, organizational, managerial, legal and entrepreneurial resources that form a unified system of the emergence and development of ideas in it, ensuring the competitiveness of final products or services in accordance with the goals and strategies of the enterprise. However, some authors focus on individual components of the innovative potential of an industrial enterprise, developing an appropriate method for assessing it.

Conclusion and suggestions:

The results obtained during the study allow us to draw several important conclusions regarding methods for assessing the financing of innovative developments at an enterprise.

First of all, it is worth noting that different assessment methods offer different approaches to the analysis of innovative developments. Some methods are preferable when the risks and uncertainty associated with innovative projects need to be taken into account, while others are suitable for evaluating more mature and sustainable projects.

Secondly, the results of our study confirm the importance of investment in innovation for the long-term growth and competitiveness of an enterprise. The increase in global investment in research and development shown in our table demonstrates the growing recognition of this fact at the global level.

Third, our results highlight the importance of taking an integrated approach when evaluating innovative developments. For a more accurate assessment, it is necessary to take into account not only financial indicators, but also factors such as potential for commercialization, technological novelty, and the strategic importance of the project for the enterprise.

However, despite significant advances in this field, there remain areas requiring further research. In particular, it is necessary to study in more detail the influence of industry and market specifics on the choice of assessment method, as well as to develop more accurate tools for taking into account the risks associated with innovation activities.

The study of methods for assessing the financing of innovative developments of an enterprise is a relevant and significant task, the solution of which determines the success and efficiency of innovation activities.

During the study, a comparative analysis of various assessment methods, their advantages and disadvantages was carried out. The results obtained allow us to state that the choice of assessment method should be determined by the specifics of a particular innovative project, its stage of development, degree of risk and commercialization potential.

An important result of the study is confirmation of the hypothesis about the growing role of innovation in ensuring the competitiveness and long-term growth of enterprises. This is supported by statistics on the growth of global investment in research and development.

However, despite significant advances in this area, questions remain that require further research. In particular, a more detailed study of the influence of industry and market factors on the process of assessing innovative developments is required, as well as the development of new tools and methods for taking risks into account. So, the results obtained can be useful both for scientists involved in the problems of evaluating innovations and for practitioners involved in managing innovation activities in enterprises.

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Rezyume: Ushbu maqolada korxonaning innovatsion ishlanmalarini moliyalashtirishni baholash usullarining qiyosiy tahlili keltirilgan. Asosiy e'tibor turli yondashuvlarning afzalliklari va kamchiliklarini tushunish va ularni amaliy kontekstda qo'llashga qaratilgan.

Резюме: В данной статье проведен сравнительный анализ методов оценки финансирования инновационных разработок предприятия. Основное внимание уделено пониманию преимуществ и недостатков различных подходов и их приложения в практическом контексте.

Kalit soʻzlar: Innovatsiyalarni moliyalashtirish, Baholash usullari, Innovatsion ishlanmalar, Qiyosiy tahlil.

Ключевые слова: Финансирование инноваций, Методы оценки, Инновационные разработки, Сравнительный анализ.

THE NECESSITY FOR THE DEVELOPMENT OF THE ENTREPRENEURIAL AND INSURANCE SECTORS IN THE CONDITIONS OF MARKET COMPETITION IS DRIVEN BY THE UNDENIABLE RISKS OF UZBEKISTAN.

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Summary: *This article addresses the impact of insurance on the entrepreneurial sphere, emphasizing the impossibility of completely eliminating risks in entrepreneurial activities. It also highlights the importance of classifying types of insurance according to various characteristics for effective risk management. According to the researcher and other experts' opinions, the primary importance lies in the general classification, followed by a detailed breakdown based on sources of occurrence, reasons, and methods of risk prevention. In the conditions of a market economy, there is an emphasis on the intensification of competition in all sectors, necessitating the development of diverse insurance management methods. Accurate and comprehensive insurance classification provides the opportunity to choose optimal approaches to their management when making decisions about insurance, determining necessary sums, and tariffs.*

Furthermore, the article presents an analysis of the conditions under which entrepreneurial activity insurance develops in Uzbekistan, and relevant conclusions are drawn.

Key words: *Entrepreneurship, entrepreneurial risks, classification, classification of entrepreneurial risks, general classification, classification by sources of origin, classification by causes of occurrence, insurance of entrepreneurial risks.*

Globalization processes at the worldwide level are intensifying, expanding international relations in trade, tourism, investments, and other areas. The main part of these services is provided by entrepreneurial entities, leading to an increase in the share of small businesses and private entrepreneurship in the economy of Uzbekistan to more than 50 percent.

The renowned European economist Joseph Schumpeter (1883-1950) emphasized the pivotal role of entrepreneurship in economic development. He not only underscored the significance of the average income earned by entrepreneurs but also highlighted the importance of creating new combinations in reproduction. In this context, entrepreneurship is described as an "indispensable factor of socio-economic development."

Researchers focusing on entrepreneurship and its characteristics also highlight the presence of risks in this sphere. The first Russian economist, I.T. Pososhkov, who analyzed entrepreneurship and evaluated its impact on Russia's socio-economic development, referred to entrepreneurship as the "primary element of civic creativity and state strengthening."

Notable classical economists such as Adam Smith, David Ricardo, and Karl Marx recognized the entrepreneur as a key participant in capitalist production and acknowledged their role in extracting value from labor resources. Entrepreneurship plays a crucial role in the economy, contributing to the fundamental drivers of development.

When it comes to risk classification, the primary objective is to delineate the unique characteristics of each type of risk to achieve the desired outcome. Classification enables the determination of the nature of each type of risk rather than considering them in a general management framework.

In their book "Small Business and Entrepreneurship," scholars W. Umurzakov and A. Toshboev offer the following definition of entrepreneurship: it is the economic activity of owners or their representatives aimed at the production and distribution of goods and services with the goal of achieving socio-economic results.

A.P. Arkhipov, emphasizing the importance of risk management in entrepreneurship, points out errors in the production process (goods and services), losses of labor resources and time, as well as mistakes in the utilization of new production methods.

Ultimately, entrepreneurial activities are inevitably accompanied by risks. Risk represents the probability of events occurring that can impact the success of entrepreneurial activities, including the sale of products or services, loss of assets, bankruptcy, etc.

Undoubtedly, entrepreneurial activities are not without risks. However, with rational management of them, success in this field can be achieved. Globalization processes at the global level are intensifying, and international relations in trade, tourism, investments, and other areas are expanding. A significant portion of these services is provided by entrepreneurs, leading to an increase in the share of small businesses and private entrepreneurship in the economy of Uzbekistan to more than 50 percent.

1-table

Entrepreneurial risks	
1.	Risks associated with natural phenomena
2.	Production risks
3.	Trade and intermediary risks
4.	Financial risks
5.	Service-related risks
6.	Political and economic risks
7.	Risks associated with dishonest actions of third parties

We have conducted a classification of entrepreneurial risks based on the analysis of data obtained from entrepreneurs. This classification includes the following categories (see Table 1):

1. Natural disasters and their consequences, such as earthquakes, hurricanes, floods, fires, which can cause damage to property, health, and production activities.

2. Risks associated with the production process, including supply chain disruptions, market fluctuations, and other factors that can lead to production stagnation and revenue loss.

3. Trade and intermediary risks related to changes in market conditions or price reductions, which may result in losses and unsold goods.

4. Financial risks, including investment instability, currency exchange rate fluctuations, calculation errors, and other factors that may impact the company's financial condition.

5. Political and economic risks associated with political events, legislative changes, and other factors affecting business partners.

6. Risks associated with third-party actions, including various forms of negative impact such as theft, fraud, and breach of contractual obligations.

These risks require careful analysis and the development of strategies for their minimization and management. They represent potential threats to various aspects of entrepreneurial activities and can arise for various reasons.

2-table

Classification of risks associated with entrepreneurial activities.

Риски предпринимательской деятельности.	
Systematic risk	Natural risk, Political risk, Tax-related risk, Environmental risk, Inflation risk, Price risk, Interest rate risk, Currency risk, Deposit risk, Criminogenic risk
I. Risks of production and trading activities	I. Production; resources; trade; technical-organizational. II. Loss of financial stability; loss risks; inability to pay;

II. Risks of financial and investment activities	credit; bankruptcy; operational; investment; innovation.
Validity period	1) Retrospective risks 2) Current risks 3) Prospective risks
Probability of occurrence of damage..	1) Moderate risks 2) High level of risks
At a specific facility	1) Risk of individual operations, 2) Risks of various types of activities, 3) General risks of the enterprise..
In complex	1) Unambiguous risk. 2) Complex risk.
Financial consequences	1) Risks associated solely with economic losses. 2) Risks associated with a decrease in benefits. 3) Risks associated with financial losses and the loss of additional income.
Regarding time	1) Permanent 2) Temporary
Predicting capability	1) Risks subject to forecasting. 2) Risks not subject to forecasting.
Insurance possibility	1) Insurable risks 2) Non-insurable risks

* Based on the author's research

As of now, the economy of Uzbekistan is at a moderate level of development. In this regard, the risks associated with entrepreneurial activities can be expressed as follows:

1. Political stability in the country.
2. Division of powers between republican and local authorities.
3. State of customs control over the movement of capital and goods.
4. Changes in tax standards; changes in bank interest rates.
5. Changes in the currency sphere.
6. Regulation of foreign economic activity in the country.

Internal factors influencing risk in entrepreneurial activities include: low-quality management, errors in marketing activities, inefficient use of assets and capital, high risk with high profit, increased risk in lightning-fast operations, imperfect partner selection, and other aspects.

Risks in entrepreneurial activities can manifest in various situations, such as changes in the cost, quality, and reliability of goods, sales conditions, pre- and post-sales service levels, condition of fixed assets, capital turnover coverage, capital level, long-term and short-term borrowings, employee qualifications, and others.

When it comes to entrepreneurship risks, it is necessary to consider their various characteristics. Understanding the nature of a specific risk enables the identification of factors causing its occurrence. External risks of entrepreneurial activities relate to situations where the outcome of entrepreneurial activity depends on positive or negative event developments. These may include natural disasters, environmental risks, political risks, inflation risks, interest risks, currency risks, deposit risks, and criminogenic risks.

The development of entrepreneurship insurance in Uzbekistan is closely related to the level of economic development, the income level of the population, and the insurance culture. Therefore, the

development of this sector depends on the risks entrepreneurs are willing to take, as well as mandatory insurance in relation to types of insurance that hold significant importance in entrepreneurial activities.

Conclusions:

1. The concept of entrepreneurship has been clarified, and a definition of entrepreneurial activity has been provided.
2. The areas and subjects where entrepreneurial relationships arise have been explained.
3. A general classification of risks in entrepreneurial sphere has been conducted.
4. Each part of the general classification has been thoroughly examined.
5. A classification of sources and causes of entrepreneurial risks has been carried out, along with an analysis of their consequences.
6. The general classification of entrepreneurial risks was developed after completing the second stage of entrepreneurship classification.
7. Both external and internal factors that may lead to the emergence of risks have been identified.

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Rezyume: *Ushbu maqola sug'urtaning tadbirkorlik sohasiga ta'sirini ta'kidlab, tadbirkorlik faoliyatini amalga oshirishda risklarni to'liq bartaraf etishning iloji yo'qligini ta'kidlaydi. Shuningdek, risklarni samarali boshqarish uchun sug'urta turlarini turli belgilarga ko'ra tasniflash muhimligi qayd etilgan. Tadqiqotchi va boshqa mutaxassislarning fikriga ko'ra, umumiy tasnif katta ahamiyatga ega, undan keyin kirish manbalari, yuzaga kelish sabablari va xavflarni oldini olish usullariga qarab batafsil taqsimlanadi. Bozor iqtisodiyoti sharoitida barcha sohalarida raqobatning kuchayishi ta'kidlanadi, bu esa sug'urtani boshqarishning turli usullarini ishlab chiqishni talab qiladi. Sug'urtaning to'g'ri va to'liq tasnifi sug'urta to'g'risida qaror qabul qilishda, kerakli miqdorlar va tariflarni belgilashda ularni boshqarishning maqbul yondashuvlarini tanlash imkoniyatini beradi. Bundan tashqari, maqolada O'zbekistonda tadbirkorlik sug'urtasi qanday sharoitlarda rivojlanayotgani tahlil qilingan va tegishli xulosalar chiqarilgan.*

Резюме: *Данная статья освещает вопросы воздействия страхования на предпринимательскую сферу, подчеркивая невозможность полного исключения рисков при осуществлении предпринимательской деятельности. Также отмечается важность классификации видов страхования в соответствии с различными характеристиками для эффективного управления рисками. Согласно мнению исследователя и других экспертов, первостепенное значение имеет общая классификация, а затем подробная разбивка в зависимости от источников поступления, причин возникновения и методов предотвращения рисков. В условиях рыночной экономики подчеркивается усиление конкуренции во всех секторах, что требует разработки разнообразных методов управления страхованием. Точная и полная классификация страхования предоставляет возможность выбора оптимальных*

подходов к их управлению при принятии решений о страховании, определении необходимых сумм и тарифов.

Kalit so'zlar: Tadbirkorlik, tadbirkorlik, risklar, tasniflash, tadbirkorlik risklarini tasniflash, umumiy tasniflash, daromad manbalari bo'yicha tasniflash, yuzaga kelish sabablari bo'yicha tasniflash, tadbirkorlik risklarini sug'urtalash.

Ключевые слова Предпринимательство, предпринимательские, риски, классификация, классификация предпринимательских рисков, общая классификация, классификация по источникам поступления, классификация по причинам возникновения, Страхование предпринимательских рисков.

THE IMPORTANCE OF INFORMATION COMMUNICATION TECHNOLOGIES IN THE MANAGEMENT SYSTEM

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Summary: *This article provides information about the importance of information and communication technologies in the management system. Also, the results of ICT tools at the time of the development of technologies are also explained.*

Key words: *management system, information and communication technologies, ICT, digitalization.*

Globalization, the growth of international competition, technological and informational changes cause changes in the forms and concepts of public administration. It is based on the concept of governance, public administration and new public administration, global governance and good governance, digital technologies, etc. The document defines directions, mechanisms and deadlines for the formation of an effective electronic government system in Uzbekistan in order to satisfy the interests and needs of individuals and legal entities, to improve the state management system, to increase its competitiveness and to stimulate the socio-economic development of the country.

Information technology (IT) refers to the process of using a set of software and technical tools to collect, process, store, transmit and present information in order to obtain qualitatively new information, reduce the amount of work and increase the efficiency of the process of using information resources.

Economic information means a set of information that reflects the state of the economy and all its elements or determines its change and development. Economic information is an important part of management information, the main resource of organizational - economic management. Information processes are the processes of collecting, processing, accumulating, searching and distributing information. When working with information, there is always a source and its consumer. The ways and processes that ensure the delivery of information from the source to the consumer are called communication channels or information communications.

The introduction of ICT in public administration allows to increase the productivity of labor and the efficiency of public administration by accelerating the development of the economy, reducing expenditures on the public sector, and improving the interaction of state authorities and management bodies with citizens and business entities. The development of ICT in the field of politics creates the necessary material base for the development of an effective civil society. Because the spread of ICT within the country provides free access to and possession of information, as well as the active participation of all citizens in the state's political activities by establishing an unprecedented level of feedback with the population. Information and communication technologies will also fundamentally change the education system: in this field, the principle of lifelong learning will be actively applied. The increase in the level of use of various information databases, the introduction of distance education methods will equalize the opportunities for obtaining quality education for different population groups, thereby increasing the general level of literacy. The possibilities of implementing the idea of virtual universities will become a reality: in this case, every person living in rural areas far from the center can have a knowledge system in the mode of distance education. On a global scale, advanced ICTs allow the exchange of scientific and technical achievements, the transfer of specific knowledge from talented teachers or experienced specialists to an unlimited number of students. will be able to access huge layers of knowledge in real-time through contextual search and analysis procedures.

ICTs create a unique opportunity for small business and private entrepreneurship to increase labor productivity and legal literacy. The fact that citizens engaged in business or purchasing consumer

goods have access to information about market prices and product qualities through ICT helps them make rational business decisions and make effective consumer choices.

The analysis of the global information and communication market shows that ICT will become one of the main factors of economic growth in the conditions of globalization. ICT has a growing tendency in the formation of the main macroeconomic indicators. According to World Enterprise research, the ICT sector remains the main quality factor of GDP. Countries with this indicator in the range of 5-10% will have an "efficient economy", and if it is lower, it will be a factor economy. In recent years, many state and international organizations have set the implementation of the program and concept of transition to the information society as their priority.

In order to increase economic efficiency and transparency in the use of information technologies in public administration, general theoretical and special research methods are used, in particular, the dialectical method of scientific knowledge made it possible to observe modern trends. According to the UN Department of Economic and Social Affairs, e-government and technological innovations can create great opportunities for public administration to be a tool for sustainable development. In a broad sense, e-government can be seen as an example of the use and implementation of information technologies in public administration. E-government enables the integration of workflows to effectively manage information and data, increase public service delivery, and expand communication channels for citizens.

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Rezyume: *Ushbu maqolada boshqaruv tizimida axborot kommunikatsion texnologiyalarning ahamiyati haqida ma'lumotlar keltirilgan. Shuningdek, texnologiyalar rivojlanib borayotgan paytda AKT vositalari qanday natijalar berishi ham asoslab o'tilgan.*

Резюме: *В данной статье представлена информация о важности информационно-коммуникационных технологий в системе управления. Также обосновывается, какие результаты дают инструменты ИКТ по мере развития технологий.*

Kalit so'zlar: *boshqaruv tizimi, axborot kommunikatsion texnologiyalar, AKT, raqamlashtirish.*

Ключевые слова: *система управления, информационно-коммуникационные технологии, ИКТ, цифровизация.*

THE ROLE OF DIGITAL TECHNOLOGIES IN THE EFFECTIVE MANAGEMENT OF THE MATERIAL TECHNICAL RESOURCE BASE IN CORPORATE ENTERPRISES

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Summary: *This article describes the effectiveness of management of corporate enterprises, digitization of the economy, ways to increase the competitiveness of enterprises, and the issues of improving the organizational and economic mechanisms of management.*

Key words: *Digital technologies, digitization, corporate enterprise, management system.*

In the last three years, a lot of attention has been paid to the development of the digital economy in Uzbekistan, and significant work has been done to create its legal support. In particular, Presidential Decree No. PQ-3832 dated July 3, 2018 "On measures to develop the digital economy in the Republic of Uzbekistan", No. PQ 4699 dated April 28, 2020 "On measures for the wide introduction of digital economy and electronic government" decisions were made. In accordance with the aforementioned decisions, in 2023, the share of the digital economy in the country's gross domestic product is set to increase by 2 times, the volume of services in this field by 3 times, and their export to reach 100 million US dollars.

As a result of economic reforms in our republic, transparency, the development of international economic and political relations, the acceleration of the use of digital technologies in every field create opportunities for the modernization of enterprises and organizations operating in our country, technical and technological re-equipment within the requirements of the 21st century. It should be noted that today the digital economy is considered one of the main areas in creating added value. As a result of the ongoing reforms in the economic sectors, the processes monitored based on the influence of digital information are gaining the main decisive power in the strategic development of corporate enterprises. Examples of large international corporations such as "North Plains Systems Corporation", "Open Text Corporation", "Widen", "Net Xposure, Inc.", "Media Beacon, Inc.", "WebDAM" as global players in digital assets in the world possible. The popularization and improvement of digital technologies affects the development of production relations, the structure of the economy and education, and sets new requirements for communications, computing power, information systems and services. In modern conditions, without developed platforms, techniques and technologies, without institutional and infrastructural environments, it is inevitable that the dynamic development of markets and fields of activity will not take place.

Nowadays, there are different interpretations of the concept of "multi-economy". Scientist from Russia, M. L. According to Kalujsky, digital economy is the communication environment of economic activity on the Internet, as well as the form, method, voice and results of its implementation [1].

America futurist K. Kelley gives a more precise definition as follows: "Communication is just the economy of technology and communication, Communication is the economy itself" [2].

Academician Saidabror Gulomov describes the concept of multi-economy as a field of study of the economic activity of the economy, which aims to develop, distribute and consume the goods of society in Japan. used to express Secondly, the modern economy is the modern branch of development, which is defined by the combination of creative work and the bounty of the economy. Secondly, the complex economy is a self-serving phenomenon, and its target, the industrialized society, is called [3]. In the digital economy, information and information in digital reproduction is the key element of development in the socio-economic environment, and the gradual transition to such an economic system, the global competitiveness of our country will further improve the quality of life of the citizen, create new jobs, enable rapid economic growth and ensure national independence. The implementation of a multi-level economic policy in the Uzbek Republic allows us to achieve the following [4]:

- to completely eliminate the legal hurdles that prevent the development of new technologies in the process of creating a new regulatory legal framework;
- creation and development of a comprehensive economic information system, including information, information processing, technical and computer support in order to meet the needs of the times;
- to ensure comprehensive development and renewal of the education system;
- for the development of regional companies, enterprises, state enterprises and businesses in the country;
- to the emergence of many organizations in the complex economy.

In order to achieve efficiency in the management of a corporate enterprise, first of all, it is necessary to clearly define the goals of management, as well as the means and methods of achieving it. Production of high-quality and competitive products at the lowest cost ensures maximum profit and avoids crisis and is the main task of every enterprise. All tasks of management should serve this purpose. The efficiency of management is largely achieved by the interrelationship between the goals and tasks of the corporate enterprise. The need to increase the competitiveness of corporate enterprises is assessed based on the analysis of the trends and laws of their activity and the principles of strategic management. Since sustainability is the effectiveness of the corporate enterprise's activity, the implementation of its competitive potential, and competitiveness is the effective use of the enterprise's production capacity and the determination of the opportunity to sell competitive products, taking into account the combination of these concepts allows the enterprise to formulate an optimal strategy for increasing its competitiveness.

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Rezyume: *Ushbu maqolada korporativ korxonalarning boshqaruvi samaradorligi, iqtisodiyot sohasini raqamlashtirish, korxonalarning raqobatbardoshligini oshirish yo'llari hamda boshqaruvning tashkiliy-iqtisodiy mexanizmlarini takomillashtirish masalalari yoritib berilgan.*

Резюме: *В данной статье рассматриваются вопросы эффективности управления корпоративными предприятиями, цифровизации сферы экономики, путей повышения конкурентоспособности предприятий и совершенствования организационно-экономических механизмов управления.*

Kalit so'zlar: *Raqami texnologiyalar, raqamlashtirish, korporativ korxona, boshqaruv tizimi.*

Ключевые слова: *Цифровые технологии, цифровизация, корпоративное предприятие, система управления.*

WAYS OF IMPLEMENTING MODERN STANDARDS IN THE CORPORATE MANAGEMENT SYSTEM

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Summary: *The article discusses the nature, content, main tasks and methods of corporate management, and analyzes the relations in social life.*

Key words: *corporate governance, corporate enterprises, ownership relations, local government, authorities, community organizations.*

The President of the Republic of Uzbekistan, Sh. Mirziyoev, in the development of the Republic of Uzbekistan, in the "priorities of economic development and liberalization", one of the important tasks is to "introduce the principles and methods of modern standards of corporate management, to strengthen the role of shareholders in the strategic management of enterprises" in the processes of organizing the activities of joint-stock companies and organizing effective management. he said. Today, corporate management has become not only a modern philosophy of enterprise management, but also an important technology that ensures efficiency.

The purpose of corporate governance is to increase the attractiveness of investment and obtain the highest possible profit from all types of activities of open joint-stock companies within the framework of the current legislation, observing a reasonable balance of interests of all interested parties.[1]

It is appropriate to include the following in the tasks of corporate management:

- protection of rights and interests of shareholders;
- increase the investment attractiveness of joint-stock companies;
- accumulation of long-term economic value through share price growth;
- determine the development strategy of the society and control its implementation;
- It consists of approving business plans of joint-stock companies and controlling their implementation and solving other important issues of activity.

The research works of S.S.Gulyamov, D.N.Rahimova, N.M.Rasulov, M.S.Saidov, D.Kh, Suyunov, among the economists of our republic, are aimed at creating the scientific-theoretical basis of corporate management processes. In their scientific researches, transformation of property forms, perfecting of corporate management models, issues in the process of development of shareholding enterprises were expressed.[2] In particular, in the researches of A.A. Khashimov, special attention is paid to the scientific and methodological aspects of the development of management of corporate structures in the conditions of expropriation and privatization of property. R.I. Yaushev's scientific research is devoted to the problems of integrated corporate structures and management of enterprises with state participation in the founder's capital. M.B. Khamidulin reflected on the development of the stock market, the role and importance of the Supervisory Board in joint-stock companies. In Uzbekistan, the issues of privatization of joint-stock companies are reflected in the scientific researches of scientists such as B.Yu. Khodiev, B.B. Berkinov. The modern characteristics of corporate governance are very broad in nature, simultaneously embodying various functions in organizations, including management, finance, accounting, business law, business ethics and economics. Also, corporate governance covers aspects such as accountability, transparency, disclosure, social responsibility, honesty (integrity) and relations between governing bodies, shareholders and stakeholders. In addition, these characteristics define the procedures, policies, methods and structural structures for effective management and control of organizations. Due to the wide range of nature of corporate governance, there is no single universally accepted term for it.[4]

Today, in the conditions of corporate management, there are factors that enable relatively effective implementation of modernization processes:

1. The ability to collect and mobilize large amounts of financial resources required for the implementation of modernization processes.
2. Using the internal production and technological connections of the corporate structure in the gradual replacement of outdated equipment and technology with modern, new production tools.
3. The breadth of diversification opportunities in corporate structures with multi-stage technological processes of finished product production.
4. Supplying production with modern techniques and technologies and financing scientific laboratories and experimental design works that create new types of management methods and the breadth of possibilities to ensure their activities, etc.

There are different views and approaches to the mechanism of corporate governance. In particular, D. Suyunov, one of the well-known scientists in the field of corporate management in our country, believes that the mechanism of corporate management is a set of elements that activate socio-economic, legal and organizational relations necessary to achieve the set goal of the entities that are part of the corporate property.[5] According to the author T.Dolgopyatova, corporate management mechanisms are aimed at ensuring the realization of ownership rights in the conditions of transition to a market economy and forming certain structures of corporate control. Scientists of the European Institute of International Management D. Denis and J. McConnell divided the mechanisms of corporate governance into internal and external, the internal mechanisms of corporate governance work through the board of directors and the ownership structure, and its external mechanisms are the external market of corporate control (market of mergers and acquisitions) and the legal system of the country states that it is related to We consider it appropriate to implement the following in order to improve the efficiency of the corporate management system in Uzbekistan:

First of all, in addition to the independent evaluation of the corporate governance system, to develop the criteria for evaluating the effectiveness of the supervisory board's activity and, based on them, to strengthen the requirements for the implementation of the practice of evaluating the activity of the general board, its committees and the activities of each member, with the Code of Corporate Governance.

Secondly, tying the amount of bonuses paid to the members of the supervisory board to the results of the assessment of the board's activity and applying the policy of encouraging each member according to his contribution to the overall efficiency of the board.

Thirdly, to ensure not only the minimum number of independent members of the supervisory board, but also to take measures to encourage the increase of their share.

Fourthly, clarification of the question of who will nominate an independent member of the supervisory board, formation of their database, formation of a system of training.

fifthly, it is necessary to ensure the balance of the most important performance indicators selected in the assessment of the performance of the executive body and to regulate the processes of determining their weight in the formation of the overall aggregate (integral) indicator.

Accelerating the process of privatization in our country, increasing foreign direct investments attracted to economic sectors, fundamentally improving the management efficiency of joint-stock companies, ensuring their openness and attractiveness for strategic investors, applying advanced international practices in the introduction of modern corporate management methods, all these in turn contribute to the stable economy of Uzbekistan. will give a new impetus to the activity of many enterprises that ensure its growth.

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Rezyume: Maqolada korporativ boshqaruvning mohiyati, mazmuni, asosiy vazifalari hamda usullari haqida fikr yuritilgan bo'lib, ijtimoiy hayotdagi munosabatlar tahlil etilgan.

Резюме: В статье рассмотрены сущность, содержание корпоративного управления и его основные функции, а так же проанализированы виды отношений социальной жизни.

Kalit so'zlar: korporativ boshqaruv, korporativ korxonalar, mulkchilik munosabatlari, mahalliy boshqaruv, hokimiyatlar, jamoa tashkilotlari.

Ключевые слова: корпоративное управление, корпоративные предприятия, отношения собственности, местные органы власти, трудовые организации.

METHODS FOR DEVELOPING PHYSICAL PREPAREDNESS OF YOUNG FOOTBALL PLAYERS AT THE INITIAL TRAINING STAGE

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Резюме; *The article is about the methods of one year cycle in the training process of young football players on the preparation stage.*

Key words; *physical education, cycle, loading, experiment, control, sport, training, football player, physical quality, technique, tactic.*

The physical preparedness of football players is one of the most important factors on which the activity and effectiveness of team, group and individual technical and tactical actions depend. No matter how technical and tactically competent a football player is, he will never achieve success without good and versatile physical preparation. A team in which the physical training of even one player does not meet modern football standards will not achieve success. The reason for this is that in each game episode several football players simultaneously solve a certain game problem. To do this, they must perform movements consistent in speed, space and game actions. In the game, every football player must quickly and accurately assess tactical situations, make accurate decisions and instantly implement them. Modern football is becoming an increasingly athletic game, rich in martial arts.

To win the fight for the ball, avoid a dangerous collision, and stay on your feet after being pushed by an opponent, a football player needs good strength training.

It should also be noted that a football player with a high level of endurance can show a high level of technical and tactical actions throughout the entire football match and tournament. A football player must have good muscle flexibility, as he must perform many movements with maximum amplitude: shots, tackles, feints, etc.

All of the above qualities taken together constitute the physical preparedness of football players. Therefore, increasing the level of physical preparedness is one of the most important tasks that football team coaches try to solve every day during training sessions.

In the system of training young football players, it is also necessary to resolve issues related to the development of special physical qualities (quickness, speed, agility and endurance).

Currently, there is a large amount of scientific and methodological literature on football, which provides methods for developing the physical training of young football players.

They emphasize that at the stage of primary education, physical training is necessary for the comprehensive development of children's bodies and for the correct formation of basic motor functions.

It has been experimentally shown that the strength of mastering ball possession largely depends on the level of development of physical qualities.

The age characteristics of children of primary school age make it possible to specifically influence the development of such qualities as agility, flexibility, speed and speed-strength.

In the educational and methodological literature, various means, the procedure for their use, etc. are given to train the above-mentioned qualities.

But, unfortunately, the lack of complete and high-quality methods for programming and organizing appropriate training loads in the chosen direction reduces the effectiveness of the physical training of young football players. Evidence of this is the fact that the physical condition of young players in the Republic of Uzbekistan lags behind the required level, which generally affects the quality of the football game.

Our analysis of the training process in many groups of initial training of young football players showed that the development of physical qualities is carried out in classes with a complex or complex-

parallel orientation. The essence of this is that at a specific stage of preparation several types of loads are applied simultaneously. At the same time, the differentiated adaptive reactions of the body to specific components of the load are weakly expressed, since its adaptive restructuring is of a generalized nature. As a result, the training impact of the load is quickly exhausted, the adaptation process slows down, and the level of the athlete's special performance stabilizes or even decreases (Yu.V. Verkhoshansky 1988, 2005).

Yu.V. Verkhoshansky suggests using the principle of superposition or conjugate-sequential organization of the form of loads instead of a complex-parallel organization.

Figure 1 shows the forms of complex-parallel and conjugate-sequential organization of loads.

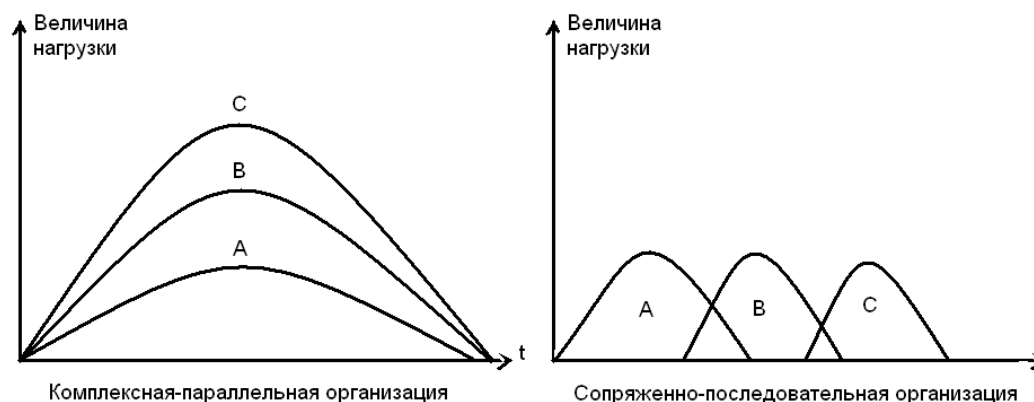


Figure1. Schemes of complex and conjugate-sequential organization of loads.

Note: A, B, C – types of loads of different directions.

The conjugate-sequential organization of loads is essentially a complex organization of loads (A, B, C), but unfolded in time. Consistency in this case means a strict order and sequence of introducing loads into training with constantly increasing strength and specificity of their training effect on the body. Conjugacy presupposes expedient continuity in the order of use of loads, based on the awareness of such conditions under which some loads (for example, A) create a favorable basis for solving problems provided for by other (B and C) loads.

According to the recommendations of Yu.V. Verkhoshansky (1988, 2005), V.N. Platonov (1986, 2000) and others, in the process of physical training, the use of selective loads in a conjugate-sequential organization should have the following character:

1. First, apply loads primarily aimed at developing endurance. The training effect from the use of such loads occurs after the expiration of a two-month period.
2. Then, in a certain sequence, speed-strength loads and loads developing agility (coordination) should be applied.

For the physical training of young football players 9-10 years old who train in primary training groups, we have developed the following methodology.

In our case, five classes were planned for the football players in a weekly micro cycle: on Monday, Tuesday, Wednesday, Thursday and Friday.

On Monday and Thursday, classes were planned using general nonspecific loads of the same selective focus (endurance, strength, speed, agility, etc.).

The share of such loads reached 70-80% of the total volume of workloads.

On Tuesday and Friday, bilateral games were held in a simplified version (30 minutes each on a small field) and also technical and tactical training of young football players.

On Wednesday, theoretical classes were held and then strength training in the training room with unlimited weights.

The general structure of the conjugate-sequential organization of physical training for young football players at the stage of initial training is presented in Figure 2.

In this scheme, a block of loads aimed at developing endurance is applied over 10 weekly micro cycles. The maximum value occurs at the 3, 4, 5, 6 and 7th week micro cycles.

Before using a block of loads developing endurance, testing should be carried out.

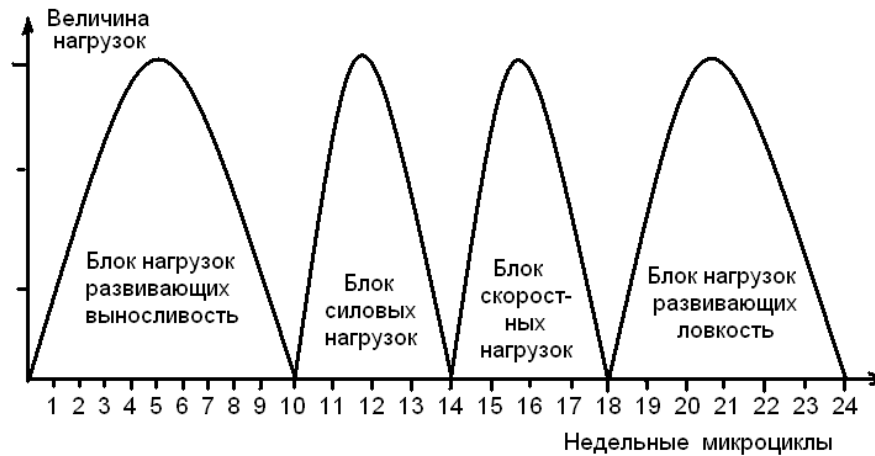


Figure 2. Scheme of conjugate-sequential organization of loads for the physical training of young football players at the stage of initial training.

We recommend using the following as tests assessing the endurance of young football players:

1) 300 m running time, an indicator of physical performance PWC150 determined under the influence of aerobic power loads and an indicator determining the value of maximum oxygen consumption (MOC).

Speed-strength training for young football players consists of two time-separated blocks: a strength training block and a speed or speed training block. The length of each block was 4 week micro cycles.

For strength training, you should use means that promote the harmonious development of all muscle groups, the formation of a “muscle corset,” strengthening the respiratory muscles, the muscles of the upper shoulder girdle and the back of the thigh. To do this, use exercises with and without weights, exercises using the player’s own weight and the weight of a partner. Exercises to overcome environmental resistance, etc.

For input and output control of strength training, we recommend using the following tests: the weight of a barbell raised above your head, to chest level, squeezing a barbell (50% of body weight) while lying on your back, the number of squats with a barbell (50% of a football player’s body weight), the number of pull-ups bar and push-ups while lying down.

For speed training of young football players, exercises were used that developed speed, that is, exercises whose duration would not exceed 10-15 seconds at a heart rate intensity of 180-192 beats/min.

The following tests were used for input and output control of speed abilities: running time for 15 m, 30 m, 60 m, simple reaction time and complex reaction time.

Control of speed and strength capabilities is carried out before the block of power loads and after the block of speed loads. The following tests are recommended as input and output indicators of speed-strength training for young football players: throwing a medicine ball and throwing a soccer ball

at a distance, long jump from a running start and from a standstill, triple and five-fold jump, kicking a ball at a distance.

After the block of speed loads, a block of loads developing agility is applied. This block is the final block in the scheme of conjugate-sequential organization of loads.

To develop agility, exercises from gymnastics, acrobatics, athletics, outdoor and sports games, etc. should be used.

To control agility, we recommend using the following tests: time for 10 somersaults forward and backward, time for 20 jumps on a gymnastic bench and back, time for jumping over 10 barriers 50 cm high, pedagogical assessments for the use of acrobatic exercises: forward and backward somersaults, bending forward somersaults, somersaults with a jump, etc.

To evaluate the effectiveness of the proposed methodology for developing the physical fitness of young football players at the stage of initial training, we conducted a comparative pedagogical experiment. In this experiment, 18 young football players from initial training groups, aged 9-10 years, took part in the control and experimental groups.

The control group trained according to the program used in children's and youth sports schools, and the experimental group used our method of developing physical preparedness based on conjugate-sequential organization of loads.

Before the start of the experiment, then after the end of the 10th, 14th, 18th and 22nd week micro cycles, the dynamics of indicators assessing endurance, strength, speed, speed-strength qualities and agility of young football players of both groups were determined.

Before the start of the experiment and after its completion, the volume (quantity) and effectiveness of technical and tactical actions during the football match were determined.

Analysis of the dynamics of control tests showed that among football players in the control group, the improvement in indicators assessing endurance, strength, speed, speed-strength qualities and agility was insignificant, up to 3-5% of their initial values.

In the athletes of the experimental group, the improvement in the above indicators reached 12-20% of the level of their initial values.

In the athletes of the experimental group, the improvement in the above indicators reached 12-20% of the level of their initial values.

At the beginning of the experiment, the volume and effectiveness of technical and tactical actions (passing the ball, tackling and intercepting the ball, dribbling and feinting movements, combat in the air and on the ground, shots on goal) among football players in the control and experimental groups in total was approximately at the same level. For football players in the control group, the number of technical and tactical actions was 138 units, and the efficiency was on average 58%, while for football players in the experimental group it was 132 units with an efficiency of 56%.

At the end of the experiment, the football players in the control and experimental groups had the following values of the above indicators: in the control group the volume was 142 with an efficiency of 60%, in the experimental group the volume was 172 with an efficiency of 79%.

Summarizing the above, we can draw conclusions that:

1. Better dynamics of the values of indicators reflecting physical qualities - endurance, strength, speed, speed-strength qualities and agility, as well as the values of the quantity and effectiveness of technical and tactical actions on average during a football match indicates the effectiveness of the conjugate-sequential organization of loads in comparison with the traditional, complex organization, which is presented in educational and program materials for children's and youth sports schools;

2. During the experiment, the appropriate duration or length of blocks developing the physical qualities of young football players from initial training groups was determined. For example, to develop endurance, at least 10 weekly micro cycles are needed, and to develop strength, speed and agility, at least 4 weekly micro cycles;

3. A stable and positive relationship has been determined between increasing the level of physical qualities of young football players and the volume and effectiveness of their technical and tactical actions during a football match.

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Rezyume: *Maqolada boshlang'ich tayyorgarlik bosqichidagi yosh futbolchilarning mashq jarayonini yillik tsiklda olib borish uslubiyati haqida so'z borgan.*

Резюме: *В статье рассматривается методика построения тренировочного процесса в годичном цикле на этапе начальной подготовки юных футболистов.*

Kalit so'zlar: *jismoniy tarbiya, tsikl, yuklama, eksperiment, nazorat, sport, mashq, futbolchi, jismoniy sifatlar, texnika, taktika.*

Ключевые слова; *физическое воспитание, цикл, нагрузка, эксперимент, контроль, спорт, тренировка, футболист, физические качества, техника, тактика.*

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THE SPECIFICITY OF PROBLEM-BASED EDUCATION IN THE DEVELOPMENT OF ANALYTICAL THINKING

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Summary: *In this article, modern educational issues in the development of analytical thinking and problem-based education are comprehensively analyzed, showing the specific aspects of analytical thinking and problem-based education methods, and its main criteria.*

Key words: *problem-based learning, problem-based task, intellectual, subject, state of mind, technology, method, model, philosophy. process, event, event.*

The basis of problem-based education is the mental activity of students, and it can be noted that this type of education can be used as much as possible to form and develop various aspects of analytical thinking. The methodology of studying the problem is based on a number of concepts such as "problem", "problematicity", "problematic situation", "educational problem", "problematization", "problematic task". For all the above concepts, the initial term "problem" is a question or task that requires a solution, research, because it contains an explicit or implicit contradiction. The concept of "difficulty" reflects problematic and ambiguous characteristics, quality, and is evident as evidence of the presence of difficulties in the process of achieving educational goals in a clear or hidden form. "Problemization" should be understood as the process of forming and revealing the problems in educational activities described in detail in a specific problematic task. During the last decades, the changes in society became the basis for the humanization of higher education of pedagogy, its transition to the competence paradigm. This transition provides, on the one hand, a purposeful process for designing new pedagogical technologies, as well as a higher level of knowledge of the world around us.

The dynamics of social changes in our country and around the world, as well as the wide introduction of innovations in the process of development of modern society, determine new requirements for the formation of professional abilities for students studying in pedagogical higher education institutions. Their fundamental and methodological training, developed effective thinking, skills in analytical thinking and high information culture are gaining urgent importance.

One of the widely used and most requested pedagogical technologies for analytical thinking is problem-based learning. Teachers of higher education institutions understand the importance of using problem-based educational technology in the educational process, and in particular, in the study of humanities [1:412]. They are based on the fact that students acquire new knowledge to develop analytical thinking in the process of solving theoretical and practical problems in problem situations specially created for problem-based learning.

The essence of problem-based educational technology is explained by the fact that information for the development of analytical thinking in students of higher education institutions is not provided in a ready-made form in the organization of the educational process. Instead, the teacher organizes a special problem situation, sets them a certain task, for which the students should conduct a certain independent research. As a result of such research activities, new knowledge, abilities and skills are formed, which are characterized by greater depth, consistency, and awareness. In addition, students' activeness in learning, curiosity, knowledge, creative thinking and other important personal qualities related to thinking are also developed.

Currently, problem-based education is an education in which the teacher creates problem situations during training sessions and then organizes independent activities for analytical thinking of

students in solving them, resulting in the development of analytical thinking based on the creative assimilation of professional knowledge, skills and abilities.

Within the framework of the concept of developing analytical thinking of students, there are several different approaches to its implementation in the practice of teaching students of higher education institutions.

According to a number of scientists, the study of problem-based education is a set of actions to organize an educational task, formulate a problem in it, help students solve this problem, check and strengthen their acquired knowledge.[2:77] In problem-based education, students solve problems of different levels of complexity. believes that they can form and develop their creative abilities by acquiring knowledge and methods in solving, analytical thinking for themselves. Therefore, it can be emphasized that the valuable and person-oriented approaches implemented by the teacher are the most relevant.

The idea of giving students complex questions that require independent thinking and acquiring new knowledge through analytical thinking has been rooted in foreign didactics and philosophy for a long time and goes back to the philosophical views of Socrates, the works of F. Aquinas, F. Bacon and I. Kant. Philosophers in their works developed the idea of refusing to "memorize" ready-made knowledge, they opposed views on the subject's activeness in learning knowledge. This contributed to the formation of independent approaches in didactics at the beginning of the 20th century, for example, the method of laboratory training, science teaching techniques, as well as heuristic, experimental-heuristic, laboratory-heuristic, and others.

According to many teachers, these methods are based on inquiry education. They see its essence in activating students' cognitive activity, showing their creative abilities, having a strong influence on the motivational shell of a person, and thereby creating conditions for their interest in the educational process.

In the 20th century, two main approaches to problem-based education were formed within the framework of American science. The first was the ideas of the teacher and psychologist D. Dewey, who was the founder of the philosophy of pragmatism. In his pedagogical views, he repeated the view of the founder of empiricism, F. Bacon, who believed that the basis of information about the surrounding world can only be his empirical activity, which confirms or rejects knowledge. D. Dewey also made sure that without practical actions, human knowledge remains only assumptions, that is, the learning process should be based on the independent activity of students with a learning-practical orientation. In his school, educational activities were based on practical game activities of students, but he could not create a holistic concept, and the theoretical foundations of problem-based education were implemented only in the middle of the last century.

The second approach is based on the principles of behaviorism - this trend in American psychology connects complex mental processes, including learning, to the behavioral response to stimuli, that is, to the influence of the external environment on the organism. Thus, the American pedagogue-theorist William Burton presented the process of education as a simple change related to the change of reactions to a new stimulus of a person's previous experience. At the same time, U. Burton has given less value to the role of theory in the educational process, the influence of the external environment on the student's ability to think has been neglected.

The views of J. Bruner, an American teacher and psychologist, expert in the field of analytical thinking, are at the heart of the general concepts of problem-based education described by many modern foreign scientists. He emphasizes the importance of students' creative thinking for learning. For this, it is necessary to pay attention to the organization and structure of new knowledge. At the same time, new theories revise the views of D. Dewey and W. Burton to get rid of the shortcomings of previous theories. For example, modern foreign scholars pay attention to the importance of the teacher's role in solving problematic issues, or prioritize collective efforts when considering a problematic situation, as opposed to the individualized activities of students.

Currently, problem-solving problem-based learning, learning-by-discovery, etc. are used in English language literature on philosophy and pedagogy. The purpose of such "problem-oriented education" is to help students in analytical thinking by forming flexible knowledge in learning subjects, effective problem-solving skills, learning self-management, internal motivation, as well as cooperation and interaction skills with other participants in the educational process [3:234]. In this context, problem-oriented learning is considered as a type of active learning.

In addition, problem-based learning has a number of advantages compared to traditional learning, namely:

- Helps logical, creative, dialectical thinking;
- Makes educational materials more clear, helps to turn objective knowledge into things believed in personal thinking;
- Positively motivates students, that is, makes them interested in learning, increases the level of claims expressed in setting more and more complex goals, helps to experience intellectual satisfaction, to form a sense of confidence in their abilities and capabilities;
- It helps to form solid knowledge compared to the knowledge obtained in the "traditional" way.

The consistency of knowledge is ensured not only by the manifestation of students' activity and independence, but also has psychological reasons. When solving a problem, the student engages in research and performs certain intellectual actions. Not being solved for a certain period of time and therefore constantly returning to the learning process, the concentration on solving the problem forms more solid knowledge, skills and abilities compared to traditional education, where only ready-made knowledge is absorbed.

However, in addition to the positive aspects of problem-based education, some disadvantages should be noted. The most important of them is that when solving a problematic task, the learner faces difficulties in the learning process, more time and effort is needed to overcome the learning situation, that is, more time is required for analysis, thinking, and solving compared to the traditional form of education.

Other important disadvantages of problem-based learning are the requirements for high pedagogical skills of the teacher and having a lot of time to develop problem tasks.

Several independent stages can be identified in problem-based learning:

- getting into a problem situation;
- study the problem situation with analysis;
- promotion of hypotheses, their evidence and verification;
- final control of the correctness of problem solving.

Similar stages exist in the mental activity of a person in general, and thinking is based on the idea that a person who experiences difficulties is based on solving some kind of problematic situation that can be overcome only by forming their essence and understanding the conditions for overcoming them. At the same time, it should be noted that not every situation is problematic. He achieves this only after interacting with the subject and describing it in his mind in accordance with his knowledge, meanings, and goals.

The fact that there is always such a discrepancy in a problematic situation is often related to the subject's goals and behavior patterns. Contradictions in the structure of the situation can increase due to its complexity, because it contains many elements and their interactions, lack or vice versa, density of information, dynamics of changes occurring in the situation, etc.

In general, these complex situations, reflecting a problematic nature, include all social processes, including education. It should be remembered that the basis of uncertainty in the situation can be in its different aspects and different combinations, which causes different problems, and this is important.

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Rezyume: *Mazkur maqolada tahliliy fikrlash va muammoli ta'limni rivojlantirishda zamonaviy ta'lim masalalari keng tahlil qilingan holda, tahliliy fikrlash va muammoli ta'lim usullarining o'ziga xos tomonlari, uning asosiy mezonlari ko'rsatib har tomonlama tahlil qilingan.*

Резюме: *В данной статье всесторонне проанализированы современные образовательные проблемы развития аналитического мышления и проблемного обучения, показаны особенности методов аналитического мышления и проблемного обучения, его основные критерии.*

Kalit so'zlar: *muammoli ta'lim, muammoli vazifa, intellektual, subyekt, ruhiy holat, texnologiya, uslub, model, falsafa. jarayon, hodisa, voqea.*

Ключевые слова: *проблемное обучение, проблемное задание, интеллектуал, предмет, состояние души, технология, метод, модель, философия. процесс, событие, событие.*

THE ECONOMIC DEVELOPMENT DIRECTIONS OF HOUSING AND COMMUNAL SPHERE IN UZBEKISTAN

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Summary: *In the article, the author analyzed the ongoing comprehensive work to reform the housing and communal sphere in the country, improving the quality and efficiency of communal services. In particular, it was established that housing and communal sphere were introduced by the private sector and for this purpose were created a number of private enterprises and organizations, as a result of which they also contribute to the development of the country's economy. In addition, were developed proposals and recommendations for the widespread involvement of the private sector in the field of housing and communal services, channeling funds from commercial banks and expanding banking services to increase the types of services.*

Key words: *housing and communal sphere, communal services, private sector, commercial banks, banking services, economic reforms, digital economy.*

Introduction. In recent years, extensive work has been carried out in Uzbekistan on the fundamental reform of the housing and communal sector, and on improving the quality and efficiency of services. In particular, a number of housing and communal services were introduced to be provided by the private sector. As a result, a number of private enterprises and organizations were established and are contributing to the development of the country's economy. It can be said that in our country, in the field of housing and communal economy, it is important to attract the private sector and increase the types of services.

Improving the technical condition of the housing fund of our country and its effective use, timely implementation of repair and restoration works, as well as maintaining cleanliness and beautification of the areas adjacent to multi-apartment houses are considered one of the important vital factors in creating comfortable conditions for residents living in such houses. Today, the consistent implementation of structural reforms in our country based on a strong regulatory and legal framework makes it possible to establish a new system of managing and using the housing and communal economy.

Main part. It was adopted on the improvement of the activities of the housing and communal economy sector, a number of enterprises and organizations operating in it, including housing owners' associations, professional management companies, housing and communal service enterprises, as well as capital and current maintenance of the housing fund comprehensive measures were implemented based on the decisions.

To create conditions for attracting private investments to the development of this sector, as well as in the field of housing and communal services – to form a complete and reliable database for the consumers of communal services on the state of housing, promotions, the volume and quality of services provided and allows energy consumption.

It is worth noting that President Sh.Mirziyoev, taking into account the fact that the number of multi-storey buildings in our country is increasing year by year, reforming their management system based on modern, foreign best practices, implementing it and training industry employees on this basis into a single and integrated system special attention is paid to the issue of arrival.

Currently, there are 37,402 (68%) multi-storey buildings in our republic consisting of 1.3 million apartments, of which 25,611 are serviced by 4,430 companies, 8,953 (24%) by 247 professional management companies, 2,838 (8%) by none service is not provided.

According to the analysis, 1351 out of 4430 companies are in good financial condition, 1903 are in medium condition and 1176 are in severe condition. Currently, companies have a debt of 1.4 trillion

soums. Of this, 504 billion soums belong to companies that look after houses built before 1991. Companies that provide services to houses built from 1991 to 2016 also have a debt of 73.4 billion soums. Accounts receivable of the population amounts to 192.7 billion soums.

A number of organizations have studied the causes of these problems and the economic damage caused by service enterprises, and ultimately the factors that have a negative impact on the economic development of the state. Among those problems is the unprofitability of the mandatory contribution, which includes the average payment per square meter of 850 soums, the consumption of electricity in common areas, the costs of landscaping, as well as the monthly salaries of the company's manager and employees. Another problem is the non-transparency of the accounts, the fact that the companies are not able to show the population where they are using the money received from them.

Various proposals have been developed as a solution to these problems, and special attention is paid to the issues of giving preferences to management companies and adapting their activities to the needs of the times. In particular, from the financial side, the Ministry of Housing and Communal Services of the Republic of Uzbekistan allocates 35% of the funds from the state budget and local government budget and up to 30% from the population to the Fund for the Development of Housing and Communal Services of the Republic of Uzbekistan. can be created. At the same time, a sense of belonging to the development of the industry is awakened in the population.

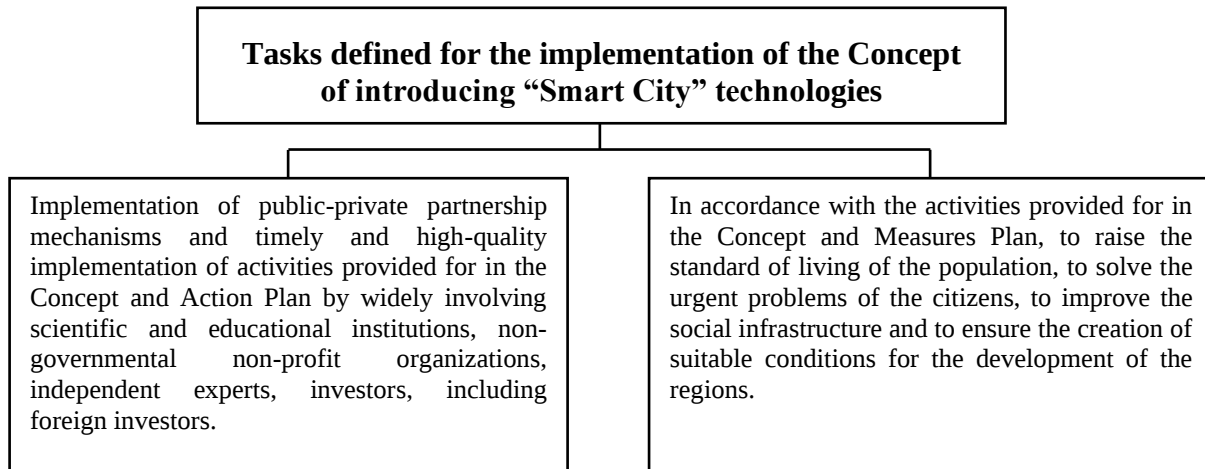
It is necessary to freeze loans taken by enterprises and organizations related to housing and communal economy for 2 years, that is, to extend the time a little. The reason is that it is important to give a certain period of time to properly organize the work of management companies that are being established now.

It is necessary to introduce digitization of housing and communal service system, i.e. full opening and approval of tariff costs for everyone. In this system, the population should clearly see what services they are spending on.

The next important aspect is related to transparency of calculations. For this, first of all, it is necessary to maintain an electronic rating register of management companies. In order to maintain a rating, they must first be created. For this, a separate account number will be opened for each house, the service area will be clearly defined, and the procedure for reporting to the owners by the management companies will be improved. Also, it is necessary to create an electronic digital program and set up an SMS notification system to provide information on expenses. Through a special application on a smartphone or tablet, residents will be able to get acquainted with their cost estimate.

Results. The extensive work is being carried out in our country in the areas of improving the standard of living of the population, solving the urgent problems of citizens, improving the social infrastructure and developing the regions. In particular, , the decision of the Cabinet of Ministers of the Republic of Uzbekistan “On approval of the concept of introduction of “Smart City” technologies in the Republic of Uzbekistan” No. 48, was adopted on January 18, 2019. At the same time, the Concept of introduction of “Smart City” technologies was developed in the Republic of Uzbekistan [1].

The main goal of this Concept is measures aimed at creating modern engineering and communication infrastructures of cities through the introduction of “Smart City” technologies, that is, creating a comfortable environment for city residents and guests, ensuring a stable increase in the quality of life, and creating favorable conditions for business activities, increasing the efficiency of public spending, including through the establishment of public-private partnerships, the planned introduction of all “Smart City” technologies compatible with foreign methods, and the improvement of the efficiency of city services and road transport infrastructure by introducing innovative decision-making.



1-Pic. Tasks defined for the implementation of the Concept of introducing “Smart City” technologies

Today, the implementation of **“Smart City”** innovative technologies is underway in our country. In particular, in the field of housing and communal economy, projects are being launched in such directions as “Smart housing and communal management”, “Smart house”, “Smart energy system”, “Smart water supply and wastewater”.

“Smart housing and communal economy” is a stable and cost-effective housing and communal economy, coordinated managing and ensuring the consumption of communal resources and services through intelligent calculation, monitoring and control, as well as providing services taking into account the interests of consumers and the development of technologies.

By introducing the technological solutions of “Smart Housing and Communal Economy”, the following is meant:

- automation of the process of determining the reading of counters, taking into account the delivery to the relevant authorities;
- systems for delivering information about the state of energy supply to the consumer's device;
- a system of special services and private offices to control the quality of utility services;
- introduction of smart-meters ("smart computing devices"), information system for ensuring data exchange between consumers and suppliers of communal resources;
- payment monitoring systems;
- infrastructure management systems;
- systems for identifying cases of energy resource exploitation and its prevention;
- methods and systems of improving energy efficiency;
- systems for reducing water consumption and the cost of water supply by using water-saving technologies;
- open consumer service platforms.

“Smart house” is an intelligent control system that provides an opportunity to integrate all communication networks in the house for the purpose of control, programming and adaptation based on the wishes and needs of the owner of the house.

“Smart energy system” is a sustainable, cost-effective and reliable energy system in which energy production, infrastructure and consumption services are integrated and coordinated by promoting consumers and technologies. Transition to the use of “smart energy (‘smart distribution networks’, ‘smart control and measurement systems’, etc.) and energy-saving technologies” (‘smart lights’, ‘smart lighting’) will save the consumed electricity, reduce losses during interruptions in its

transmission. reduction, capital costs for equipment and the number of accidents, as well as an opportunity to increase the strength and quality of power networks.

“Smart water supply and wastewater” consists of water supply management through online hydraulic models, automated reservoirs, water distribution and automatic loss detection database by integrating flood distribution system, safety and control, its management and flood warning systems.

It should be noted that the lack of development of the infrastructure of information and communication technologies, significant physical and mental obsolescence of the urban infrastructure remain one of the main problems that prevent the effective implementation of “Smart City” technologies. All this requires the search for large sources of investment to take measures to modernize telecommunication networks and to reconstruct the infrastructure of cities.

The general trend towards digitization affects all sectors of the economy to a greater or lesser extent, so the housing and communal sector is no exception. Information technology can provide high security, uninterrupted operation of all city services, and most importantly, IT solutions help to reduce costs [2].

In general, creating conditions for attracting private investments to the development of this sector, as well as in the field of housing and communal services – about the state of housing, shares, volume and quality of services provided and energy consumption, consumers of housing and communal services enables the formation of a complete, reliable and relevant database.

There are very wide technological possibilities in the field of housing and communal economy. For example, “smart meters” connected to monitoring systems through data transmission channels can automatically receive readings and, based on the received data, transfer utility bills and payments to the receiving information systems. Automation of processes allows you to automate the process of accepting payments with the help of digital software – through a mobile application or an online cash register.

Another technology is the creation of “digital twins” of utility infrastructure objects, “trained” on historical data and connected to smart sensors embedded in the objects themselves. The new digital system allows to quickly identify accidents and emergency situations, to determine which infrastructure facilities require repair. It facilitates accounting and forecasting of repair and replacement of heat supply networks, planning of investment and production programs.

The digitalization of housing and communal services of housing and communal enterprises means the reduction of mandatory reports by simplifying management reporting and automating a number of processes. In addition, digital technologies - the emergence of electronic forms of appeals, online voting - simplify the interaction of citizens and housing owners’ associations, increase the level of participation of the population in improving the quality of housing and communal services [3].

The use of digital technologies is a competitive advantage for professional management companies. There is now a trend to consolidate the multi-family housing management market. Small management companies are leaving the market, and an ever-increasing share is occupied by large companies operating under one brand in several regions. They are not only engaged in the collection and transaction service of utility bills, but also offer a wide range of additional services for residents. Digital management companies increase operational efficiency and profitability and optimize processes by extending management and technology solutions.

Conclusions. In conclusion, it is worth saying that the rapid implementation of best practices creates some problems. Examples of this include the lack of technological standards, the lack of development of regional and city-level IT systems of housing and communal services, the frequent changes of the regulatory framework in the field, and the lack of regulatory mechanisms in the field of digitization.

Also, the issue of financing is relevant for the sector, for example, there are no mechanisms for attracting investments from market entities, for example, in the field of digitization of housing and communal services.

Solving these problems will further increase the possibilities of effective management of a set of different systems in the field, create conditions for systematic data collection, integration and analysis. It creates the need to systematize the life cycle processes of the development of information systems in the field of housing and communal economy, create tools for data integration, and coordinate projects around a single legal field.

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Rezyume: *maqolada muallif tomonidan mamlakatimizda uy-joy kommunal sohasini isloh qilish, xizmatlar sifati va samaradorligini oshirish borasida olib borilgan keng qamrovli ishlar tahlil qilingan. Jumladan, uy-joy kommunal xizmatlar xususiy sektor tomonidan ham ko'rsatilishi joriy etilganligi, bu maqsadda bir qator xususiy korxona va tashkilotlar tashkil etilganligi, natijada ular ham mamlakat iqtisodiyotini rivojlantirishda o'z hissasini qo'shib borayotganligi asoslangan. Shuningdek, uy-joy kommunal xo'jaligi sohasida xususiy sektorni keng jalb qilish va xizmat turlarini ko'paytirishda tijorat banklari mablag'larini yo'naltirish hamda bank xizmatlarini kengaytirish bo'yicha taklif va tavsiyalar ishlab chiqilgan.*

Резюме: *В статье автор проанализировал проводимую комплексную работу по реформированию жилищно-коммунальной сферы в стране, повышению качества и эффективности оказания услуг. В частности, было основано, что жилищно-коммунальное хозяйство введено частным сектором и с этой целью создан ряд частных предприятий и организаций, в результате чего они также способствуют развитию экономики страны. Кроме того, были разработаны предложения и рекомендации по широкому привлечению частного сектора в сферу жилищно-коммунального хозяйства, направлению средств коммерческих банков и расширению банковских услуг по увеличению видов услуг.*

Kalit so'zlar: *uy-joy kommunal sohasi, kommunal xizmatlar, xususiy sektor, tijorat banklari, bank xizmatlari, iqtisodiy islohotlar, raqamli iqtisodiyot.*

Ключевые слова: *жилищно-коммунальное хозяйство, коммунальные услуги, частный сектор, коммерческие банки, банковские услуги, экономические реформы, цифровая экономика.*

FEATURES OF STRATEGIC MANAGEMENT OF THE SERVICE SECTOR IN AN INNOVATION ECONOMY

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Summary: *The article discusses the theory of development of the service sector management system in a modern innovative economy. The opinion of economists in the service sector and management is also studied.*

Key words: *Service sectors, digital economy, digital platforms, economic development of the service sector.*

In modern economic conditions, one of the most significant trends in the development of the service sector management system is digitalization. At the same time, the economic potential of digitalization is used both by producers of traditional types of services, in particular, to accelerate operational and sales activities, increase sales of services through the company's website or mobile application, improve the quality of communications with actual or potential consumers of services, and by producers of this innovative type of service, as digital services themselves. The latter include services created and sold exclusively within the information and communication space of the virtual segment of the modern digital economy. As shown in Table 1, the vast majority of services to the public and organizations can be effectively digitized and have a virtual analogue (subsequently presented in the corresponding segments of the virtual services market). Services related to direct contact with individuals cannot be directly digitalized, however, in relation to the management of this group of services, the potential of digitalization, as noted earlier, can be used quite widely.

It should be noted that the specialized literature covers in sufficient detail the issue of the benefits of digitalization for the development of service companies. According to researchers, the main advantages of this type are¹³:

- a significant increase in the capacity of the sales market in the space of the virtual segment of the modern digital economy;
- a fundamental increase in the ability of consumers to choose their most preferred services;
- the possibility of significantly reducing the specific operating and transaction costs of service companies through intensive use of the potential of virtual outsourcing of business processes, incl. remote employment;
- significant growth in the potential of marketing services, incl. by intensifying the processes of using the capabilities of SMM marketing, SEO management, the formation and development of individual and coalition consumer loyalty programs of service providers in the virtual economic space.

Table 1

Differentiation of services regarding the use of potential digitalization¹⁴

Services that cannot be directly subject to digitalization	Services that can be effectively digitized and have a virtual analogue
1. Hairdressing and other similar services 2. Dry cleaning, laundries and other similar household services to the population. 3. Medical services requiring direct contact with the patient	1. Medical services in terms of counseling 2. Educational services 3. All types of banking and insurance services 4. Consulting services 5. Information services, incl. related to remote information processing. 6. Services for remote delivery of goods, incl. carried out marketplaces. 7. Government services.

¹³Cardoso J., Fromm H. Fundamentals of service systems. Wash., 2015. P.171; Romanova M.M. Economics of the service sector. M.: Knorus, 2021.

¹⁴Compiled based on information contained in: Gordin V.E., Sushchinskaya M.D. Management in the service sector. M.: Business press, 2007; Yashirovsky, O.V. Problems of spatial development of business in the service sector / O.V. Yashirovsky // Business newspaper. – 2018. - No. 23. – P. 4.

One of the most dynamically developing subjects of the modern digital economy, having a direct impact on the development of the service sector, are digital platforms. Digital platforms accumulate significant amounts of financial and intellectual resources of the virtual segment of the digital economy and have a fundamental impact on the dynamics of capitalization and the development of the latter's infrastructure. According to some estimates, the gross income of digital platforms for 2015 – 2020 increased by 7.12 times, which exceeds the growth rate of revenue of any other segment of the modern digital economy¹⁵.

At the same time, in the scientific literature there is no unified approach to understanding the essence and socio-economic functions of digital platforms in modern economic conditions. Actually, the theory of this issue is in its infancy; it does not quite keep up with the dynamic changes in economic practice in the area under study. In our opinion, the content of the digital platform, as a special driver of the progressive development of the modern service sector, can be considered in two aspects:

1. In a narrow sense, a digital platform is a certain specialized portal and (or) mobile application, focused on providing a range of specialized services to individuals and (or) legal entities in terms of improving their operational activities or the process of consuming services through digitalization processes, system specialized services in this areas.

2. In a broad sense, a digital platform is a mechanism for managing the sustainable mutually beneficial integration of a digital service and subjects of a virtual and (or) off-line economic space, ensuring the growth of sales markets, reducing the specific operating or transaction costs of operating the latter and increasing on this basis the level of financial, economic and social efficiency of their development.

The system of basic socio-economic functions of modern digital platforms in the service sector is shown in Figure 1

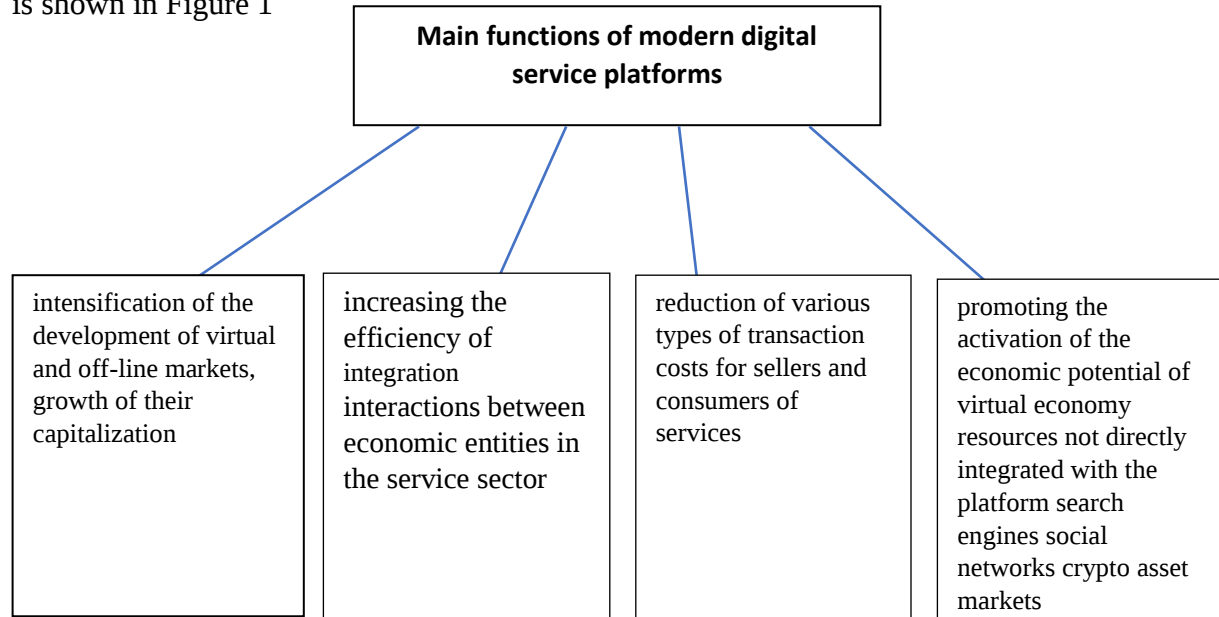


Figure 1 Main functions of modern digital platforms in the sphere services¹⁶

As shown in Figure 1, the functions of modern digital service platforms are associated both with ensuring growth in the efficiency and cost of business entities integrated with them, and with influencing the intensity and effectiveness of the functioning of other services in the virtual segment of

¹⁵Russian economy: problems and prospects. – M.: Publishing House of the Institute of Economic Policy, 2021. P.238.

¹⁶Conley, JP Blockchain and the Economics of Crypto-tokens and Initial Coin Offerings / JP Conley // Vanderbilt University Department of Economics Working. – 2017. – June.

the modern digital economy that are not directly cooperated with them. Modern digital platforms can be classified according to a number of significant economic and managerial characteristics (Table 2).

table 2

Classification of digital service platforms¹⁷

Classification characteristics	Types of digital platforms in the service sector
1. Platform versatility	- highly specialized digital platforms; - platforms offering a wide range of diverse services.
2. Integration with the founder	- platforms serving strictly the clients of the parent company (platforms of banks, insurance companies, etc.); - platforms serving a potentially unlimited range of clients.
3. Commercial component	- purely commercial digital service platforms; - conditionally non-commercial digital platforms (Electronic government, etc.).
4. Integration into the real sector of the economy	- digital platforms focused on providing purely virtual services; - digital platforms on the basis of which both virtual and off-line services are provided; - digital platforms focused on expansion into the real sector of the economy.
5. Cooperation with Internet services (social networks, search engines and so on.).	- digital platforms, corporately cooperated with Internet services (all Yandex corporation platforms, etc.); - digital platforms cooperated with Internet services in the field of marketing activities.
6. Harnessing the economic potential of crypto assets	- digital platforms integrated with crypto asset exchanges regarding the circulation of tokens; - digital platforms carrying out ICO (initial coin offering); - digital platforms, contractual relations within which are based on the principles of smart-contracting; - digital platforms that do not use the economic potential of crypto assets and blockchain technology.
7. Issuance by the digital platform of its own payment surrogates	- digital platforms that use their own payment surrogates (Yandex group platforms, virtual exchange platforms); - digital platforms using generally accepted real and virtual payment systems.

Some examples of digital service platforms currently widespread in the domestic economy, and the main directions of their integration and economic efficiency are presented in Table 2. Moreover, almost all fairly dynamically developing platforms initiated by companies of the Republic of Uzbekistan are modified copies of foreign analogues - so , for example, the Yandex-taxi digital platform is a modification of the digital transport platforms Uber and Gett, etc. All digital platforms presented in the table above have both a website and a mobile application, which ensures both increased market coverage and improved quality of use of platform services.

It should also be noted that in the scientific literature devoted to the consideration of various issues and problems of economics and management in the service sector, insufficient attention is paid to the study of risks associated with intensive digitalization processes in this sector of the economy. In general, a number of studies are devoted to the analysis of development risks of service sector

¹⁷Table developed by the author

companies (G.A. Akhtamova¹⁸, J. Lee¹⁹, R.I. Khikmatov²⁰ etc.), but the actual risks of digitalization of the economic segment under consideration are practically not analyzed within their framework. In the process of conducting dissertation research, the author systematized the most significant risks arising from the intensive digitalization of the process of managing the development of the service sector.

It should be noted that the risk associated with the lag of special legislation on digitalization issues from development trends in this sector of the economy is objective in nature and directly follows from the too intensive nature of changes associated with the functioning of digital technologies and virtual markets for capital, goods, services, and information. As noted, in particular, by R. Abrams, this risk is to a certain extent characteristic of the modern economic systems of the USA and EU countries, the cycles of drafting bills on digital economy issues within the legal systems of which also lag behind the actual trends in changes in the digital economy²¹.

Risks associated with the lack of relevance of information available in the virtual environment regarding individual services and their suppliers may arise from both unintentional and deliberate misinformation actions of certain groups of economic entities. The most typical example of the latter is the extremely widespread online practice of compiling false reviews regarding the quality of services, which is especially dangerous, for example, in the sphere of medical consumption, a number of household services to the population, etc. This risk is aggravated by the fact that many companies, and especially individual consumers, do not have effective software and expert tools aimed at checking the level of relevance of the information flow and, accordingly, the subsequent screening out of questionable information about individual services offered within the virtual space of the digital economy.

It should be noted that within the virtual information space, to a greater extent than within the offline economy, deliberately fraudulent types of services, primarily of a financial nature, are common. One of the most common services of this kind at the end of 2010 – beginning of 2022 are the services of virtual financial pyramids, which are usually disguised as innovative projects of various types. Thus, according to M. Jordan's assessment, the capacity of the fraudulent market for virtual financial pyramid services in 2017 – 2022 increased by 3.87 times, exceeding in 2022, according to, of course, a fairly aggregated estimate of 10.0 trillion. Doll.²² Other common types of fraudulent digital services are quasi-sale of services through phishing sites, provision of pseudo-services in the field of Internet consulting, integration of the service sector and telephone fraud technologies, etc.

The risks identified by the author as a separate group, associated with the insufficient security of payments on the Internet for services compared to traditional bank payments and, especially, cash payments, have a slightly different nature compared to the clearly fraudulent services discussed above. In this case, a transaction between an initially bona fide seller and buyer of services within the virtual economic space may not be carried out due to unauthorized intervention by third parties, primarily professional hackers. At the same time, if bank payments on the Internet are currently relatively safe, payments for goods and services using virtual payment systems, especially Yandex-Money, carry significant risks. Payments for services carried out using cryptocurrencies are also not entirely financially secure - and such risks are associated, among other things, with a possible sharp drop in the value of such assets on virtual exchanges, resulting from the extremely high volatility of the market value of most cryptocurrencies, which occurs in in particular, in 2018 – 2021

Finally, we have highlighted the risks arising from the fairly common overestimation by sellers of services within the virtual space of the digital economy of the capacity of the corresponding markets. Thus, despite the intensive growth of the digital services sector in 2010 - 2021, especially during the

¹⁸Akhtamova G.A. Risk management in the service sector. M.: KnoRus, 2020.

¹⁹Lee J. Service economies. NY., 2010. P.71-78.

²⁰Khikmatov R.I. Development of the service sector in modern conditions: Diss. Ph.D. Kazan, 2006. P.87-91.

²¹Abrams, R. Entrepreneurship: A Real-World Approach/ R. Abrams. Redwood City: Planning Shop, 2015. P.179.

²²Jordan, M. How to value Initial Coin Offerings: A Qualitative Approach to ICO / M. Jordan. – NY, 2021. P.179.

crisis of 2020 - 2021, there are a number of significant restrictions on the demand for this type of service, arising primarily from certain cognitive restrictions typical for end consumers, primarily individuals, for example:

1. The demand for virtual medical consultation services is limited due to the persistent stereotype of most patients regarding the need for personal contact with a doctor as some guarantee of subsequent effective treatment.

2. The demand for virtual educational services (e-learning) is constrained due to the existence of relatively well-founded doubts regarding the pedagogical effectiveness of distance educational technologies, especially in the field of secondary general and primary vocational education.

3. The demand for delivery services, even in a crisis situation, restrictions caused by the lack of QR codes for unvaccinated citizens, etc., may be limited due to the fact that remote delivery services are not available for a number of categories of consumers (for example, a number of people of retirement age) due to the lack of access to both Internet resources and mobile applications, and for those who have used this type of service, the effectiveness of this purchasing method may be limited due to the presence of not entirely satisfactory experience associated with common practices of poor quality, untimely delivery, etc. delivery. Such risks arising from insufficiently high-quality organization of Internet delivery services are analyzed in sufficient detail by, in particular, D.A. Khalilov. In general, the risks systematized by the author, arising from the intensive processes of digitalization of the service sector, will allow business entities in this sector to rationally form a risk management system focused on minimizing the negative effects due to digitalization, and government authorities will create a system of norms and mechanisms aimed at sustainable reduction all types of risks of production and consumption of digital services and platforms.

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Rezyume: *Maqolada zamonaviy innovatsion iqtisodiyot sharoitida xizmat ko'rsatish sohasini boshqarish tizimini rivojlantirish nazariyasi ko'rib chiqiladi. Shuningdek, xizmat ko'rsatish sohasi va menejment iqtisodchilarining fikri o'rganiladi.*

Резюме: *В статье рассматривается теория развитие системы управления сферой услуг в современной инновационной экономике. А также изучается мнение экономистов по сфере услуг и менеджмента.*

Kalit so'zlar: *Xizmat ko'rsatish sohalari, raqamli iqtisodiyot, raqamli platformalar, xizmat ko'rsatish sohasining iqtisodiy rivojlanishi.*

Ключевые слова: *Сферы услуг, цифровая экономика, цифровые платформы, экономическое развитие сферы услуг.*

ENSURING SECURITY IN SMART AGRICULTURE DEVELOPMENT

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Summary: *In this article, another important problem in food security is the loss of cultivated products. Since the process of production and delivery of food products is complex and under the influence of many factors, it is justified to study them, obtain information on factors, and use ICT for their processing.*

Key words: *Smart agriculture, GPS, Galileo, Real-time kinematic positioning, innovative technologies, food safety.*

In the world today, solving the issue of optimal use of existing resources in agriculture is considered as an important direction of research to reduce the issue of optimal use of available resources to farmers and farmers, which are the smallest units, and to create an opportunity for them to find opportunities for optimal use of resources with the help of scientifically based methods. Organization of agrotechnical activities on time and at the level of established norms, increasing the efficiency of services, establishing the wide use of information technology opportunities in scientific and research work on setting priorities for cost reduction, special attention to the development of special popular programs specializing in solving optimization issues used in conditions of limited resources being directed.

Being one of the most important problems in ensuring stability at the current stage of development, it is considered as one of the important problems of the modern economy. One of the important problems of today's economic development is food security in this country. It is impossible to achieve sustainable development of the country and its regions without satisfying the basic needs of the population. It can be emphasized that the harmonious development of society is determined primarily by the level of satisfaction of the need for quality and diverse food products. At a time when the uneven development of agriculture and its branches has become an objective reality in different regions and regions, the high level of food shortages requires the need to find a solution to such problems.

The increase of the population in the whole world, the increase of problems related to food safety require the need to consider the issue of effective use of existing resources in agriculture, the use of modern technologies in agriculture, and the involvement of information technologies in the field as a matter of course. The problems related to food security can be justified by the following figures: today one in nine people in the world suffers from hunger, in other words, more than 820 million people have the problem of hunger. Worldwide prevalence of undernutrition is estimated at around 11 percent .

Another important problem in ensuring food safety is the loss of cultivated products. Studies show that approximately one-third of all food produced for human consumption is lost or wasted along the food supply chain from production to consumption. Such losses are estimated at 1.3 billion tons per year, and this means that a quarter of the calories produced for human consumption are wasted as food[1]. The main reason for these losses is the lack of infrastructure in the production of agricultural products, the lack of effective technologies in the value added chain, and the lack of personnel with the required knowledge and skills.

Here we look at the food supply chain, which consists of five stages. It differs from other industries in that it is possible to consume the product from any stage or the raw material for the next stage (Figure 1).

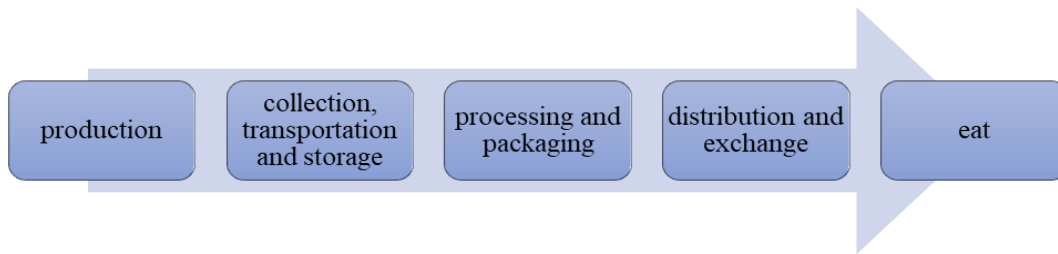


Figure 1. Stages of the food supply chain

According to the results of our analysis, it was found that the unemployment rate is relatively high in regions with a low level of use of information technologies. Two reasons have been identified for this: firstly, the effective use of information technologies helps to exchange experience among farmers, and on the other hand, it serves to obtain information about weather and environmental changes, which are important factors in the cultivation of agricultural products.

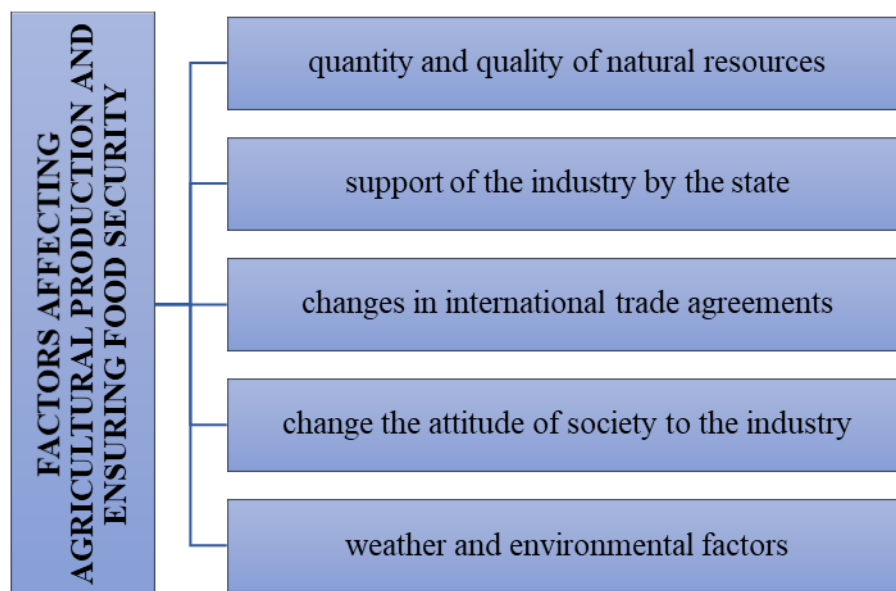


Figure 2. Factors affecting production of agricultural products and ensuring food security

Since the process of production and delivery of food products is complex and influenced by many factors, their study, obtaining information on factors, and their processing justify the need to use ICT. Factors influencing food production and supply include the following (Figure 2).

In recent years, changes in the number and quality of natural resources remain important problems, including the increase in the load per unit of natural resources as a result of population growth, which causes changes in their quality.

The low level of profitability of agriculture compared to other sectors makes it necessary to support it with various levers. For this reason, various programs are developed to support agriculture in the countries of the world. In addition, changes in international trade agreements will cause the destruction of agricultural products. Because it is very difficult to preserve agricultural products and keep them in their natural state.

Smart agriculture helps the industry to adopt technologies and gain insight into how they can transform production processes. Since the starting point of the food production chain starts from the farm, it is appropriate to look for solutions from this stage as well. But solving this problem is more complicated and requires effective use of smart technologies in this process[2]. In this case, it is appropriate if the main attention is focused on the introduction of innovative technologies into the process, the introduction of scientific research developments into the activities of farms[3].

The introduction of ICT into the field has given rise to a number of new terms such as agriculture, digital agriculture and e-agriculture. One of the most common terms is the term precision agriculture, and this combination is widely used to describe the activities of farms in various directions. Various approaches to this combination have been mentioned in the scientific literature, so we found it permissible to mention the following approach. Precision agriculture is based on the integrated use of sensors, information systems, advanced mechanisms and messaging devices to optimize production taking into account the variability and uncertainties in agricultural systems[4]. However, it should be emphasized that smart agriculture and its equivalent concepts are not tied to a single technology, but include a set of technologies that should be used depending on the needs and situations.

Because the technologies used in smart agriculture are many and varied, the main technologies tend to cluster around five technologies (Figure 3).

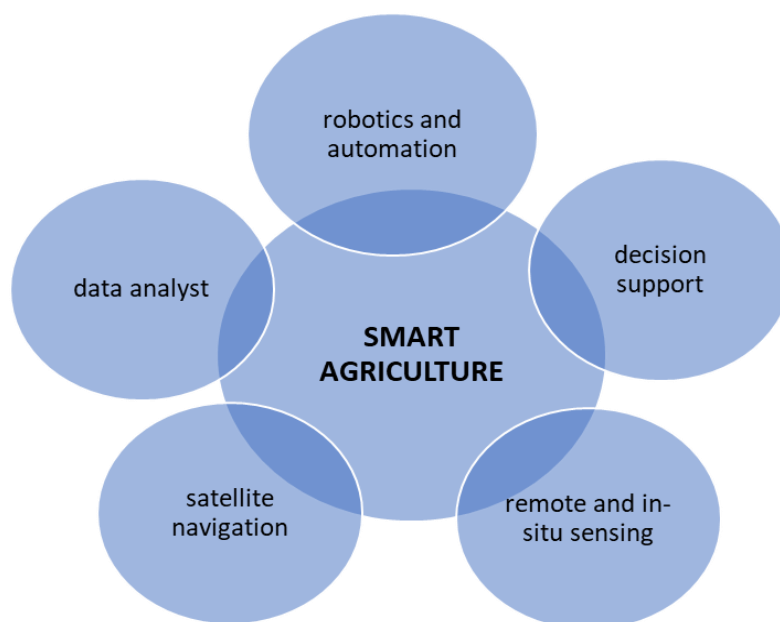


Figure 3. A collection of basic technologies in the formation of intelligent agriculture.

Currently, satellite navigation is important not only in agriculture, but also in other fields, where global positioning (GPS) and global satellite navigation (Galileo) systems are widely used. These systems provide satellite-based positioning. In the improvement of these systems, the main attention is focused on the delivery of signals to the ground with the required level of accuracy [5]. To reduce the accuracy to the centimeter level, it is necessary to use real-time kinematic positioning (RTK), which is widely used to correct errors in global satellite navigation (Galileo) systems. This requires the farm to provide the necessary equipment and install base stations, as the level of accuracy of the information varies in proportion to the distance to the base station. In agriculture, the level of accuracy of location is considered one of the important factors in decision-making[6].

It can be seen from the above that it is necessary to use information technologies to ensure the development of agriculture, but it has already become a natural necessity today. Because increasing productivity in agriculture, eliminating losses, optimizing decision-making processes remains highly dependent on the use of information technologies.

In conclusion, the use of information and communication technologies in the management of agricultural production processes provides the potential to improve food safety and sustainability by solving many problems, in particular, reducing environmental impacts and increasing transparency along the added value chain, increasing product quality.

According to the results of the research, the use of information technologies helps to reduce the vulnerability of agricultural products. Because the need to use ICT is explained by the following two main reasons. On the one hand, effective use of information technology helps to share experiences among farmers, and on the other hand, it helps to obtain information about weather and environmental changes, which are important factors in the production of agricultural products.

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Rezyume: Ushbu maqolada oziq-ovqat xavfsizligining yana bir muhim muammosi - yetishtirilgan mahsulotlarning yo'qolishi. Oziq-ovqat mahsulotlarini ishlab chiqarish va etkazib berish jarayoni murakkab va ko'plab omillar ta'sirida bo'lganligi sababli, ularni o'rganish, omillar haqida ma'lumot olish va ularni qayta ishlash uchun AKTdan foydalanish kafolatlanadi.

Резюме: В данной статье еще одной важной проблемой продовольственной безопасности являются потери выращиваемой продукции. Поскольку процесс производства и доставки пищевых продуктов сложен и находится под влиянием множества факторов, оправдано их изучение, получение информации о факторах и использование ИКТ для их обработки.

Kalit so'zlar: aqlli qishloq xo'jaligi, GPS, Galileo, real vaqtda kinematik joylashishni aniqlash, innovatsion texnologiyalar, oziq-ovqat xavfsizligi.

Ключевые слова: «умное» сельское хозяйство, GPS, Galileo, кинематическое позиционирование в реальном времени, инновационные технологии, безопасность пищевых продуктов.

OPTIMIZATION AND THE USE OF ECONOMIC-MATHEMATICAL MODELS IN IMPROVING THE ECONOMY

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Summary: This article describes the points of the organization's financial information systems project, describes the results of the implementation of the financial information system design method in the conditions of the local fund of the financial organization. Mathematical modeling is used to select the optimal financial information system option from various options. An optimal solution is obtained with the help of mathematical modeling. Recommendations are made based on the results chart.

Key words: Mathematical model, information technology, financial information system, information processing, database management system(DBMS), linear programming.

INTRODUCTION

A modern organization is a complex dynamic system focused on the performance of specific tasks, the totality of which characterizes the effectiveness of the information system. Improving the functioning of the corporative system can be ensured by using information technology's items, algorithms and mathematical modelling and optimization methods [1].

Informatization of production sectors in countries is a natural continuation of the objective process of social development and the collection, storage, transmission, processing and presentation of necessary information. Increasing the quality of work, labor productivity and efficiency in the fields of economy, production, communication, research, education, medicine and business is connected with the most modern information and communication technologies applied in them. Modern information and communication technologies deliver collected information products to people at a rapid pace, while reducing the level of labor, creating wide opportunities to solve existing problems. Therefore, effective use of information and communication technologies in all sectors of the economy serves as an indicator of technological and economic development of the country.

1 RESEARCH OF FINANCIAL INFORMATION PROCESSING TECHNOLOGIES

A financial information system is a set of technical and software supplies, algorithmic supplies and organizational measures designed to automate digital information processes in professional activities.

An automated financial information system provides the introduction of some modern information technologies for processing digital data in the course of professional activity.

In order to improve the efficiency and quality of financial object management, as well as to analyze the financial activity of the enterprise, it is necessary to create a comprehensive complex information system based on the use of modern digital and/or information technologies to prepare, receive, process, transmit, record, and control financial information. The purpose of the study is to automate the financial data processing system.

The financial information system requires solving the following tasks:

It is necessary to determine the purpose of the automated system of financial information processing;

It is necessary to consider the requirements and structure of financial systems of financial information processing;

It is necessary to determine the general structure of the object;

It is necessary to create a database;

The domain model should be described.

Purpose of automated financial information processing system. When considering the issues of automation of control systems, first of all, it is necessary to clarify the automation, that is, it is necessary to determine the objects of automation. In order to identify the objects of automation, it is necessary to analyze the operation process of the enterprise. As a result of the analysis, a description of the data processing process in the management system should be obtained, the elements of the financial information process should be determined. Analyzing the process of financial information processing in solving any management task, which includes the implementation of a specific mechanism for processing the information entered into it to a certain result, and is an interdependent process carried out individually by officials. allows to extract three types of financial information. A person's daily work activity is related to receiving and collecting financial information about the external environment, identifying and processing information necessary for solving various issues. For this reason, the above complex of actions, the means of their implementation serve as the basis for creating financial information systems (FIS).

2 DESCRIPTION OF MATHEMATICAL MODELING OF FINANCIAL INFORMATION SYSTEM

Solving some engineering issues, including energy supply in agriculture and water management, automation and control of technological processes, labor protection and technical safety issues, are brought to the solution of linear programming issues. A linear programming problem generally takes the following form:

$$\bar{Z}_i = \frac{1}{m} \sum_{j=1}^m \sum_{k=1}^p \beta_{jk} * Z_{jk}^i \quad (1)$$

$$\max \leftarrow Z = \sum_{i=1}^n A_i * X_i = A_1 * X_1 + \dots + A_n * X_n \quad (2)$$

Theorem 1. The objective function reaches its optimal value at the boundary points of the solution polygon.

The mathematical description of the restrictions has the form(3):

$$\begin{cases} B_1^0 * X_1 + B_2^0 * X_2 + \dots + B_n^0 * X_n \leq I^0 \\ B_1^1 * X_1 + B_2^1 * X_2 + \dots + B_n^1 * X_n \leq I^1 \\ \vdots \\ B_1^m * X_1 + B_2^m * X_2 + \dots + B_n^m * X_n \leq I^m \\ X_i \geq 0, \text{ integer number} \end{cases} \quad (3)$$

Thus, the mathematical model of linear integer programming has the form

$$\max \leftarrow Z = \sum_{i=1}^n A_i * X_i = A_1 * X_1 + \dots + A_n * X_n \quad (4)$$

under the constraints (4) where A_i is the target indicator, single measure;

3 IMPLEMENTATION OF MATHEMATICAL MODELING OF FINANCIAL INFORMATION SYSTEM IN THE DIGITAL ECONOMY

The mathematical model is constructed as follows: among companies providing Internet services in the Republic of Uzbekistan, it is required to choose an Internet provider that meets the maximum value of the net current effect (the largest total cost of capital) and demand. financial restrictions.

The mathematical model includes two stages:

1. Companies providing the Internet on the territory of the Republic of Uzbekistan are selected according to the method of expert assessment.

2. Using the methods of mathematical programming, the optimal option is selected from among the Internet providers selected at the first stage.

The peer review method is based on the experience and intuition of experts. A group of experts is developing a list of factors that characterize an Internet provider. Each factor is assigned a weight.

Next, experts evaluate the project under consideration for each factor, after which these estimates are summed up, taking into account predetermined weights, and then averaged over the number of experts.

Let $i = \overline{1, n}$ be the number of options for Internet providers project; $j = \overline{1, m}$ - number of experts evaluating options for Internet providers project; $k = \overline{1, p}$ - number of factors β_{jk} - the weight assigned by the j -th expert to the k -th factor, Z_{jk}^i - assessment given by the j -th expert to the k -th factor, then the average assessment of the i -th version of the Internet provider project is determined by the formula (1).

Ranking allows you to identify the most suitable options for Internet provider projects. At the second stage, the optimal project is selected from among the projects identified at the first stage. The problem of linear programming of the choice of the optimal project from the investment portfolio is formulated. To solve the problem, a mathematical model of linear integer programming has been developed.

The construction of a mathematical model includes four stages.

Stage 1. Definition of variables.

The variables in the mathematical model are the shares of financing of investment projects, the values of which determine whether the project will be implemented $X_i = 1$ or not $X_i = 0$.

Stage 2. Definition of purpose and limits.

The criterion for selecting projects in the optimal investment portfolio can be the maximum net present value cash flows (net present effect), maximum net accounting profit (saved costs), minimum present costs, shortest payback period. Constraints are the means of funding available in the relevant time periods.

Stage 3. Describing the goal through task variables.

Let Z be the total net present value of investment projects, then the mathematical formulation of the objective function is to determine an investment project from among the alternative ones that maximizes the value of the net present value. The target function looks like (2).

Stage 4. Description of restrictions through task variables. When solving the problem, the limitations on the available funding resources in the relevant time periods and the magnitude of the variables are taken into account.

B_j^i - investment costs of the i -th project in the j -th period of time, million dollars;

I_j - available funds in the j -th period of time, million dollars;

X_i - share of investment project financing (binary variable, the value of which determines whether the investment project.

$X_i = 1$ will be implemented or not $X_i = 0$.

$i = \overline{1, n}$ - investment project number;

$j = \overline{1, m}$ -- number of time period, year.

The economic and mathematical model for choosing the optimal investment project for Internet provider has the form:

$$\overline{Z}_i = \frac{1}{m} \sum_{j=1}^m \sum_{k=1}^p \beta_{jk} * Z_{jk}^i \quad (5)$$

under restrictions (5)

Using the economic-mathematical model, we will select the optimal Internet provider project for the territorial compulsory health organization fund.

At the first stage, we will select options for Internet provider projects using the method of expert assessments. In table. 1 shows the selection criteria, factor values and weighting factors. In Table 2 shows the calculated scores for Internet provider projects.

After ranking Internet provider projects for TF OMC, the investment portfolio includes CJSC NTV-Plus (about 199 points), Europe Online Networks (EOL) (about 177 points), Astra Networks (about 157 points), Satpro (about 152 points) and Network Service (about 137 points).

In table 3 shows the costs for the implementation of Internet provider projects selected at the first stage economic and mathematical model.

In table. 4 shows the initial data for choosing the optimal Internet provider project from the investment portfolio. Net Present Value (NPV) is calculated using the formula (6) $j=\overline{1,m}$.

where kP - annual earnings;

r – discount rate;

IC – investment;

n – duration of the project, years;

m - duration of consistent investment of financial resources, years;

i – projected average inflation rate.

The net present effect from the implementation of the Internet provider project provided by NTV-Plus CJSC at a discount rate $r=25\%$ and a predicted average inflation rate $i=14\%$ is determined by formula (6) and is numerically equal to (7):

$j=\overline{1,m}$

The mathematical model can be written as an objective function and constraints

$$\max \leftarrow Z = 1,52726999 * X_1 + 0,741240001 * X_2 + 1,3743999 * X_3 + 0,14510999 * X_4 + 0,53001 * X_5 \quad (6)$$

$$\begin{cases} 5,39909 * X_1 + 3,1999 * X_2 + 2,931003 * X_3 + 6,286003 * X_4 + 5,901 * X_5 \leq 6,499906 \\ 2,00643701 * X_1 + 1,499901 * X_2 + 3,000546999 + 3,000574999 * X_4 + 3,199903 * X_5 \leq 2,99906 \\ 2,499908 * X_2 + 1,999075 * X_3 + 1,6 * X_5 \leq 2,99903 \\ 0,88183199905 * X_2 + 1,186 * X_5 \leq 1,499902 \\ X_1, X_2, X_3, X_4, X_5 \geq 0 \\ X_1, X_2, X_3, X_4, X_5 - \text{integer number} \end{cases} \quad (7)$$

Table 4. Initial data for determining the optimal project

Period time f, years	Investment costs, million dollars					Total investment costs, mln dollars	Available funds funding, mln dollars
	NTV Plus	EOL	Astra Network	Satpro	Network Service		
F=0	-5,4000	-3,2000	-2,9310	- 6.286001	- 5.899902	- 23.71699	6,499901
F=1	-2,0064	-1,5000	-3,0005	- 3,000574	- 3.199901	- 12.70756	3
F=2	0,0000	-2,5000	-2,0000	0,000000	-1,6	- 6.100000	3
F=3	0,0000	-0,8818	0,0000	0,000000	- 1.186532	2.068364	1,499903
NPV	1.5272	0.7412	1,3743	0.145110	+0.53031 0		

The problem of mathematical modelling is solved by the methods or branches and bounds. On computer, the problem of mathematical modelling was solved using the add-on "Search for a solution" ("Solver") Microsoft Excel for Windows 10. The optimal investment project for satellite Internet is NTV-Plus. The maximum net present value is \$1.5272699901 million.

The calculation results given in Table 3, Table 4 are given in the following graphs.

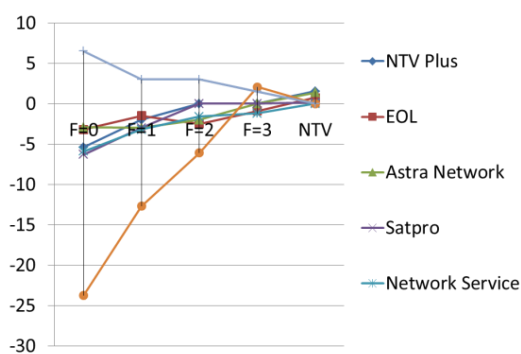


Fig.1. Table 3 results

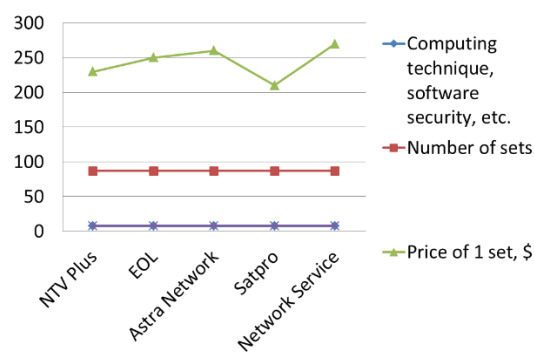


Fig.2. Table 3 results

4 CONCLUSIONS

A modern organization is a complex dynamic system focused on specific tasks, the sum of which describes the effectiveness of the information system. Improving the performance of the corporate system can be ensured by the use of information technology objects, algorithms and mathematical modeling and optimization methods. At the same time, the statistical data of companies providing Internet services in the Republic were used and the issue of choosing a provider with maximum service values was solved. The main results are presented in Table 3, Table 4. Graphs of changes in results are shown in Figures 1 and 2. The indicated measures allow the active role of telecommunications, computer and information technologies to increase in the growth of the efficiency of the country's economy. It makes it possible to ensure that people's activities and life are equipped with the most modern types of technical devices and services. It enables successful integration of the state into world processes.

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Rezyume: Ushbu maqola tashkilotning moliyaviy axborot tizimi loyihasining nuqtalarini ochib beradi, moliyaviy tashkilotning mahalliy fondi sharoitida moliyaviy axborot tizimini loyihalash usulini amalga oshirish natijalarini tavsiflaydi. Matematik modellashtirish turli variantlardan moliyaviy axborot tizimining optimal variantini tanlash uchun ishlatiladi. Optimal yechim matematik modellashtirish yordamida olingan. Natijalar jadvali asosida tavsiyalar beriladi.

Резюме: В данной статье раскрыты пункты проекта финансовой информационной системы организации, описаны результаты реализации метода проектирования финансовой информационной системы в условиях локального фонда финансовой организации.

Математическое моделирование используется для выбора оптимального варианта финансовой информационной системы из различных вариантов. Оптимальное решение получено с помощью математического моделирования. Рекомендации даются на основе таблицы результатов.

Kalit so'zlar: Matematik model, axborot texnologiyalari, moliyaviy axborot tizimi, axborotni qayta ishlash, ma'lumotlar bazasini boshqarish tizimi (DBMS), chiziqli dasturlash.

Ключевые слова: Математическая модель, информационные технологии, финансовая информационная система, обработка информации, система управления базами данных (СУБД), линейное программирование.

THE ROLE AND PLACE OF THE TRANSPORT COMMUNICATION SYSTEM IN THE GLOBAL ECONOMY

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Summary: *Automobile, railway, air, pipeline and sea transport systems constitute a single transport communication complex. The article discusses the main scientific and practical problems of using the global economic potential of this complex. Recommendations on improving the methodological basis for the effective use of the resource potential of the transport communication complex are given.*

Keywords: *Road transport, rail transport, air transport, pipeline transport, sea transport.*

Trends in the development of the transport system in the global economy are one of the most important and relevant topics today. As you know, the global transport system is one of those key sectors of the world economy that have a huge impact on the dynamics of economic processes, the development of international cooperation and specialization, and the internationalization of the economy. Global transport system in the modern world plays a very important role in the implementation of world economic relations. Thus, transport is the most important component of the global economy, linking together all its other elements. The specialization of countries, their systematic and dynamic development is not possible without the development of the transport system. In many ways, it is the development of this factor that has a direct impact on the location of productive forces. In total, there are five most basic components of the modern global transport system: land transport: road, rail, pipeline; water (river and sea); air. Taken together, the above components form an integral complex of a unified transport system of the world. The world transport system is, therefore, the totality of all communication routes, vehicles and transport enterprises of the world economy.

At the end of the 20th century, first in Japan and then in Europe, a high-speed railway system was actively developing, which made it possible to travel at speeds of 300 km/h or more. Such railways are now quite serious competitors to airlines. The role of subways and suburban railways is significant in the modern world. Electrified railways are much more environmentally friendly than road transport. Railway transport holds second place (after sea transport) in terms of freight turnover and also second place (after road transport) in terms of passenger turnover. In terms of the length of the global railway network (which is 657,382 km - 2023), this type of transport is inferior to road transport. The leading country in terms of the length of the railway network is the USA (224,792 km, according to data for 2023). For a long time, the length of the Russian railway network in 2023 amounted to 87,157 km, then as of January 1, 2023 in the Republic of Uzbekistan, the length of public railways amounted to 4,726.1 km. The main function of railway transport is to transport bulk agricultural and industrial goods (such as, for example, grain, steel, aluminum, coal, etc.) over long distances. A specific feature of this type of transport is the regularity of its movement, regardless of weather conditions and the time of year. There are very significant differences in the degree of development of railway communications (network density, length, level of electrification of railways, etc.) across countries and regions.

Road transport, which originated at the dawn of the 20th century, soon became the leading mode of land transport. The length of the highway network is growing from year to year and amounted to 64,285,000 km in 2023, while almost half of them are in the most developed and large countries of the world, in particular the USA, India, Japan, China, and Russia. Nowadays, road transport is the most common of all types of transport. The total length of the road network of the Republic of Uzbekistan is 184 thousand km, including public roads - 42.7 thousand km, inter-farm roads - 67,315 km, streets of cities and other settlements - 61,664 km, departmental roads - 12,093 km. Over 80% of roads have a hard surface. The undeniable advantages of road transport are speed, flexibility, and maneuverability.

Air transport is the fastest and at the same time the most expensive mode of transport. The main scope of application of this type of transport includes passenger transportation over distances exceeding thousands of km. Freight transport is also carried out using air transport, but their share is very low. For the most part, air transport is used to transport perishable products, especially valuable cargo, and mail.

Water transport appeared before all others. This type of transport is the cheapest after pipeline transport. The volume of cargo transportation by water transport now covers about 60-67% of the total global cargo turnover. Bulk cargo, such as, for example, building materials, ore, coal, and timber, is mainly transported along inland waterways. In recent decades, the role of water transport in passenger transportation has largely declined. The reason for this is mainly low speeds. The only exceptions that can be mentioned are high-speed hovercraft and hydrofoils. In addition, the role of cruise ships and ferries is still significant.

Pipeline transport is the most specific, since it transports specific types of goods: oil products and gas. Maintenance of this type of transport does not require significant personnel. Pipes are laid both on the ground and underground, as well as on overpasses, and pumping stations drive the load. The creation of a wide network of pipelines has made it possible to successfully transport petroleum products and natural gas over considerable distances. At the same time, there is no need for intermediate reloading processes, which is typical for other types of transport. Thus, an important feature of pipeline transport is the continuity of its operation. The next indisputable advantage of pipeline transport is the possibility of laying its main lines in conditions of a wide variety of different terrain, including through large expanses of water, as well as in permafrost conditions.

Thus, continuing long-term trends in global transport development is aimed at expanding the global network of transport communications, increasing their load, as well as further improving the synchronization of the operation of various modes of transport. Of course, the most dynamic, successful and effective progress in the transport sector occurs in developed countries. So, for example, in the United States of America, over the course of several decades, domestic freight turnover has more than doubled to 5,000 billion ton-km. Quite impressive growth is observed in the areas of road and air transport. Similar trends are inherent in the developed countries of the European Union. Transport communication is a tool for achieving social, economic, foreign policy, military and other goals. To fulfill these functions, transport must be aligned with the underlying economic paradigm, outpacing overall economic development.

To summarize, we can say that today transport policy in the Republic of Uzbekistan is in dire need of deep and comprehensive modernization. In the conditions of radical economic reform in the Republic of Uzbekistan, a well-thought-out state transport policy is needed that takes into account the characteristics of transport as a supporting segment of the domestic economy and its role in economic and social processes. transport social economic domestic economy

In the modern world economy, the transport system acts as an important tool and source of integration processes: transport participates in the development process and structuring of a market economy; transport infrastructure shapes the economic space; the transport system contributes significantly to the development of world trade; promotes the globalization of innovative production, as well as the acceleration and development of scientific and technological progress; stimulates the participation of firms in the global market by expanding opportunities for access to major markets for goods and services; stimulates employment growth, creating more and more new jobs (for example, in the aviation industry alone, more than 30 million jobs are created); stimulates the introduction of innovative technologies; contributes to the expansion of investments in various regions and countries, as well as the diversification of the economies of countries and the entire world economy as a whole.

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Rezyume: *Avtomobil, temir yo‘l, havo, quvur va dengiz transport tizimlari yagona transport kommunikatsiya kompleksini tashkil etadi. Maqolada ushbu kompleksning jahon iqtisodiy salohiyatidan foydalanishning ilmiy va amaliy muammolari muhokama qilinadi. Transport aloqa kompleksining resurs salohiyatidan samarali foydalanish uchun uslubiy bazani takomillashtirish bo'yicha tavsiyalar berildi.*

Резюме: *Автомобильный, железнодорожный, воздушный, трубопроводный и морские транспортные системы составляет единый транспортный коммуникационный комплекс. В статье рассмотрены роли научные и практические проблемы использования мирового экономического потенциала этого комплекса. Даны рекомендации по совершенствованию методической базы для эффективного использования ресурсного потенциала транспортной коммуникационный комплекса.*

Kalit so‘zlar: *Avtomobil transporti, temir yo‘l transporti., havo transporti, quvur transporti, dengiz transporti.*

Ключевые слова: *Автомобильный транспорт, железнодорожный транспорт., воздушный транспорт, трубопроводный транспорт, морской транспорт.*

PECULIARITIES OF DESIGN OF DIDACTIC POSSIBILITIES OF MASTERING LESSONS IN PRIMARY GRADES

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Summary: *In this article, the peculiarities of designing lessons in a certain way within the possibilities of mastering lessons for elementary school students are analyzed in detail from a scientific and theoretical point of view.*

Key words: *primary class, lesson, mastering lessons, didactic opportunity, design, feature.*

In his Address to the Oliy Majlis and our nation, the President emphasized the need to develop free and creative thinking, team work and communication skills in schoolchildren. In our schools, tasks were defined such as the need for each student to be thoroughly educated in specific directions, depending on his abilities, and to expand the opportunities to enter prestigious universities of the world. Therefore, starting from 2023, by completely reforming school education on the basis of international educational programs, it is necessary to organize these works in a systematic way, to develop new textbooks, and to establish separate scientific institutes and laboratories to introduce advanced educational standards and methods. they said. Currently, scientific research is being carried out in this field, including the scientific and pedagogical research that we are researching, aimed at the organization of quality education in primary education.

An important stage of the teacher's professional activity in the educational process is the design of the didactic process (or educational structure). It is this didactic process that forms the basis of modern pedagogical technologies, that is, it determines the ways to present the content of educational elements to students in order to achieve the goal of education (education) within the specified time. Also, it is impossible to achieve effective results without a good knowledge of the theoretical foundations of the didactic process.

In-depth knowledge of the theory and practice of pedagogy and psychology of primary school teachers is closely related to the improvement of the level of professional training and qualification, based on mastering the most productive methods of developing the child's personality. Primary education teachers should effectively perform their necessary function in pedagogical activity, management of socio-typical behavior. The effectiveness of the use of advanced educational technologies in primary classes is demonstrated by its versatility. Pedagogical technology has the ability to design, diagnose and differentiate stages of personality development. This depends on the pedagogue's ability to use educational technologies.

There are different forms of verbal communication, the main of which include setting up speech, talking, asking questions, answering questions, arguing, debating, informing, advising, exhorting, reprimanding, congratulating, greeting, saying goodbye. Speech pronunciations used in these forms of verbal communication allow the speaker's thought to deepen and enhance the meaning that is in accordance with his purpose. By achieving the educational literacy of primary school students, turning them into active participants of the social society "embodying the highest spiritual and physical perfection characteristic of mankind", "raising a healthy generation in our modernizing society", "forming the spirituality of a free citizen", "spiritual " formation of persons capable of raising moral and educational work to a high level" [1] places a great responsibility on primary education.

The use of modern pedagogical and information technologies in the primary education system increases the effectiveness of the student's acceptance and assimilation of educational materials. Basically, the unique aspect of didactic game technology in the educational system, its differences from traditional education, the independence of elementary school students and the orientation to the set goal require the organization of educational activities in cooperation. Consciously directing them to their

activities is considered not to carry out any activity by command, but to increase students' interest in learning the basics of science, to give them the right to freely choose without limiting the possibilities of individual needs and interests.

The didactic process requires continuous use of one or another technical means in accordance with the educational content. This direction is one of the conditions for the existence of modern pedagogical technology. Both the designer of modern pedagogical technologies and the one who implements them are considered pedagogues, and it is envisaged to train a qualified specialist.

In fact, the teacher should be able to make a conclusion about the creation and implementation of the didactic process that ensures the achievement of the result within the allotted time as a diagnostician of the educational goal in accordance with the state order.

When organizing the content of the educational process that corresponds to the specified educational goal, the teacher must take into account the degree of abstraction of the subject and the level of mastery. Professor J. Yoldoshev writes about this: "The teacher should be familiar with the requirements of the didactic process as a structural element of the pedagogical system and design its optimal option depending on the subject of each lesson" [2]. These requirements are implemented according to the principles of acceleration and nature of monandy, which ensures the solution of didactic issues within a certain time frame at a faster and higher level. As a result, a mechanism is created that allows students to acquire a wide range of experience (knowledge, skills and creative activity) and develop their intelligence.

It is necessary for the teacher to be able to use effective forms of teaching in the implementation of the didactic process. This means that the elements in the pedagogical system are related based on a certain law. Using these connections and finding acceptable organizational forms leads to de-formalization in education. So, didactic design directs students to active connection during the educational process, freeing them from passive connection - ready learning of knowledge, based on memory, learning material from verbal interpretation. Active connection is formed as a result of personal aspiration, interest, achievement of knowledge needs through personal activity. It is precisely that raising the educational process to a higher level depends on proper coordination, and when it becomes the main principle of organizing, managing, and controlling education, the student becomes an equal subject with the teacher in the educational process. Education is carried out jointly by the teacher and the student, and the value of reading and learning increases for the student.

In conclusion, the use of pedagogical technologies in the educational system not only ensures the priority of the process of educational organization, but also creates the basis for the development of the entire society as a social order. Currently, the didactic goals and perspectives of introducing modern pedagogical technologies into the primary education process are as follows:

1. Introducing the pedagogical team to the basics of modern pedagogical technology, recommending literature.
2. Identifying the elementary school team working on the basis of modern pedagogical technologies, conveying to them the goals and objectives of using modern pedagogical technologies.
3. During the period of the development of renewed pedagogical thinking, control the activities of teachers, conduct observations and analyzes, and provide methodical support.
4. Organizing a room of didactic materials necessary for working on modern pedagogical technologies.
5. Disclose the benefits of working with modern technology, the support of students, parents, and the pedagogical team.
6. Formation of a pedagogical team consisting of advanced, innovative pedagogues.
7. Continuity of updating, ensuring continuity, etc.

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Rezyume: Ushbu maqolada boshlang'ich sinf o'quvchilarida darslarni o'zlashtirish imkoniyatlari doirasida muayyan tarzda loyihalashning o'ziga xos xususiyatlari ilmiy-nazariy jihatdan atroflicha tahlil qilingan.

Резюме: В данной статье с научной и теоретической точки зрения подробно анализируются особенности построения уроков определенным образом в рамках возможностей усвоения уроков учащимися начальных классов.

Kalit so'zlar: boshlang'ich sinf, dars, darslarni o'zlashtirish, didaktik imkoniyat, loyihalash, xususiyat.

Ключевые слова: начальный класс, урок, освоение уроков, дидактическая возможность, конструкция, особенность.

UDK:5527

METHODOLOGY OF DEVELOPING MENTAL TRAINING OF TEENAGE VOLLEYBALL PLAYERS

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Summary: *This article analyzes the issues of development of willpower, perception, attention and vestibular analyzers of young volleyball players. Current issues and aspects of psychological training in modern volleyball are covered. Appropriate conclusions have been drawn up regarding the organization of psychological training.*

Key words: *volleyball training, volitional training, vestibular analyzer, psychological training.*

Psychological preparation is very important in sports. Psychological preparation is a complex and long-term process. Several studies have been conducted by scientists of our Republic and foreign countries (Z. Gapparov, Y. Masharipov, David Lavalley, John Kremer) on improving the psychological preparation of athletes, but volleyball, which is part of sports games, psychological training has not been carried out sufficiently. Nowadays, training of modern volleyball players is one of the urgent issues. The main and necessary condition of the process of developing volitional qualities specific to volleyball players is the use of exercises that strengthen the will during training sessions.

Modern volleyball players must have the following basic willpower qualities:

- striving for the goal and determination;
- endurance and self-control;
- stability and tenacity;
- maintain initiative and discipline.

All volitional qualities are inextricably linked. Volitional qualities are not formed in the same way in volleyball players. The process of developing these qualities should not be carried out blindly. On the contrary, it will be necessary to manage it. Therefore, the better educational activities are carried out in the course of training, the faster willful qualities are formed.

When forming the perception of volleyball players, it is necessary to be able to see all the players on the field, to take into account their locations, actions, feel the direction, speed, height of the ball, and correctly set the target in difficult game situations.

Useful perception, in turn, is based on the acuity of the visual receptor, the size of the vision, the width of the vision, and the depth of vision. Therefore, there are concepts of discrimination, analysis and feeling by seeing. Shooting, blocking, passing, receiving the ball in volleyball depends on peripheral vision - that is, the width of the viewing angle. Therefore, the correct application of the tactical situation is determined by these qualities.

The limited field of vision leads to the inability to choose a favorable situation when organizing an attack, the player makes the wrong decision - which creates a favorable opportunity for the opponent[1,2].

Studies show that the range of vision (angle) of the field increases as a result of regular training with volleyball players. This is a natural situation that occurs by itself, taking into account the unique nature of the volleyball game. But the use of specially specialized exercises to increase the width of vision and the size of vision will give a very effective result.

The ability to accurately distinguish between the moving players and the flying ball plays an important role for the timely and correct execution of this or that technical-tactical method; accurate targeting of the distance to the place of one's partner, to the net, to the place of the opponent - feeling it makes it possible to implement the technical method with an effective tactical decision. [3,4].

Many studies show that the ability to measure the distance by "eye" (glazomer) increases rapidly as a result of regular practice of volleyball. It has been found that the exact measurement of the distance between the eyes depends on the level of training of the athlete, just like the ability of peripheral vision. In particular, when a volleyball player is in a good "sports form" (high level of preparation), the accuracy of eye measurement is more than 40-45%. If you do not participate in the training for 2-3 weeks, the accuracy of eye measurement will weaken by 20-30%. That's why some coaches can't correctly determine the reason for unsuccessful tactical actions in the game, even if the athletes who have not come to training several times have physical and technical training. [5].

Trainings and games should always be held in halls with adequate natural light (daylight) and artificial light (electrical light). Studying in dimly lit or abnormally lit halls causes symptoms of eye muscle and receptor strain, and dramatically reduces vision, width of vision - the accuracy of eye measurements.

Different colors have different effects on the human psyche. The psychophysiological function of color is related to the creation of favorable conditions, such as seeing, feeling (perception) through vision, delaying fatigue, and even improving light. But not all colors affect vision in the same way. Among the colors, white, yellow and green have a positive effect on vision than other colors. Symptoms of fatigue appear faster when exposed to black, red, purple, blue colors. Depending on its type, color changes the threshold of feeling hot or cold, changes in length, width or height of a room, and the weight of an object. Colors change the emotional state of a person and have a positive or negative effect on his nervous system. Coaches should know these mentioned factors and take them into account during their activities.

The main requirement for the formation of the accuracy of distance measurement by eye is to change the intervals of passing the ball, bringing the ball into play, and giving offensive shots in training. To do this, it is useful to perform these techniques at different speeds, directions and heights. The ball should be put into the game in different ways, in different distances and directions, and the kick should be performed in pairs, threes and fours in different zones according to the instructions of the coach. Emphasis on the use of visual functions in this process will be more beneficial.

Volleyball players should control and visually feel the elements, phases, coordination structure, technical structure and content of their movements during training.

Performing all technical techniques specific to volleyball is done under the control of the mind.

The following are examples of the most important psychological characteristics of volleyball players. For example: during the game, a volleyball player concentrates and controls his movements. Controls muscle tension and acceleration, targets distance with the ball, evaluates and makes decisions. All this is related to the formation of the coordination of the movement skills of volleyball players with the help of exercises. An important role is played in this by the skill of distinguishing between the interval-time, precision - acceleration and tension levels.

It is known that the main technical method performed in volleyball is related to the correct feeling of the muscles of the palm and fingers in coordination with the passing of the ball. This ability is determined by the athlete's perfect training. In particular, when a volleyball player reaches high sports form, the accuracy of muscle movement increases by more than 2.5 times. It has been found that players who are not fully trained or are not in good sports form will not have such a result. The degree of accurate discrimination of muscle tension is 3 times higher in link players than in forwards[6].

Volleyball requires every player to react with maximum speed. The activity of a volleyball player requires that he be ready to show a reaction in a tense situation and in the absence of time.

All movements of volleyball players are distinguished by a very complex reflex, selection reaction and its correct implementation. This action is not only fast, but also requires accurate execution on time. For this, it is crucial to perceive, notice and feel the situation in time.

Complex movement reaction plays a decisive role in modern volleyball. Choosing a place on the field, arriving at it in time, determining the speed, direction and height of the ball, the movement of

oneself and the opponent, the necessary distance - feeling the time indicators and returning a useful response - a complex movement constitutes the main functional elements of the reaction.

The development of simple and complex movement reaction, in other words, it is appropriate to use rapid exercises performed along very sharply changing directions. Such exercises, of course, are used in combination with imitating methods such as movements performed in changing directions, jumping movements, jumping, twisting, turning, and falling. Regular use of such exercises increases the ability to maintain static and dynamic balance, the vestibular receptors, and the ability to feel the movements of oneself and the opponent in various situations, as well as the direction of the ball.

The functional activity of the vestibular analyzer is closely related to the activity of other analyzers. Therefore, regularly performing the above-mentioned acceleration-stopping, turning-turning and jumping exercises unites the activity of all analyzers. In the process of using the exercises, it is advisable to perform such functions as movement reaction and mental reaction (seeing, distinguishing, choosing, clearly aiming) at the same time. Such a process, especially as a result of the use of special exercises designed to develop the vestibular analyzer, increases the efficiency of playing in attack and defense, including passing the second ball.

In order to improve vestibular stability or the ability to maintain balance during training, it is necessary to use rotational movement exercises specialized for this analyzer function. Examples of such exercises are jumping on a trampoline, circular movements, acceleration and stopping exercises, and acrobatic exercises. If these exercises are used together with technical exercises specific to volleyball, the result will be more significant. For example, the time when you perform the "ten-up" or circular movement exercises, the accurate execution of ball passing exercises, forward-backward, right-left sides and diagonally fast running - after a sharp stop, the ball Regular practice of passing, kicking, and throwing the ball improves coordination and accuracy of technical techniques. Organizing training in this order not only integrates the functional activity of all analyzers, but also "sharpens" the qualities of feeling the ball, the field, and time-distance.

Developing the attention of volleyball players is one of the priority aspects of learning, mastering and improving the effectiveness of technical-tactical methods and game combinations in the course of many years of training. Physical and functional training, which is the foundation of mastering sports skills, is also based on attention indicators. The analysis of volleyball trainings and competitions shows that the effective execution of technical and tactical actions is determined by the size of the players' attention, its concentration speed, stability, dispersion, transfer from one object to another object. determined. A volleyball player must have the ability to see, feel, memorize and store many objects at the same time during the game. For this, first of all, the amount of attention should be sufficient. Moreover, while seeing and feeling the object, each player needs to reflect in his imagination the small elements of this object, its structure, at what distance, at what speed, direction and height it is moving. [4].

In volleyball, there are often such complex and extraordinary situations that understanding and distinguishing them in a short time, making the right decision and implementing it, all structural indicators of attention are important. Relaxing attention when it is not necessary (for example, when the ball is out of play), and, on the contrary, concentrating (collecting) it in the necessary direction in tense game situations, distributing it to several points if important, concentrating again or it will be necessary to move to another point.

Modern volleyball is distinguished by the fact that the ball flies at maximum speed, the players move quickly in changing directions, and the game situations change dramatically. All this depends not only on the speed of concentration and its persistence. For example, a volleyball player, while receiving the ball, at the same time pays attention to the distance to the ball, the distance of the passing zone, where his players are moving or located. requires the selection of a transmission method.

In conclusion, it should be said that the observed indicators of attention change depending on the level of preparation of volleyball players or their fitness. In particular, it was found that the attention span of players who did not train for a month will weaken by 25-30%.

It can be seen that psychological preparation specific to volleyball players, including tactical thinking (thinking, memory, perception, consciousness, attention, will and analyzers) activities in an integrated manner with the help of specialized exercises for volleyball players, serves as the fundamental basis of the training process of highly qualified volleyball players.

Achieving victory in various prestigious competitions, which take place under extremely intense competition, is related to the formation of technical and tactical actions, physical and psycho-functional capabilities that are the basis for ensuring this victory. For this, every trainer must have a perfect knowledge of the methods, tools and principles of teaching and improvement in his professional and pedagogical activities, and master the technology of their application.

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Rezyume: Ushbu maqoloda yosh voleybolchilarni irodoviy tayyorgarligi, idrok qilish qobiliyati, diqqat va vestibulyar analizatorlarni rivojlantirish masalalari tahlil etilgan. Zamonaviy voleybolda psixologik tayyorgarlikning dolzarb masalalari va jihatlari yoritilgan. Psixologik tayyorgarlikni tashkil etish yuzasidan tegishli xulosalar ishlab chiqilgan.

Резюме: В данной статье проанализированы проблемы развития вестибулярного аппарата, волевой подготовки, тактического мышления и внимания. Освещены актуальные проблемы свойства психологической подготовки современного волейбола. Сделаны выводы по психологической подготовке спортсменов.

Kalit so'zlar: voleybol o'quv-mashg'uloti, irodaviy tayyorgarlik, vestibulyar analizator, psixologik tayyorgarlik.

Ключевые слова: учебно-тренировочный процесс, волевая подготовка, вестибулярный анализатор, психологическая подготовка.

UDK 338.46:332.6

REAL ESTATE DEVELOPMENT AS A FACTOR OF INCREASING INVESTMENT ATTRACTIVENESS OF THE COUNTRY'S ECONOMY

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Summary: *The article considers development as a form of investment in the real estate market. Problematic situations and their characteristics in the development and implementation of development projects are identified, as well as the socio-economic importance of development and its development in the investment-construction complex are considered.*

Key words: *real estate development, investment, real estate development, development projects, development efficiency.*

An important task of any country is to improve investment mechanisms, especially the real estate market, which occupies a special place in the development of the country's economy, is of particular importance. The real estate market is a traditional sector of the economy and, at the same time, a part of the most dynamically developing investment market, because any process in it always has investment content [1]. Interest in owning, operating, and disposing of real estate is increasing, and the real estate industry is in constant transformation, changing the way it is traditionally financed, built, and sold.

In recent years, as a result of the opportunities created by our state for entrepreneurs and owners, a relatively new direction - developers - has appeared in the real estate market in our country.

Despite the novelty of the term "real estate development" for the national market, it is possible to witness the increasing use of this term in investment-construction processes. Studying real estate development and developer activities is relevant and necessary in the conditions of the growth of the development of the economy, especially the construction market.

At the same time, the development of construction activities as a new type of business sector is taking place directly depending on the structure of the real estate market. In contrast to the era of the command economy, when real estate was directly under state management, under the market economy, a large share of real estate was privatized. This made the real estate sector one of the leading sectors of the economy with its own characteristics.

Real estate development is one of the current directions of studying the development trends of the real estate market and investment activity in this area[1]. The term "development" is derived from the English word "to develop" and means "to develop, to expand, to advance". In our country, development is a relatively new line of business emerging at the intersection of construction, investment, real estate and entrepreneurial activities. That is, it is a business activity that leads to an increase in the value of real estate by creating, reconstructing or improving the existing building or land [5]. Accordingly, the developer is an organization engaged in the creation of real estate objects and the organization of corresponding processes. As a rule, the developer leads the process of creating buildings at all stages, from design to sales and operation managers.

The development company is the initiator of the development activity and performs the functions of organizer and coordinator of activities of many other participants.

In the Republic of Uzbekistan, unlike Western countries, the functions and tasks of development companies are not defined by law, which in turn led to their expansion.

The main functions of the development company include [3]:

- 1) pre-project analysis (marketing, investment, etc.);
- 2) preparation and approval of permitting documents;

- 3) attraction of investments;
- 4) design management;
- 5) construction management;
- 6) marketing of real estate;
- 7) servicing the real estate object.

The tasks to be solved at one or another stage of the development activity, the list of their participants and even the functions of the development company are not standard and permanent. These components may differ depending on the type of development projects.

During the implementation of the development project, the developer must solve two main tasks [2]:

- to create an investment attractive real estate object in the market at the right time and in the right place and offer it;
- creation of a real estate object at minimal costs and at an acceptable time.

Development activities are complex, multidimensional and closely related to other areas of business - construction and investment activities.

The introduction of the development system in the design of investment construction allows: firstly, it reduces the time of development and implementation of any project by 7-15% (the construction stage by 10-15%); secondly, it reduces costs by 5-15% (5-15% by reducing labor capacity, reducing construction costs by 10-20% and operating costs by 15-20%) [4].

The characteristics and problematic issues of the development and implementation of development projects are given in the table below (Table 1) [6].

Table 1

Features	Problematic issues
1) High capital capacity	- projects require large investments (for example, according to The fDi Report 2019, on average, the implementation of one Green Filed project in construction requires an investment of approximately 100 million dollars, and in the IT sector - 13 million dollars); - the need to attract external financing, in some cases the joint participation of private business and the state is required; - high price of the final product of the development project - real estate; - the payback period of the project is long
2) Long-term projects and the need to monitor their implementation	- the need to take into account changes in the external environment (demand, supply, facilities environment); - increasing the role of planning and forecasting; - need to manage time, time planning-need to manage high risk and project risks
3) Low liquidity of investment objects	- difficulties in selling ready real estate on the market; - the difficulty of exiting the development project;
4) Local characteristics of real estate objects	- The impact of the location on the overall

(stationarity)	project and its cost (at the same time, architectural and technological solutions, the amount of investment real estate with a different location will bring different returns); - the success of the project depends on the regional characteristics and level of socio-economic development of the area
5) Uniqueness of each development project	-Limited possibilities of standard solutions and standard projects; - innovative nature of projects
6) Complexity of projects and involvement of a large number of participants	- the technical complexity of the process in terms of urban planning, architecture, technology and economics; - dependence of the possibilities of the building complex and the regulation of urban planning on external conditions; - lack of transparency in the market due to incomplete and outdated information; - superiority of the organizational function of development; - the need to involve a large number of participants in the project and coordinate their activities; - complicated procedures for project approval; - high level of state regulation; - high level of state and public control; - increased public interest and the need for public protection of the project

The problems faced by developer companies operating in the real estate market of our country mainly include:

- lack of special developer legislation;
- problems of obtaining land plots and a long period of registration of rights;
- lack of vacant plots of land in areas provided with infrastructure;
- increase in the costs of providing the development site with infrastructure;
- market volatility and forecasting difficulties due to the long project implementation period;
- increased competition in the development market as a result of the arrival of new foreign companies working in it;

In short, it is necessary to study the developer's activities in the real estate market more deeply and conduct scientific research in this field.

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Rezyume: Maqolada ko'chmas mulk bozorida developmentga investitsiya shakli sifatida qaraladi. Developerlik loyihalarini ishlab chiqish va amalga oshirishda muammoli vaziyatlar va ularning xususiyatlari aniqlanadi, shuningdek developmentning ijtimoiy-iqtisodiy ahamiyati hamda investitsiya-qurilish kompleksida rivojlanishi ko'rib chiqiladi.

Резюме: В статье рассматривается рынок недвижимости как форма инвестирования в девелопмент. При разработке и реализации девелоперских проектов выявляются проблемные ситуации и их характеристики, а также рассматривается социально-экономическая значимость девелопмента и его развитие в инвестиционно-строительном комплексе.

Kalit so'zlar: ko'chmas mulkni rivojlantirish, investitsiya, ko'chmas mulk developmenti, developerlik loyihalari, rivojlanish samaradorligi.

Ключевые слова: развитие недвижимости, инвестиции, девелопмент недвижимости, девелоперские проекты, эффективность девелопмента.

UDK 347.4

ANALYSIS OF FORMATION AND USE OF ECONOMIC TERMS IN UZBEK AND KARAKALPAK LANGUAGES

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Summary: *The article is devoted to issues related to the vocabulary of the Uzbek and Karakalpak languages and the sources and methods of its enrichment. It is intended to reveal and explain the meanings of words that have been adopted into the Uzbek and Karakalpak languages and new lexemes that appear based on the internal capabilities of these languages.*

Key words: *lexicography, lexicography, social relations, new words, modern lexicon, language and culture, science and technology.*

Today, in the period of development of science and technology all over the world, the attention to learning foreign languages is definitely increasing day by day. A clear example of this is the decision of the President of the Republic of Uzbekistan on the measures to bring the activity of popularizing the study of foreign languages to a qualitatively new level in the Republic of Uzbekistan. Nowadays, knowledge of foreign languages is very necessary not only for philologists, but also for representatives of all fields. No matter what field you work in, of course, in the 21st century, knowing at least 2-3 foreign languages is the need of the hour.

Nowadays, knowledge of English and Russian languages, along with the mother tongue, is a great help in the field of specialization and expands the study of achievements in the field. Especially in some cases when one country signs an economic agreement with another country, or during the establishment of various diplomatic relations and international relations, there is a need for representatives of the field who know foreign languages. It is known that the economy plays an important role in any society. Therefore, the words and terms related to the economy should be clear, concise and logically based.

The rapid development of science and technology cannot fail to have an impact on the economic sphere as well, as a result of which new neologisms appear in the economic sphere. In general, many aspects should be taken into account when adopting international economic words into our language. When economic terms enter the consumer circle, it is necessary to pay attention to the following aspects: compatibility of the term with the sound system; whether it has an alternative in Uzbek or Karakalpak; to the necessity of copying or translation; to the meaning of the economic term; to its simplicity and fluency; to its essence and correctness. Economic terms entering our language from other languages must first be discussed by experts and terminologists, and then approved by the relevant committee of the Oliy Majlis. The introduction of the laws of the market economy in society, in turn, increases the number of neologisms that serve the market economy.

The 20th century was a century of growth for Uzbek and Karakalpak linguistics. The creation of native language textbooks, conducting research on the theory of linguistics, the publication of scientific journals, the creation of scientific articles, candidacy and doctoral theses, and the publication of philological and encyclopedic dictionaries are a great heritage created by Uzbek and Karakalpak linguists. Over the past hundred years, the development of society has accelerated. Accordingly, people's minds and worldviews have changed from simplicity to complexity. In addition, people's everyday words have also developed in speech and acquired multiple meanings. Accordingly, the need for modern dictionaries also increased. The work done in our linguistics of the last century is directly

related to Russian linguistics. If only the field of lexicography of linguistics is observed, almost most of the existing dictionaries were created based on the model of Russian language dictionaries [1,31]. Created dictionaries make a great contribution to the development of science. However, it remains a necessary issue to re-develop some of these dictionaries based on the uniqueness of our language and national folk culture.

By the 80s of the last century, the work on Uzbek lexicography slowed down, scientific innovations, theoretical works in the field of lexicography were not put into practice, new types of modern dictionaries were not created, dictionaries existing in the language were not perfected and processed, relying on the achievements of world lexicography, implementation of the collected dictionaries existing in the language were not perfected and processed, relying on the achievements of world lexicography, implementation of the collected experiences was not carried out [2, 124]. As a result, the vocabulary of the Uzbek and Karakalpak languages lagged behind the Russian vocabulary and world vocabulary.

To be more precise, the later changes in lexicography stopped, and drastic changes in this area were hardly noticed after this period. The following situations can be observed in the use of economic terms in Uzbek and Karakalpak languages: 1. Many terms have been adapted to our language based on the capabilities of our language. In this case, a group of terms is given with ready-made alternatives in our language, a certain part is translated and used, and a part is created based on the rules of the law in our language. For example: auction-auction, broker-broker, merchant-trader, komissionnie voznağrajdeniya-brokerage fee, economy-economy, check ne predyavitelya-blank check, impersonal check, shareholder-shareholder, businessman-businessman. 2. Another way is to adapt the international terms used in most countries of the world to the Uzbek and Karakalpak languages. It should be noted here that it is difficult to find an Uzbek or Karakalpak alternative to all the new terms.

Therefore, most of them are used in their original form in the languages of most countries of the world, and this use is convenient for world businessmen to exchange information. For example: corruption, credit, export, grant, auditor, contract, currency, lease, manager, license, businessman, non-resident. Below are some terms that are widely used in the field of economics. Some of them are words in your language, and some came directly from other languages. Discussion auction - (lat.auction) - "auction" sale, open sale. This trading service buys the product from the highest bidder. A bank is a time-to-time collector of funds of legal entities and individuals and ensures continuous circulation, loans to enterprises and money checks in general, mediates in court proceedings, parties' performance fees and other settlement works, credit and financial institution that performs operations related to gold and foreign currency.

Business- (English business-ish, activity, occupation) work, activity aimed at gaining wealth, profit. Businesses are divided into large, medium and small types depending on the scale of the business. It is divided according to the average number of employees and the volume of products. Exchange - (Goll.beurs, German. Borse-wallet)- 1) an organization that actively participates in the exchange of products, currency and securities, as well as in the implementation of accounting and information services. Receives a brokerage fee for providing services; 2) place of stock exchange trading. Currency - (ital. valuta. lat. valere- value, value) - means of payment equivalent to the currency of the country and its type (gold, silver, paper, money). Promissory note - (German: wechsel, literally - exchange) - a special form of valuable paper issued in writing regarding debt obligations the lending party has the right to claim the debt at the end of the term specified in the bill. Import - (lat. import-enter) - 1) foreign products brought from abroad for use or sale in the country; 2) capital coming to the country from abroad (loan, bond, etc.); 3) total number and value of imported products. Investment - (nem. investitlion, lat. investire- to dress) - the investment of capital funds, investments, for the purpose of making a profit by an investor for the implementation of some activity can be done within the country (domestic investment) and abroad (outbound investment). Financial investment includes the purchase of securities, savings, etc., and investments in real material production. Mortgage -

(greek.hypothek- pledge) - pledging a certain real estate (land, building, etc.) to get a loan. License - (lat. licentia-freedom, right)- permission; 1) a permit issued by state authorities to import or export goods from foreign countries; 2) the right to use something with light conditions or free of charge; 3) reduction of customs fees for the export of goods or import of goods from the border. Patented - giving others the right to use a registered and certified invention. Patent - (lat. patens-certificate, label)- 1) a certificate allowing to engage in some type of business in a private way, issued by financial authorities on the basis of relevant documents; 2) a certificate of authorship of a scientific discovery and invention shall be patented by the state. Polis - (fr.police, ital, pollissa- receipt) - a document about the conclusion of a personal or property insurance contract and its conditions.

Advertising - (fr.reclame)-unbiased information about goods or services, conveying their properties, advantages and conditions of purchase to buyers in order to sell them more, is carried out through special firms and is a source of high income. Certificate - (fr.certifikat- confirm, testify) is a witnessing document. For example: Auditor's certificate - a document confirming the correctness of the published balance sheet of the company. Insurance certificate is a document that records the terms of the insurance contract. Shareholding certificate is a document confirming that its owner owns a part of the capital of the society (company).

In conclusion. In our country, as a result of the improvement of market economy mechanisms, all forms of private ownership are developing, opening a wide path to business activities, as a result, trade with foreign countries, i.e., export and import works are being carried out. In this regard, it is very important to know a foreign language, in particular, to understand economic neologisms for each of us. need In this regard, let's recall the speech of the first President of our Republic, I.A. Karimov: "For the implementation of socio-political, spiritual and economic reforms of our country, the service of a foreign language is great in preparing intelligent, well-rounded national personnel with a broad outlook."

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Rezyume: O'zbek va qoraqalpoq tillariga o'zlashgan so'zlar hamda bu tillarning ichki imkoniyatlari asosida paydo bo'layotgan yangi leksemalarning ma'nolarini ochib berish

Резюме: Выявить и объяснить значения слов, заимствованных в узбекский и каракалпакский языки.

Kalit so'zlar: Lug'atchilik, leksikografiya, ijtimoiy aloqalar, yangi so'zlar, zamonaviy leksika, til va madaniyat, fan-texnika.

Ключевые слова: Лексикография, лексикография, социальные отношения, новые слова, современная лексика, язык и культура, наука и техника

MASS MEDIA IN ENGLISH AND UZBEK COMPARATIVE STUDY OF THE LEXICON

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Summary: *Public in the modern conditions of information society formation learning the language of the media is of particular importance. Until recently the activity of language in the field of mass media by various branches of linguistics-sociolinguistics, psycholinguistics, cognitive linguistics, etc. If studied, all to combine all studies at the moment there are conditions. In this article, the language of mass media is one special*

We will consider a comparative study of the English and Uzbek languages within the framework of media linguistics.

Keywords: *media linguistics, media, media texts, ICT, print media, comparative analysis.*

Each period is distinguished by the predominance of one or another form of literature. The second half of the 20th century is a new field of speech use, public rapid growth of communication. The momentum of traditional media development: printed publications, radio, television, new computer information the emergence of technologies, the globalization of the world information space - all this does not affect the production process and the spread of the word didn't stay. Media texts or media texts are today's language is one of the most common forms of existence.

Media texts in English occupy a special place in the global information flow. One English-language public for a number of political, economic and socio-cultural reasons The total volume of media texts is public information in other languages significantly increases the size of the text of the tools. The term "media linguistics" is a new study that appears at the intersection of disciplines - sociolinguistics, ethno linguistics, media psychology, media economic sand with a number of similar lexical units used to name others formed by analogy. "Media linguistics" in Russian scientific application the term appeared relatively recently, in 2000. It's the first time "Theory and Methods of Media Linguistics" by T. G. Dobrosklonskaya, Ph. Dused in his dissertation. A little earlier his English "media "linguistics" version appeared in the works of British researchers can be found.

"Media" (mass media) and "linguistics" of this new science based on the term itself the subject is to study the activity of the language in the field of mass communication

is considered That is, media linguistics is a comprehensive study of a specific area of speech use - the language of mass media is engaged in. Media linguistics as a new direction of linguistics emphasizing the legitimacy of mass media for society and the individual related to the huge role it plays. Most of the modern speech practices used in the field of mass communication. Information and communication continuous improvement of technologies (ICT) in the global information space leading to a steady increase in the total volume of texts distributed in national languages will come. At the same time, the subject of media linguistics is known to use speech is not the only science that has become a branch: the same principle of linguistic research used to separate another new field - political linguistics into an independent discipline learning it is the activity of the language in the field of political relations. From speech in the rapidly developing field of mass communication studying different aspects of usage is not only "media language" led to the formation of the concept, but new in modern linguistics direction - also served the formation of media linguistics. Media the subject of linguistics is activity in the field of mass communication of the language conducts or "the word in the media" comprehensively studies. To various aspects of media discourse within the framework of media linguistics. All previously disparate studies on a single order system combined. The internal structure of media linguistics reflects a holistic view of the subject.

All components and levels of media texts is analyzed in depth in combination of linguistic and extra linguistic factors: media their linguistic and format methods of creating and distributing texts

influence on features, functional-genre classification, phonological, syntagmatic issues and stylistic features, interpretive features, cultural features, ideological modality, pragmalinguistic value. The main theoretical basis of media linguistics is the mass media text is a concept in which the media text is a multi-layered, multi-level phenomenon is considered as a dialectical unity of expressive linguistic and media features. The oral text level to the basic levels of mass media speech, includes video sequence or graphic image level, audio accompaniment level. Various is understood as diversity. For media linguistics, the author is a unique person, his views, social is important as a position. Taking into account the experience of researchers, we it is better to work with the concept of "authorship" within the school of media linguistics we will see. As we carry out a comparative analysis, it should be said that in English ways of expressing modality, modal verbs regardless of the stylistic features of the text with particular precision related to the semantic potential of the system is described. English modal verbs refer to the action, not the action itself group of relativistic verbs. Therefore, of modal verbs in English equivalents in Russian are often predicates of the type can , need , required group, as well as Uzbek of English modal predicates semantic similarity with adverbs and adverbial phrases exist, probably, probably, must, must, etc.; for example: This the surplus has to be invested somewhere and Manchester City is attractive

maybe, there just aren't enough football clubs to go around. « This the surplus must be invested somewhere and Manchester City although it is attractive, there are not enough football clubs for everyone. At the same time, it should be noted that from these equivalents in the Uzbek language the use of modal verbs in English is consistent with the technique of not naming the subject will come. But there is a modal that matches English modal structures to Uzbek it is quite possible to translate as verbs and verbs in the indicative mood. So, in general, despite the typological differences between the Uzbek and English languages, the general conceptual meaning is preserved.

In conclusion, it should be noted that media linguistics is in the media sphere of language is a science that studies the activity and appeared relatively recently. He is of two subjects was created at the intersection, therefore, it has its own characteristics reached: on the one hand, it uses the base of linguistic research, on the other hand, included in the general system of medialogy media studies. Its main category includes a number of characteristic features media text is a complex and complex phenomenon.

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Rezyume: *Axborot jamiyati shakllanishining zamonaviy sharoitida ommaviy axborot vositalari tilini o'rganish alohida ahamiyatga ega. Yaqin vaqtlargacha tilshunoslikning turli sohalari - ijtimoiy tilshunoslik, psixolingvistika, kognitiv lingvistika va boshqalar tomonidan ommaviy axborot vositalari sohasida til faoliyati olib borilmoqda. Agar o'rganilsa, hozirgi vaqtda barcha tadqiqotlarni birlashtirish uchun shart-sharoitlar mavjud. Ushbu maqolada ommaviy axborot vositalarining tili alohida ahamiyatga ega.Biz medialingvistika doirasida ingliz va o'zbek tillarini qiyosiy o'rganishni ko'rib chiqamiz.*

Резюме: Особое значение для общества в современных условиях формирования информационного общества приобретает изучение языка средств массовой информации. До недавнего времени деятельность языка в сфере средств массовой информации осуществлялась различными разделами языкознания - социолингвистикой, психолингвистикой, когнитивной лингвистикой и т. д. Если и изучать, то для объединения всех исследований на данный момент имеются условия. В данной статье язык средств массовой информации является особым.

Мы рассмотрим сравнительное изучение английского и узбекского языков в рамках медиалингвистики.

Kalit so'zlar: media lingvistika, ommaviy axborot vositalari, media matnlar, AKT, bosma ommaviy axborot vositalari, qiyosiy tahlil.

Ключевые слова: медиалингвистика, СМИ, медиатексты, ИКТ, печатные СМИ, сравнительный анализ.

TO ENSURE AND DEVELOP INTELLECTUAL PROPERTY RIGHTS IN OUR COUNTRY PROSPECTS

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Summary: *The rapid introduction of modern information and innovative technologies to economic sectors, social and other fields by applying the results of intellectual activity is considered one of the important conditions for the rapid development of the Republic of Uzbekistan. Also, in recent years, the measures established by the Republic of Uzbekistan to further expand cooperation with the World Intellectual Property Organization in ensuring the protection of intellectual property and its analysis have been touched upon.*

Key words: *Intellectual property protection, national strategy of the Republic of Uzbekistan in the field of intellectual property development. Intellect, property rights, inventions, patents, results of intellectual activity, intellectual property objects, copyright, related rights.*

After we gained independence, large-scale reforms in political, economic, social and all other spheres began to be implemented in our Republic. At the same time, great attention was paid to creating national legal frameworks that serve as a basis for the implementation of these reforms, establishing long-term prospects for the development of these areas, as well as establishing cooperation with international and regional organizations and foreign countries.

As the First President of the Republic of Uzbekistan I. Karimov noted, deepening cooperation with international and regional organizations has been one of the priorities of Uzbekistan's foreign policy since the early days of independence.

As an important component of the market economy and one of the main factors of its development, the development of intellectual property, the creation of legal bases for its protection, and the establishment of international cooperation relations were determined as one of the important directions in the development of the country. In this area, first of all, important attention was paid to establishing cooperation with the World Intellectual Property Organization. The Republic of Uzbekistan became a member of the World Intellectual Property Organization in 1991. The World Intellectual Property Organization (WIPO) is a global forum for intellectual property (IP) services, policy, information and cooperation. The WTO is a self-financing organization of the United Nations, which includes 193 countries. WIPO was established on April 26, 1970 after the entry into force of the Convention of the World Intellectual Property Organization (July 14, 1967, Stockholm).

After the Republic of Uzbekistan became a member of this organization, it began to establish cooperative relations in various areas of intellectual property. Over the past period, Uzbekistan has ratified about 20 WTO agreements:

Convention establishing the World Intellectual Property Organization;

Paris Convention on the Protection of Industrial Property;

Agreement on patent cooperation;

Trademark Law Agreement;

Budapest Treaty on Recognition of Deposition of Microorganisms for the Purposes of Patent Proceedings;

Strasbourg Agreement on International Patent Classification;

The Nice Agreement on the International Classification of Goods and Services for the Registration of Marks;

Convention on the Protection of New Varieties of Plants;

Berne Convention for the Protection of Literary and Artistic Works;

On the establishment of the international classification of industrial samples

Locarno Treaty;

Agreement on Patent Laws;

Protocol to the Madrid Agreement on the International Registration of Marks;

Copyright agreement;

Agreement on performances and phonograms;

Moroccan Convention on Facilitating the Access to Published Works by Persons Who Are Blind, Visually Impaired, or Otherwise Impaired in Perceiving Printed Information.

During the ratification of these agreements and conventions, the Republic of Uzbekistan adopted regulatory legal documents aimed at protecting various intellectual property objects based on their requirements and recommendations, and the previously adopted ones were harmonized with these agreements and conventions based on national interests. Examples include the Law on Copyright and Related Rights, the Law on Trademarks, Service Marks and Designations of Place of Origin, the Law on Inventions, Utility Models and Industrial Designs. Law on ", Law "On legal protection of programs and databases created for electronic computing machines", Law "On legal protection of topologies of integrated microcircuits" and others we can show.

PQ-1536 of the President of the Republic of Uzbekistan dated May 24, 2011

Cooperation with WIPO after the establishment of the Intellectual Property Agency based on the decision

relations intensified. Various conferences and seminars were organized between WIPO and the Agency. In particular, on April 3-4, 2012, in Tashkent, the World Intellectual Property Organization (WIPO) organized in cooperation with the International Confederation of Societies of Authors and Composers (SIZAK) and the Intellectual Property Agency of the Republic of Uzbekistan "Protection of Copyright and Related Rights and Public Protection of Property Rights" a subregional seminar on "management based on This event is dedicated to the World Intellectual Property Day, which is celebrated on April 26. The following issues were discussed at the seminar: WIPO's activities in the field of public management of copyrights and property rights; public management of authors' property rights and the role of the International Confederation of Societies of Authors and Composers (SIZAK); experience in negotiating with users and concluding license agreements; legal aspects of organizing and conducting activities of organizations for community-based management of property rights and other issues.

At the seminar, representatives of the WIPO and SIZAK discussed property rights of Russia, Romania, Moldova, Kazakhstan, Kyrgyzstan, and Uzbekistan on a public basis.

management organizations, as well as tax and judicial bodies of the republic, representatives of broadcast and cable broadcasting organizations, authors of works, performers, producers of phonograms and other interested persons took part.

On May 1, 2013, a national seminar on the Patent Cooperation Treaty (PTC) system organized by the World Intellectual Property Organization and the Intellectual Property Agency of the Republic of Uzbekistan was held. In the course of the workshop, the preparation, submission and review of international applications (PCT-SAFE demonstration), international patent search, international preliminary examination, electronic submission of RST applications, services for applicants (ePCT) by the representatives of WIPO and Agency specialists. and issues of information resources on RST were discussed.

The World Intellectual Property Organization (WIPO) and the Republic of Uzbekistan

In cooperation with the Intellectual Property Agency, on May 20-23, 2014, on the topic "Intellectual property in higher educational institutions and research institutions", on May 12-15, 2015, on "Issues of legal protection of trademarks and signs On May 12-15, 2016, seminars and meetings of various levels were held on the topic of "Madrid system of registration", on the topic of "Innovation and intellectual property" and a number of other topics.

Cooperation with the World Intellectual Property Organization has become important in ensuring the protection of intellectual property in Uzbekistan, creating its legal basis, and improving state management in this area. About 20 international conventions and agreements of the WTO have been ratified by Uzbekistan. Based on these international documents, a number of regulatory legal documents aimed at regulating intellectual property and ensuring its legal protection were adopted and improved based on the proposals and recommendations of the World Intellectual Property Organization. This played an important role in preventing the violation of intellectual property rights and restoring the violated rights of intellectual property subjects. Also, on the initiative of Uzbekistan, various events and conferences were organized in cooperation with WIPO. These measures have increased the position of Uzbekistan in the eyes of the international community and made it possible to establish cooperation relations with other organizations and countries in the field of intellectual property.

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Rezyume: *Intellectual faoliyat natijalarini qo'llash orqali iqtisodiyot tarmoqlari, ijtimoiy va boshqa sohalarga zamonaviy axborot-innovatsion texnologiyalarni tezkor joriy qilish O'zbekiston Respublikasini jadal rivojlantirishning muhim shartlaridan biri sanaladi. Shuningdek, so'nggi yillarda O'zbekiston Respublikasi tomonidan intellektual mulk muhofazasini ta'minlashda Butunjahon intellektual mulk tashkiloti bilan hamkorlikni yanada kengaytirish bo'yicha belgilangan chora-tadbirlar va uning tahliliga to'xtalib o'tilgan.*

Резюме: *Быстрое внедрение современных информационных и инновационных технологий в отрасли экономики, социальную и другие сферы путем применения результатов интеллектуальной деятельности считается одним из важных условий быстрого развития Республики Узбекистан. Также в последние годы были затронуты меры, установленные Республикой Узбекистан по дальнейшему расширению сотрудничества со Всемирной организацией интеллектуальной собственности в обеспечении защиты интеллектуальной собственности и ее анализа.*

Kalit so'zlar: *Intellectual mulkni himoya qilish, O'zbekiston Respublikasining intellektual mulkni rivojlantirish sohasidagi milliy strategiyasi. Razvedka, mulkiy huquqlar, ixtirolar, patentlar, intellektual faoliyat natijalari, intellektual mulk, mualliflik huquqi, turdosh huquqlar.*

Ключевые слова: *Защита интеллектуальной собственности, национальная стратегия Республики Узбекистан в области развития интеллектуальной собственности. Интеллект, права собственности, изобретения, патенты, результаты интеллектуальной деятельности, объекты интеллектуальной собственности, авторское право, смежные права.*

**IMPROVEMENT OF CONSIDERATION OF CASES BY ADMINISTRATIVE COURTS
REGARDING INVALIDATION OF DECISIONS OF ADMINISTRATIVE BODIES:
NATIONAL AND FOREIGN EXPERIENCE**

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Summary: *This article examines the issues of finding the decisions of administrative bodies untrue by the administrative courts of foreign countries. The process of canceling illegal decisions and protecting the rights and interests of citizens and legal entities by judicial review of the decisions issued by the administrative body and the resulting social relations in this process were taken as the object of research.*

Key words: *Administrative body, administrative document, state bodies, administrative-legal relations, decision, state bodies.*

In many European countries, administrative proceedings are an established and integral institution of a democratic state governed by the rule of law, such countries include France, Spain, the Federal Republic of Germany, and Switzerland.

Administrative justice and administrative justice ensure the protection of the rights, freedoms and legal interests of citizens against illegal actions/deficiencies or decisions of state bodies.

The concept of administrative justice (administrative justice) was first used in law at the end of the 18th century in France. The courts that acted after that were prohibited from hearing cases involving representatives of the authorities against revolutionary movements.

Definitions of the concepts of "administrative proceedings" and "administrative justice" are interpreted differently by different countries, according to the specific features of their system of public bodies, as well as the legal system.

For example, in Italy, the concept of "administrative" justice " is interpreted much more widely than in any other country and is defined as any activity of administrative control bodies. In France, administrative justice is recognized as specialized bodies for resolving disputes related to management, that is, the activity of administrative courts, administrative appeals courts or the State Council is the activity of state authorities.

In Germany, administrative justice is carried out in the form of administrative proceedings, that is, public-legal disputes are considered by administrative courts (except for constitutional-legal disputes), the administrative process is called in another way.

Attempts to create administrative justice in the model of administrative proceedings in Russia, however, have been successful many times. In the Russian Federation, institutions such as administrative justice and administrative court proceedings, whose importance is to protect the rights of citizens and ensure the effective functioning of the state.

According to Article 2, Part 118 of the Constitution of the Russian Federation, judicial power is exercised through constitutional, civil, administrative and criminal proceedings.

It can be concluded from the above that the current legislation of the Russian Federation determines the existence of administrative proceedings.

Today, administrative justice and administrative institutions are being formed only in the Russian Federation. There are two main administrative systems of justice-continental (Romano-Germanic) and Anglo-Saxon. Romano-Germanic administrative system of justice. It is characterized by the creation of an independent administrative complete system Judicial bodies that fully resolve administrative disputes. Administrative Judiciary bodies in Anglo-Saxon countries do not represent a single complete system, except that they are controlled by courts of general jurisdiction and performs the functions of pre-trial settlement of administrative cases. The differences between the above systems

of administrative justice are presented in the following table. At the same time, different models of administrative justice were formed in the Romano-Germanic and Anglo-Saxon systems, which differ from each other. Judicial bodies in the linishi system. Nevertheless, the Romano-Germanic system is divided mainly into French and German. The Anglo-Saxon system is divided into English and American models.

Various countries have long tried to regulate the work of the state apparatus, the legal strengthening of the order of administrative activity is manifested only at a certain stage of the development of statehood, only to limit the absolute power of the monarch.

The extent of administrative procedures and the laws governing their legal regulation varies significantly from country to country. For example, in Switzerland

or Germany, only to individual administrative acts related to administrative procedures, in France, administrative procedures are all to fill it, they also regulate the preparation procedure and adopt normative legal acts to do For example, in Finland, the Administrative Procedures Act (2003) applies to internal administrative orders, military orders, including judicial proceedings, pre-trial investigations, police investigations and full enforcement measures. The areas of self-management are directly related

to public policy, according to the rules of general administrative procedure from which they are usually derived. For example, in Hungary, the provisions of the Law on Administrative Procedures do not apply to activities related to national defense, foreign trade, as well as taxation.

Nevertheless, in each country, administrative procedures are related to the development of decisions that affect the rights and legal interests of citizens.

In the era of globalization, the institution of administrative procedures, as well as the scope, content and methods of legal regulation of the above institution, have various different approaches have emerged. Most of the Western European countries have a stable tradition of bureaucratic regulation (for example, Spain, Austria or Germany), use a detailed regulation method and systematize and codify administrative procedures.

According to the subject and scope of administrative procedures, most countries consider their different types, for example:

- 1) on adoption of regulatory legal documents;
- 2) on adoption of individual legal acts;
- 3) to provide public services, etc.

There are also countries where administrative procedures are classified according to the spheres of activity of administrative bodies, for example: administrative procedures in the field of economy or administrative procedures for conducting executive work, etc.

In European countries, administrative and legal systems generally combine development trends, in addition to the modern legal system and historical development characteristics of individual countries. Talib. In many European countries, the Romano-Germanic legal system, in other words, the continental system, is used. In the countries of the continent, administrative law, the legal system, legal regulatory norms, first of all, the organization of the public administration system, the interaction of this system, its internal structure and its legal status. In addition, administrative-legal norms regulate relations between individual citizens and administrative institutions.

According to the question, what purpose does the establishment of administrative procedures achieve and why public authorities are obliged to comply with them when making administrative decisions, H. Sole recommends the distribution of administrative procedures in a certain order, functions such as:

1. Instrumental;
2. Non-instrumental.

Thus, procedures that play a specific role and are not directly related to the final decision in the case are called non-instrumental. Therefore, administrative procedures that are functionally aimed at

considering a specific administrative case and guarantee that a correct and appropriate decision is made are called instrumental by independent officials.

One of the important administrative features of the formation process of foreign countries is a limited list of principles of administrative procedural activity of competent bodies.

There are a large number of judicial systems in foreign countries. This shows that the court system in any country is formed primarily based on its personal circumstances and historical traditions that belong to them.

Next, we will take a closer look at the creation of administrative divisions in European countries.

In the legal literature devoted to administrative courts, it is widely believed that this institution is the result of historical improvisation, that is, it appeared in France at the beginning of the century. XVIII-XIX centuries during the revolution and the first empire. The issue of protecting the rights of a free person from the restrictions of officials arose in the states of ancient Greece and ancient Rome, where the problem of subjective rights was not considered in theory, but in practice human freedom was a great value and a free man was the duty of rulers. Protected from abuse. Solon says, "This happy rich man does not eat, but is free." And he does not eat for the sovereign, but works for himself. In Athens, the right to privacy of a free person is protected by law. Any senior elected official, after taking office, took a solemn oath that no one would be arrested without a court order. In Rome, during the republican period, the right of appeal was established, which consisted in the fact that any Yerkin offended by a consul, praetor or other official could appeal to the Roman People's Assembly (later to the tribunes of the people) with a request to protect him from persecution of the authorities. A Roman citizen, if he was arrested, could also use the right of appeal: in these cases, the People's Assembly listened to the explanations of the arrested person and decided whether the arrest should be accepted or not. The phrase "I am a Roman citizen" (*civis Romanus sum*) means that this citizen has the right to appeal and is arbitrarily insured. Thus, it can be assumed that the legislation of the polis cities of ancient Greece and the Republic of Rome to a certain extent solved the problem of legal relations "official-citizen", and did not allow the official to abuse power and limit the rights of the citizen. The institution of administrative courts is inevitable. ate

The famous Russian lawyer F. v. According to Taranovsky, it is: "the general judicial powers of parliaments created them, at the same time, administrative justice bodies that decided controversial issues of state law."

This system of protection of state rights was adopted to some extent by absolute monarchies in Europe, and it did not stop until the French Revolution. France has created a new model of administrative courts. Different countries have been trying to regulate the work of the state apparatus for a long time, but the legal strengthening of the order of administrative activity is manifested only at a certain stage of the development of statehood, as a rule, only in order to limit the absolute power of the monarch.

Administrative legal systems in European countries combine the development trends of the modern legal system and the historical development of some countries.

From the research work, conclude that the main purpose and tasks of the work were considered, so that the definitions of the concepts of "administrative work" and "administrative justice" are interpreted differently by different countries, according to state bodies, their system with its own characteristics, as well as the legal system.

In general, administrative legal proceedings and administrative justice ensure the protection of rights, freedoms and legal interests of citizens from illegal actions, shortcomings or decisions of state bodies. In a modern democratic state, the administrative justice system, in some respects, is the most important element of public administration, and in other respects, it is justice. is the main component of the system. There are two main administrative systems of justice-continental (Romano-Germanic) and Anglo-Saxon. Romano-Germanic administrative system of justice. It is characterized by the creation of

an independent administrative complete system Judicial bodies that fully resolve administrative disputes. Administrative Judiciary bodies in Anglo-Saxon countries do not represent a single complete system, except that they perform the functions of courts of general jurisdiction and pre-trial resolution of administrative cases under supervision.

In many European countries, the Romano-Germanic legal system, in other words, the continental system, is used. Administrative procedures are mostly undeveloped institutions of administrative law. In the current reality, an important role is played by the administrative-legal regulation of relations that develop between the state authorities and citizens or organizations, both from the point of view of the content of this activity and

its procedural registration position.

The generally recognized concept of the administrative process is a normatively defined order of legal entities' actions to exercise their rights and obligations.

Administrative Legislation regulatory procedures include general procedural rules for the organization of relations between citizens and state bodies, in particular: the adoption of individual acts by administrative bodies, or their change, in addition, appeal, or their cancellation. This shows that the court system in any country is formed based on its own personal circumstances, primarily historical traditions.

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Rezyume: *Ushbu maqolada ma'muriy organlar qarorlarini xorijiy davlatlarning ma'muriy sudlari tomonidan qonunga xilof deb topish masalalari ko'rib chiqiladi. Tadqiqot ob'ekti ma'muriy organ tomonidan qabul qilingan qarorlarni sud tomonidan nazorat qilish orqali noqonuniy qarorlarni bekor qilish, fuqarolar va yuridik shaxslarning huquq va manfaatlarini himoya qilish jarayoni va bu jarayonda yuzaga keladigan ijtimoiy munosabatlardir.*

Резюме: *В данной статье рассматриваются вопросы признания административными судами зарубежных стран решений административных органов неправомерными. В качестве объекта исследования взят процесс отмены незаконных решений и защиты прав и интересов граждан и юридических лиц путем судебного пересмотра решений, вынесенных административным органом, и возникающие в этом процессе общественные отношения.*

Kalit so'zlar: *Ma'muriy organ, boshqaruv hujjati, davlat organlari, ma'muriy-huquqiy munosabatlar, qaror, davlat organlari.*

Ключевые слова: *Административный орган, распорядительный документ, государственные органы, административно-правовые отношения, решение, государственные органы.*

THE ROLE OF MODERN TECHNOLOGIES IN TEACHING FOREIGN LANGUAGE

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Summary: *The article discusses the new types of pedagogical methods in teaching English and the methods of its application in the classroom, as well as the practical importance of the effective use of methods. Therefore, it is noted that these methods are useful for students to master another language and speak it fluently.*

Key words: *method, English, effective, education, student, foreign language ICT.*

INTRODUCTION. As we know, this year, during a video conference chaired by President ShavkatMirziyoyev, dedicated to improving the system of teaching foreign languages, it was noted that from 2021, foreign language teachers will be required to obtain national and international certificates. This places a huge responsibility on our foreign language teachers. Now we need to organize the teaching process on the basis of interactive methods, using new ICT instead of traditional teaching methods. This education is also a requirement of the time, and the teacher has to work even harder on himself. In the article we will focus on new methods of teaching, first of all, it is necessary to pay attention to the type and effectiveness of these methods.

It should be noted that in our country, new methods and requirements for foreign language teaching, assessment of knowledge and skills of foreign language teachers have been developed in accordance with the recommendations of the European Framework (CEFR). According to him, textbooks are being created for students of secondary schools and vocational colleges. In accordance with these requirements, classrooms are equipped with stands and new information and communication technologies. The demand for learning a foreign language has also increased day by day. Foreign language science is divided into four aspects (reading, reading, listening comprehension and speaking), each of which is given specific concepts and skills.

LITERATURE ANALYSIS AND METHODOLOGY

One of the most effective ways is to teach and learn a foreign language using modern technology. In this process, including:

- When using computers, the student can watch and listen to videos, demonstrations, dialogues, movies or cartoons in a foreign language;
- It is possible to listen and watch radio broadcasts in foreign languages and TV programs;
- use of tape recorders and cassettes, which is a more traditional method;
- CD players are available. The use of these tools will make the process of learning a foreign language more interesting and effective for students.

In the process of teaching foreign languages it is necessary to use advanced pedagogical technologies, interactive, innovative methods, communication and media.

DISCUSSION AND RESULTS

Advanced methods act as a compass in the thorough study of a foreign language.

One such method is to use role-playing games in this lesson. Role-playing games are the application of various situations in our real life in the process of learning a foreign language. This method helps to create a language environment in the classroom.

For example: In case 1, old friends meet by chance. Case 2 A child who does not follow the rules of the road crosses the road. Case 3. A customer enters the store to buy food. 4 Scenes are performed on these situations. Such vital role-playing games create a language environment in the classroom, allowing students to express themselves freely. In the process of participation in role-playing games, students learn to think, to express their emotional state in a foreign language. In preparation for role-playing games, they correct each other's lexical, grammatical and pronunciation

errors. Making mistakes and correcting them also helps to learn the language and teaches students to pronounce correctly. The use of role-playing games in the classroom ensures that all students are actively involved in the lesson at the same time. In addition, role-playing games increase students' interest in learning a foreign language and create a lively, fun environment for the learning process. This will increase the effectiveness of foreign language lessons.

The next method is the "Case Study" in English ("case" - a real situation, event, "study" - to study, analyze) a method aimed at the implementation of teaching based on the study, analysis of real situations is

One of the most interesting methods is to divide the game "Pantomime" into 3 groups. One person from each group is brought to the board. They are given a list of different words. They should explain the words to the rest of the group through gestures and actions without saying a word.

To use this method, the beginning of the story is read, and the students are judged on how to solve it. - "Merry Riddles" Teaching riddles to students is important in teaching English, they learn words they are unfamiliar with and find the answer to a riddle; - Quick answers help to increase the effectiveness of the lesson; - "Warm-up exercises" to use a variety of games in the classroom to engage students in the lesson [3]; - Pantomime can be used in a class where very difficult topics need to be explained, or when students are tired of writing exercises; - A chain story method helps to develop students' oral skills; - Acting characters This method can be used in all types of lessons. Professionals such as Interpreter, Translator, Writer, and Poet can participate in the class and talk to students; - Poets and writers such as U.Shakespeare, A.Navoi, R.Burns can be "invited". At the same time, using the words of wisdom they say in class will help young people grow up to be perfect people; - The "When pictures speak" method is more convenient and helps to teach English, to develop students' oral speech, it is necessary to use thematic pictures; - Quiz cards are distributed according to the number of students and allow all students to attend classes at the same time, which saves time. As we have seen, each innovative technology has its own set of advantages. All of these methods involve collaboration between teacher and student, active participation of the student in the educational process.

CONCLUSION

In short, the use of innovative methods in English lessons develops students' logical thinking skills, fluency, and the ability to respond quickly and accurately. Such methods stimulate the student's desire for knowledge. The student tries to prepare well for the lessons. This makes students active participants in the learning process. As the education system sets itself the task of nurturing a free-thinking, well-rounded, mature person, in the future we will contribute to the further development of effective use of innovative technologies by future teachers. possible.

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Rezyume: *Maqolada ingliz tilini o'qitishning yangi pedagogik uslublari turlari va ularni darsda qo'llash usullari hamda metodlardan samarali foydalanishning amaliy ahamiyati haqida so'z boradi. Binobarin, bu usullar o'quvchilarning boshqa tilni puxta o'zlashtirib olishlari, uni ravon bilishlari uchun qo'l kelishi ta'kidlangan.*

Резюме: *В статье рассматриваются новые виды педагогических методов обучения английскому языку и методы их применения на уроках, а также практическая значимость*

эффективного использования методов. Поэтому отмечается, что эти методы полезны для того, чтобы студенты овладели другим языком и свободно говорили на нем.

Kalit so'zlar: metod, ingliz tili, samarali, ta'lim, talaba, chet tili AKT.

Ключевые слова: метод, английский язык, эффективный, образование, студент, ИКТ иностранного языка.

SHAKESPEARE'S TRAGEDY "HAMLET" AND ITS TRANSLATION INTO THE KARAKALPAK LANGUAGE

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Summary: *The article deals with lexico-semantic features of the translation of Shakespeare's tragedy "Hamlet" into the Karakalpak language. The aim is to analyze and compare Karakalpak, Russian translations and the original of Shakespeare's great tragedy Hamlet.*

Key words: *translation, adequate translation, tragedy, figurative expressions*

There are such writers in world literature whose works are translated into all languages of the world. The great English playwright William Shakespeare is one of those writers whose work has gained worldwide fame. In this sense, Shakespeare is, as it were, a writer of all peoples and all eras. Therefore, one cannot translate Shakespeare's work without studying the experience of translating his work into the languages of peoples with rich literary traditions.

The history of the translation of Shakespeare's work in Karakalpakstan has a little more than four decades and it is not very rich in the number of translated works.

Masterpieces of Western European literature, including Shakespeare's works, were translated into karakalpak not from the original, but through their Russian translations. First of all, it should be noted that about the enormous experience that has been accumulated by Russian Shakespeare scholars and translators, about the comprehensive elaboration of questions of theory and practice, methods and techniques of translation. This fact in many respects determined the success of Shakespeare's karakalpak translators. It should be noted here about that "Hamlet" was translated by T. Matmuratov and R. Kaymakov.

Shakespeare's tragedy "Hamlet, the Prince of Denmark" is the most famous of the plays of the English playwright. The Shakespeare thinker appears in this work in all its gigantic growth. The questions posed by the tragedy are of universal significance. Shakespeare's work poses acute moral problems of a specific nature.

The main theme of Hamlet is the decomposition, decay of the organic foundations of being. Everything decomposes: state, society, family, individual. Already in the first act Marcellus's terrible phrase sounds: "Something is rotten in the state of Denmark" (Подгнило что-то в Датском государстве); (Дания мәмлекетине келген бир апат).

The theme of the decomposition of society is no less widely developed in the play. Hamlet speaks with shame of the shameful vice of the Danes - drunkenness. No one opposes the rule of Claudius, no one but Hamlet is shocked by the queen's incestuous marriage with the brother of the late king. The theme of the dominance of evil in society began in the first monologue of Hamlet:

(...This world!// Fie on't! O fie! 'tis an unweeded garden// That grows to seed; think rank and gross in nature// Possess it merely). [1, 12]

(...на свете // О мерзость! Это буйный сад, плодящий // одно лишь семя; дикое и злое // В нем властвует. До этого дойти). [2, 145]

(Бул жердин устинде не болса бәри, // Не деген патаслык хәм биймәни // Қазан урған бағ екен бул ялғаншы, // бир түйир мийуасы зәхәр –Қумыран! Харамзадалық бул! Хүждәнсызлық бул!). [3, 60]

This topic is developing in the famous monologue "To be or not to be." Speaking of the scourges and ridicule of life ("the whips and scorns of time" - "who would take the lashes and the mockery of the century" // - "Заман зәхметине ким шыдар еди?), Hamlet speaks about the flaws of society: "The oppressor's wrong, the proud man's contumely, // the pangs of disprized love, the law's delay, // the insolence of office, and the spruns // that patient merit of the unworthy takes ". [1.46]

(«Гнет сильного, насмешку гордеца, // Боль презренной любви, судей медливость, // Заносчивость властей и оскорбления, // Чинимые безропотной заслуге». [2,194] - // «Ерксиз хорланыўға, кўлки болыўға, // Әдалатсызлыққа, мәтибийликке, // Кимлер шыдар еди ышқы азабына»).[3,18]

The metaphor of decay, which dominates the Hamlet, suggests a living whole. State-society-man is inextricably linked. And the state is seen as a "political body" in the model and likeness of man. And Hamlet himself, portrayed as a man of high dignity, is embraced by this process of decay. Hamlet was different before. Ophelia describes him like this: "The courtier's, soldier's, Scholar's eye, tongue, sword; // The expectancy and rose of the fair state, // The glass of fashion, and the mold of form." - (... Вельможи, // Бойца, ученого взор, меч, язык, // Цвет и надежда радостной державы, // Чекан изящества- зерцало вкуса) - (өр көкирек ер // нәзери алмастай өткір жаўынгер. Өзи бир жигиттиң султаны еди // Үмити, тиреги уллы елаттың).

Hamlet is a man of great, extraordinary intelligence. Shakespeare portrays him as the most insightful, witty, most inventive of all the characters in the tragedy.

A quick and free mind elevates Hamlet above all those around. Thought as a source of its strength is the most important theme of the monologue "To be or not to be," which is the culmination of revealing the character.

The language of tragedy is sharply distinguished by semantic wealth. Shakespeare's word has many meanings and shades. The root of this wealth lies in the fact that Shakespeare widely drew meanings and shades of words from the folk language of his era.

The semantic side of the word is the element of Shakespeare. So, for example, the simple word free Shakespeare uses in the meanings: free, independent, voluntary, ready to do something, frank, unrestrained, generous, happy, carefree, innocent, harmless, noble, elegant. Hamlet's question "To be or not to be?" does not mean only "is it worth living?" or "is it worth fighting?" Both of these meanings are combined here.

In the monologue, Hamlet asks himself the question of whether it is possible to come up with a weapon in his hands against the "sea of disasters". It is important to understand that here the "sea" is not an abstract metaphor, but a very concrete image. Understanding the specificity of Shakespeare's image helps us to penetrate the essence of tragedy, to understand Hamlet and his experiences. Throwing a sword against the Sea of Disasters in your hand means dying. And from this, it is clear why Hamlet immediately goes over to the thought of death. What is clear from the image is vague for many translators, as eloquently testified by the almost two-century history of translations of Shakespeare's works.

Hamlet's monologue is the eternal problem of the struggle between good and evil in the soul sensitive and yearning for lost ideals, but forced to hate, forked and lonely, tormented by misunderstanding and gross ruthlessness around his life. According to N.Rossov, one of the first critics of Hamlet translations, this is a monologue - "the internal state of the thinking and doubting part of humanity."

So, let's compare the translations of the first five lines of Hamlet's monologue into Russian and Karakalpak.

In the original:

To be or not to be: that is the question:
Whether 'tis nobler in the mind to suffer
The slings and arrows of outrageous fortune,
Or to take arms against a sea of troubles,
And by opposing end them?

Translated by M.Loizinsky:

Быть или не быть таков вопрос;
Что благородней духом покоряться
Пращам и стрелам яростной судьбы
Иль ополчась на море смут, сразить их
Противоборством?

Translated by T. Matmuratov and R. Kaymakov

Мәселе мынадай: өлим я жүрим
Жаныма жақыны қайсы булардың?
Аяўсыз тәғдирдің ырқына көніп,
Жүре берейинбе жәбирин шегіп?
Яки әжел менен айқасқа түсіп,
Оны буұындырып өлтирейинбе?

(This is the question: Death or life? Which is closer to the soul? Will I submit to a cruel fate, to bear her torment? Or to engage in combat with death and strangle him?)

Karakalpak translators simplified and changed the complex Shakespearean image, significantly weakened the philosophical depth of the tragedy. They convey a more simplified and straightforwardly figurative speech of Hamlet. For example: «Яки әжел менен айқасқа түсіп, // Оны буұындырып өлтирейинбе?». There is even a gross semantic violation - the replacement of the word “fate” (тәғдир) with the word “death” (әжел); replacing the word “жеңіў” (defeat) with the word “буұындырып өлтирейинбе” - which unacceptably simplifies the image of Hamlet. It can be seen, striving for the simplicity and clarity of their translation, the translators used the principle of replacing an unusual image with a more familiar one. The enumeration of the evils and calamities of life, which occupies such an important place in the original, fully preserved in the translation of M. Lozinsky, has almost disappeared in the Karakalpak version.

Another example where, in our opinion, the translators managed to get closer to the original and find the words, rhythm, intonation corresponding to it. At the very end of the fifth scene of the first act of the tragedy, Hamlet pronounces a rhyming couplet, which also became one of the most famous Shakespearean quotes:

The time is out of joint; O cursed spite,
That ever I was born to set it right! [1, 26]

Translated by M. Lozinsky:

Век расшатался: - И скверней всего,
Что я рожден восстановить его! [2, 168]

Translated into Karakalpak:

Дүнья бузылып заман айныўда,
Оны дүзеў ушын туўылғанман мен. [3, 74]

In the Russian translation, the interpretation of the Shakespearean text is basically the same: Hamlet suffers from the mission assigned to him, is weighed by it. Meanwhile, the couplet allows a completely different interpretation: for Hamlet, this mission is not burdensome, but, on the contrary, what they expected, desired.

In the karakalpak translation, the vocabulary, style, intonation used by the translators do not cause objections and correctly convey the meaning of the original. In the karakalpak couplet, the lines do not rhyme. However, this gap does not violate the semantic unity of these lines.

Thus, the introduction of the karakalpak people to world culture, their acquaintance with the masterpieces of Russian and European literature contributed to the birth of qualitatively new realistic traditions in the theory and practice of translation. An important factor in creating an adequate translation is the comparison and understanding of vocabulary, a figurative system between languages. Literal translation of figurative expressions is not allowed. The traditional figurative expressions of one language must be noticed by the typical expression of another language.

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Rezyume: *Maqola Shekspirning Hamlet tragediyasining qoraqalpoq tarjimalarida leksik-semantik hususiyatlarini yoritishga qaratilgan. Maqsad Shekspirning ulug' tragediyasi Hamletning qoraqalpoq, rus tarjimalarini va original ingliz tili bilan taqqoslash va tahlil qilish.*

Резюме: *В статье исследуются лексико-семантические особенности перевода трагедии "Гамлет" Шекспира на каракалпакский язык. Цель-анализ и сопоставление каракалпакского, русского переводов и язык оригинала "Гамлета"*

Kalit so'zlar: *tarjima, adekvat tarjima, tragediya, iboralar*

Ключевые слова: *перевод, адекватный перевод, трагедия, образные выражения*

THE USE OF STYLISTIC FIGURES IN THE WORKS OF THE CLASSICAL POETS OF KARAKALPAK (IN THE EXAMPLE OF THE WORKS OF THE POET UMAR)

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Summary: *In the article, the author studied some topical issues of linguistics. Attention was paid to the linguistic features, stylistic differences and the use of artistic means of the poet Umar's works.*

Key words: *Linguistics, vocabulary, poetic style, semantics, phraseology, uniqueness.*

Although the artistic tools in our language have a common function, they have their distinctive features and figurative creations. Words in the language of a work of art are often figurative. The service of tropes among artistic tools in enhancing the imagery of words, increasing their expressiveness and emotional impact. the poet skillfully used the lexical semantic wealth of the language and the tools of artistic words in his works.

Therefore, the knowledge of the Karakalpak language, is one of the most actual and one of the comprehensive problems that require in-depth study and research. Nowadays, when the scientific views on this matter are focused on the conditions of study, especially in the study of the Turkic language, the linguists often pay more attention to the phonetic, lexical, morphological, and syntactic aspects of the language. It can be evidenced by the lack of scientific works related to the problems of stylistics, which are often related to those structural systems.

The issue of style in the Karakalpak language is one of the first to be mentioned separately in the works of E.Berdimuratov. About functional styles, we can show his work entitled "Development of Karakalpak lexicon with the development of functional styles of the literary language" (Nukus, 1973) . In this work, the issues of the emergence and formation of functional styles in the Karakalpak literary language are analyzed from all sides, and it is scientifically researched that they are the main source of enrichment of the vocabulary of the Karakalpak language. Each type of functional style is defined, and the ways and reasons for their current development are revealed.

The subject and tasks of the stylistics of the Karakalpak language, the stylistics of lexical, morphological and syntactic tools, tropes and stylistic figures and other issues are briefly described in A. Bekbergenov's work entitled "The Stylistics of the Karakalpak Language" (Nukus, 1990). [2]

A special study was conducted by Kidirbay Bekbergenov on the scientific style of the current Karakalpak language. In his candidate's thesis, which is called this style, the scientific style of the current Karakalpak language is comprehensively characterized and its main features are revealed [3].

Famous linguist E.M. Galkina-Fedurok paid special attention to the style of artistic words in his valuable work "About the style of poetry of Sergey Yesenin" and said: The style of a master of artistic words expresses his view of the world, the language tools he has accumulated in artistic images. For this reason, it is impossible to study the style of the master of artistic words, his functional direction separately from the figurative content of the work. This is a condition for both prose and poetry [4.5].

This idea is very true. Indeed, when studying the works of the master of artistic words, it is impossible to evaluate his style, the style of the work without paying special attention to his world view, the content he collected in artistic expression, the language tool he chose.

In this regard, when evaluating the artistic works of the poet Umar from the linguistic point of view, it is necessary to look at his world view, the ideological content of the related works, his image, the style of artistic words, and the level of use of artistic tools in the language.

Umar the poet is a contemporary of his contemporaries Kunkhoja, Berdakh, Ajinyaz poets, he is knew traditions, he saw with his own eyes the narrowness of the times, the sufferings of inequality, the miserable life of the people, the situation, the oppression of the ruling groups, the hard life of the

working people. He was a poet who felt pain in his heart, worried, and hoped for good in the future. For this reason, the main theme, form, and theme of his works are similar to the ideological content of the poetry of Kunkhoja, Ajiniyaz, Berdak, and even this similarity and similarity can be felt in the use of artistic tools from the language side of the works.

Let's say that in one of his most famous works, "What the benefit?", he was full of pityful feelings about the waste of time, inequality, cruelty, the plight of the people, the idea of the show is clear, the content of the story is very beautiful, the author's content is beautiful and the images are beautiful. It is designed to flow in a beautiful form. In our opinion, this task that has been put before the company has been fulfilled due to the quality of work. From this point of view, let's take a look at the content and beauty of his work in the following poetic lines, and the stylistic elements used in the poem

Qarasañ qapılıp túnerip turǵan,
Gárdishi zamannıń bul pálek urǵan,
Basqa aqır-zaman sawdalar salǵan,
Bul dúnyaǵa shıqqan menen ne payda.
Etpedi zalımlar kewlimniń xoshın,
Jedik bárha baydıń, dumpishin, mushın,
Kórsettiler bizge qolınıń kúshin,
Bul dúnyaǵa shıqqanıńnan ne payda.

Aspanı-zaminniń astı qapılıp,
Zalımlarǵa pulsız diyxan tabılıp,
Keshe-kúndiz júrgen menen sarsılıp,
Bizlerge payda joq, baylarǵa payda.

This is similar to Kunkhoja's poem and similar in number, content and style

Ordıq oraq, shaptıq otın, qazdıq jap,
Terdik masaq, iynimizge saldıq qap,
Jas ómirler gúldey solıp, *boldıq sap*,
Bul júristen endi bizge kún qayda.

We are not going to say the content of Kunkhoja's poem "Kun qayda" is similar to song "Ne payda". Both of them about the hard life of the man of the past life, no matter how much he sweats, there is no profit for himself, only the profit of the oppressors of others, the man's dissatisfaction with the authority, the psychological difficulties of the work, the cruelty of the era of forgiveness, the description of the cruelty of the man is clear and figurative expressed. In fact, almost the majority of classic literary works are similar to the content, form, and the vivid expression of feelings of displeasure with the times.

The aim of the research is to use with the poem of Omar writer's style as a means of creating a beautiful picture in accordance with the ideal, aesthetic requirements and content of the unlimited riches of the great national language, and to give a linguistic value to the use of tropes in it.

From the above point of view, the folk language of the left period of the wrt literature is written with the quality of beauty at the level of effectiveness with a clear, understandable ending. Tropes related to the content of the composition and aesthetic requirements are used selectively where necessary.

The first poetic poem is constructed in the hyperbole style by means of hyperbola, the environment of life, time, the nature of the world is closed, it has a direct effect on the psychological state of a person, and the guard (metaphorical meaning) of the time is like a "pálek urǵan" (quday urǵan) pálek (metaphor), other (metaphor táǵdirge degen mánide), aqır zaman (epithet), sawdalar (metaphor in the sense of difficulties, heavy sufferings), bul dúnyaǵa shıqqannan ne payda (hyperbola). All of these tropes are in the people's spoken structure, and the poet choose them very well. Such poetic lines give both beauty and expression to the content of the story, and if they affect the practical feeling of the reader, it will be difficult to see that it is as meaningful as the time. Omar poet literary

works are related to the fact that A. Pirnazarov's most of his pieces are characterized as a unique poetic work of body psychology [5. 41-42].

In the following lines taken from the language of the piece of people mentioned above, there are words used traditionally in the folk language to describe the tropics that are growing up, *kewlimniñ xoshi, jerdiñ dúmpeshin, mushin, kórsettiler qolınan kúshin, dúnyağa shıqqanıñnan, aspan zaminniñ, astı qapılıp, pulsız diyxan, júrgen sarsılıp* such as tropes as place of needed to show one of the principles of poet's masters can be established in the selective use of style.

Bul dúnyağa shıqqanıñnan ne payda" shuddered the lyrical hero. In the second one, the psychological situation of the people is expressed in the form of a poem, in the sense of a poem.

The next couplet begins with the poetic line "Aspan zaminniñ astı qapılıp" and has the tradition of saying it in the vernacular. Aspan zaminniñ astı qapılıp Búlgen elge búkir bala , Máten jırtıq bolğan emespe! He also used the traditional language of the country. In it, hyperbole is clearly felt, almost all the words in the composition, the content and the figurative expressiveness are colorful. When this poem reached the level of phraseologism, the meaning of the lining was used in the service of a proper style.

The epithet "Pulsız diyxan" at the beginning of the word "Pulsız" gives a metaphor to the thought, "Keshe kúndiz júrgen menen sarsılıp" appeared from the hyperbole, the word "sarsılıp" in its composition is used in a metaphorical service in the sense of heaviness of the work, the tormented feelings of the hero due to he is free are reflected. In conclusion, it gives additional imagery which creates the antithesis of "there is no good for us, good for the rich".

Omar's song "Ayırıqsha" was inspired by the style of Ájiniyaz's poem "Bozataw". The wonderfulness of the country where he was born, the feelings of missing, the poor life of the people, the author's love for the country was described with similar psychological feelings:

Jaqsılıqtan áğardı góy biziñ shash,
Qıs kúni hawada qıppa jalañash,
Bala shağa óler boldı ashtan-ash,
Endi óler boldı ballar, Ayırsha.
Kózim yashlı, men ketermen sharam joq,
Bir qudadan basqa pushtı panam joq,
Hámme ketti, sende turar adam joq,
Xosh aman bol, bizden qaldıñ Bozataw (Ájiniyaz)

In both, the descriptive words of the tropics are chosen according to the content and the personal style of each one. All the meanings of the words, speech, whole meaning of poetic point of view is giving meaning, and from the point of view of selective use of the tropes, they give imagery and impact to the thought.

"Jaqsılıqtan áğardı góy biziñ shash" said Omar. The phraseological phrase "shashım áğardı" in the folk speech means I did not get rid of all the difficulties, I was confused, I was in trouble and based on the meanings of the semantics, person who in trouble, often uses phrases "*shashtı áğarttı, shashım áğardı, shashımdı shala áğarttı,*". The poet took the model of the people's style, according to the style of his own writing, he reduced it to a poetic line in the form of "my hair has been turned since I was young". It is clearly understood that the word "man" has been created with the "g'oy" element of emotion and modality, and as a result, it has been written in a poetic way. "Qıs kúni hawada qıppa jalañash" "" is a hyperbole. The epithet "naked" in this hyperbole firstly, indicates a social state. Secondly, it is a reason for the performance of a descriptive task. The epithet "*ashtan-ash*" means hyperbole. In this work the author's creativity is also clearly visible. When evaluating the language of Omar poet's works and the usage of tropes, it is worth paying attention to the poem "Elim".

As literature scientists say, the feelings of deep love born in the poem of the poet "Elim" are depicted in a beautiful and effective way. The poet reminds people with good traditions, his neighbors, and the nature of the country. Ájiniyaz's song "Ellerim bardi" is a song that clearly shows the pure love

to the motherland. He thought that the feeling of love for the people of the country, his dissatisfaction with the social order of his time, and the idea of fighting for happy life were clearly expressed [6.206].

It is noteworthy because of the beauty of the language of the poem, the choice of tropes for the stylistic service.

Úyrek ushıp, ğazlar qonğan kóllerim,
Qatar qonğan jaz jaylawda ellerim,
Ten qurdaslar menen júrgen kúnlerim,
Yadıma túsip meniń náyleyin.

Sharqı pálek ketse bir kún sharq urıp,
Gúl júzine gúller qosıp barq urıp,
El degende bağrim kabap ah urıp,
Elatım yadıma tústi nayleyin!

In the first line, it is seen that the term “kóllerim” special noun, epithet “úyrek ushıp, ğazlar qonğan”. They serve to describe the beauty and effectiveness of the poetic line. The meaning meaning is also serves to meaning epithet. From the row *Days which ten qurdaslar menen júrgen*, the epithet “” has stylistic meaning. The word figurative meaning came from folk word has psychologic and colorful meaning. By means of this poem, he expresses his feelings of being away from his friends, and relatives in a stylistic way, and thus he makes a special use of emotions in his poems.

“*Sharqı pálek ketse bir kún sharq urıp*” it has figurative and stylistic phraseologic and semantic meaning, From the line *adding flowers to the face of the flower*, adding face flower is used rarely in folk works and has color and epithet meaning. “barh u’rip” is also has traditional tropic element. Both 2 lines are expressed in a hyperbola way: “*bağrim kabap, ah urıp*”, “*kúnlerim*” and have figurative meaning. “Bağrim kabap” hyperbole, semantic-stylistic change is clearly felt in phraseologisms, and there is also an emotional coloring in them.

So, through the deep and effective poetic description of these poetic lines, the tropes serve a special semantic-stylistic service and provide the beauty of the poem.

In the song "Berermen, he gives sharpness to the meaning of the picture by equalizing people to scorpion and snakes that crushes the people and reminded he would be champion one day in fight:

Adamğa miyrimisiz shaqqan shayannıń,
Tańda bir ózine azap berermen,
Záhárli qastıyan qara jılanıń,
Ordaların buzıp oyran etermen.

Jerin basıp alıp egin ekkennin,
Jazıqsız gúnalap jandı sókkenniń,
Ózindeydiń abırayın tókkenniń,
Tańda bir ózine azap berermen.
Ġarıplardıń mülkin alıp jılatıp,
Kóz aldında iytlerine talatıp,
Saw denesin tayaq urıp qanatıp,
Azap bergenlerge ğazap berermen.

Let's say there is no language element and there is no figurative, semantic- stylistic meaning: shayan-metaphora, tańda-metonymy, azap berermen-hyperbola, záhárli qastıyan-epithet, qara-epithet, jılan-metaphora, orda-metafora, oyran etermen-giperbola, jandı-metonimiya, jazıqsız-epithet, ózindeydiń-simile, tókkenniń-metaphora, azap-metaphora, ğarıplardıń-metaphora, iytlerine-metonymy, talatıp-metaphora, ğazap-metaphora and e.t.c

All of these are more than the language of the poet, and they show the beauty of poetry. The poet's ability to choose the aesthetic requirements of the tropes in his poetry is clearly noticeable in all his poetic compositions.

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Rezyume: *Maqolada muallif tilshunoslikning ayrim dolzarb masalalarini o'rgangan. Shoir Umar asarlarining til xususiyatlari, uslubiy farqlari, badiiy vositalardan foydalanishga e'tibor qaratildi.*

Резюме: *В статье автор исследовал некоторые актуальные вопросы языкознания. Уделено внимание языковым особенностям, стилистическим различиям, использованию художественных средств произведений поэта Умара.*

Kalit so'zlar: *Tilshunoslik, leksika, she'riy uslub, semantika, frazeologiya, o'ziga xoslik.*

Ключевые слова: *Языкознание, лексика, поэтический стиль, семантика, фразеология, уникальность.*

K.SULTANOV'S LITERAL SKILLS IN WRITING STORIES.

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Summary: *The use of artistic manners in the stories of the twentieth century of Karakalpakwriter K.Sultanov were explored in this article.*

Key words: *writer, artistic manners, story, artistic portrait.*

One of outstanding writers in karakalpak literature K.Sultanov contributed notably to the development of karakalpak prose with his large works. For example, writer's novels called "Akdarya", "Ajiniyaz", prosaic works such as "My villagers", "Life book" have been attracting the readers' attention. Writer's collection of story and essays which he made in prose called "My villagers" is valuable and it includes his several works. It is favorably regarded in karakalpak literature that the writer's works in this collection were highly valued and acknowledged by the society during its period. Therefore, in this article, we aimed to research literal skills issues in stories by the writer Karamatdin Sultanov.

In fact, if we pay attention to the skills on making works in the collection called "My villagers" by Karamatdin Sultanov, honorable people of his time, his observation in his daily life, description to the character, sensitivity, skills on depicting the events and actions of character can easily be recognized in writer's works. The basis of this skill is noted in his effective usage of artistic manners on depicting the events consecutively and portraying the characters with words.

Moreover, the writer compares the thing which is being depicted with another thing in order to note it particularly, attract the readers' attention and remain it on their mind. Thus, the word which was taken to be compared shouldn't be taken as its original shape, but should be meaningful which can describe sensitively the object of the writer.

Karamatdin Sultanov addersses issues that are related to typical events of Karakalpak people. Through the characters, images he tried to produce a certain period of time, the thoughts of the people of that time. The stories that the writer had in his youth, played a major role in his work. Therefore, his images are not imaginative, they are fictitious examples of events, stories, books, human stories that the writer has personally seen, attended, and heard. From this viewpoint to the work of Karamatdin Sultanov, it is possible to state that the writer has developed the ability to express the peculiarities and psychological characteristics of the epoch in reflection of the period.

Furthermore, at the beginning of the work "People of village Aral" by Karamatdin Sultanov, the main character Akhantay's way of life, appearance were comparatively complicatedly described. For example: "Well, it has been about thirty years since that. The stream of life flowed as a river, made Akhantay's face old. Akhantay's beard grayed, wrinkles appeared on his reddish face as an apple and straight as a mirror when he was a young guy, while artel has begun walking with ardor and became stout as spirit of spring." The writer indicates time and the life which Akhantay experienced with "the stream of life flowed as a river", and his appearance with "red as an apple, straight as a mirror" and artel's ardor with a comparison "as spirit of spring". With the help of this description the writer's purpose what he thought was literally magnificently depicted.

In an extract of this work "girl like a bazaar settled on a shore of fish factory in an island as a hill in the middle of beautiful blue view", the comparisons such as "as a hill", "like a bazaar" has provided the attractive literal meaning of the work by comparing one thing with another. By this description, work effectiveness is exceeded. Due to the fact that the one thing which enriches the literal work by describing sensitively is nature, comparisons are used skillfully in landscape.

For example: "Autumn came with loud sounds of needs in the lakes. The river narrowed and two sides of the river became as a human tallness. The streams which flowed as pot boils, now, flowed

as silk straggles”. In these examples, the writer described the width of the river with human tallness and the stream with comparisons like “as pot boils”, “as silk straggles”.

The metaphor is used in this writer’s collection of works as an only literal manner and describes the literal peculiarity of the work. For example: “In summer, Akhantay had luck. He caught fish more than others. He was chosen as a brigadier by artel and twenty fishermen were given under his control. In these years, artel had all his necessities and rich household with his around hundred workers”. Here, by metaphor “rich household” was compared that after Akhantay had joined artel and became among rich households.

We can see that the writer used metaphors skillfully when portraying nature in some parts of collection: “After snowman left his settlement following cold winter, strong wind, snowy storm, spring came covering the ground with satin carpet and smooth wind”. In this description, changes of seasons were portrayed sensitively, it enriched literal peculiarity of the work by altering blossom of nature with the metaphor “satin carpet”.

It should be highlighted that the author's works in this collection are rich in literary description and he used metonymies appropriately by replacing the word with another indicating what the writer intended to say or what he wanted to convey: “Once, my gaffer said that they encountered to a seal at night and made it weak with his seven-eight fellows. Of course, no matter how “sea calf” tries forward, it cannot go farther”.

In this example the word “seal” is replaced with the word “sea calf” and it rather changed the literal peculiarity of the work.

An exaggerated description of events or some incidents are found in this collection of works. For instance: “The fishermen’s dream came true a few years later after Stakhonov’s settlement in Moscow when large boats came to the village and a war with fire started on the ground” given the hyperbolism of the power of war. On the other hand, the author’s aims became to draw attention to his idea and indicate it effectively by describing “the power of the country is as overflowing and high as mountains”.

During the description of events in the works, especially, expressing of war events, the author used more hyperbolism: “The bomb as from the sky dropped rain was a day of struggle for a living which on the ground becoming a victim to enemy as a covered with snow, fighting liberating the city from the enemy resting and regaining power”. Here the hyperbolic imagery is important for the artistic side of work.

In the works of the collection the most commonly used form of artistic writing epithet is used appropriately. For instance: author “Silence. On the right side a tanned, young stalwart man is weaving “mardan” and at the fireplace side a lovely charming woman is making willow. When she acts her “shashbaw” which linked to her plaited hair resounds astonishingly” used epithets, describing by heroes of the work Khalmurat and Arukhan’s portrait with the words tanned, stalwart, lovely and etc.

Taking everything into consideration I would like to point out that, the author Karamatdin Sultanov used more literal features in his works. We consider that in the author’s works literal skill issues should specially be researched.

Rezyume: *Bu maqolada qoraqalpoq yozuvchisi Q.Sultonovning XX asr hikoyalarida badiiy odoblardan foydalanish yo‘nalishlari o‘rganildi.*

Резюме: *В данной статье изучены направления каракалпакского писателя К. Султанова в повестях XX века, основанные на художественной манере.*

Kalit so'zlar: *yozuvchi, badiiy odob, hikoya, badiiy portret.*

Ключевые слова: *писатель, художественный стиль, повесть, образ-портрет.*

DEVELOPMENT OF STUDENTS' SPEAKING COMPETENCES THROUGH STORIES IN MOTHER TONGUE CLASSES

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Summary: *This article is devoted to the development of students' speaking competences through storytelling in primary school mother tongue classes.*

Key words: *Story, competence, oral speech*

In the world, teaching the younger generation their native language, observing the norms of correct speech, a necessary factor in fostering a culture of spoken language, a culture of behavior, resources and the development of working methods are among the priorities.

It is a fact that secondary schools have become a decisive force in the reforms carried out in the field of education in our country. Possessive speech is a major part of parenting and learning. The stronger the nail, the stronger the place, therefore, the knowledge gained in education is the basis for achieving higher results without any difficulties in high school and subsequent stages of education. For this reason, it is necessary to use all opportunities to improve the literacy of classroom teachers, give them solid knowledge and form the necessary skills and scientific experience, and ensure the quality of primary education and the training process. This task imposes a great responsibility on every teacher. To improve the child's knowledge in the classroom, the teacher must teach in a modern way. That is, raising a child in accordance with the foreign education system, especially nowadays, means that the education system is focused on the intellectual development of the child. One of the most important issues is the development of students' speech in speech classes. Children's speech is formed by reading beautiful works of art in books and reading stories in a small circle. Among the necessary tasks for students of the conversational class are reading books, storytelling, expanding the worldview of students, developing conversational skills, and forming spirituality. According to current global trends, increasing the interest of young people in learning is one of the most important factors. When reading to children, it is important to choose books that are appropriate for their age and interests. Reading stories about animals' life is necessary if first grade students are interested in animals. It is necessary to take children to the library often, try to introduce children to fairy tales and stories about real events that happened in the family. A story is a work of fiction. There are different stories about people and events. A short story is a piece of fiction that can usually be read in one sitting. Pride is very important in parenting. It only increases his literacy and teaches him to be superstitious, bookish and polite.

Storytelling in native language classes develops students' speech at an excellent level. The final and pedagogical purpose of native language lessons today is to educate young people of a national mentality, to form in them a sense of respect for national values, and to implement the educational tasks facing education. One of the main goals of teaching a native language is to teach students to speak this language – to develop their oral monologue and dialogic speech. One of these goals is to organize learning-related activities based on speech activity that provides a sufficiently wide range of speech to form a speaking mechanism, that is, when learning a language, you should speak a lot in this language. The student speaks both when studying the text, when answering questions, and when he tells the story himself. However, these "statements" are not general level statements. When the text is studied, it is voiced. A similar situation arises when answering questions. Only the process of speaking in a free form more meets the requirements of improving oral communication. At each lesson, how many words each student should speak and express their opinion, how much and at what level to perform exercises to ensure the development of oral speech, what should be the structure of lessons. This is not an easy task, the problem of resentment. These issues can be resolved by providing preliminary justifications with specific arguments from psychologists. Given that the main purpose of

language teaching is the development of oral and written speech of students in the form of a monologue, as well as speech in the form of a dialogue, in classes in their native language, the teacher must know ways to implement this task.

It is important to develop conversational competence: it is necessary to teach children to speak correctly and express their thoughts correctly in writing, observing the norms of the language related to literature. The word "competence" comes from the English word "competence" and in a lexicological sense means "ability". In terms of content, it expresses the concept of "effective use of theoretical knowledge in activities, excellent professional scientific experience, manifestation of talent." It is used by a specialist in the sense of acquiring knowledge, skills and abilities necessary for the realization of professional competence, and the ability to apply them in practice at an excellent level. National educational standards and training programs based on a competency-based approach to teaching the native language are determined from the point of view of the child's ability to think, understand enlightened thought, express his opinion in a competent, logical sequence. Competence-based education is an education aimed at developing students' individual, professional and social service competencies.

Education based on a competency-based approach allows students to have independence, an active civic position, initiative, the ability to intelligently use media resources and information and communication technologies in their activities, an informed choice of profession, healthy competition, and cultural skills. In order for a person to enter into solitary, social, economic and professional relationships in his life, take his place in society, solve the problems he faces, and most importantly, be competitive in his field and profession it is necessary to have the necessary lean competencies. In addition, in the process of mastering each academic subject in education, students develop individual competencies related to this field, based on the uniqueness and content of this subject.

Folk proverbs and riddles can also be usefully used in the development of speech competencies of first grade students, to teach correct interpretation and reasoning. For example, you can divide students into 2 groups and assign each of them the following riddles so that they read correctly and find the answer. You can't find it on the market, it's not attracted to scales, it's rusted like honey, but you can't buy it. (To sleep). I was riding a sleigh and crossing a stream, I didn't see any shadow, I was wearing a red velvet coat, I didn't see any fun. (Dream) Snow falls on the ground, the children, seeing it, cry, the day disappears from sight. (Snow). If you are a master, you will not be caught, If you run, you do not see, When you walk, there are no completions, you do not have eyes to see, What is wrong with the dawn, You see when you think You know magic. (Wind). Such puzzles help to develop students' speech, intelligence and mental abilities.

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Rezyume: Mazkur maqola boshlang'ich sinf ona tili darslarida o'quvchilarning hikoyalash orqali nutqiy kompetencyalarini rivojla'tirishga bag'ishlangan.

Резюме: Данная статья посвящена развитию речевых компетенций учащихся посредством рассказывания историй на уроках родного языка в начальной школе.

Kalit so'zlar: Hikoya, kompetenciya, og'izaki nutiq.

Ключевые слова: Рассказ, компетентность, устная речь

THE REALIZATION OF ADDRESS IN SPEECH ETIQUETTE FORMULAS: LINGUISTIC ASPECT

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Summary: *This article deals with the realization of address in speech etiquette formulas on the linguistic point of view. Theoretical opinions by scientists and differences of addresses in speech etiquette in English and Karakalpak cultures are given.*

Key words: *address, speech etiquette, communication, culture, interlocutor, informal language, hospitality, modern society.*

Since ancient times, manifestations of speech culture have been manifested more in the form of language etiquette (speech etiquette) and language acquisition, the correct use of the language in general, speech tools, attitude and respect for the language have been governed mainly by moral norms. Such rules of etiquette, their main forms and requirements can be found in folk oral works and ancient written monuments. For example, in Mahmud Kashgari's work "Devonu Lugatit Turk" there is a proverb that says "Erdam boshi til", that is, the language is the beginning of manners [3]. Most of all, language is a communication tool, language is a mirror of life, language is a sign of spirituality. Communication is brought into being through language, information is exchanged, people communicate through language, and most importantly, language is a mirror of human behavior.

N. Formanovskaya, "because of its semantic nature, speech etiquette serves to express relationships in three different forms. These are: 1) gender; 2) age; 3) relations related to social status. They are related to the national, historical and spiritual experience and heritage of the people" [4].

E. Arshavskaya expresses that "speech etiquette depends on the speech situation and all its features, the topic of communication, place, time, reason, purpose, and with whom one communicates" [1].

Having the skills of speech etiquette, knowing its norms and strictly following them has the following important advantages:

1. Strengthening personal authority and respect in the eyes of the surrounding people.
2. Establishing a trusting relationship with the interlocutor that allows for successful arguments and proposals.
3. Creating a comfortable environment for oneself and others, avoiding awkward situations and mistakes.
4. Cultivating and developing cultural communication, especially in professions where language plays an important role.
5. To help create a good, positive impression of the company or organization and to strengthen its reputation.

The following aspects should be kept in mind when formulating the rules of speech etiquette: 1. The characteristics of each partner, including his social status, place in the hierarchy, profession, age, religious belief and character. 2. The context of communication, regardless of whether it is official, work-related, ceremonial, informal or any other event (for example, a scientific symposium, meeting, presentation, interview, anniversary, etc.). 3. National features of speech etiquette characteristic of communication participants.

On the sociolinguistic scale of speech etiquette, there are permanent, fixed characteristics of people who are communicating: age, education, manners, level, place of birth, etc. is known. The use of speech etiquette formulas in the historical process, their changes are studied at the sociolinguistic level [5].

For that reason, observing speech etiquette is an integral part of successful communication in the modern world and can say a lot about a person's professionalism and his socio-cultural values.

In our modern life, when international relations are expanding more and more, knowing the peculiarities of national norms of behavior is becoming an integral part of successful communication with foreign partners. Understanding the specifics of national norms of behavior, being able to use appropriate speech formulas, and being able to distinguish the specifics of work-related communication of different countries and cultures are necessary skills in conducting negotiations and establishing relations with foreign partners.

Together with the nationality of the people, cultural and historical experience is also reflected in speech etiquette. Speech etiquette is a product of people's knowledge and culture. Although this principle allows a broad interpretation of the scope of speech etiquette, the concept of speech etiquette is narrow compared to the concept of "moral standard". It does not include professional or personal etiquette, but language taste, national moral values, mentality, and aesthetic experience of the people [5].

For instance, American speech etiquette may vary by region, social context, and individual characteristics, but there are some common features and characteristics that should be highlighted:

1. Americans tend to be open and direct in communication. They value honesty and expect such a feeling when communicating with others. This is reflected in the fact that they are more open about their thoughts and feelings than other cultures.

2. Respect for privacy: In the US, there is an emphasis on privacy and personal space. It is important to respect physical distance between interlocutors to avoid unnecessary invasions of privacy.

3. Barriers: Americans usually shake hands with each other and pronounce common expressions such as "Hello" or "Hi". It is also appreciated to smile and be friendly towards the interlocutor.

4. Formality: The degree of formality may vary depending on the context. In work-related communication and when meeting strangers for the first time, a more formal style of communication is often used. However, informal language can be used among close friends and family.

5. Respect for diversity: The United States is a multicultural society, and American speech culture reflects this diversity. It is important to respect and understand the different cultural and linguistic characteristics of the interlocutors.

6. An important part of American speech culture is active listening. This means asking questions to clarify information and show interest in the interviewee's thoughts and feelings.

7. Politeness: Politeness and gratitude are important aspects of everyday speech (thanks).

Uzbekistan has a rich and diverse cultural and linguistic history. The following features can be determined in Uzbek speech culture:

1. Hospitality: Uzbekistan is famous for its hospitality. An important aspect of speech culture is greeting guests and paying attention to them. Guests are usually greeted with warm and heartfelt words.

2. Respect for elders: Uzbek culture places great emphasis on respect for elders and respectable people. Addressing adults with respect and dignity is mandatory.

3. Formality: More formal language and address is used when communicating with strangers or in formal situations. A polite form of address called "you" is usually used.

4. Role norms: Uzbek cultural discourse has specific role norms. For example, men and women may have different obligations and expectations based on their communication and behavior.

5. Religious Aspects: Uzbekistan is a Muslim country, and religious ceremonies and customs influence speech culture. For example, the use of religious expressions and greetings may be common.

6. Tolerance and multi-ethnicity: Uzbekistan is a multi-ethnic country, and it reflects this multi-ethnicity. Respect for different cultures and languages is an important aspect of society.

7. Family values: The family plays an important role in Uzbek culture, and many customs and traditions are related to family values. Communication in a family environment may be less formal, but respect for elders and traditional customs are maintained.

Karakalpaks are an ethnic group living in Karakalpakstan and some neighboring regions of Central Asia. They have a unique speech culture that largely reflects their historical, cultural and social characteristics. Below are some features of the speech culture of Karakalpakstan:

1. The main language of the Karakalpaks is the Karakalpak language, which belongs to the Turkic language group. However, many Karakalpaks also speak Russian and Uzbek.

2. Respect for elders is important in Karakalpak culture, as in other Turkish cultures. Minors are obliged to show respect and obedience to the older members of the family and society.

3. Karakalpaks are famous for their hospitality. Guests are usually greeted with a warm greeting and offered food and drinks.

4. Family plays an important role in Karakalpak culture. Family ties are very important, and family traditions and respect for older family members are of great importance.

5. Most Karakalpaks are Muslims, and religious ceremonies and customs influence the speech culture. Religious phrases and eulogies may be common in everyday speech.

6. Karakalpaks are rich in folklore and artistic traditions. Stories, songs, and dances play an important role in culture, and they can be an important part of communication and community activities.

7. In Karakalpak culture, communication can be done with kindness and openness. Respect and courtesy are important aspects of communication.

Karakalpak speech culture is a unique phenomenon that reflects the richness and diversity of ethnic and cultural history of this group. As with other cultures, it is important to consider and respect local traditions and customs when interacting with Karakalpaks.

The effectiveness of communication for representatives of any nationality is determined by the postulates of speech communication, including: postulate of quality (information should not be based on fake or lies), postulate of quantity (information should not be too short, too long and boring); attitude postulate (the information should be suitable for the addressee), method postulate (the information should be clear and understandable, there should be no words and phrases that are incomprehensible to the addressee). Failure to comply with any of these postulates leads to communicative failure [2].

Uzbek speech culture is rich and diverse, knowing its features helps foreigners to successfully communicate and interact with Uzbek interlocutors. In this, as in any other culture, individual preferences and the context of communication must be taken into account.

Thus, in order to achieve maximum success in solving the communicative task in various situations of the communication process, communication culture consists in the skillful use of language tools in accordance with modern standards and communication ethics. For successful communication, the following are necessary:

a) Knowing and observing the rules of using language elements, being able to distinguish which elements are outside the boundaries of the literary language and, based on this, are not relevant for work or scientific communication.

b) Taking into account the context of the communication and choosing appropriately language elements such as words and phrases that are work-related, scientific or typical of the spoken style.

c) Observance of language behavior norms specific to this society in communication. Only when these conditions are met, it is possible to guarantee the effectiveness of speech communication and talk about the high speech culture of the speakers of this language.

Etiquette is a set of rules that ensure our behavior and communication efficiency. Since such communication plays an important role in human life, primarily in the field of speech etiquette, it should be in accordance with certain norms and standards. In modern society, especially in the field of office work, a person's professional suitability for work is often determined by his ability to follow speech etiquette. Such skills reflect not only personal spiritual beliefs, but also socio-cultural characteristics of certain groups.

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Rezyume: *Maqolada murojaatning nutq odobi formulalarida bajarilishi lingvistik nuqtai nazardan ko'rib chiqiladi. Olimlarning nazariy fikrlari va ingliz va qoraqalpoq madaniyatlarida nutq odobidagi murojaatlardagi farqlar keltirilgan.*

Резюме: *В статье рассматривается реализация обращения в формулах речевого этикета с лингвистической точки зрения. Приведены теоретические мнения ученых и различия обращений в речевом этикете в английской и каракалпакской культурах.*

Kalit so'zlar: *manzil, nutq odobi, muloqot, madaniyat, suhbatdosh, norasmiy nutq, mehmondo'stlik, zamonaviy jamiyat.*

Ключевые слова: *обращение, речевой этикет, общение, культура, собеседник, неформальная речь, гостеприимство, современное общество.*

USE OF PUBLICIST TEXTS IN ENGLISH LANGUAGE LESSONS IN HIGH SCHOOL

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Summary: *The purpose of the presented work is to identify and analyze the axiological potential of modern English-language journalistic texts and the possibility of their use in teaching reading in high school. The article reveals the educational potential of journalistic texts, which contributes to the development of logical and critical thinking, as well as the skill of searching for the necessary information. The authors propose to use a set of exercises when teaching reading, which combines the cognitive orientation of the process of teaching English, understanding the text and its orientation towards the formation of the spiritual and value sphere of the students' personality.*

Key words: *reading, journalistic text, studying the type of reading, axiological potential.*

Introduction.

In the process of learning English, reading acts as an independent type of speech activity, occupying one of the central positions. There are different types of reading, but if we take into account exploratory reading, it provides the maximum level of penetration into the information presented in the text. This type of reading is characterized by a slow progression with analysis of what was read.

Various political, social and cultural events contribute to the emergence of new vocabulary, which is often first encountered in journalism. Integration of journalistic materials into the educational process is a necessary component, which is determined by the cognitive and educational orientation of the learning process and contributes to the development of the skill of interacting with authentic electronic resources [1; 4]. Despite the fact that the use of journalistic texts has a teaching, educational and educational character, methodologists have not proposed a clear theoretical basis on this issue, and in order for the lesson to be competently organized, the teacher must develop a special system of exercises.

Reading and analyzing journalistic texts contributes to the development of logical and critical thinking, as well as the skill of searching for the necessary information. Journalistic texts are a high-quality information resource where students can obtain information of a regional nature, as well as details of the development of the socio-cultural and political-economic system of the country of the language being studied [13, p. 5]. The main goal of this article is to identify and analyze the axiological potential of modern English-language journalistic texts when used in the educational process. Analysis of the axiological potential allows us to organically combine the cognitive orientation of the process of teaching English, understanding the text and its orientation towards the formation of the spiritual and value sphere of the students' personality.

Presentation of the main material of the article. The axiological approach in modern education is fundamental, which is confirmed and enshrined in the State Educational Standards with a focus on mastering the spiritual values and culture of the multinational people of Uzbekistan. The implementation of this principle can be facilitated by the use of journalistic texts, on the basis of which students form value guidelines, and the teacher can intensify the learning process [5; 6]. The tasks of a student of reading include: the formation of a linguistic guess, a detailed analysis of the text read in accordance with the logical and linguistic data presented in the text, as well as the formation of the skill of overcoming difficulties in understanding a foreign language text. In order to achieve the set goals and objectives, texts in the process of teaching students to read must have high cognitive value and informative significance. Texts aimed at this type of reading present the greatest difficulty for the current stage of learning, both in content and in language terms [3, p. 235]. If a teacher decides to use journalistic texts in a foreign language lesson, then he must make sure that they meet certain effectiveness criteria: 1) the criterion of the educational value of the texts being studied; 2) the criterion

of the cognitive value of the texts being studied; 3) the criterion of their educational value; 4) the criterion of their developmental value; 5) the criterion of moral value [8].

It is necessary to understand that even if the text meets all the requirements and the tasks are methodologically correctly developed, it cannot be guaranteed that the training will not cause difficulties for students to understand and work with. In order to make it easier for students to perceive the material, the teacher must make sure that the students fully understand, which can be ensured through selective reading of the newspaper material with a retelling of what they read. In addition, the teacher must anticipate the emergence of difficulties with unfamiliar lexical and grammatical units and organize work to eliminate misunderstandings.

In journalistic texts you can find a large number of phraseological units. Students may not recognize phraseological units and a situation of misunderstanding of the content of the text may arise [9]. A difficult point for students is also the frequent use of gerund and participial constructions, as well as stable verb combinations. To study lexical units such as abbreviations, toponyms, anthroponyms, etc., students must not only use a dictionary, but also perform certain exercises aimed at mastering new lexical units.

The authors of journalistic texts in their materials not only present their chosen topic, but also try to select evidence and argue their point of view. All this is done with the aim of psychologically influencing its reader. For children with weakly developed views, this can also be difficult, and the teacher must organize the learning process in such a way that the student remains objective. At this stage, the student should develop critical thinking [10].

When analyzing the material provided, the student must form his own opinion, without relying on the author's position as the correct one. To do this, it is necessary to create conditions so that the student can independently see all the advantages and disadvantages. The success of this process is directly related to the formation of the student's subjectivity as a participant in the educational process [12]. An essential means of influencing the reader is the use of axiological vocabulary, since it can evoke associations and force one to resist the author's opinion or, on the contrary, agree with it.

Working with any text consists of three stages: pre-text, text and post-text. At the pre-text stage, work with authentic magazines or newspapers begins with familiarization with the cover and title of the selected article. The purpose of this task is to immerse the student in the topic, where the student will have to predict the topic raised in the article and guess what category of press the publication itself belongs to. The task can be completed individually or in small groups. The article can also be divided into several parts, changing the order in which they appear. The students' task will be to put the events in the correct order. Along with the above tasks, at the pre-text stage, an important condition for preparing for reading is familiarization with new words, which is aimed at relieving possible lexical difficulties [11].

The task of the text stage is to monitor students' understanding of the text. First, students read the material all together, and after that they listen to how one student reads and follow the text. The most popular type of comprehension check is answering questions. At this stage, many methodologists suggest using the "5W" technique, according to which the teacher asks not general questions implying a short answer, but questions starting with *what, who, where, when, why*, forcing the child to answer in detail, revealing details.

This type of question helps build a foundation for further work with the text, as students delve into the content of the material in more detail. When working with materials from magazines and newspapers, build interaction with phrases, and not with isolated words. For example, students learn the word **prime** in the combinations **Prime Minister; power** - in combinations **Great powers, state power**.

The post-text stage is the final one and should be aimed at developing students' creative skills based on the content of what they read. One of the options for exercises at this stage may be a task that requires the student to express his point of view about what has been studied, using certain speech

clichés. It promotes the activation of speech and thinking activity [2]. The development of writing skills can be facilitated by writing an essay of 200-220 words. The information read in the text can be used to construct a dialogical or monological statement [7, p. 502-506]. In accordance with the above criteria, a journalistic text was selected and a system of exercises was developed aimed at developing the student's reading skills. The material for the development of the complex was the article “*The Guardian view on voting rights: don't import US-style suppression*” from the daily left-liberal publication “*The Guardian*” [14].

In the article, the author touches on events on political topics. According to the information provided, the UK wants to introduce a requirement for citizens to present a photo ID at polling stations when voting. Consideration of this article in an English lesson can be useful, since after reading it, students will receive information about the development of the political life of the country of the language they are learning, and will also expand their knowledge of the political system of Great Britain.

I. Pre-reading activities.

1. *Look the image and the subsequent sentence. What events are mentioned in the passage?*
2. *Review the concluding paragraph of the text and identify the information that could come before this final statement.*
3. *Underline the words and phrases in the text that can be identified as key words.*

II. While-reading activities.

1. *Translate the highlighted sentences into Uzbek using the dictionary.*
2. *Point out the main idea of the article.*
3. *Look at the words written below. Find them in the text and differentiate each to the column according to its mood.*

Words: flaw, progress, attack, fraud, general, identification, hatred, precious.

Evaluation: positive / negative / neutral.

4. *Choose the right word and tell what image does this word give to the event described in the text.*
 - 1) Democracy has many_, as Winston Churchill pointed out (flaws / advantages).
 - 2) But _as current arrangements are, the right of all adults to vote in elections remains hugely important (imperfect / perfect).
 - 3) The requirement to show photo ID in polling stations looks very much like _on voting rights (an attack / a defense).
 - 4) For Mr. Trump and his supporters, _claims of fraud are used to stoke racial hatred and paranoia (spurious / real).
 - 5) To say that importing such measures to the UK is _as an understatement (provocative / pleasing).
5. *What is the author's position in this article? Write down the words which he uses to emphasize his feelings concerning this problem.*

III. Post-reading activities.

1. *Make a plan of the text you have read.*
2. *Work in pairs and discuss the following question (6 min):*
 - *Would you like to have a requirement of showing photo ID in polling stations or not? Why do you think so?*
3. *Make up a few questions to the text you have read.*
4. *Retell the text, using the plan and the new words which you have learned. Your story must contain 10 sentences.*

Thus, the proposed set of exercises makes it possible to make the work on developing the reading skills of a student more effective. This is manifested in its contribution to the development of the basic mechanisms that form the skills of a student reading, namely, linguistic and semantic

guesswork, the ability to reproduce what has been read orally and in writing, as well as the ability to determine the evaluative nature of the lexical units used by the author.

Conclusion.

As a result of studying reading and the possibilities of integrating journalistic texts into the learning process, it was found that reading acts as the basis for the formation of written and oral speech in a student through familiarization with new lexical units and practicing grammatical material. The learning type of reading requires complete immersion in the information presented and elaboration of the details of the text. The use of learning reading contributes to the formation of linguistic guesses, as well as the logical correlation of facts and the development of language material. Texts should be characterized by high cognitive value and informative significance, since the selected text is not only material for work, but a resource that can influence the worldview of students.

The involvement of journalistic materials in the educational process is a necessary component, since they contain linguistic means characteristic of native speakers today. Working with text should contribute to the development of critical thinking, where the student must form his own opinion about the situation described and not perceive someone else's point of view as true. As a result, a set of exercises was developed aimed at developing both oral and written speech. The exercises are devoted to the development of various skills, which prevents the formation of a stereotyped type of thinking.

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Rezyume: Taqdim etilgan ishning maqsadi zamonaviy ingliz tilidagi publitsistik matnlarning aksiologik imkoniyatlarini va ulardan o'rta maktabda o'qishni o'rgatishda foydalanish imkoniyatlarini aniqlash va tahlil qilishdir. Maqolada mantiqiy va tanqidiy fikrlashni rivojlantirishga, shuningdek, kerakli ma'lumotlarni izlash mahoratiga hissa qo'shadigan jurnalistik matnlarning ta'lim salohiyati ochib berilgan. Mualliflar o'qishni o'rgatishda ingliz tilini o'rgatish jarayonining kognitiv yo'nalishini, matnni tushunishni va uning talabalar shaxsining ma'naviy va qadriyat sohasini shakllantirishga yo'naltirilganligini birlashtiradigan mashqlar to'plamidan foydalanishni taklif qiladilar.

Резюме: Цель представленной работы – выявить и проанализировать аксиологический потенциал современных англоязычных публицистических текстов и возможность их использования при обучении чтению в средней школе. В статье раскрывается воспитательный потенциал публицистических текстов, который способствует развитию логического и критического мышления, а также навыка поиска необходимой информации. Авторы предлагают использовать при обучении чтению комплекс упражнений, сочетающий в себе познавательную направленность процесса обучения английскому языку, пониманию текста и его направленность на формирование духовно-ценностной сферы личности учащихся.

Kalit so'zlar: o'qish, jurnalistik matn, o'qish turini o'rganish, aksiologik salohiyat.

Ключевые слова: чтение, публицистический текст, изучение типа чтения, аксиологический потенциал.

THE ROLE OF ENGLISH SONGS TO IMPROVE ON ENGLISH LISTENING SKILLS IN PRIMARY CLASSES

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Summary: *Songs can have a positive or negative effect on language development. This study aims to investigate how songs affect language learning, particularly in terms of enhancing listening abilities. According to the study, using songs can be beneficial for pupils and it is probably going to help them with their listening comprehension.*

Key words: *listening, globalization, activities, components, fluency, interactions, song, effect, compete, communication, proficiency.*

Learning a language is one of the most important aspects of modern life. In general, it is impossible to live without language because people must interact with each other as social beings. Learning a foreign language is also crucial in addition to mastering one's mother tongue. According to the Resolution of President of Uzbekistan Republic №5117 "On effective measures for the organization of stimulating the study of foreign languages" from the 19-th of May.2021 [1], schools were provided with new books of a new standard for teaching foreign languages effectively. In the globalization era, learning foreign languages is one of the most important factors for Uzbekistan's younger generation for gaining knowledge and deep learning of the latest techniques and competing around the world. One of them is mastery of English which is mostly used by young people, especially students and teachers as a way of communication. English language is the main communication tool for communicating internationally, is a common need that must be fulfilled. Apart from this, young people must be aware of English language to compete in educational purposes and do trading works. There are many different methods that young people can learn English, including through classes, extracurricular activities, and formal and informal schooling settings like elementary school. It is frequently seen that young people prefer to speak English with them on a daily basis.

There are four elements of English language learning process and they are reading, speaking, writing, listening. To comprehend the language, one needs to learn these components. Subsequently, it is easy to understand for us, if we have these four elements because English is used as an international language in all fields, such as politics, science, media, arts, and entertainment. For new learners of English language listening is main activity and pupils have imagination and concept when they hear new words, After that, they try to speak English like natives. Then they can read and write new words and sentences.

Listening is a receptive skill because we do not need to produce words and ideas to do this and we only receive by listening new audios. Then, it is more difficult than other three aspects above. Many students have problems of understanding words or sentences spoken in English verbally. Commonly, teaching listening part in English language lessons has still fault and it is sometimes taught with limited exercises.

Enhancing one's listening skills is essential for acquiring fluency in a language, as it is a crucial skill in language learning. It is a receptive skill that requires people to be able to capture and comprehend English input.

Because people typically recognize written words more readily than spoken words, listening is more challenging than reading. In addition, people who read have the ability to go back and reread a passage, but those who listen only have one opportunity. When reading, the reader sets the pace while paying attention to the speaker or recording. Many young people, particularly students, find it challenging to listen as a result of this issue. It's commonly believed that good speech translates into effective communication. Some people think that learning English will show in their social interactions

because it will improve their speaking, writing, and reading skills. Furthermore, a person's listening comprehension also affects his or her language proficiency.

Listening exercises may be very boring and complicated to primary class pupils. Hence, using songs can help for teachers to motivate pupils. Songs can also be useful tools in the learning of vocabulary, sentence structures, and sentence patterns, not to mention their reflectivity of mother tongue culture (Murphey, 1992) [2]. Additionally, using songs in the classroom has benefits to create funny atmosphere, and can improve motivation of students to the lesson.

In primary classes organizing and teaching listening part of the English language is more complicated than higher classes and using short musical audios to prepare pupils is worthwhile. Purcell (1992) [3] states that students can become bored by repeatedly listening to a narration or dialog as they attempt to understand the meaning of new words or phrases in context. In contrast, listening to a song over and over again can seem less monotonous because of the rhythm and melody. Some songs, such as **Hello**, contain common expressions and can be used as good listening activities. For example, the teacher could sing the first three lines of the song below, and students could respond with the following three lines.

**Hello,
Hello,
Hello, how are you?
I'm fine,
I'm fine,
I hope that you are, too.**

Songs can also help to improve listening skills because they provide students with practice listening to different forms of intonation and rhythm. English has a stress-timed rhythm, for which songs can help to establish a feeling.

Murphey said that (1990) [4], many English teachers have long recognized the value of song and music in language instruction. When a student listens to and memorizes an involved song in class, the lyrics are embedded in his long-term memory. Music is a powerful stimulus for humans since it relates to our emotions while also allowing us to interpret them and their effects by utilizing our minds if we so desire. A piece of music can transform the learning environment, be engaging, and provide a pleasant relationship between the worlds of enjoyment and learning in the classroom.

The main positive effect of listening to songs commonly is that pupils learn new vocabulary and pronunciation with relaxing. When pupils listen to a song, the mood can change happily. It depends on what kind of song they hear during lesson.

However, there are several advantages of using songs in lessons, teacher should pay attention several rules such as technical equipment, class size, choice of right song.

Class size: Any listening class with a big student body runs the risk of becoming chaotic and unmanageable. Conducting language exercises with a big group of pupils can be challenging for teachers.

Additionally, students could not give the music or any associated assignments their full attention. Thus, an overcrowded class may be boring and distracting.

Technical problems: Technical issues can arise even with the most advanced sound equipment and logistical setup, making song-based instruction less effective. In the event that there isn't a qualified technician or teacher on hand to address the issue right once, this could be difficult.

Wrong choice of song: When unpleasant language or contentious topics are present, learners may experience discomfort and misunderstanding. Furthermore, the music selection will be useless if it does not align with the pupils' interests and skill levels. Learning is hampered when the wrong or inappropriate music is chosen for various student groups. If these parts are organized well, teachers can use songs in teaching.

Songs are a big part of teaching foreign languages. They offer a fresh perspective on teaching language and aid in the development of improved listening abilities. Songs and music have a lot to offer language learners in terms of improving their language abilities. Numerous organizations worldwide have already acknowledged the significance of using songs to help EFL/ESL students master language skills. Numerous studies demonstrate the value of English songs in EFL/ESL listening instruction. Songs can be used in the classroom by language teachers and students alike by adding a significant instructional component. A teacher ought to arrange resources and tasks according to the many standards stated in the article. Teaching the skill involves several challenges, but these can be addressed with careful consideration of a number of criteria. Instructors should select appropriate music that aligns with the needs of their students and the learning objectives, and they should plan activities that effectively engage their students. Therefore, using songs in the classroom can have positive effects.

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Rezyume: *Qo'shiqlar til rivojlanishiga ijobiy yoki salbiy ta'sir ko'rsatishi mumkin. Ushbu tadqiqot qo'shiqlar til o'rganishga qanday ta'sir qilishini, ayniqsa tinglab tushunish qobiliyatini oshirish nuqtai nazaridan o'rganishga qaratilgan. Tadqiqotga ko'ra, qo'shiqlardan foydalanish o'quvchilar uchun foydali bo'lishi mumkin va bu ularning tinglab tushunishlariga yordam beradi.*

Резюме: *Песни могут оказывать положительное или отрицательное влияние на развитие речи. Целью данного исследования является изучение того, как песни влияют на изучение языка, особенно с точки зрения улучшения навыков слушания. Согласно исследованию, использование песен может быть полезным для учеников и, вероятно, поможет им в понимании речи на слух.*

Kalit so'zlar: *tinglash, globallashuv, faoliyat, komponentlar, ravonlik, o'zaro ta'sirlar, qo'shiq, effekt, raqobat, mulloqot, malaka.*

Ключевые слова: *аудирование, глобализация, деятельность, компоненты, беглость речи, взаимодействие, песня, эффект, конкуренция, общение, мастерство.*

DEVELOPING READING SKILLS IN ENGLISH LANGUAGE LESSONS AS A MEANS OF CULTIVATING ANALYTICAL THINKING AND RESEARCH SKILLS IN STUDENTS

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Summary: *This article explores the effective application of innovative reading strategies in English language lessons based on the experience of teaching primary school students. The presented methods contribute to the development of analytical skills in students when working with texts of varying complexity. The tested strategies are recommended for use in both primary and secondary schools.*

Key words: *types of reading, skill development, analysis, argumentation, text highlighting.*

The modern student acquires information from various sources through reading. Students need to develop reading and text-related skills such as information retrieval, identification of necessary information for solving practical or educational tasks, systematization, comparison, analysis, and synthesis of ideas presented in the text. They interpret and transform these ideas. In this process, students employ various reading strategies, including exploratory, search, and research strategies, requiring different approaches and methods. Mastery of diverse reading strategies contributes to the enhancement of students' informational and reading culture, enabling the individualization of the reading process. Each student can read texts at their own pace, skill level, and according to their needs and interests, choosing and utilizing the most suitable reading method for the given task.

How can the reading process become more effective while helping students develop reflection, analysis, and research skills? To answer this question, we decided to explore different approaches and methods of organizing the reading process with 9th-grade students. One of the chosen strategies is Text-Based Reading with Text Highlighting. While working with the text, students use highlighters of different colors to mark answers or evidence for various questions, assignments, or tasks.

The development of search reading skills using various search methods and information gathering in accordance with communicative and cognitive tasks should be purposeful and regular. As rightly noted by A.A. Leontiev, "reading skills not reinforced by more or less constant training quickly deteriorate, and all efforts in teaching reading turn out to be in vain."

Search reading typically demands three main requirements: precise formulation of the search task, time-limited information search, and guaranteed discovery of the required information in the text. Therefore, in lesson preparation, we not only carefully select or prepare textual material but also meticulously develop questions or define tasks for investigation and solution.

Scanning of Text, i.e., Search Reading for Finding Necessary Information: Scanning involves searching for specific information in a text, such as finding a word, date, phone number, etc. Students quickly review or scan the text and highlight the answer. With regular practice, students adeptly use this reading technique to locate required information, answers, or quickly solve posed questions. In response to a survey question, "Does working with a text highlighter help during text scanning?" 95% of students answered affirmatively, noting that they performed tasks more effectively, providing correct answers in a shorter time period.

Skimming of Text, i.e., Reading for General Understanding: Skimming is reading for overall comprehension of the main content. Students are not concerned with every detail; rather, they aim to understand the theme and main idea of the text. Students are encouraged to read the title, identify key words, skim the text to trace and highlight these words or their synonyms, determine the main theme and idea, and identify lines supporting this. They can also identify the genre of the text and the author's opinion. Working with text highlighters turns students' working text into a colorful carpet.

On one hand, this method attracts students' attention, and on the other hand, it helps them orient more quickly in the text and answer posed questions.

Vocabulary Work: To develop and expand students' vocabulary, they are asked to select synonyms from the text, highlight them, and correlate the highlighted words with those given in the assignment. An interesting task with new words is for students to fill in the blanks in a brief summary of the text. However, as the students noted in the survey, it was more challenging to write the summary itself. To complete such tasks, 9th-grade students need to analyze material, generalize data, information, or summarize main ideas, formulate hypotheses, ask questions, and find ways to solve problems. Therefore, the development of reading skills involves not only their enhancement but also the development of thinking skills (critical, analytical, creative) and research skills.

Observation: Applying the strategy of working with a text highlighter, we conducted a survey of students. When discussing the effectiveness of this method and the qualities developed in students, they noted that this strategy helped them be more attentive when working with the text (80% of students), and it was easier for them to compare and analyze highlighted ideas (86%). In other words, working with text highlighters during reading develops attentiveness, thinking skills, and together these qualities cultivate students' observational skills, contributing to the development of the ability to observe.

Observation as a Developmental Tool: Observation is acknowledged as the most popular and accessible method of research. Gradually, the ability to observe contributes to the development of seeing problems, identifying them, and finding solutions.

The ability to identify a problem characterizes an individual's thinking. This skill develops in various types of activities. The ability to change one's perspective, to look at an object of research or a problem from different angles, is crucial. Therefore, we propose that students not only identify the problem but also discuss it from different perspectives, putting themselves in an unexpected position or role. Looking at the same object from different perspectives allows one to see what escapes one's gaze and often goes unnoticed by others. Another task involves determining the positions of different authors on a specific issue. Students need to analyze the author's attitude toward the problem and express their agreement or disagreement, providing arguments.

Development of Questioning Skills: In the research process, as in any form of learning, questioning plays a key role. A question is usually considered a form of expressing a problem. A question directs the student's thinking in search of an answer, thereby arousing the need for knowledge, engaging them in mental work. Practice shows that not all students can successfully ask questions. Therefore, in addition to practicing finding answers to proposed questions based on text materials, we give students the task of highlighting evidence of the correctness of the answer in the text. In the next stage of developing questioning skills, students are asked to formulate 2-3 questions about the text for their classmates. Such tasks help students better understand the text and quickly find answers to the posed questions.

Development of Classification Skills: Classification is defined as the operation of dividing concepts based on a specific basis into non-overlapping classes. One of the main features of classification is indicating the principle (basis) of division. Classification establishes a specific order. It divides the considered objects into groups to organize the observed area, making it manageable. Classification gives our thinking rigor and precision.

Classification of Lexical Units and Development of Thinking Skills: In working with text, we encourage students to classify lexical units based on parts of speech, structure, significance of phenomena, or problems. At times, students are given the opportunity to determine the classification criteria themselves, allowing them to understand the interrelation between objects, phenomena, problems, and consequences more deeply. This approach makes their thinking more flexible, develops logical reasoning, and enhances their ability to see connections.

Summarization and Paraphrasing: To better gauge how accurately students have understood the provided information, we employ the technique of "reconstruction" or "filling in the blanks." Students receive a summary text with missing words (ranging from 5 to 10). Their task is to fill in the blanks with contextually appropriate words. This task becomes more challenging when students are asked to summarize or condense the information themselves. The "completion" technique is based on excerpts from the text or a series of unfinished statements that students need to complete using information obtained from the text. We use this method to develop the skill of reading with complete comprehension. The choice of tasks depends on the lesson objectives and the group's preparedness level. Another skill modern students need is the ability to paraphrase information without distorting it. Developing this skill requires not only a good understanding of the material and accurately conveying the text's ideas using synonymous vocabulary but also logically structuring them. This allows for easy and quick comprehension of the general ideas and correlation with the original concepts.

Integration of Reading Skills with Overall Academic Skills: The development of reading skills goes beyond these abilities; it is closely integrated with the development of general academic skills and reflective abilities (the ability to comprehend a task; the ability to answer the question: what needs to be learned to solve the given task), research skills (the ability to independently generate ideas; independently find missing information in the information field; the ability to formulate hypotheses and establish cause-and-effect relationships). Self-regulation skills (the ability to design the process; plan activities, time, resources; make decisions and predict their consequences) are also essential. Communicative skills (the ability to engage in dialogue, ask questions; participate in discussions and defend one's point of view; find compromises) and presentation skills (monologue speech skills; the ability to confidently present oneself during a presentation) are integral components.

Analysis of Students' Work Using Text Highlighters: Analyzing students' work with text highlighters during various tasks has shown a change in the quality of their work with text and information. The time taken by students to complete tasks is reduced, logical thinking is developed, and a vocabulary is formed that allows for more precise and well-argued responses to posed questions. Qualitative reading, diverse techniques, and methods of working with information contribute to the development of analytical thinking and research skills among students.

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Rezyume: Ushbu maqola boshlang'ich sinf o'quvchilarining o'qitish tajribasiga asoslangan ingliz tili sinflarida innovatsion o'qish strategiyalaridan samarali foydalanishni o'rganadi. Taqdim etilgan usullar turli xil murakkablikdagi matnlar bilan ishlashda talabalarning tahliliy qobiliyatlarini rivojlantirishga yordam beradi. Tasdiqlangan strategiyalar boshlang'ich va o'rta maktablarda foydalanish uchun tavsiya etiladi.

Резюме: В данной статье исследуется эффективное применение инновационных стратегий чтения на уроках английского языка на основе опыта обучения учащихся начальных классов. Представленные методы способствуют развитию аналитических способностей

учащихся при работе с текстами различной сложности. Апробированные стратегии рекомендованы к использованию как в начальной, так и в средней школе.

Kalit so'zlar: o'qish turlari, ko'nikmalarni rivojlantirish, tahlil qilish, argumentatsiya, matnni ajratib ko'rsatish.

Ключевые слова: виды чтения, развитие навыков, анализ, аргументация, выделение текста.

THE VIRTUALIZATION OF SOCIAL REALISM WITHIN THE DIGITIZATION PARADIGM

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Summary: *This article explores the patterns in the significant changes happening in our present social reality due to the digital paradigm. It focuses on the essence of the digital paradigm as a new worldview and development paradigm. Presently, the widespread integration of numerical processes across many domains of human activity, together with the emergence of the digital paradigm as a novel framework for advancement, has led to the examination of diverse facets of numbering.*

Keywords: *social realism, paradigm, digital paradigm, networked society, information technology, digital technology, digital economy, information society*

Introduction.

The advancement of digital technology in the 21st century has expedited the alteration of social reality. The virtualization of the universe was brought about by informatization and digitalization, resulting in the simulation of real activities and objects. This transformation of social reality was achieved through the creation of new electronic pictures. Consequently, the ideas of social reality, such as "digital society," "networked society," "platformed society," and "IT-society," have become widely accepted in scholarly discourse.

The scientific literature discusses four key elements of the theoretical model of the digital society: networking, platforming, datification, and algorithmic management [1, P. 129]. These principles were seen as fundamental components of the technological framework of the digital society. Establishing connections and building relationships with others. Digital networks serve as the foundation for the infrastructure of a digital society. Consequently, this serves as the foundation for the establishment of a worldwide community. It is seen as the fundamental concept of linking everything together within the hidden framework of the network [2, P.102].

In the realm of scientific discourse, the Norwegian scholar Steinom Breten (1981) was the pioneer in examining the concept of branching society. Subsequently, Dutch scientist Jan van Dik employed the notion in his paper titled "Networked Society" published in 1991. On the contrary, Manuelem Castels employed the notion in his 1996 publication titled "The Birth of a Networked Society." James Martin coined the term "technological society" as an alternative to this paradigm. Barry Wellman authored the 1988 play titled "The Rereticulated City." Roxanne Hills and Murray Turff authored a book on networked countries in 1978. M. Kastels posits that the network engenders a novel social morphology within our society.

The notion of a networked society encompasses a wider scope than that of an information society. In the information society, the value of information as a fundamental resource is dependent on the existence of networks for transmission and sources of communication. Without these, information loses its worth. The notion of an information society emerged in the 1940s with the advent of the field of cybernetics. This concept was formulated by American scientists K. Shannon, N. Wiener, and D. von Neumann, British logician and cryptographer A. Turing, and Russian scientist A.N. Kolmogorov. As an illustration, let's consider the variable N. Wiener's study focused on a society characterized by effective communication. The application of the information society concept to the research of Japanese scientists Kitsyo Korokawa and Tadao Umesao took place in 1961. In addition, D. Bell originated the notion of the postindustrial society and is currently recognized as an advocate for the concept of the information society. James Martin perceives the information society as a "forward-thinking society that has moved beyond the industrial era."

According to his viewpoint, the emergence of post-industrial society took place during the 1960s and 1970s in Japan, the United States, and Western Europe. "The information society is characterized by the following criteria: 1. Technological criterion: The primary determinant is the extensive utilization of information technology in enterprises, daily life, and the educational system for production purposes. 2. Social criterion: Information is regarded as the fundamental catalyst that alters the quality of life, leading to the development of a "information consciousness." 3. Economic criterion: Information is utilized as a valuable asset, service, or product, serving as the primary driver of the economy. 4. The political criterion for freedom of information involves fostering consensus across diverse socioeconomic classes and strata within the people during political processes. The cultural criterion states that information is acknowledged as a cultural asset, and the development of a well-rounded society takes into consideration the values associated with information. [3, P. 26]. D. Martin recognizes communication as the primary and essential aspect that underpins the information society.

The American economist F. Maxlup introduced the concept of the information society into science in 1962. One of the scientists that contributed to the development of the concept of the information society in 1983 was E. Masuda, a Japanese scientist who wrote about "Information Society as a Postindustrial Society." This idea encompasses both social wealth and economic categorization, exerting transformative effects on all aspects of socio-cultural existence. According to him, personality is evident in various areas of development, such as education, professional advancement, economic activity, political engagement, and the service industry, particularly in the realm of information. However, E.Masuda places significant emphasis on the technological dimension of societal progress, while the socio-cultural dimension is somewhat neglected.

The notion of information society was formulated by a group of scientists including D. Naisbitom, D. Benzinger, T. Stonerom, M. McLuenom, E. Tofflerom, and M. Kastelsomlarr. As to the theory proposed by Canadian scientist M. McLuhan, information technology offers insights into the socio-economic principles of the emerging society. He assigned multiple names to the newly established society. Some examples of other types of societies that have been proposed are post-bourgeois society (D. Lichtheim), post-capitalist (R. Dahrendorf), post-modernist (A. Etzioni), post-civilizational (K. Boulding), post-economic (G. Kahn), post-protestant (S. Alstrom), post-historical (R. Sidenberg), and post-oil society (R. Barnett). The concept of an informed society, as described in the literature, emerged and gained traction during the 1960s and 1970s of the 20th century. According to E.G. Solovev, the Japanese theorist K.Kayoma is responsible for developing the idea of the information society. A Japanese scientist is the author of the term in question, and L.D. Reyman, is its owner. He admits his wrongdoing to U.Khayashi. F.Maclup and T. Umesao, two American and Japanese scientists, established the concept of information in 1960 and simultaneously introduced it into the scientific community.

Researchers from other countries who have examined the process of society becoming more reliant on information technology (D. Bell, O. Toffler, M. Castels (America), A. Turen, J. Furaste (France), Yu.Habermas (Germany), and E. Masuda (Japan), together with Russian scientists V.M. Grushkov, V.G. Afanasev, N.N. Moseyev, A.I. Rakitov, A.V. Sokolova, and A.D., are renowned scholars in their respective fields.

D. Bell regards the information society of 1973 as a prospective endeavor for the future social structure. The term "services society" is used to describe postindustrial society. There is no uncertainty in the information age regarding the deliberate creation of social reality. Essentially, a substantial quantity of myths and illusions fail to accurately represent factual information. In the context of a digital society, the realm of social realism is characterized by discreteness, fragmentariness, and illusiveness. Digital technologies are actively transforming the entire social system. The domain of natural structure and culture is not exempt from this. With the active implementation of digitization in the cultural sphere, the way we engage with cultural values and experience culture has been significantly enhanced.

Scientist Obidjon Khudayberganov asserts that the rapid advancement and widespread adoption of new information and communication technologies have a transformative effect on various aspects of society, encompassing civil society, institutions, the economy, social spheres, science, education, culture, and individuals' lifestyles. Consequently, the subsequent elements might be encompassed within the favorable qualities of the digital society:

The rapid availability of diverse information enhances the rights of citizens. The options for individuals to engage in the political decision-making process are expanding, allowing them to closely monitor the government's actions. This not only increases the consumption of information by the general public but also enhances their involvement in the information-generating processes

According to the author, the advancement of information communications enhances the capacities of civil institutions, promotes transparency in society, and strengthens the interaction between citizens and government entities [4, p. 59]. Indeed, the utilization of information technology leads to the establishment of a digital society. In order to establish a digital society, it is essential to ensure that society is adequately equipped with material and technical resources. It is crucial to provide abundant possibilities for enhancing employees' digital literacy through the utilization of this information technology.

The Industrial Revolution's advancements in information technology led to the start of the digital era in the 21st century. Today, we can clearly see how closely the idea put forth by the ancient Greek philosopher Pythagoras – which contends that numbers serve as the basis of the cosmos and that they are capable of representing anything – and the actual situation resemble one another.

Indeed, numerical processes have infiltrated almost every sphere of human endeavor. Simply put, the digital paradigm is acknowledged as a novel development paradigm. Scientists are now investigating various facets of the digital paradigm, including the field of numbering. The collective monograph by A.Yu.Mamichev and other authors examined the multifarious nature of numbering and its impact on the economic, legal, and political systems of society [5, P. 216].

Subsequently, a publication titled "Wiki-government" by Bet Simon Novek was released, which explored the integration of information technology into state governance processes [6, P. 286]. In this study, the author acknowledges the government, referred to as "wiki," as a novel form of state administration. The author evaluates the efficiency of the state's organizational framework and highlights the benefits of a collective approach to enhancing democracy, specifically the principle of "government by the people and with the participation of the people." Klaus M. Schwab asserts that the digital society represents a new and revolutionary phase in human history, namely known as the fourth industrial revolution (Industry 4.0), which has not been experienced before [7, P. 302].

Ma Huaten, a well-known Chinese businessman, collaborated with the Tencent Research Institute and the National Research Center for the Development of Industrial Information Security to publish the book "Digital Transformation of China: The Experience of Changing the Infrastructure of the National Economy." This book explores the experiments conducted in foreign countries regarding numbering systems [8, P. 250]. This book provides a comprehensive analysis of the strategy, characteristics, and implementation processes of numbering in China.

Scientist A.N.Bulutsky defines the digital paradigm as a comprehensive perspective that prioritizes digital technologies for the present and future advancement of humanity. It is a theoretical concept that encompasses rational forms of comprehending and explaining the phenomena of the surrounding reality [9, P. 17]. In addition to the author's viewpoint, we assert that the digital paradigm is post-industrial. This means that information technology, which is a result of the advancement of the information society, is connected to a new phase in the progress of artificial intelligence. It represents a new worldview and development paradigm that profoundly impacts all aspects of human society. Currently, there are techniques available to evaluate the color representation of the advancement of

each state using digital means. The digital economy and society index (DESI) is a metric that evaluates the progress of digital competitiveness in EU member states.

It encompasses five key factors: communication, human capital and digital skills, internet usage, digital integration, and the extent of digital public services. The Digital Evolution Index (DEI), created by the Fletcher School at Taftsa University in conjunction with Mastercard, is a further measure used to assess the level of digitization in a society. In this instance, the states' ranking is determined by assessing the extent of their digital economy's development and the degree to which their people are connected to the global network. Furthermore, the aforementioned index primarily outlines four key elements that govern the pace of digitization: the extent of internet availability, the amount of consumer interest in digital technologies, the regulatory framework (public policy), and the atmosphere of innovation. Based on statistical data, Singapore, Hong Kong, England, America, South Korea, Norway, New Zealand, Sweden, Japan, and China have been classified as "digital elite" nations. The assignment of this category is contingent upon the degree of digital advancement within the states.

Uzbekistan has established a distinct direction for its development, centered around the digital paradigm. This has led to the formulation of the "digital Uzbekistan–2030" idea. This concept is based on the widespread integration of numerical systems throughout various sectors of society, including politics, law, economy, medicine, education, culture, tourism, and other domains. An additional digital paradigm is also influencing the anti-corruption system.

As an example, the 84th objective among the 100 goals outlined in the decree by the president of the Republic of Uzbekistan, titled "Development Strategy of New Uzbekistan for 2022-2026," is to identify areas and sectors that are prone to corruption. This goal aims to enhance the effectiveness of the system in addressing corrupt factors and foster an unwavering societal stance against corruption. To achieve this, the "e-anticorruption" project has been introduced, which involves the utilization of modern information technologies in the fight against corruption.

Additionally, the decree establishes various goals, objectives, and mechanisms for their implementation. Ultimately, nations that have opted for the trajectory of digital economy development offer a chance to guarantee the food security of their populace, specifically by effectively overseeing the educational sector. Consequently, in a state where ample financial resources are allocated towards the education of its young population, the number of forward-thinking youth increases significantly, resulting in multiple advantages for their community. Today, as the entire human race is lawfully progressing through the digital stage of growth, Uzbekistan is also embracing synchronized development with the global development system. Consequently, the essential alteration of social reality based on the digital paradigm is a necessity of the current era.

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Rezyume: *Mazkur maqolada raqamli paradigmaning hozirgi ijtimoiy realligini tubdan transformatsiyalash tendensiyalari va uning yangicha dunyoqarash hamda rivojlanish paradigmasi sifatidagi mohiyati ochib berildi. Hozirgi kunda inson faoliyatining deyarli ko'plab sohalariga raqamlashuv jarayonlari kirib borishi va raqamli paradigma rivojlanishning yangi paradigmasi sifatida raqamlashuvning xilma-xil jihatlari tahlil qilindi.*

Резюме: *В данной статье раскрыты тенденции цифровой парадигмы коренным образом трансформировать современную социальную реальность и ее суть как новой парадигмы мировоззрения и развития. В настоящее время процессы цифровизации проникли практически во многие сферы человеческой деятельности и проанализированы различные аспекты цифровизации как новой парадигмы цифрового развития.*

Kalit so'zlar: *ijtimoiy reallik, paradigma, raqamli paradigma, tarmoqli jamiyat, axborot texnologiyalari, raqamli texnologiyalar, raqamli iqtisodiyat, axborot jamiyati.*

Ключевые слова: *социальная реальность, парадигма, цифровая парадигма, сетевое общество, информационные технологии, цифровые технологии, цифровая экономика, информационное общество.*

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ECOLOGICAL CULTURE IN RELIGIOUS TRADITIONS OF CHRISTIANITY, AND ISLAM: SOME ENGLISH LANGUAGE LITERATURE OVERVIEW

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Summary: Religious traditions have long been concerned with the relationship between humanity and the natural world. Many religions contain teachings about the importance of caring for the earth and its inhabitants, and these teachings have often been expressed through rituals, stories, and ethical guidelines. In this article, we will analyze the discourse of ecological culture in major religious traditions including Christianity, and Islam. Through this analysis, we will seek to understand how these traditions conceptualize ecological culture and what role it plays in their overall worldview. We will also examine the ways in which these traditions have responded to contemporary environmental challenges and how their teachings can be applied to promote sustainability and ecological awareness. This article will use a wide range of sources, including religious texts, scientific literature, and interviews with religious leaders published in the press. By combining these different points of view, we hope to give a comprehensive overview of the discourse of ecological culture in the religious traditions of Christianity and Islam.

Keywords: religion, ecology, Islam, Christianity, the Quran, the Bible, core values

Introduction

“We need to see this through the eyes of faith... the connection between the natural environment and the dignity of the human person.”

Pope Francis, 2015

The social cohesion and well-being of people all over the world are being threatened by global threats that are associated with climate change, mass migration of people, urbanization, and erroneous decisions made in the field of development. Traditional and religious practices play an important role in people's lives. Therefore, it can be assumed that traditional and religious practices are an important and integral factor in decisions made in the field of sustainable development. In this regard, an understanding of various aspects of culture, including beliefs and spiritual practices, is essential for the promotion of sustainable development goals.

There are about 4,300 religious and spiritual communities on Earth. Most of the world's population, more than 80%, identifies with one or another spiritual tradition [1]. Religion has a significant impact on people's daily lives and behavior. Religious leaders play an important role in shaping attitudes, behaviors, and opinions, including opinions on sustainable development issues [2]. Consequently, religion has a significant impact on people's attitudes to the environment. Based on the above, it follows that in order to solve environmental problems that are transnational in nature, it is necessary to understand the role of religion in these issues.

In 1986 WWF launched a nature conservation project with the support of the church and clergy. The ration brought together leaders of environmental organizations and religious leaders of Buddhism, Christianity, Hinduism, and Islam. Each of the represented religions has published a declaration on the protection of nature. In 1987, Baha'i became the sixth religion to join the project on ecology and promotion of sustainable development Goals [6].

In 2015, the United Nations approved a plan for sustainable development until 2030. The Faith in the Name of the Earth program was one of the initiatives aimed at achieving this goal. It involves cooperation with religious organizations to jointly implement sustainable development goals until 2030 [3].

The success of the Faith in the Name of the Earth initiative is based both on scientific research and on the analysis of the scriptures of various religions. For example, the Center for International Information on Earth Sciences has found a connection between the religiosity of society and the success of solving environmental problems. Studies have shown that in countries with a low level of religiosity, more resources are usually used and more emissions are produced [4]. Moreover, in many religious traditions, including Baha'i, Buddhism, Christianity, Taoism, Hinduism, Islam, Jainism, Judaism, Shintoism, Sikhism, Zoroastrianism, and others, one can find beliefs that support environmental protection [5].

In this article, we will analyze the discourse of ecological culture in one of the most numerous world religions Christianity and Islam.

Through this analysis, we will try to understand how Christian and Islamic traditions conceptualize ecological culture and what role it plays in the worldview of followers of these religions. We will also look at how these traditions respond to modern environmental challenges and how their teachings can be applied to promote sustainable development and environmental awareness. This article will use a wide range of sources, including religious texts, scientific literature, and interviews with religious leaders published in the press. By combining these different points of view, we hope to give a comprehensive overview of the discourse of ecological culture in the religious traditions of Christianity and Islam.

Methodology

The article uses an interdisciplinary research method. The article uses the method of analysis and synthesis based on hermeneutic analysis of religious literature. A hermeneutic approach is a method of interpretation and analysis of texts, including religious literature, that seeks to uncover the meaning and significance of the text. This approach is often used in the study of ecology in religious literature, as it allows for a deeper understanding of the ways in which religious texts address environmental issues.

Discourse of Ecological Culture in Islam

The religious literature of Islam describes nature as something sacred and in accordance with this outlines the basic relationship between man and the environment [7]. Nature in the Islamic tradition is an expression of God's will, the embodiment of the name of God, the "Creator" [8]. For example, the scriptures say that "nature is essentially the embodiment of My Name, the Creator, the Creator. The manifestations of nature are diverse, and in this diversity, there are signs for discerning people" [8].

"Single-mindedly devote yourself to faith and thus follow the nature created by Allah, the nature according to which He created mankind. Nothing will change the creation of Allah" Quran 30:30.

Humanity needed and still needs nature for its spiritual and material development. The material resources of the planet are the foundation for the well-being and successful development of the economies of many countries of the world. And this position of land as a material source of well-being is also reflected in Islamic literature [9]. However, seeing the reflection of God in nature and understanding them as an expression of His will in Islamic literature is the basis of deep respect for the natural world. Moreover, in Islamic literature, the idea is clearly traced that nature is a divine asset for which all members of the world community are responsible as vicegerents or stewards of the resources of the planet entrusted to them by God himself. There are a number of studies dealing with the analysis of writings containing environmental themes. As a result of these studies, the main concept was identified, which is the need for humanity to realize its position in relation to nature, and in particular

its responsibility for the preservation of this world [8]. Since the greatness and diversity of the natural world are a purposeful reflection of the greatness and generosity of God [10].

It should also be noted that many Islamic teachings emphasize the harmony of science and religion. For example, a well-known researcher of Islam in Kazakhstan, N. L. Seitakhmetova, writes in her works about the deep roots and the need to revive the Islamic rational way of cognition in the name of achieving “imansipati” or the liberalization of faith. Such a rational approach can be noted in the religious teachings of the followers of Baha’i. This is clearly seen in the example of a rational approach to the environment. Baha’ism has a clear vision of the future of global society, within which such problems as climate change are of particular importance since such problems can be solved only by the efforts of the world community [11].

Moreover, this religion calls into question the success of building a society based on material values, which often lead to a consumer attitude towards nature. Spiritual sources emphasize the need to maintain a balance of the material and spiritual needs of a person. In general, the Baha’i approach is based on the idea of uniting people into a single global society based on justice and solidarity in solving global problems, including those related to ecology [12].

The Islamic international community, together with the United Nations, is actively engaged in solving environmental issues. The Islamic community around the world is engaged in solving a number of problems related to soil erosion, the reduction of the territory of grasslands and forests, issues related to biodiversity, problems related to waste, and sources of environmental pollution. The teachings of Islam claim that environmental problems have not only a material dimension, they are primarily related to spirituality [13]. Identifying and probably rethinking the fundamental values on which the worldview of modern man is based is the first step in creating an approach that will help humanity achieve great results in advancing the goals of sustainable development.

Due to the threat of global environmental crises, there is a need to rethink the relationship between people and nature. There is a need to realize the interdependence and therefore the importance of human solidarity in solving global issues. The need for awareness of responsibility for future generations [14]. Moreover, issues related to the concept of justice are acute in solving global problems.

Islamic teaching emphasizes the importance of justice in solving any issues, including issues related to ecology. In this regard, it can be noted that the environmental crisis is, in fact, a crisis of justice – a crisis that arises due to the huge inequality between states and within society [15].

Material resources will always be required to maintain the pace of development of countries, however, when nature is perceived as an attribute of God, as an expression of His will, man's attitude to nature should change from consumer to deep respect for the natural world. If the world of nature is a gift from God to humanity, then one country or individual cannot be responsible for the preservation of this gift. Nature is the heritage of mankind, the responsibility for which is borne by all the inhabitants of the planet Earth.

There are many religious texts that pay special attention to the problem of human awareness of responsibility for maintaining the ecological balance in the world. Modern researchers, for example, such as Ziauddin Sardar, argue that environmental problems have roots in the spiritual development of people. Rethinking the fundamental values on which the current worldview system of consumer society is built can give an opportunity to form a new understanding and attitude toward the environment. Islam especially emphasizes the importance of caring for the environment, as not only a material but also a spiritual component of human life [16]. Therefore, the ecological crisis can be understood as primarily a moral problem requiring a fundamental reassessment of values [17].

The peculiarity of the attitude in Islam toward nature and issues related to conservation and environmental protection is that these issues relate to issues of faith and spirituality. Moreover, Islam gives a holistic understanding of the problem of the relationship between man and nature and his responsibility, taking into account the social and economic aspects of human life. Unity is the

cornerstone of well-being and prosperity in Islam. Perhaps that is why the leaders of Islam are actively involved in promoting sustainable development goals around the world, including at United Nations conferences on sustainable development. Islamic teaching emphasizes the importance of good treatment of nature. Because “tenderness and kindness are the basic virtues and principles of the Heavenly Kingdom” [18].

The spiritual literature of Islam clearly traces the idea that the future of the planet depends on the unity of people and their spiritual qualities. In this regard, problems related to the environment can become consolidating guides for the development of a sense of interdependence, forcing countries and peoples of the world to give priority to universal interests.

The Discourse of Ecological Culture in Christianity

The Bible says that God gave the earth to man. “Be fruitful and multiply, and fill the earth, and possess it, and have dominion over the fish of the sea, and over the birds of the sky, and over all living things that move on the earth” Genesis 1:28. Does this mean that such possession is unlimited “have dominion over the fish of the sea, and over the birds of the sky, and over all living things that move on the earth” [19]. Does this mean that we have the right to do whatever we want with nature or even destroy it? Or should we, as good pastors, cherish and cherish the gift of God and keep it, and do everything in our power to pass this gift on to future generations of people? And the answer will be the belief that God created man in his own image and likeness. Christians believe that the natural world is a creation of God. Consequently, a believer cannot but cherish the creation of his Father in the name of his faith in the name of their welfare and prosperity. Moreover, the Holy Scripture teaches a person to dispose of the gift of God with love [20].

The Bible teaches that God created the world and everything in it, and that people should be good shepherds of the earth. However, some studies confirm that there are Christians who adhere to the literal interpretation of the Bible, and who believe that they have the right to use natural resources in their own interests [21].

Christianity and the activities of church Christian institutions, based on the teachings of the Lord Jesus Christ, serve the purpose of preserving the natural temple for future generations. Preservation and careful attitude to nature is a categorical imperative of a Christian's life. Moreover, Christians around the world are actively working to achieve the goals of sustainable development and related tasks through various social activities to protect the environment. Christian institutions around the world also play a significant role in providing an ethical framework for solving environmental dilemmas [22].

Christian environmental ethics is a developing area of Christian religious teaching that emphasizes that God is the creator of all things and that people should work in partnership not only with God but also with each other to ensure the protection of the fragile environment in modern conditions [23].

It should also be noted that the Bible and the sacred Christian texts describe the problems associated with the practice of environmental protection. In one of the studies, it was revealed that there are about a hundred verses in the Bible that speak about environmental protection [24]. Christian environmental ethics is based on the belief that God is the creator of all things and that people should work on themselves in partnership with other people to achieve the common good.

Let's give an example of three general principles of Christian environmental ethics: God created the earth and all living things, therefore these creations have value (the Principle of the value of creation); God created and maintains all elements and systems in His creation in a certain order to achieve certain goals (the Principle of stable order and purpose); the created world is subject to distortion as a result of human sinfulness and the possibility of redemption through Jesus Christ (The principle of Universal Distortion and Redemption) [25]. Therefore, nature is a valuable gift of God, which is fully supported by him and which we must preserve and pass on to the subsequent repentance of people atoning for their sins. Christian ethics formed the basis of the book "The Christian Guide to

Environmental Issues", written by Martin J. Hodson and Margot R. Hodson. The book discusses various issues related to ecology, such as climate change on the planet, the food crisis, biodiversity issues, uncontrolled population growth, the relationship between environmental problems and issues of the world economy, the philosophy of the cult of development, and many other issues that are directly related to the Sustainable Development Goals [26]. For example, one of the issues discussed in the book was the question of how the Bible and Christianity view the use of natural resources in our time. Moreover, the book claims that there is a lot of useful information in the Bible on climate change on the planet caused by human activity. Moreover, the Old Testament tells about God's efforts to organize society for His glory and documents the inability of society to observe this order. Therefore, for a prosperous existence and prosperity, humanity must learn to respect and observe the laws of God and appreciate and cherish his gifts. Which implies a reasonable use of natural resources and ensuring the preservation of nature for impoverished generations [27].

The Bible contains many examples of how we should take care of the environment. In the Bible and sacred texts, one can find arguments on issues related to environmental protection, including the prohibition of the exploitation of the planet, the protection of biological diversity, and issues related to environmental justice. Moreover, researchers of sacred books claim that the Bible contains ideas that can be useful in shaping the foundations of modern environmental ethics. Plants and animals are all part of the environment created by God on Earth. The Bible says that man himself is a creation of God, therefore man cannot perceive himself separately from nature.

Conclusion

Islam views the environmental crisis as a moral challenge that requires a fundamental reassessment of values. Islamic teaching encourages people to take responsibility for the environment and strive for sustainable development. Islamic leaders actively promote sustainable development at the international level. Christians believe that the natural world is a creation of God as well as man himself. The Bible offers guidance on how the wealth of nature can be used for good purposes. Some Christians interpret this as giving people the right to use the natural resources of the world for their own benefit, while others consider themselves an integral part of nature, which is a gift from above. It should be noted that both Islam and Christianity have teachings that encourage people to take responsibility for the environment and strive to preserve it for generations in need. Although approaches may differ, both religions see the importance of uniting humanity to achieve its prosperity.

Both religious traditions are the basis for the formation of ethics of behavior, which is why it is important for environmentalists to take into account the religious aspects of people's lives when conducting research on sustainable development.

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Rezyume: Diniy an'analar azaldan insoniyat va tabiat o'rtasidagi munosabatlar bilan bog'liq. Ko'pgina dinlarda Yer va uning aholisiga g'amxo'rlik qilish muhimligi haqidagi ta'limotlar mavjud va bu ta'limotlar ko'pincha marosimlar, hikoyalar va axloqiy tamoyillar orqali ifodalanadi. Ushbu maqolada biz asosiy diniy an'analarda, jumladan, Nasroniylik va Islomda ekologik madaniyatning nutqini tahlil qilamiz. Ushbu tahlil orqali biz ushbu an'analardagi ekologik madaniyatni qanday kontseptsiyalashini va

ularning umumiy dunyoqarashida qanday rol o'ynashini tushunishga harakat qilamiz. Shuningdek, biz ushbu an'analar zamonaviy ekologik muammolarga qanday javob berganini va ularning ta'limotlarini barqarorlik va ekologik ongni rivojlantirish uchun qanday qo'llash mumkinligini ko'rib chiqamiz. Ushbu maqolada diniy matnlar, ilmiy adabiyotlar, matbuotda chop etilgan din peshvolari bilan suhbatlar kabi turli manbalardan foydalaniladi. Ushbu turli nuqtai nazarlarni birlashtirgan holda, biz nasroniylik va islom diniy an'alarida ekologik madaniyat nutqi haqida keng qamrovli ma'lumot berishga umid qilamiz.

Резюме: Религиозные традиции уже давно озабочены взаимоотношениями между человечеством и миром природы. Многие религии содержат учения о важности заботы о Земле и ее обитателях, и эти учения часто выражаются посредством ритуалов, историй и этических принципов. В этой статье мы проанализируем дискурс экологической культуры в основных религиозных традициях, включая Христианство и Ислам. Посредством этого анализа мы попытаемся понять, как эти традиции концептуализируют экологическую культуру и какую роль она играет в их общем мировоззрении. Мы также рассмотрим, как эти традиции отреагировали на современные экологические проблемы и как их учения могут быть применены для продвижения устойчивости и экологического сознания. В данной статье будет использован широкий спектр источников, включая религиозные тексты, научную литературу и интервью с религиозными лидерами, опубликованные в прессе. Объединив эти различные точки зрения, мы надеемся дать всесторонний обзор дискурса экологической культуры в религиозных традициях Христианства и Ислама.

Kalit so'zlar: din, ekologiya, Islom, Nasroniylik, Qur'on, Injil, asosiy qadriyatlar.

Ключевые слова: религия, экология, Ислам, Христианство, Коран, Библия, основные ценности.

LINGUACULTURAL ASPECTS OF
SOMATISMS IN ENGLISH AND KARAKALPAK LANGUAGES

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Summary: *The significance of comparing languages to determine their national and cultural peculiarities is the focus of this study. The selection of somatic phraseological units for study can be attributed to their widespread usage in daily life as well as their expressive and figurative nature, which allows them to accurately capture the idiosyncrasies of people's material and spiritual lives. The study of the mechanisms underlying the emergence and application of somatism-influenced phraseological units in English and Karakalpak aids in identifying the characteristics of native speakers' verbal thought processes because phraseology best captures a person's tangible, objective, and sensual-emotional words.*

Key words: *Linguistics, linguoculturology, SPU- Somatic Phraseological Units, Figurative Meaning, Component of Somatism, Sensual-Emotional World.*

Nowadays people are going outside more and more in our fast-paced environment, and they are interacting with people from different cultures. People today need to understand the cultural context of the language they speak because they are more fluent in other languages for communication. This is why the study of language and how it interacts with culture has gained a lot of relevance lately, giving rise to a brand-new area of research known as linguoculturology.

One of the most important subfields of contemporary linguistics is cultural linguistics, which started to take shape in the early 1990s. Its goals include describing and studying the interactions between language and culture as well as language and folk mentality. It has bearing on both the science of language and the science of culture. To understand language units in all of their complexity and nuances—and as near to how native speakers of a particular language and culture would see them—linguoculture examines the national-cultural semantics of language units. This field of study in linguistics examines the issue of national culture being reflected in language. The fullest correlation between "language - culture" is represented. The works of W. von Humboldt, who stated that "a person mainly: lives with objects as they are presented to him by the language," reflect the most comprehensive relationship between "language - culture". Every language depicts the social circle to which it belongs, from which an individual can only break free insofar as they join the circle of another language.

As noted in the work of V.V. Vorobyov, the main complex interlevel unit of description in linguoculturology is the linguocultureme. Unlike the word, it includes segments of not only language (linguistic meaning), but also culture (non-linguistic cultural meaning). The word (sign-meaning) as a linguistic unit in its structure is part of the linguistic culture (sign - meaning - concept - object). But if the sphere of the word is limited to language, then the sphere of linguoculture extends to the objective world as well [1]. According to the method of linguistic expression, the linguocultureme has various types. It can be represented in one word: (*ale, toast, brandy, biscuit- gáp, bilamıq*), phrase (*pudding face- miymandos xalqımız*), paragraph and even whole text. One of the linguistic units, an important component of which is cultural information, is a phraseological unit. The cultural components of the phraseological meaning focus the value semantic relations that have been established in a given ethno-cultural community, and turn out to be a cultural form of the existence of knowledge. As a result of this, we can come to the conclusion that phraseological units are a very valuable source of knowledge about the culture of the people and are a direct etymological reflection of the national and cultural specifics of a particular language community, and that is why phraseological units are currently the most vivid linguistic unit of expression linguistic cultures.

Phraseological units can be studied in linguoculturology from the standpoint of nonequivalence, reflection in their structure of mythologemes, historical facts, traditions and customs, imagery, value norms and behavior, etc.

F. Wack is considered one of the first researchers who began to be interested in and explore somatisms. He divided all somatisms into three groups: 1. describing a person; 2. describing humans and animals; 3. describing animals [2]. Somatisms are also considered in the works of such linguists as O. Jespersen, G. Hoyer, J. Lyons, D. Bazarova. The works of Yu. Dolgoplov, who compared the somatisms of Russian, English and German languages, O. Nazarov (comparison of somatisms of the Russian and Turkmen languages), M. Abilgalieva (somatisms of the Kazakh and German languages) deserve special attention. D. Bazarova conducted a number of works devoted to the comparison of the somatisms of the Turkic languages. The works of G. Aynazarova and Sh. Allaniyazovas "The Correspondence of the Equal Two-Component Phraseologies in Terms of Construction" in Karakalpak language and the somatisms of the Uzbek language were also studied in the work of A. Isaev "Somatic phraseological units of the Uzbek language". In this work, somatisms were studied from the point of view of their synonymy, antonymy, homonymy and communicative function of the language. He also conducted a comparative analysis of phraseological units with the components "head" and "eyes" on the material of the Tatar, Turkmen and Azerbaijani languages.

Since the human factor is so important in the construction of phrases, many phraseological units are semantically oriented toward an individual and connected to different aspects of their activities. A person constantly tries to give inanimate items in the outside world human characteristics. And S. Bally contended: "A person's constant attempt to spiritualize his surroundings is another indication of the human mind's permanent inadequacy. An individual cannot conceive of nature as lifeless and lifeless; instead, his imagination infuses inanimate objects with life. Furthermore, he consistently attributes the characteristics and ambitions that characterize himself in all things outside of his own universe. [3].

Somatic units, also called somatism, are composed of simple word combinations with multiple meanings and form the oldest lexical layer of language. The growing interest of researchers in somatic phraseology stems from the fact that we believe there are two opposing polarities in somatic representation theory regarding representation and content planning. In other words, the constituent parts of phraseological units and their combined wholes are intended to describe and characterize people and their activities in some way.

Somatic units of which one of the components include the names of parts of the body of a person or animals, constitute one of the vast and productive groups in the phraseology corpus. This group, according to V.P. Shubina makes up about 15% of the phraseological fund of the language [4]. Somatisms are one of the oldest layers in the vocabulary of various languages, reflect the national and cultural specifics of the people, their customs and traditions, convey their many years of experience and spiritual culture, show the effects of extralinguistic factors in the language, express vital concepts, and as a result, they belong to stable part of many languages. The relevance of the content, nationality, vivid imagery, nationality, simplicity of grammatical design and stylistic diversity also contribute to the popularity of SPU. Also, a characteristic feature of somatic phraseology is the presence in many languages of numerous equivalents, very close to each other in meaning and figurativeness. This feature sharply distinguishes somatic phraseological units from other thematic groups of phraseological units. The coincidence of the figurativeness of somatic phraseological units in different languages is explained not only by borrowing, but also by general patterns that lead to the emergence of close phraseological units, demonstrating the universal nature of the transfer of somatic lexemes, their functional and semantic dynamics in the composition of phraseological units.

Phraseological units such as: English: *a sharp tongue*; Kk: *tili ótkir*; English: *come into one's head*; Kk: *bası shağıp qalıw*; English: *to get out of bed on the wrong foot*; Kk: *shep ayaqta turıw*; are present in all compared languages, which indicates the presence of a common thought process among both peoples, while phraseological units such as, "All hands on deck" – *Qollar joqarğa* – due to the great

importance of shipbuilding in the UK, where during a storm everyone had to gather on deck; "*Private eye*" - *izquwar*, "*a heart of oak*" – *ádil insan*, "*oak*" associated with the British with strength, reliability, "*the eye of day (of heaven)*" *quyashli*, are unique to English.

Somatic phraseological units are mostly figurative metaphorical turns of speech, which are based on observations of the behavior of a person or animal, depict the emotional state of a person. In somatic phraseology, the names of body parts are used, the functions of which a person encounters on a daily basis. The number and thematic diversity of groups of phraseological units, including the corresponding somatisms, depend on the importance and significance of the functions of certain organs or parts of the body.

That is why such names of body parts as (head, eyes, heart, nose, mouth, leg) are the most productive and used, and the rest (shoulder, knee, armpit, eyelashes) are used much less often. T.N. Chaiko calls the first words with a "broad meaning", capable of conveying numerous meanings, since "the transfer of the name not only creates clarity, but also abstracts" [5]. The most productive are the somatism lexemes, the functions of which in the organization of a person are the most clear, and the ease of their rethinking is also connected with this. For example, due to the general humanity of mental processes and the basic functions of body parts, many SPU of different peoples themselves have certain points of contact. For instance: Eng.: *to bite one's lips* – Uzb.: *ernin tislew yamasa awzi ashiliw*.

The semantics of the bulk of the SFU is connected with the emotional and mental life of a person. This fact is noted by V.P. Shubina: "Emotions and mental states of a person are expressed for the most part precisely through somatic phraseological units, the possibilities of which in this regard are truly enormous." Emotions are a kind of reflection of the real process of human interaction with the environment. In the process of active interaction with the environment, a person does not remain indifferent, he has experiences that express his subjective attitude to these phenomena. Thus, many PU with the component "head", "bas" belong to the semantic group "thinking"; with component "eyes", "kóz" - to the group "perception, attention"; with component "hand", qol" - to groups "activity, possession".

However, in view of the fact that each nation has its own associations associated with certain parts of the body, these groups may have additional associations. So, if in English somatism "*head*" more used in the meaning of head, leader: (*better be the head of a dog/ass than the tail of a lion / horse*); *carry one's head high* – *basin joqari kóteri*w, "*knock off smb's head*). In the Karakalpak language, somatism "bas" often used in the sense of "to marry" (*bası ashıq*).

1. The national and cultural specificity of SPU is most clearly reflected in the primordially national SPU, which can be divided into the following groups:

1. SPU, reflecting the traditions and customs of the English people;
2. SFU associated with beliefs;
3. SPU of literary origin;
4. SPU of biblical origin (biblicalisms)
5. SPU reflecting historical facts;
6. SPU, reflecting religious rules and laws;
7. SPU, reflecting measures of measurement.

Along with the above extralinguistic factors in the English and Karakalpak languages, the formation of the SPU was greatly influenced by quackery and related customs.

In the work of the rich phraseological materials of the Karakalpak language, structures consisting of two parts with a complex structure are abundant: *ot bası //*, *oshaq qası* (family); *birde biye //*, *birde túye* (aboutchangeable person); *bir ayağı görde //*, *bir ayağı jerde* (an old person); *jóni joq //*, *josağı joq* (without basis); *esiginiñ qulpı //*, *sandığıniñ zulpı* (the old person of family, guard); *ay dese awzı bar*, *kún dese kózi bar* (beautiful); *barmaq bastı*, *kóz qıstı* (secret agreement); *berse qolınan*,

bermese jolınan (to force); ğarrılıqtıń aldı, jigitliktiń sońı (middle age); soraw joq , soǵıw joq (without permission, without request); ún joq, tún joq (quiet); and others.

In conclusion, phraseological units have increased interlingual equivalence, since among them there are many units that are common in terms of figurative orientation, which is due not only to borrowings and the universal nature of the transfer of lexemes, but also to the generality of extralinguistic factors.

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Rezyume: *Tillarni milliy-madaniy o'ziga xosliklarini aniqlash uchun solishtirishning ahamiyati ushbu tadqiqotning asosiy mavzusi hisoblanadi. Somatik frazeologik birliklarni o'rganish uchun tanlab olinishini ularning kundalik hayotda keng qo'llanishi hamda odamlarning moddiy va ma'naviy hayotidagi o'ziga xos jihatlarini to'g'ri tasvirlash imkonini beruvchi ekspressiv va obrazli xususiyati bilan bog'lash mumkin. Ingliz va qoraqalpoq tillarida somatizm ta'sirida bo'lgan frazeologik birliklarning paydo bo'lish va qo'llanilish mexanizmlarini o'rganish so'zlashuvchilarning og'zaki fikrlash jarayonlarining xususiyatlarini aniqlashga yordam beradi, chunki frazeologiyalar shaxsning moddiy, ob'yektiv va hissiy-emotsional so'zlarini yaxshi qamrab oladi.*

Резюме: *Значимость сравнения языков для определения их национальных и культурных особенностей находится в центре внимания данного исследования. Выбор соматических фразеологизмов для изучения обусловлен их широким употреблением в повседневной жизни, а также их экспрессивно-образным характером, позволяющим точно отражать особенности материальной и духовной жизни людей. Изучение механизмов возникновения и применения соматических фразеологизмов в английском и каракалпакском языках помогает выявить особенности речевого мыслительного процесса носителей языка, поскольку фразеология лучше всего отражает осязаемые, предметные и чувственно-эмоциональные слова человека.*

Kalit so'zlar: *tilshunoslik, lingvokulturologiya, SPU-somatik frazeologik birliklar, ko'chma ma'no, somatizm komponenti, hissiy-emotsional dunyo.*

Ключевые слова: *лингвистика, лингвокультурология, СПУ-соматические фразеологизмы, переносное значение, компонент соматизма, чувственно-эмоциональный мир.*

SOURCES OF LEGAL REGULATION OF SURROGACY

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Summary: *This article provides a comprehensive analysis of the various legal frameworks that regulate surrogacy across different countries. The author presents a detailed discussion of the sources of law that govern surrogacy, including international conventions, national laws, and case law. The article also highlights the complexities and challenges involved in regulating surrogacy, such as the lack of uniformity in laws across countries and the ethical concerns surrounding the practice.*

The author's arguments are well-supported with relevant examples and case studies, making the article a valuable resource for scholars, policymakers, and practitioners in the field of surrogacy. The article concludes by proposing the need for a global regulatory framework to ensure the protection of all parties involved in surrogacy. Overall, this article provides a thorough analysis of the legal regulation of surrogacy and offers valuable insights into the challenges and opportunities in this rapidly evolving field.

Key words: *surrogacy, legal regulation, international conventions, national laws, case law, ethical concerns, global regulatory framework.*

The legal regulation of surrogacy can be divided into two levels: international and national. In many countries, assisted reproductive technologies are regulated by national legislation, in some countries there is a complete ban on such technologies, in others surrogacy is completely allowed, in others, the owner is neither prohibited nor allowed.

Currently, there is no international convention or other special international agreement fully regulating surrogacy, so its legal regulation varies from country to country. Nevertheless, there are a certain number of international documents concerning the legal status of a surrogate mother and the legal status of a child.

International legal documents in this area are aimed at protecting a woman carrying a child from exploitation after the birth of a child, but do not relate to the conclusion and execution of a surrogacy contract. In practice, the transfer of a child by a surrogate mother to "parents" is interpreted in different ways, that is, as the fulfillment of contractual obligations or the sale of a child. There are many examples of this in our country: 1) a mother in Tashkent wanted to sell her child for \$35,000 and was arrested by officers of the State Security Service of the Republic of Uzbekistan and the Ministry of Internal Affairs. The sale was carried out in a maternity hospital, and doctors were also arrested [1]; 2) another case occurred in Gulistan, when a mother wanted to sell her one-year-old daughter for \$ 15,000. The detention operation was carried out by employees of the Department of Internal Affairs of the Syrdarya region, the Department for Combating Economic Crimes under the Prosecutor General's Office and the regional department of the State Security Service [2].; 3) in the city of Samarkand, a court order was issued in connection with the sale of a two-year-old child to a mother for \$ 5,000, and the mother was sentenced to 4.5 years in prison [3].

In the three above cases, the first one (the sale of a child in a maternity hospital) is more similar to surrogacy services, since during the "purchase" of a child, an arrest occurs. The other two cases are not controversial and should be qualified under article 135 (human trafficking) The Criminal Code of the Republic of Uzbekistan [4].

In the 1989 Convention on the Rights of the Child, "States parties must take all necessary measures to prevent the abduction, trafficking or smuggling of children at the national, bilateral and multilateral levels for any purpose and in any form" (article 35) [5].

This substance can also be applied to children born as a result of surrogacy, since such children may be born not for the purpose of creating a family, but also with the intention of selling such a child, transplanting his organs and using them for further exploitation. The task of an individual State, both

within the framework of national law enforcement agencies and international law enforcement agencies, is to identify and suppress such crimes.

A relatively controversial point directly related to surrogacy is the moment of birth of a child (both from a physical and legal point of view).

According to article 2 of the Optional Protocol to the Convention on the Rights of the Child, an action or agreement according to which one or more persons transfer a child to another person or group of persons for remuneration or other incentive purposes is recognized as trafficking in children, child prostitution and child pornography, trafficking in children [6]. When interpreting the process of transferring a child from a surrogate mother to a parent, some States consider that receiving material remuneration for carrying a surrogate mother in the child's body and giving birth is part of the objective side of the crime.

Depending on national legislation and the surrogacy agreement, when a child is actually adopted, the surrogate mother should not have parental rights and responsibilities towards this child at all, and from a legal point of view, the child's parents are considered his genetic parents. Therefore, it makes no sense to consider the transfer of a child by a surrogate mother to a parent for a certain financial reward as an offense. In practice, the transfer of a child from a surrogate mother to a parent is carried out in accordance with a surrogacy contract (if there is a legal permit) or by adoption (when more is prohibited).

International law calls, first of all, to protect the rights of the child in adoption procedures. International standards are aimed at ensuring the well-being of an adopted child and his biological family.

At the same time, it is difficult to imagine receiving fanzardism that is not related to financial interest, for example, lawyers and translators participate in the preparation of documents for applying for a child and receive payment for the services they provide.

The Beijing Conference in 1995 adopted the Beijing Platform for Action and the Beijing Declaration, which stated that "full recognition and endorsement of all aspects of women's health, especially the right to birth control, is crucial for their empowerment" (paragraph 17) [10]. In addition, paragraph 97 of the Beijing Platform states that "an important basis for the exercise of other rights is the ability of women to control their own productivity." A surrogate mother, despite the conclusion of a contract for the provision of surrogacy services, must have basic human rights, including the right to independently carry out her childbirth. The surrogate mother should have the last word on the issue of abortion and other medical interventions, since human rights should not be limited or violated. We agree with A.Danelian, according to which now "the absence of a universal international document aimed at the legal regulation of surrogacy restricts the development of this area, eliminating this gap would help to unify the national legislation of many countries in this area and, through this, allow surrogacy to identify specific circumstances and conditions that threaten.

It should be noted that the state itself is primarily interested in the development of family relations, as can be seen from the content of the third part of article 78 of the Constitution of the Republic of Uzbekistan: "Motherhood, fatherhood and childhood are protected by the state" [12]. The protection of the family is also provided for by the Family Code of the Republic of Uzbekistan (article 4). Sh. Shorakhmetova noted that our people have long tried to sanctify the family, preserve family values and pass them on from generation to generation [13].

Although national family legislation does not contain specific rules regarding surrogacy, it contains references to the grounds for concluding a contract, guarantees of responsibility and rights of a surrogate mother, as well as rules for registering the birth of a child. That is, according to part six of article 207 of the Family Code of the Republic of Uzbekistan, persons who were mutually married and gave written consent to transfer an embryo for the purpose of fetal development to another woman can be recorded as parents of a child only if there is consent about the woman who gave birth to this child (This already includes many conditions on admissibility surrogacy in our country.

According to H.A.Kodirova, "when a child is born as a result of the use of these methods in married persons who have written consent to the formation of an artificial fetus or embryo transfer, they are recorded in the birth record book as the parents of this child. Persons who are in a civil marriage by mutual consent and have given written consent to transfer an embryo to another woman for the purpose of fetal development can be recorded as parents of a child only if the consent of the woman who gave birth to the child (a woman by blood) is known. Registration of the birth of such a child is carried out on a general basis. The birth certificate must contain information about the woman who will be recorded as the mother of the child" [14].

Commenting on the meaning of the sixth part of Article 207 of the Family Code of the Republic of Uzbekistan, one can come to the following conclusions:

1. In Uzbekistan, only married people can use the services of a surrogate mother;
2. Spouses must give written consent to the implantation of an embryo to another woman – a surrogate mother;
3. There is no requirement on the condition of using embryos of embryonic spouses, that is, the use of donor material is allowed;
4. The goal is for the surrogate mother to allow someone else's embryo to be carried, that is, only gestational surrogacy;
5. A surrogate mother has the right to consent to the registration of spouses who have concluded a surrogacy agreement with her as parents;
6. The surrogate mother can leave the child at her own request;
7. After the birth of a child, spouses can register as parents on a common basis.

According to scientists, gestational surrogacy can only be achieved through in vitro fertilization [15]. That is, only IVF is a method by which you can use the services of a surrogate mother. Surrogacy offers an alternative method of pregnancy for women who cannot conceive a child naturally [16]. In this process, by agreement, one woman (carrier) carries a child in her body for another person or couple and transfers it to this person/couple after the birth of the child. Common indications for surrogacy include the absence of a uterus, repeated failures of in vitro fertilization, and medical conditions in which pregnancy is prohibited [17]. Uterine transplantation methods can offer a promising solution for expectant mothers without a uterus [18].

In 1992, article 40 of the Constitution of the Republic of Uzbekistan established the right of citizens to receive qualified medical care. And on August 29, 1996, the Law of the Republic of Uzbekistan No. 265-I was adopted, which provides for the protection of family health. In accordance with the first part of article 18 of this law, every citizen has the right to receive free consultations on family-related issues in public health institutions, regardless of whether he has socially significant diseases and diseases that pose a danger to others, free consultations on medical and mental aspects of marriage and family relations, as well as receiving consultations and, however, this law did not regulate the issues of reproductive health of citizens. In this regard, on March 1, 2019, the law of the Republic of Uzbekistan No. 528 "On the preservation of reproductive health of citizens" was adopted. The adoption of this legal document legalized reproductive technologies in our country. The Ministry of Health of the Republic of Uzbekistan is the authorized body for assisted reproductive technologies and approves the procedure for the use of assisted reproductive technologies, guaranteed services, recommendations for their use, barriers and a list of restrictions;

The assistant regulates and controls the activities of medical organizations using reproductive technology methods. Article 15 of the aforementioned law states that assisted reproductive technologies consist of medical technologies, treatment methods aimed at achieving pregnancy, in which certain or all stages of fertilization are carried out outside the woman's body.

On the basis of the second part of Article 15 of this law, on February 6, 2020, the Ministry of Health of the Republic of Uzbekistan issued Order No. 3217 "On the procedure for the use of assisted reproductive technologies", the list of which is clearly defined:

1. In Vitro fertilization (IVF). The method of in vitro fertilization is carried out by fertilizing the ovary in artificial conditions outside the mother's body in order to find a solution to the problem of infertility. Cases when the ESC method can be used: if the cause of infertility is identified, the patient treats women conservatively and pregnancy is not observed for 9-12 months after undergoing surgical treatment; if it is impossible to get pregnant without ESC methods.

2. Artificial insemination. The method of artificial insemination is carried out by introducing sperm into the vagina, the cervical canal, and the uterine cavity in order to find a solution to the problem of infertility.

For the application of the artificial insemination method, the following recommendations are given:

a sick man has severe disorders of spermatogenesis, ejaculatory and sexual disorders, and a high risk of developing hereditary diseases;

infertility associated with the cervix in a sick woman, vaginismus;

infertility of uncertain etiology.

Artificial insemination uses pre-made or cryopreserved native sperm.

The use of artificial insemination is prohibited when a sick woman is diagnosed with a violation of the patency of both uterine tubes. In the event that the method of double artificial insemination does not work, other methods of gestation are used.

3. Hatching. Excretion is carried out by opening the shiny shell of an egg or embryo for the purpose of preimplantation diagnosis.

Assisted excretion is used to facilitate embryo rupture. Cases when the method of elimination can be used:

Patients aged 35 years and older;

when the IVF method, which is used in the transfer of embryos of good quality in the anamnesis, turns out to be ineffective three times and repeatedly;

in case of violation of the morphology of the glossy shell;

when using cryopreserved embryos.

4. Cryopreservation. Cryopreservation is carried out using a deep freezing process (-200 °C) in order to preserve reproductive cells and tissues of the reproductive glands (embryos, spermatozoa and ovaries).

The use of cryopreservation is carried out on the basis of an agreement between the patient and a medical organization engaged in activities in the field of maintaining reproductive health.

Cryopreserved reproductive cells and gonadal tissues are stored in specially labeled containers packed in liquid nitrogen.

The optimal method of freezing and thawing cryopreserved reproductive cells and tissues of the genital glands is selected by a doctor individually for each specific case.

5. Intracytoplasmic sperm injection (ICSI – Intracytoplasmic sperm injection). The injection is carried out by injecting sperm cells into the cytoplasm of the egg.

The following recommendations are provided for the application of the ICSI method:

violation of spermatogenesis;

ejaculation dysfunction;

the IVF method used is egg fertilization or 20% fertilization in a smaller percentage of cases;

the presence of less than four eggs in a sick woman.

Embryo reduction was also introduced in the field of reproductive health (a procedure for artificial killing and obtaining "additional" embryos in order to create favorable conditions for the development of the remaining one and reduce risks for the expectant mother).

However, the Ministry's order did not reflect the option of infertility treatment in the form of surrogacy. As we have already said, IVF is exactly the way to carry out gestational surrogacy.

The existing gap in the legal regulation of surrogacy in the country has not been filled either by the law "On Maintaining the reproductive Health of citizens" or by the order of the Minister of Health, and IVF remains the only legal instrument providing this type of infertility treatment. According to the second part of article 18 of the Law of the Republic of Uzbekistan "On normative legal acts", a normative legal act must comply with normative legal acts having high legal force in relation to it. Consequently, the order of the Minister of Health has less legal force in relation to the Family Code of the Republic of Uzbekistan and does not indicate the prohibition of surrogacy. In this case, it will be appropriate to make additions to this order, specifying the procedure for implementing the surrogacy program.

Although article 207 of the Family Code of the Republic of Uzbekistan contains an indication from the parents of this child that only a couple who "agreed to implant an embryo in order to give birth to another woman" (surrogacy for pregnancy) can be registered, but this gestational surrogacy does not directly prohibit motherhood. The latter case reinforces the questions. What is the mechanism of gestational surrogacy? In the first paragraph of the first chapter of this doctoral dissertation, we have already noted that traditional surrogacy appeared in ancient times, and concubines, maids, and slaves were used as surrogate mothers. In traditional surrogacy, the couple turns to a third party, a woman, and the husband traditionally fertilizes the egg of this woman, and after birth this woman had to give the child to the couple. It is known that the child was related by blood to his father and surrogate mother, and his father would have nothing to do with his wife. In this case, the legal solution for establishing a legal relationship between the client and the born child is the adoption of the child. That is, the spouse must apply to a civil court with an application for the adoption of a child, the surrogate mother gives consent, and only after that the applicant can become the legal mother of the spouse's child. The position of the legislator in this regard is clearly visible from the meaning of article 207 of the Family Code of the Republic of Uzbekistan. That is, spouses who sign a contract with gestational surrogacy for the implantation of their "own" embryo are related by blood to the unborn child, and therefore it makes sense to write to the parents of those who have donated biological materials. And in gestational surrogacy, the biological material of the spouse (husband) and the surrogate mother is used, as a result of which the spouse (wife) cannot legitimately claim the status of mother.

Adoption is carried out in accordance with the requirements of the Family Code of the Republic of Uzbekistan (Chapter 20) and the Code of Civil Procedure of the Republic of Uzbekistan (Chapter 29). Adoption cases are considered by the court within the framework of separate proceedings with the participation of representatives of adoptive parents, guardianship and guardianship authorities, as well as the prosecutor. The process itself takes a long time, and the result is not always guaranteed.

Thus, although the Republic of Uzbekistan has adopted a special law regulating the reproductive rights of citizens, there is a norm of the Republic of Uzbekistan partially regulating surrogacy relations, and there is a need to expand the list of assisted reproductive technologies. and to fill it with surrogacy, which is intended for married couples and childless couples, provides a legal basis for the implementation of a surrogacy program for women who want to help legally and without any negative legal consequences.

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Rezyume: Ушбу мақолада турли мамлакатларда суррогат оналикни тартибга солиш турли ҳил ҳуқуқий асослар ҳар томонлама таҳлил қилинган. Муаллиф суррогат оналикни тартибга солиш қонун манбалари, шу жумладан халқаро конвенциялар, миллий қонунлар ва суд амалиёти ҳақида батафсил муҳокамани тақдим этади. Мақолада, шунингдек, суррогат оналикни тартибга солиш билан боғлиқ мураккаблиklar ва муаммолар, масалан, турли мамлакатлар қонунларида бир ҳилликнинг йўқлиги ва ушбу амалиёт билан боғлиқ ахлоқий муаммолар таъкидланган.

Резюме: В этой статье представлен всесторонний анализ различных правовых рамок, регулирующих суррогатное материнство в разных странах. Автор представляет подробное обсуждение источников права, регулирующих суррогатное материнство, включая международные конвенции, национальные законы и прецедентное право. В статье также освещаются сложности и вызовы, связанные с регулированием суррогатного материнства, такие как отсутствие единообразия в законах разных стран и этические проблемы, связанные с этой практикой.

Kalit so‘zlar: суррогат оналик, ҳуқуқий тартибга солиш, халқаро конвенциялар, миллий қонунлар, ахлоқий масалалар, глобал меъёрий-ҳуқуқий база.

Ключевые слова: суррогатное материнство, правовое регулирование, международные конвенции, национальные законы, прецедентное право, этические проблемы, глобальная нормативная база.

THE THEME OF THE CIVIL WAR IN N. DAVKARAEV'S NOVEL "ONE OF MANY DAYS"

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Summary: This article is devoted to the theme of the Civil War in N. Davkarayev's novel "One of Many Days". It analyzes the themes, ideas, characters, composition and organization of the narrative, and figurative speech means of the novel.

Keywords: The Civil War, dark past, Karakalpak fiction, issues, theme, authenticity, character, plot, narration, speech.

N.Davkarayev's novel - "One of Many Days" is dedicated to the initial events of the recent historical period, the events of the civil war. But the impatient writer finds it difficult to adhere to any chronological framework. He certainly wants to have his say about the dark past, and about the difficult struggle for a bright future, and about the present, which, according to the author, is gradually replacing this future. He wants to see great, general in the small and particular.

The novel "One of Many Days" was written in 1926 and published in 1929. That's the very beginning of Karakalpak fiction. And it already has global claims, in terms of problematics, thematic range, and an artistic language that is completely new for the Karakalpaks. The very first phrase of "One of Many Days" is typical: *"Coming out of the aul, when we began to gather, the sun, just rising, began to heat the entire earth with radiant light."* [3, c. 65] The prose in general is unusual, it is unusual for some kind of incomprehensible, unexplained "we" (the reader does not know in advance about whom he is reading and on whose behalf the story is being told), it is still unknown where "we" are going, and only the radiant sun is quite familiar.

It further turns out that "we" are children returning after school vacation from their aul to where they study (this is not specified; it is only said that *"both Russians and Kazakhs"* teach them [c. 66]). They are sent by boat. Advising the children, *"a just behind, two old women are crying, covering their faces"* it is significant that it was the old women who covered their faces, that is, still embarrassed to express their "backward" feelings. Someone calms them down: *"Stop, don't cry! If you are your only son, the government will raise you better, if he returns safely, it looks like it will be one day!"* [c. 65]. In colloquial speech, a logical link is missed: it means that it's okay, even if the son is the only one (of course, the point is not that it's easier to raise the only son). It is unlikely that this is a conscious imitation of the ingenuous speech of a simple person; most likely, the writer is in a hurry to express his thoughts through someone else's lips as quickly as possible; in the same way, an attribute of the author's consciousness is the confidence that the "government" is no less involved in children (this is the same "revolutionary" maximalism and globalism). The mourners, except for the two old women, are not personified in any way, but psychologically reliably, although without any difficulties, the state of the children is indicated: *"When you see people standing on the shore, no various dreams, no whatever thoughts bring to mind,"* it is said, albeit awkwardly, but accurately; the next phrase (about those sitting in the boat), which also contains a specific objective detail (the boat is apparently cramped), continues the same idea: *"Everyone, sitting on his clothes, looks down."* [c. 65].

The silence, so natural in this situation, is interrupted by the fair-haired helmsman, who asks the boys to tell something (*"May the road be shorter"*). Only one tired-looking "black boy" responds to the request and answers the questions asked. It turns out that the helmsman remembered him that year when the guys were sent to study: he tried to run away. *"I was a fool at the time. I didn't know anything. I was the son of a poor man."* [c. 66].

The use of motivation here is not yet very skillful; it is unlikely that any boy, having just separated from his family, could mention his father in such a sociologically generalized way - as *"one poor man."* But then the writer seems to correct himself, the boy tells a whole story (with restraint,

briefly): wintered in the town, he attended school, then teacher Rahim came to pick him up to completely take him away to study, but he had to do this with the police, because his parents intimidated him : *“don’t go, you’ll become Russian, they’ll take you as a soldier”* [c. 67] - it is unknown what is more horrible for these dark people, (*“become Russian”* - that is, apparently, a kafir, stop being a Muslim, and, of course, it is easier for a kafir to become a soldier than for an unlettered faithful).

The writer cannot keep up with these live scenes. The boy begins to moralize: *“Now if we remember - in those days, it turns out, they were so stupid. Now we know what studying means. Now not only we, but all young people understand. These days there is no line of people waiting to go to study”* (the boy confidently speaks on behalf of “all young people”). - the author comments on his own: *“... having explained the meaning of studying in this way, they sit together and have a good conversation.”* [c. 67]. - forgetting that “we” are schoolchildren and what is happening can be shown from the point of view of one of them (there is nothing “childish” in this comment). One could say, that the “black boy” started talking like that under the influence of the attention shown to him by an adult who cares.

It shows how a boat flies through the water, how the rowers work, what is happening on the shore - in particular, the “voice of cattle” can be heard to those floating. There are bright landscape sketches that create a picture of the coming summer. Thus, *“the stones, swaying with the breeze, shimmering with different shades, with music, seemed to bow in respect to future happiness”* [c. 68].

It is not entirely clear whether natural or human “happiness” is meant, the arrival of summer or the upcoming school year. Probably, it’s more likely the latter, but the possibility of an ambiguous interpretation is not excluded, and this is an advantage in this case. At the same time, *“someone’s angry swearing at someone”* heard by those floating is mentioned, to which it is added: *“You can hear the boatmen swearing something, who are struggling with the lasso and cannot force the boat to go against the current”* [c. 69]. This is also a virtue.

The considered first (smaller) part of the novel is its best part. But the aspiring writer needed something very significant to happen in the work. Therefore, another character appears - also from among those sailing in the boat, accompanying the children, but attracting the attention of one of his comrades, and therefore the reader too. This character is introduced with an incomprehensible phrase: *“After talking, singing, after a while, Aralbay tell me something said”* [c. 69].

The Karakalpak literary language had not yet been developed at that time, there are no punctuation marks in the sentence, it is completely unclear whether some Aralbay addressed to someone or someone unnamed addressed to some Aralbay. Only at the end of the story does it become clear that the latter is true. Right up to the final paragraphs there is a story of this Aralbai. However, it is partly understandable why exactly him. Firstly, he has something to tell, he fought with the Basmachi, even commanded some kind of detachment. Secondly, he is a thorough and reasonable person: *“After thinking for a while, taking off his hat, rubbing his forehead, he began...”* [c. 69]. There follows a detailed description of one day of clashes between Red Army soldiers and ideological volunteers with the Basmachi, to which seven out of 12 pages are devoted.

This is not a “story”, not a “case” with a beginning and ending, which are usually characteristic of literary plots. N. Davkarayev has a poor command of the plot. His purpose is to directly demonstrate that the new happy life required a difficult and dangerous struggle. The events in Aralbay's story are mechanically linked to each other and are unlikely to be able to attract the attention of listeners by their very development (who, however, have nowhere to go). But the writer simply forgets about the listeners. Having barely begun, the story about one day is already self-sufficient and correlates with everything previous only thanks to a given ideological scheme - the opposition “new life - its price.”

The beginning of the hero’s story is given in a folklore style, reflecting rather directly from the author the “poeticization” coming: *“The peace of the land has gone, not just once, but several times, the land of Kongrad, which was raided and plundered, could not freely enjoy the sparkling heavenly*

rays of the flourishing Soviet power..." [c. 69]. When naming the Basmachi, the narrator, of course, names only the top: "... *ruling and sucking the people's blood, the bek, the eldest of the bays, Kutlymurat-biy, Ibraly kazy, Temirali after the establishment of Soviet power, having fled to Kyzyl Kum, hiding in the tugai of Kuga, having joined the Turkmen Basmachi, plundered the land*" [ibid.].

The battle with the Basmachi for the nameless town is shown (which, of course, is a purely literary trick, especially in the "oral" narrative); the various vicissitudes of this battle are covered quite artlessly. Characteristically, that not a single personified red hero dies: here the primitive "optimism" of future varnish literature is already present in a latent form.

However, in this "story" besides the narrator, only one dzhigit-Polat occupies any noticeable place, who is unexpectedly captured (how exactly is not shown), does not die there immediately, because Kutlymurat-biy did not allow him to be killed, saying: "*Do not kill this fool, from a Muslim who became a kafir, after we take the town, I will hang him before the people.*" [c. 74-75]. - the motivation is quite convincing.

The narrator Aralbay does not say how he learned of certain events, and he even knows the experiences of Polat awaiting the gallows. Polat, naturally, indulges in sad thoughts and stands, clenching his fists for some reason with not bound hands (in general, it is clear why: the author did not come up with any other way for him to escape than the one that the dashing dzhigit used). After mentioning clenched fists, doomed without any transition, it is reported "*When the Basmach standing next to him on guard passed nearby, he quickly knocked the gun out of his hands...*", etc. [c. 75].

Just as suddenly, the narrator and his other comrades get out of difficult situation. The Basmachi surrounded them in the house and set the house on fire.

The final victory is also presented suddenly. Although the novel shows an example of the tactical art of one of the Red commanders (an episode with reed thickets, which must certainly be captured before the Basmachi), there is no consistent preparation of the reader for a successful outcome; the reader is simply not supposed to experience any doubts about this. After the message about the return of Polat, who escaped from captivity, it is said: "*All together, in the afternoon, we drove the Basmachi out of the Ayran canal.*" [c. 75].

Some details follow about how they were persecuted, and another interesting episode. "*While we are driving the Basmachi away and shooting, smoke comes out of one small house. We listened outside and heard the voices of Turkmens talking*" [ibid.]. It turns out that two people, having hung their guns on the wall, light a fire under the cauldron. The Reds burst into, put their guns to their chests, they rush to their people and, obviously, fall defeated. Neither the hero-narrator himself, nor his listeners (whom the author forgot about) there are no questions: neither why these two in a hopeless situation tried to resist (is honor more than life to the Turkmen Basmachis? Or did they know what awaited them?), nor even why did these two, at such an inopportune time, when everyone was running and shooting at them, have an irresistible hunger and they decided to cook dinner. The author and the hero need him to kill the Basmachi, and he kills, without doubting anything and without thinking about anything.

Finishing the story, Aralbay names the exact date of what is happening - April 21, 1923 - and moves on to summary. In medieval terms, not only Eastern, but also Western, a part directly represents or replaces the whole [2, c. 90-93, 283], the individual directly expresses the general or universal.

In Eastern literature was superimposed on the centuries-old tradition of moralizing for this. Aralbay also moralizes in "One of Many Days." Among other things, he reports the following: "*Before the October Revolution, the Karakalpak people, who had nothing (neither name nor title), are now achieving great victories, thanks to the fact that the October Revolution gave equality.*" The great victories, according to the hero, are that "*several secondary schools, several courses were opened, several hundred children are studying. Thanks to the October Revolution, having achieved equality, in cities such as Leningrad, Moscow, and in other cities train, by sending son.*" [c. 76].

Aralbay does not forget either the developing cotton growing industry or the leading party. Here the author suddenly remembers Aralbay's listeners, but not the situation in which he left them (sailing in a boat along the stormy Amu Darya), and instead of showing their reaction, he reports: *"The boatmen, having said "let's have tea," went out into the yard"* (it turns out - from those floating boats). The author does not remember the original "we", about the boys sailing in the boat, and completes the story on his own behalf: *"On the day when the autonomous region of the Karakalpak people celebrated four years, I remembered the words of Aralbay"* [с. 77]. Should this be understood to mean that the first conventional narrator (one of "us" was the author in his first youth? Perhaps, but it is categorically impossible to say anything, there are too many inconsistencies in this inept, although marked by sparks of talent, story (including in the first, better half: for some reason the children are taken away to study at the beginning of summer; it is not said on what waters the boat sailed until it reached the Amu Darya).

The best passages in a story are those that apart from ideology. These are the mentioned paintings and, for example, comparisons that bear the imprint of national identity: *"... boatmen prepare their oars and poles, like birds shaking their wings before flying."* *"Crazy water with the roar of the flowing Amu Darya, as soon as the boat entered it, rushed like a brave hare"* (с. 65, 68).

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Rezyume: *Ushbu maqolada N.Davqorayevning "Ko'p kunlardan biri" qissasi poetikasi ko'rib chiqiladi, hikoyaning mavzulari, g'oyalari, personajlari, hikoyaning kompozitsiyasi va tashkil etilishi, obrazli nutq vositalari tahlil qilinadi.*

Резюме: *В данной статье рассматривается поэтика рассказа Н. Давкараева «Один из многих дней», анализируются тематика, идеи, герои, композиция и организация повествования, образно-речевые средства рассказа.*

Kalit so'zlar: *fuqarolar urushi, qorong'u o'tmish, qoraqalpoq badiiy adabiyoti, masalalar, mavzu, haqqoniylik, xarakter, syujet, hikoya, nutq.*

Ключевые слова: *гражданская война, мрачное прошлое, каракалпакская художественная проза, проблематика, тема, достоверность, персонаж, сюжет, повествование, речь.*

**FORMATION OF COMMUNICATIVE COMPETENCE IN NON-PHILOLOGY STUDENTS
ON THE BASIS OF INTENSIVE EDUCATIONAL TECHNOLOGY**

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Summary: *Today, one of the tasks of teaching English as a subject in higher education is not only the formation of skills to understand the scientific literature, but also the formation of communicative competencies. This article demonstrates the importance of communicative competence in teaching English as a means of intensive educational technology.*

Keywords: *competence, communicative competence, intensive education, linguistic competence, sociolinguistic competence, pragmatic competence*

Today's education system, which plays an important role in global development and its qualitative improvement, includes the use of international experience in developing students' communication skills (i.e. professional communication) and the application of the most effective world standards. There is a growing need for further professional development of teachers, especially in teaching and developing students' professional communication skills.

In order to take advantage of advanced educational technologies in the education system and raise the content and quality of higher education to the international level, the development of students' abilities in the professional communication of education with students is now becoming important.

Increased opportunities for international cooperation and communication, as well as the organization of educational content on the basis of pan-European international standards, occupy an important place on a global scale.

Now it is important to raise the quality of education to the international level, to introduce progressive methods of education using the latest educational technologies and to use for future specialists the modular system of communication of education specialists

The process of integration into all spheres of social life, the increasing role of reading and speaking in business and international diplomatic relations requires the formation of communication skills in English.

One of the important tasks of English language teaching is the formation of writing, reading, listening and speaking skills based on the use of communication methods.

At the same time, one of the tasks of teaching English as a subject in higher education institutions is to develop not only the ability to understand scientific literature on specialty, but also communicative skills.

"Communicative competence is the ability to communicate in a foreign language, observe the culture of communication, develop social flexibility and work effectively in groups"[1].

According to I. Tukhtasinov, communicative competence can be defined as a set of linguistic, sociolinguistic and pragmatic skills, which are interrelated with the elements of general competence of the individual and allow the individual to successfully carry out speech activity.[2]

The analysis shows that communicative competence in the process of learning English is the ability to apply in the process of communication the knowledge, skills and abilities acquired in the process of learning English.

The formation of communicative competence is seen as the ability to use English well in a non-linguistic professional course, including everyday vocabulary and topics related to their area of specialization. It involves acquiring English knowledge of the target language.

This is done through the formation of language and speech skills in the realization of the necessary vocabulary processes expressed in production, enabling learners to communicate fluently orally and in writing independently and in English.

Communication competence in English reflects complex structural aspects of personality with integrated qualities of future specialists. It consists of three elements:

- Demonstration of motivation (prepared interest in the profession you have studied and realize its importance in the future);

- Cognitive activity - a set of skills of communication in English within the framework of professional activity;

- General interdisciplinary competences - a combination of the importance of the quality of knowledge and skills of future specialists, self-assessment methods in their future professional activity.

Deep learning technology plays a key role in solving problems in education, learning and development of students.

Intensive learning is the study of subjects in an educational process that provides skills such as autonomy, personal development, initiative, creativity and self-esteem.

It focuses on positive interaction.

It also provides an opportunity to develop personal qualities through the acquisition of knowledge, skills and abilities on the basis of specialized educational technologies.

Consequently, for successful implementation of students' communicative skills, universities need to form the following types of skills:

Language skills - language material related to the acquisition of knowledge of phonetics, vocabulary, grammar and skills of various oral activities (listening, speaking, reading and writing).

Sociolinguistic competence - allows the speaker to choose the desired form and mode of linguistic expression depending on any speech situation, communication goals and desires.

Sociolinguistic competence includes sociocultural competence, the ability to recognize ethnic features of authentic speech: customs, values, rituals and other cultural and ethnic features of the countries where people live and compare them with countries where the language is spoken learnt.

An important factor in this is the ability of language teachers to develop students' language skills and competence in using educational technologies that need to be used correctly and effectively, as well as to increase students' interest in language learning through the fluency of their speech in the process of language learning

In short, pragmatic competence refers to the ability to avoid a difficult situation through repeated requests, excuses, etc. when misunderstandings arise in English communication situations. This skill involves expressing ideas orally or in writing using appropriate linguistic means.

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Rezyume: Bugungi kunda oliy o'quv yurtlarida ingliz tilini fan sifatida o'qitishning vazifalaridan biri nafaqat ilmiy adabiyotlarni tushunish qobiliyatini shakllantirish, balki kommunikativ kompetensiyalarni shakllantirishdir. Ushbu maqola intensiv ta'lim texnologiyasi vositasi sifatida ingliz tilini o'qitishda kommunikativ kompetentsiyaning ahamiyatini ko'rsatadi.

Резюме: Сегодня одной из задач преподавания английского языка как предмета в высшей школе является не только формирование умений понимать научную литературу, но и формирование коммуникативных компетенций. В данной статье показано значение

коммуникативной компетентности при обучении английскому языку как средству интенсивной образовательной технологии.

Kalit so'zlar: kompetentsiya, kommunikativ kompetentsiya, intensiv ta'lim, lingvistik kompetentsiya, sotsiolingvistik kompetentsiya, pragmatik kompetentsiya.

Ключевые слова: компетентность, коммуникативная компетентность, интенсивное образование, лингвистическая компетентность, социолингвистическая компетентность, прагматическая компетентность.

UDK 347.4

IDEOLOGICAL AND ARTISTIC FEATURES OF KARAKALPAK NOVEL OF 1930S

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Summary: *This article discusses the problem of the development of the Karakalpak story of the 30s of the twentieth century, the formation of literature focused on new European artistic principles in their specific Soviet version.*

Keywords: *The Karakalpak story, determinism, motivated narration, normativism, themes, plot, narration, figurative and speech means.*

The analysis of the Karakalpak story of the 30s is important from the point of view of its poetics, the study of fundamental provisions for Karakalpak literature. Many assessments and conclusions made by the famous literary critic M.K. Nurmukhamedov [9,10, 11] and other researchers retain their significance, but more than once they happened to unconsciously, and sometimes consciously, clearly overestimate some assessments.

Karakalpak prose as written and printed literature was in the process of formation. The Karakalpak novel originates in the late 20s, undoubtedly under the influence of the literature of other USSR peoples, mainly Russian Soviet literature. Until the 50s, it remained, in essence, the only more or less established prose genre: only excerpts from planned major works are published, which usually were never completed.

The Karakalpak novel of the 30s underwent significant changes, many of its features turned out to be stable, most often being a consequence of the ongoing process of the formation of literature focused on new European artistic principles in their specific Soviet version.

Realistic tendencies (determinism, motivated narration) penetrated into the stories of Karakalpak writers spontaneously, under the influence of others realistic works, developed national literatures. These tendencies were combined with spontaneous naturalistic traits (in the sense of simple “pictures”, “copying off” from reality) and mainly with ideologically driven normativism. Only a few works were completely or predominantly realistic and, as a result, more integral in their poetics and more artistically perfect (not simply due to the advantages of realism, but due to their consistent artistic “logic”).

These trends were manifested in the interpretation of both society and man, the individual. A man appeared as, in essence, a function of his social position. The novels of the 30s sharply contrasted the social upper and lower classes: the former were the bearers of all the ills of unrighteousness, the latter - high virtues. Accordingly, the old and unhappy life of the poor was sharply contrasted with the new and happy one (Novels “Blood” by Zh. Zakhiri, “Daughter-in-law of the aul council”, “Red Star”, “For the collective farm” by N. Kuzembaev, etc.).

The revolution brought immediate happiness. However, the best writers, in the best stories, reality is presented with completely reliable signs. In such cases, a happy life was proclaimed at the level of declarations. Somewhat later, the place of the dark past in stories began to be occupied by its remnants. In essence, the psychology of “pests” acted as such (Novels “Prosperous Life” (1936) by Almas (D. Nazbergenova), about the shepherds Gulzhan and Kalmurat, who later became “Stakhanovites”; In the story “Orkenli omir” the girl Gulzhan promises to marry Kalmurat if he behaves well and work. The novels “Ears are like shields” (1936) by M. Daribaev and “Bibish” (1938) by Dali (D. Nazbergenova) - about overcoming remnants in the minds of people of the older generation, etc.).

Karakalpak prose writers also had problems with themes, plot, organization of narration, and the use of figurative speech devices.

The first Karakalpak writers mastered a very diverse topic. Big changes in life were taking place and attracted the attention of creative people. On the other hand, certain themes and motifs were definitely avoided.

The Karakalpak prose writers found the plot with great difficulty. Even in short stories, episodes are often “attached” to each other without much actual plot logic. Most stories are divided into small chapters or sections: many writers seem to be unable to publish a whole story “in one breath,” skillfully tie up plot lines in it, and release the plot material “in portions”. In the very first stories there are contradictions and inconsistencies. Event clichés were used, and different writers repeated generally identical situations. The plots endings were almost always programmed. Prose narration in Karakalpak literature had no national roots, and clichés of archaic origin predominated in poetry. Hence the weakness of the stories' plots.

Along with this, in the very first stories, experiments were carried out with the organization of the narrative. In this regard, the principles of modern European narration were learned exceptionally quickly. Also not without difficulty, not without contradictions in the texts, but almost immediately Karakalpak writers began to master first-person narration, techniques of changing narrators and silences, direct speech (including dialogues) with signs of a depicted “alien” word, improperly direct speech, conveyed the inner speech of the characters. As for the author's speech itself and the speech of the characters close to it, purely national features were stubbornly preserved in it, including cases when it would have been more natural to abandon them. For example, both Russians and even Germans are called “dzhigits”.

The language of the first Karakalpak stories is not far from folklore. We found that various figurative speech devices and features of artistic syntax, often coming from folklore and everyday speech, are quite widely represented in the stories. Sometimes authors coordinate these means with the theme, plot, and images of the characters of their stories, sometimes external forms of speech decoration are more autonomous.

Thus, the formation of literary prose in Karakalpakstan occurred during an exceptionally unfavorable period for this.

The 30s - the first half of the 50s in all republics of the Soviet Union were a time of totalitarianism, a time of Stalinism. Russian Soviet literature, which influenced other national literatures, generally degraded during this period. But even in its then version it was literature of the European type, and it helped the Europeanization of literature or literature in those republics in which there were almost no novels that corresponded to the principles of modern poetics.

In the 30s, the Karakalpak story achieved certain successes, but the repressions at the end of the decade undermined the strength of all literature that was just getting on its feet.

“Mature” Stalinism turned out, as elsewhere, to be especially destructive for the quality of literary works. At the turn of the 50-60s, Karakalpak writers had to re-acquire what had been achieved in the best works of the 30s and the first half of the 40s in order to make domestic literature modern not only in the chronological sense. But this is a special period and a special topic [2].

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Rezyume: Ushbu maqolada XX asrning 30-yillaridagi qoraqalpoq hikoyasining rivojlanishi, yangi Yevropa badiiy tamoyillariga yo‘naltirilgan adabiyotning shakllanishi muammosi ularning o‘ziga xos sovet versiyasida ko‘rib chiqiladi.

Резюме: В данной статье рассматривается проблема развития каракалпакского рассказа 30-х годов XX века, становления литературы, ориентированной на новоевропейские художественные принципы в их специфическом советском варианте.

Kalit so‘zlar: Qoraqalpoq hikoyasi, determinizm, motivli bayon, me‘yoriylik, mavzu, syujet, bayon, obrazli nutq vositalari.

Ключевые слова: каракалпакский рассказ, детерминизм, мотивированное повествование, нормативизм, тематика, сюжет, повествование, образно-речевые средства.

**PROBLEMS OF SECURING CREDITOR'S RIGHTS IN THE REORGANIZATION OF
LEGAL ENTITIES**

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Summary: *A legal entity is established to operate in a specific field and to achieve a specific goal (making a profit, satisfying the needs of participants, implementing social or other common goals). However, the activity of a legal entity does not always go "smoothly" and does not continue stably. As a result, the continuation of the legal entity's activities may become inappropriate, harmful to its founders and participants, or may not meet the requirements of the law. In such cases, it will be possible to resolve the situation by applying the two methods of liquidation of the legal entity in the legislation, reorganization and liquidation. In reorganization, in contrast to liquidation, the activity of a legal entity is canceled without canceling its rights and obligations. But one of the most important issues in reorganization is the provision of creditor's rights. Legislation sets certain rules in this regard. However, in the reorganization of legal entities, certain problems regarding the protection of creditor's rights are visible. This article analyzes the shortcomings of the creditor's rights in the reorganization of legal entities and issues of expanding their rights, and offers specific solutions.*

Key words: *legal entity, reorganization, liquidation, loans, liquidation, acquisition, separation, division, change, rights and obligations.*

Creditors' property rights arise before the decision to cancel (reorganize or liquidate) the activity of a legal entity. That is, these rights are available in accordance with the legal relations of creditors with the legal entity being reorganized. As a rule, these rights arise as a result of contractual-legal relations, the content of which determines the respective property rights of creditors, in particular, to demand settlements at the specified time, to perform certain actions on the delivery of products, the provision of services; consists of the execution of the work. If the deadline for the due fulfillment of the obligation by the legal entity being reorganized has not yet arrived, the creditors, as a general rule, are considered to have not yet used their property right on demand.

It is known that obligations must be properly fulfilled - in accordance with the period specified in the contract. When the decision on liquidation is adopted by a legal entity (its superior body) or a court, the legal situation for creditors changes fundamentally and it is carried out according to the type of liquidation of the legal entity - with inheritance or without inheritance. The procedure for terminating the activity of a legal entity constitutes a set of legally defined actions aimed at this.

When making a decision on the liquidation of a legal entity by inheritance, a commission is created, which is assigned many functions to carry out the liquidation. One of these is the application of measures to identify creditors and notify them.

Consequently, creditors must be notified of the termination of the activity of a legal entity. They do not influence the decision in any way. Although there are proposals to introduce the procedure for agreeing obligations with the creditor in the reorganization of the legal entity, as well as the procedure for obtaining consent for the transfer of rights and obligations by the creditor in the reorganization of the legal entity. In our opinion, there is no reason for this, because the legal mechanisms provided for in the current legislation are able to properly ensure the property rights of creditors, which will be proven further. Notifying creditors is an important legal fact and depends on the exercise of their right to claim property.

The State Register of Legal Entities, Individual Entrepreneurs and Public Associations (hereinafter referred to as the State Register) contains information on the existence of a legal entity

in the process of liquidation, including information on decisions to terminate the activities of a legal entity, liquidation commission (liquidator, liquidation commission, etc.) and the founders (participants) of the legal entity, their claims must be submitted by the creditors within the period determined by the court or the body that made the decision to terminate the activity of the legal entity. It defines the legal mechanism by which creditors should be informed not only about the decision to terminate the activity of a legal entity with which they have a legal relationship, but also about it with publicly available information. component is the period within which they can file such a claim.

This is indicated in the letter sent by the commission on the termination of the activity of a legal entity, but not less than two and no more than six months from the date of publication of the notice of the decision on the termination of the activity of a legal entity (Part 2 of Article 55 of the FC). In essence, this period determines that the creditor's property rights exist only for a certain period of time. Finally, it is necessary to determine what property rights the creditors of the legal entity in liquidation will have and how they differ as parties in terms of rights and obligations that existed before the decision to terminate the contract. As mentioned above, creditors have property rights against a legal entity, which are determined by an agreement between them.

Based on the fact that the contractual relationship is an obligation, the property right of the creditor is the right to demand the performance of his property debt from the debtor. From the point of view of the issues under consideration, we note that this right is not yet "ripe (the claim period has not yet expired)", that is, it can still be claimed based on the claim of the creditor. However, circumstances have arisen that affect the creditor's property rights, encouraging the start of its implementation, despite the fact that the deadline for this was not earlier.

Such cases are liquidation of the debtor, which may have negative property consequences for the creditor. To prevent their occurrence, the legislator establishes a special legal mechanism for responding to the creditor's decision to terminate the debtor's decision. In this regard, it should be noted that the law provides for the following options for the creditor to choose the right of property claim: a) liquidation; b) fulfilling the obligation ahead of time; c) ensuring the fulfillment of the obligation, except for the cases provided for by law.

At the same time, the creditor can choose one of the options of the property claim only if the obligation of the liquidated legal entity is not ensured. At the request of the creditors, the liquidated legal entity faced changes regulating its rights. Also, the methods of ensuring the fulfillment of obligations (pledge, guarantee or others specified in Chapter 22 of the Civil Code of the Republic of Uzbekistan) should be understood in a way that is not provided for in the contract.

In this case, there is a narrowing of the creditor's rights to a new property claim compared to the one that occurred under the obligation. At the same time, it consists in strengthening the legal protection of creditors' rights. It seems that this very reason prevails, designed to limit the flow of property claims of creditors in cases that do not endanger their property status. This approach was aimed at eliminating the increasing impossibility of satisfying property claims, which caused a crisis situation in the country (certainly not related to the liquidation of legal entities). Secondly, the legislator shows that he is interested in preserving the legal relationship between the creditor and the successor of the liquidated legal entity. When, for various reasons, there are no obligations to provide after the decision to terminate the activity of a legal entity, and when such provision is not possible, it can be concluded that the termination of these legal relations or their change is the final stage. Thirdly, property claims of creditors differ according to their legal origin - there are civil-law obligations as well as those based on relations regulated by public law. First of all, this applies to tax legal relations, making other mandatory payments provided for by law.

At the same time, it is clear that such requirements are not provided with the appropriate means for their proper implementation, so they should probably be satisfied by the commission on the termination of the activity of a legal entity. The above-mentioned approaches show by

themselves that due to them priority is given to settlements with creditors on payment of mandatory payments to the state by a legal entity. The remaining creditors themselves and the commission have the opportunity to change the obligations on the termination of the activity of a legal entity or to make a decision on their premature termination.

How these decisions are made and how they are implemented should be determined by law. When a legal entity is reorganized, the creditor has three options: to cancel the obligation, to fulfill it before the due date or to ensure its fulfillment. It is unreasonable to set such a procedure, because the premature fulfillment of the obligation is considered a way of its cancellation. In this situation, how it can be terminated is unclear. In this situation, it is inappropriate to cancel the obligation on the grounds of waiver of debt (Article 348 of the Criminal Code) or impossibility of performance (Article 349 of the Criminal Code).

Also, the annulment of the obligation, provided for in Article 346 of the Criminal Code, due to the fact that the debtor and the creditor remain one person, cannot be applied to this case, because, that is, the matching of the subjective structure of the obligation, the combination of the debtor and the creditor in the form of one person is considered a separate case. In addition, the cancellation of the obligation by paying or transferring to the account (Articles 342-343 of the FC) also differs from the cancellation of the obligation when the legal entity is reorganized.

If the obligation performed by the liquidated legal entity consists of the performance of certain actions (performance of works, provision of services), the creditor may demand the termination of such performance. However, at the same time, we will have to refund the payments already made under this contract. As for the third option that the creditor can choose, that is, the requirement of a guarantee, in this case, his obligation with the legal entity being reorganized can be changed, that is, it can be "strengthened" by ensuring its accuracy.

For this purpose, one or more methods of coercion are chosen by the decision on how to formalize the agreement on their introduction. This can be done by the creditor by making changes to the contract concluded with the legal entity being reorganized and/or by concluding an appropriate contract on its provision (guarantee, guarantee, pledge). For obvious reasons, a deposit is not suitable for such cases, and penalty clauses are usually included in the contract terms. Of course, the amount of the fine can be increased, but the meaning of this method of securing obligations seems inconsistent with the goals set by the law. If the creditor intends to ensure the fulfillment of the obligations of the legal entity that is being liquidated by way of collateral, he shall submit an appropriate proposal (oferta), which must be considered by the liquidation commission. Acceptance of this offer leads to the conclusion of a pledge agreement, which defines the property subject to pledge, which the parties must agree on.

If a collateral contract securing the main contract is concluded, one of the legal entities created as a result of the reorganization of the legal entity under both of these contracts will be the legal successor. The property subject to the pledge is also transferred to him. In addition, when choosing the methods of responding to the notice of termination of the activity of a legal entity, it should be taken into account that despite the fact that the initiative comes from the creditor, the final decision on accepting his proposals belongs to the liquidation commission. This means that satisfaction of the creditor's right to claim (Part 2 of Article 52 of the Criminal Code) does not have a priority position.

According to the general rule, each separate claim of the creditor is considered by the commission, after which it makes an appropriate decision, which is sent to the creditor no later than thirty days from the date of receipt of the relevant claim of the creditor by the liquidated legal entity. Although this rule primarily refers to the requirements for payment of mandatory payments (including taxes, fees, etc.), it also applies to contractual requirements.

It follows that the acceptance of contract modification or cancellation comes from a non-statutory commission with certain conditions that must be taken into account. Therefore, the

commission can accept or reject such a request. However, these terms do not include the final actions of the liquidation commission, as other actions of legal significance may be provided for in accepting the offer. Therefore, if the creditor offers a pledge as a way to ensure the performance of the contract, he cannot know which property of the legal entity will be the subject of the pledge. This selection should be made by the commission. Thus, the liquidation commission, having received such an offer from the creditor, must make a decision on specific circumstances to amend the contract and conclude a security agreement.

His second option is to cancel the contract, including settlement with the creditor, and the third is to refuse it. In the first case, since the contract was changed even before the termination of the legal entity, in this form it enters the legal mechanism of succession. The successor of the liquidated legal entity takes the place of the liquidated legal entity, on whose behalf the commission made amendments to the contract. In the second case, the contractual obligation to which the liquidating legal entity is a party will continue under the same conditions, but the successor(s) of this legal entity will already be a party to it. Consequently, in both cases, the creditor's property claim is inherited. But in the first, this requirement is also applied by the method of ensuring the fulfillment of the obligation added to the main contract. Finally, as to succession, it is, first, determined in a certain way; secondly, its subjects and thirdly, the types of responsibility should be defined. In general, issues of formalization of succession are important.

Determination of succession takes place in the transfer deed or in the distribution balance, depending on the type of reorganization. A deed of transfer is drawn up in the case of liquidation of a legal entity by merger and acquisition, and a distribution balance sheet is drawn up in the case of division. As for the change of legal entity, Article 49 of the FC does not exist, but it is logical to assume that the deed of transfer will also be drawn up in this case. In case of legal separation, the distribution balance is drawn up (Article 51 of the FC). There are objections in the literature about the content of the deed of transfer and its effect on succession.

Subjects of a legal entity terminated as a result of reorganization, their scope is determined in the transfer deed or distribution balance sheet. The number of these subjects can be different. Each specific legal entity formed as a result of the termination of the activity of a legal entity to which it is a participant shall be the successor according to each specific contract. Information about this is given in the transfer document or the distribution balance. Article 40 of the FC causes some misunderstandings. According to it, the legal entity formed as a result of division is designated as the successor.

At the same time, when a legal entity is divided, at least two newly established legal entities always appear. According to the above considerations, one or more successors will arise. But this seems wrong. That is, if the liquidation of a legal entity was carried out by division, its legal successors are all legal entities, which are subsidiarily liable and jointly and severally liable for the obligations of the liquidated legal entity. It should be understood that the debt passes to them as heirs in the amount not yet paid by the liquidated legal entity, including the unpaid amount of the commission for its liquidation. The joint responsibility of the heirs of a legal entity means that it is impossible to formulate the information of the distribution balance on its debts in such a way as to determine a certain part of the debt for certain heirs. It turns out that in any case, the debt remains "one for all" and is paid jointly or separately.

In our opinion, this contradicts the concept of succession, which should determine the proportion of assets and liabilities that pass to the heirs. In addition, each of the established legal entities receives a part of the debt to be paid together with the property and property rights transferred to it. It should also be noted that this part of the debt, unlike inheritance, cannot be limited to the property passed on to such legal entities through inheritance. The debt must be paid with all the property of the legal entity, which is fully responsible for its payment, including the property acquired later as a result of its activity or at the expense of other sources. At the same time,

the legislator strengthens the guarantees for creditors by establishing the joint responsibility of the heirs, which allows creditors to demand joint payment regardless of the distribution of the debt in the distribution balance.

It is possible that such successor legal entities do not properly pay their share of the debt distribution balance. Thus, the creditors of the liquidating legal entity will have additional property rights against this legal entity: a) requirements for early fulfillment of the obligation; b) cancellation of obligation; c) change the enforcement of the obligation. They put forward this demand against the liquidated legal entity, and its satisfaction or rejection is carried out by the liquidation commission of the legal entity, which has passed the functions of managing its activity. Such legal mechanisms are able to ensure the property rights of creditors in a certain way.

After the liquidation of the legal entity and the establishment of other legal entities - successors, if the demand of the creditors is to provide additional enforcement, they will have the right of claim against the legal entities to which this demand has been transferred, according to the deed of transfer or distribution balance. If a lien is chosen as a means of enforcement, the property right to collect on the subject of the lien is transferred to the heir to whom the property is the subject of the lien.

Despite the formal equality of the creditor and the debtor according to the law, in fact the debtor has a wide enough arsenal of tools to avoid liability for improper performance of obligations. Taking into account that the issue of protecting the rights of creditors is becoming more relevant every year, we will try to analyze the most effective mechanisms for protecting the rights of creditors.

Of course, the judicial practice, which is actively forming in our country, provides many controversial issues of law enforcement, including the balance of interests of creditors and debtors. True, today debtors have many tools, thanks to which it is possible to avoid the need to fulfill the main obligations under the loan or loan agreement, as well as the derivative obligations that ensure the return of funds (in particular, guarantees and mortgages) by the debtor.

In order to avoid the need to fulfill obligations to creditors, debtors are actively using mechanisms to protect consumer rights, invalidate contracts, conduct economic expertise to substantiate the non-compliance of credit contracts with the requirements of current legislation, manage bankruptcy, apply time limits, and terminate the activity of a guarantor. As a result of the effective work of legal advisers, debtors are freed from responsibility for non-payment of multi-million loans, which leads to the insolvency of the creditor and the exit of about a hundred banking institutions from the market.

Mass non-return of problem loans requires certain actions that allow creditors to obtain guarantees for their interests and to return the funds provided by them to debtors. The introduction of such mechanisms requires the creditor to have a comprehensive approach to his relations with his debtor and to constantly monitor the activities of such a debtor. Such relations should begin with the execution of relevant documents and the fulfillment of the obligations of the debtor. Yes, the loan agreement, among other things, should provide the possibility of the creditor to constantly monitor the debtor's activities.

In particular, at any time, at the request of the creditor, to receive reports on the economic and financial activity of the debtor and to demand early repayment of the debt based on the results of the analysis of such reports. At the same time, the loan agreement should not contain provisions that may harm the interests of the creditor (for example, in the case of delayed performance of obligations, after the end of the loan term), but there may be rules about the creditor's powers to demand full repayment of the debt or property given to secure the debtor's obligations.

It is also recommended to the creditor to include in the loan agreement terms such as extending the claim period and analyzing the proportionality of the costs of securing the loan

obligations to the amount of the debtor's debt. For this, the creditor can force the debtor to evaluate the value of the pledged or mortgaged property in a certain period (for example, once a quarter).

After analyzing the relevance of the assessment by the debtor, the creditor will have a real opportunity to quickly respond to the need to protect his rights in the event of a delay in the fulfillment of obligations by the debtor.

Proper documentation of the credit relationship between the creditor and the debtor, taking into account the most delicate aspects of the existing judicial practice and legal documents, is carried out taking into account the value of the credit relationship, the implementation of constant monitoring of the financial and economic situation of the debtor (guarantor), as well as the pledge or mortgage and its Proportionality to the amount of debt effectively protects the creditor's rights in court. At the same time, the participation of private executors in the execution of court decisions in favor of the creditor also helps to protect the rights of creditors.

In addition, prosecution of the debtor in criminal proceedings for fraud, fraudulent business or other economic crimes, as well as bankruptcy, can be a very effective means of protecting the rights of creditors. At the stage of pre-trial investigation, sequestration of the debtor's property, restriction of his freedom of movement, constant searches, subpoenas and other procedural actions encourage many debtors to repay the debt.

At the same time, the restriction of the debtor's economic activity due to the initiation of bankruptcy proceedings by the creditor does not contribute to the normal economic activity of the debtor. Thus, the effective protection of creditors' rights requires the systematic work of highly qualified legal advisers who can find specific solutions for each specific situation.

Rezyume: *Yuridik shaxs muayyan sohada faoliyat yuritish va aniq maqsadga erishish (foйда olish, ishtirokchilarning ehtiyojlarini qondirish, ijtimoiy yoki boshqa umumiy maqsadlarni amalga oshirish) uchun tashkil etiladi. Biroq, yuridik shaxsning faoliyati har doim ham "silliq" ketavermaydi va barqaror davom etavermaydi. Natijada yuridik shaxs faoliyatini davom ettirish maqsadga muvofiq emas, uning muassislari va ishtirokchilari uchun zarar keltirishi yoki qonun talablariga javob bermasligi mumkin. Bunday hollarda, qonunchilikda yuridik shaxsni tugatishning ikki usulini, qayta tashkil etish va tugatishni qo'llash orqali vaziyatni hal qilish mumkin bo'ladi. Qayta tashkil etishda, tugatishdan farqli ravishda, yuridik shaxsning faoliyati uning huquq va majburiyatlarini bekor qilmasdan tugatiladi. Lekin qayta tashkil etishda eng muhim masalalardan biri kreditor huquqlarini ta'minlashdir. Qonunchilikda bu borada muayyan qoidalar belgilangan. Biroq, yuridik shaxslarni qayta tashkil etishda kreditorlar huquqlarini himoya qilish bilan bog'liq muayyan muammolar ko'zga tashlanadi. Mazkur maqolada yuridik shaxslarni qayta tashkil etishda kreditorlar huquqlarini himoya qilishda yo'l qo'yilayotgan kamchiliklar va ularning huquqlarini kengaytirish masalalari tahlil qilinib, ularni hal etishning aniq yo'llari taklif etilgan.*

Резюме: *Юридическое лицо создается для деятельности в определенной сфере и для достижения определенной цели (получения прибыли, удовлетворения потребностей участников, реализации социальных или иных общих целей). Однако деятельность юридического лица не всегда проходит «гладко» и не продолжается стабильно. В результате продолжение деятельности юридического лица может стать нецелесообразным, причинить вред его учредителям и участникам или не соответствовать требованиям законодательства. В таких случаях разрешить ситуацию можно будет, применив два предусмотренных законодательством способа ликвидации юридического лица – реорганизацию и ликвидацию. При реорганизации, в отличие от ликвидации, деятельность юридического лица прекращается без отмены его прав и обязанностей. Но одним из важнейших вопросов при реорганизации является обеспечение прав кредитора. Законодательство в этом отношении устанавливает определенные правила. Однако при реорганизации юридических лиц просматриваются определенные проблемы с защитой прав*

кредиторов. В данной статье анализируются недостатки прав кредитора при реорганизации юридических лиц и вопросы расширения их прав, а также предлагаются конкретные решения.

Kalit so'zlar: yuridik shaxs, qayta tashkil etish, tugatish, kreditlar, tugatish, qo'shib olish, ajratish, bo'linish, o'zgartirish, huquq va majburiyatlar.

Ключевые слова: юридическое лицо, реорганизация, ликвидация, кредиты, ликвидация, присоединение, выделение, разделение, изменение, права и обязанности.

**REPRESENTATION OF BUKHARA KARAKALPAKS IN THE NOVEL
(About the issue of composition skills)**

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Summary: *The article deals with the concepts of historical realism and artistic fantasy in the novel by Kenesbay Karimov. The novel depicts the life of Bukhara Karakalpaks, in the second half of the 18th century and the first half of the 19th century - the migration of the Karakalpaks to their homeland Chimboy. The images of Kulshi Bey, who led this historical process, and Yeretey Bey, a historical person who left a bright mark in the history of Karakalpaks in the 19th century, are skillfully shown by the writer. Moreover, their lifestyle, customs and traditions, nature of the place according to the memories of the main hero Kulshibiy. The historical events, internal conflicts of the Karakalpaks and its effect on the development of the nation are analyzed.*

Key words: *historical realism, artistic fantasy, a plot, ethnic identity.*

In large epic works, it is related to the compositional structure and skill of the writer in order to read and accept events and hadiths. In this way, the author, in order to convey his ideas in an artistic way, uses author's narratives, reminiscences of bad characters, and stories related to the past fate of different characters to the story. This is called montage in literary studies. "Montage is considered as a method of creating the structure of a literary work, and it is observed that the image is divided into fragments." It can be seen that K. Karimov's novel "Agabiy" is used in an artistic way. In the writing base, he tells about the past events, the life of the Karakalpaks of Bukhara, the nature of the place, and the traditions of the people, mostly through the reminiscences of Kulshibiy and Bektemirdin. These will keep the reader interested and help reveal the fate of the characters.

By the grace of fate, the place they created by themselves, abandoning the lands belonging to the Bukhara Emirate, and investing the money they invested in the homeland of Shymbai, Kulshi Biyd, by reminiscing about the place where he was born and grew up, learns where this change came from. Also, such stories, interspersed in the network of stories, are often repeated in multi-plot works. "There are built-in noises editing is involved in story works."²³ Therefore, we must say that the writer chose the same method of choosing the composition for the novel as well as artistic painting, and he was quite successful. If this artistic method was successfully used by N.V. Gogol (the story "Great Souls"), A.S. Pushkin (the novel "Eugene Onegin"), Chingiz Aitmatov in the 20th century novels in his novel "The Day of the Assyrian" draws all the plots from beginning to end. When Kazankap's body was taken to the Anabiyik saint for burial, it was erected in memory of Yedigeydin during the one-day journey. During one of the long days spent on the street, Kulshibiy began to dream about the reasons for moving from the place where he was born and raised.

The main character of the novel, Kulshi Biy, is the main reason for the migration of the Karakalpaks of Bukhara to Shymbai, Torikaska. The author of the novel also claims to have created this concept²⁴. A well-known writer, doctor of philology, professor Kurbanbai Zharimbetov, as we have seen, does not think so. This movement follows the migration of the Karakalpaks to the Kokan Khanate, which they did along the Syr Darya because of the conflict. Indeed, on the order of the emir of Bukhara, Shahmurat Beydin, Kurshibi moved the Karakalpaks who lived along the banks of the Syrdarya to Tamdybulak and went there. At this time, the Karakalpaks of Syr ruled the Emirate of Bukhara. He did not obey the Kokan Khanate and was biased towards the Kazakh Khans. The main purpose of bringing them to the Tamdybulak region was to strengthen the eastern border of

²³ Khalizev V.E. Theory of Literature, Moscow, "Higher School", 1999, p276

²⁴ Aitmatov Ch. Collected works in seven volumes, volume three "The day lasts more than a hundred years", Moscow, 1998 Karimov K. Agabiy. Nokis, "Knowledge", 2013, p19

the emirate and, if necessary, to completely remove the armed forces from them. Kulshibii Syr, who received a personal order from the emir, spent a week at Zhanabergen's house to dance the karakalpaks and secretly deliver the emir's order to them. Janabergen dance talked to other dances and promised to take them to Tamdy's father's house. After that, a spy who knew about the order given by the emir Kulshibiyge brought this secret to the Khanate of Kokan. On his way, a messenger from the Kokan khanate announced that Syr was wearing a karakalpak and a traditional dance. As a result, the karakalpaks under the leadership of Zhanabergen dance are moving to the Bukhara Pukhara, and the Karakalpaks under the leadership of the Saltyk dance are moving to the Kokan Khanate. After this event, he was killed thinking about Torikaska, who had received the chief flag at a wedding, and he was killed by the son of Kozhamiyar, the son of Kozhamiyar, the son of Tulasin. he left) saw him and put him in a flash. In the middle of the two valleys, a great contrast emerges. As a result, Shakshakti, the younger brother of Kulshi Beydin, was kidnapped by the people of Kozhamiyar Beydin and taken away from Kojamiyar Beydin.

Abdusaid leads the Arab emir of Bukhara. At that time, Shahmurat was succeeded by his son Mirhaidar as amir. It means that Kulshibii has fulfilled the task given to Mirkhaidar by the former emir. He reassures him that he does not have faith, and that Shakshak needs to stay in Bukhara as a white man. Mirhaidar, a young woman, goes to the emir to ask for her brother, but he leaves his request aside, and the emir wears his skin. As a result, Kulshi realized that he could not stay here for too long and decided to move to Shymbai's homeland.

In our opinion, the author's concept is correct. The reason is that in the society created in the Middle Assyrian system, any insignificant thing would cause conflicts between people and tribes. A man called Torykaska took over him. This is a reason enough for these tribes to become enemies of each other. Realizing this and worried about the future of his children, Kulshi Biy decided to take his comrades and flee to his homeland.

As we mentioned above, the rule of the Bukhara Karakalpaks is illustrated by the works of Kulshibi and Bektemir, and the different times are described by the author's accounts. By arranging the events in this way, the compound composition is calculated. Therefore, in the composition "... many plot branches, events, scenes, paintings - all these are united in one unity²⁵. Here there are several main plot branches that develop in parallel, stop developing themselves, and absorb into others. The composite composition "layers" itself and includes retrospection, retreating from the past. Therefore, such a crude composition written by the reader is parallel to the events of the dream in the Red Sands desert, and these people are far and near.

Although the memories of Kulshi dance are mostly related to his personal life, we can also learn about his colleagues, even the flowered karakalpaks. The first reason for the dance is that even though Zhanymkys has been married for ten years, her heels do not bleed. This event brought a great change not only in the fate of Kulshi Bii, but also in the fate of his fellow tribesmen, even the neighboring Chinese tribe. He adopts Aibiyibi from the Chinese tribe. "Kulshi dance ritually took his bee from among the Konyrats and Mangits in Miyankol, and moved from the Kokan region to Amantubek near Bukhara, taking the Chinese with him. Not long after, she gave birth to Aibiybi in the month of Rajab, and she became a slave to Torykas, who eventually became a well-known Torykas. It was 1800 years.

Thanks to these pictures, we can learn that the Karakalpaks who inhabited Miyankoldi moved to Amantubek under the Bukhara Emirate. Therefore, he didn't need a big reason to move. The author's reports show that the writer raised Erezeptin as a brave boy, and that Torikaska also won many competitions during this time. The composition of the novel is different in that it is presented not only through the memories of Kulshi Beyid, but also through the memories of Bektemir, who was one of his close people. Bektemir's memory of his childhood, after his father

²⁵ Tselkova L.N. in the book Introduction to Literary Studies, Moscow, Urayt Publishing House, 2016, p 247

died in the service, he grew up to be a smart, skilful young man. Besides that, his humanity Zhurynbay, who returned from his village, showed his virtues as a husband to an orphan.

In this historical novel "Agabiy", the writer suggests re-reading historical facts and historical truth in his artistic imagination without irradiating them. The student gets what he needs. As V. G. Belinsky said, "the novel stops short of writing historical facts and perceives them in connection with the personal events that created their content, reveals the background of historical facts, takes us into the office or bedroom of a historical person, and shows us the secrets of his home life and household. , it is shown to us not only in a uniform of a historical appearance, but also under a cape and a hat. The landscape of the country, the era, their customs are described in every part of the historical novel, even if it is not related to its idea. That's why the historical novel is such a thing, in which history as a subject is connected with art, it is a complement of history, its second teacher. In his novel, the writer K. Karimov chose a compositional method to depict a certain period in the history of the Karakalpaks, and achieved a certain success.

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Rezyume: *Maqolada Kenesbay Karimov romanidagi tarixiy realizm va badiiy fantaziya tushunchalari haqida so'z boradi. Romanda Buxoro qoraqalpoqlarining hayoti, 18-asr 2-yarmi va 19-asrning birinchi yarmida qoraqalpoqlarning vatanlari Chimboyga ko'chishi tasvirlangan. Bu tarixiy jarayonga rahbarlik qilgan Qulshi biy, XIX asrda qoraqalpoqlar tarixida yorqin iz qoldirgan tarixiy shaxs Yeretenbiy obrazlari adib tomonidan mahorat bilan ko'rsatilgan. Qolaversa, ularning turmush tarzi, urf-odat va an'analari, o'lka tabiati bosh qahramon Qulshibiy xotiralariga ko'ra. Qoraqalpoqlarning tarixiy voqealari, ichki qarama-qarshiliklari va uning xalq taraqqiyotiga ta'siri tahlil qilinadi.*

Резюме: *В статье рассматриваются понятия исторического реализма и художественной фантазии в романе Кенесбая Каримова. В романе изображена жизнь бухарских каракалпаков, во второй половине XVIII и первой половине XIX века – переселение каракалпаков на родину Чимбой. Образы Кульшии-бея, руководившего этим историческим процессом, и Еретен-бея, исторической личности, оставившей яркий след в истории каракалпаков XIX века, умело показаны писателем. Причем их образ жизни, обычаи и традиции, природа места по воспоминаниям главного героя Кульшибия. Анализируются исторические события, внутренние конфликты каракалпаков и их влияние на развитие нации.*

Kalit so'zlar: *tarixiy realizm, badiiy fantaziya, syujet, etnik o'ziga xoslik.*

Ключевые слова: *исторический реализм, художественная фантазия, сюжет, этническая идентичность.*

SIGNIFICANCE OF LEGAL SECURITY OF ECOLOGICAL AUDIT

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Summary: *The article describes the pedagogical foundations for the modernization of primary education in the conditions of New Uzbekistan.*

Key words: *education, modernization, traditional provision, language, training.*

The subject of the science of pedagogy is the pedagogical process, in which the subject of pedagogy is teaching the formation of the skill of speaking in the Karakalpak language. Famous teachers J. Khairbaev, A. Pazylov wrote in the book “Til-ullı tárbıyashı” (Language is a great educator): “Language is a reflection of human thought. The deeper he knows it, the more meaningful and honest his language becomes” Meaningful words don't come if you speak without thinking. This is because the soul and blood are in the language, the artistic form. The more thoughtful a person is, the richer his language, the deeper his thoughts, the broader his knowledge. The language has a national character. It preserves consciousness, psychology, literary tradition, history, literature, and culture of the people” [1.5.].

According to Russian educators N.V. Bordovskaya and A.A. Reanlar, pedagogy takes knowledge into its work through analysis, design, forecasting, improving the pedagogical process, preparing a person to work in society [2.20].

Through education, historical experience is passed on from generation to generation. Learners become acquainted with the cultural riches of the people, customs and traditions of the Karakalpak people by establishing contact with their environment.

The relationship between pedagogy and psychology represents a traditional situation. This summarizes education and upbringing based on the rules of personal and psychological development of a person.

Psychologists believe that conversation is the key to the desired service. Through conversation, people get to know each other's inner world, which, in turn, has a positive effect on their worldview, understanding and thoughts.

“Language has never been separated from thought; on the contrary, it is its result, and its meaning arose from it. “Whoever wants to develop a learner's speech abilities must stimulate his thinking abilities,” writes the great Russian educator K.D. Ushinsky[3.42]

This situation requires paying attention to the following issues of teaching the Karakalpak language:

- Formation of educational services capabilities;
- Formation of skills of listening to explanations and words of the teacher and friends;
- Be attentive, be able to observe language events, learn to remember;
- Knowing the language by comparing and analyzing it with phenomena in other languages;
- Developing the ability to use acquired knowledge, skills and abilities in any situation, in conversation.

According to psychologists, the process of creating knowledge, wisdom and consciousness gradually turns into logical thoughts based on words. It should be borne in mind that practical knowledge and practice will create a specific and universal understanding, and for this reason it is necessary to use methods that enable the learner to understand the environment and be able to convey it to himself.

According to the famous Russian educator A.P. Usova, 9/10 of the mental baggage collected by children of kindergarten and school age is accepted on the basis of feelings [4,126].

And in logical acceptance, an important role is to think and speak. The learning of language itself is sensory in nature and occurs through hearing sounds, words, intonation and kinesthetic perception.

The content of Karakalpak language lessons is based on understanding objects, their properties, quality and working with them. Due to the difference in the age of learners 7-9 years old, it makes it possible to organize all types of exercises (games, drawing, technology).

In order to develop learners' ability to speak their native language correctly, we used concepts about the quantity and meaning of environmental objects.

Learners are asked how many people and objects are illuminated in the picture.

Picture "Summer". This is the view of summer. The children came to the lake. One child is getting ready to swim, the other is getting ready to take a bath. four children play with a ball. In the distance a boy is fishing.

We suggest answering the following questions to help you write a story easily.

What season is this year?

What day is it in summer?

How many children are swimming?

How many children are playing ball?

Do you like the summer season?

After this, an assignment will be drawn up and learners will be asked to talk about how they spent the summer.

Teaching native language has a certain impact on the intellectual development of learners and develops their ability to listen and communicate. That is why the teacher's goal is to organize all kinds of situations so that learners can discuss them.

Thinking tasks challenge learners to think and make decisions for themselves.

Such tasks teach learners to be attentive, stimulate thought processes, and select words according to their meaning.

At the beginning of many repetitions, learners found this assignment difficult because it required paid activity, and we achieved a satisfactory score.

By awakening children's interest in learning their native language, we can learn to generalize, listen to the words of teachers and students, memorize, understand the meaning of words, analyze and synthesize.

According to A.P. Usova: "There are two paths that we are going to take on the path of education. The first is to memorize this information and use it later. The second is the active acceptance and application of knowledge and skills. The result is the same, and secondly, instead of learning by heart, he gains knowledge and practice. Here the teacher achieves results by setting tasks that make learners think" [5.126]

To learn to communicate with each other in your native language, you can use words in different grammatical structures and use the same words in different situations.

Russian psychologists Yu. P. Kolomensky and E. A. Panko "a deep understanding of objects and phenomena leads to the emergence of unclear, unknown knowledge" [5.151]. It should also be noted that the stimulus for this mental activity is a hidden prediction.

We can use the game "What should I tell you about?" through the development of exemplary prediction skill.

Riddles are used to stimulate thought processes. Riddles occupy a special place in folk pedagogy. Children aged 6–7 years not only guess riddles, but also make riddles themselves.

Pisse qızıl monshaq deyseñ. (If it's ripe, say "red bead.")

Kóp miyweden burın jiysen. (shiye) (you will eat it before, a lot of fruit (cherries).

Jazda bazar, (Market in summer)

Qısta mazar. (jüzim). (Cemetery in winter (grapes).

Here, learners must explain the meaning of the riddle and prove why it is said exactly like that. Learners will be interested in solving the riddle about the objects in front of them:

Ózi aq , zat jazlıǵısh,	It is white, writes something,
Cifr, hárip hám sızǵısh,	Number, letter and ruler,
Tawda onıń joldası,	Its friend in the mountains
Qáne oylan, kim tapqısh? (por)	Guess who knows? (chalk)

If we ask children to hide a riddle while playing, they will try to find those riddles that their friends cannot find.

Thus, learners not only remember the riddle, but also understand its meaning, enrich their memory with words and speech structures, and become familiar with folk pedagogy.

The riddle gives learners a chance to think and compare. Such riddles not only stimulate creativity of thought, but also teach phonemic awareness, listening and understanding of meaning.

Riddles not only teach learners to speak, but also prepare them for logical explanations.

Thus, thinking tasks help learners concentrate, think, and express their opinions using these speech structures.

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Rezyume: *Maqolada Yangi O'zbekiston sharoitida boshlang'ich ta'limni modernizatsiyalashning pedagogik asoslari yoritilgan.*

Резюме: *В статье описаны педагогические основы модернизации начального образования в условиях Нового Узбекистана.*

Kalit so'zlar: *ta'lim, modernizatsiya, an'anaviy ta'minlash, til, o'qitish.*

Ключевые слова: *образование, модернизация, традиционное обеспечение, язык, обучение.*

SIGNIFICANCE OF LEGAL SECURITY OF ECOLOGICAL AUDIT

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Summary: *In this article, the importance and legal basis of the legal provision of the environmental audit, the issues of solving the problems of the environmental audit related to environmental protection and the negative impact of the activities of industrial enterprises on the environment, improving the environmental control system in production, as well as suggestions in this matter.*

Key words: *environmental situation, environmental audit, industrial enterprises, production facilities, environmental protection, environmental strategy, environmental control.*

INTRODUCTION.

The modern ecological situation in our country mainly requires the preservation of the natural state of ecosystems and the natural environment, the purposeful use of mined natural resources and the technical regulation of objects engaged in economic and other activities in the work of their restoration, and the improvement of environmental legislation in the work of environmental protection. .

The head of our state Sh.M. Mirziyoyev, in his Address to the Supreme Council, said, "We must pay more attention to the protection of the environment and the improvement of the ecological situation. First of all, continuing our unprecedented work on mitigating the consequences of the Arol tragedy, we will expand forests on the dry bottom of the sea, Nukus, Urganch and Khiva cities. We need to establish "green belts" around them. It is also an important task to improve the system of environmental control of the production process, revise the procedure for conducting environmental audits, and revive the activities of private auditors." stated that [1.]

Today, there are 989 I-class high-risk economic entities and 947 II-class medium-risk economic entities operating in our Republic. A total of 60% of the total harmful substances emitted by them are released into the atmosphere.

Taking into account the economic and social development of the society, it is considered necessary to search and develop new institutions that will allow the most effective provision of the main goals of environmental law. One such institution is environmental audit.

Adoption of the Law of the President of the Republic of Uzbekistan "On Ecological Audit" No. 678 [2.] dated March 15, 2021, on the technical regulation of economic and other activities, environmental protection and natural resources is of great importance in regulating compliance with the requirements of normative legal documents in the fields of rational use. In this law, environmental audit is explained as follows:

That is, environmental audit is a systematic audit conducted by an environmental audit organization in connection with the technical regulation of economic and other activities carried out by the subject of environmental audit, as well as compliance with the requirements of regulatory legal documents in the field of environmental protection and rational use of natural resources. , mentioned that it is a documented, independent assessment.

In his works, Professor M.B. Usmanov should point out the general aspects of environmental audit. He states that it can be internal and external, voluntary and mandatory [3.251-b]

Its working principle allows for a real assessment of the company's compliance with requirements in the field of environmental protection, nature protection and environmental safety. It allows identifying "weak" areas in the assessed area and developing remedial measures, preventing environmental damage and increasing the investment attractiveness of nature users.

According to T.V. Gaponenkova, with the help of environmental audit, it is possible to develop a reasonable environmental strategy of the enterprise and provide the necessary recommendations and suggestions to reduce the risk of developing acute environmental problems [4. B.15.].

At present, thousands of tons of waste released into the atmosphere due to the fact that the technical devices of industrial enterprises do not work cleanly at the required level (obsolete) increase the level of chemical pollution by natural factors. As our country takes its rightful place in the world community and develops, the number of industrial facilities and production enterprises operating in our country is increasing year by year. For example, from 2006 to 2020, the "State Environmental Expertise Center" provided positive conclusions to 18,043 enterprises and organizations belonging to categories I, II, III, IV of environmental impact, and 4,269 conclusions were sent for processing. returned. From year to year we can see an increase in environmental assessment. For example, during the first quarter of 2021, 603 project documents were received. When the impact of these projects on the environment was studied, 102 projects were returned for elimination due to the high negative impact on the environment, and 6 projects were rejected for implementation.[5.]

At present, domestic and industrial waste generated by industrial enterprises and production facilities in the production process also creates a number of problems in ensuring environmental safety in our country. For example: industrial enterprises produce an average of 109.0 million tons per year, today their

6.5 mln. tn., that is, only 6 percent is processed. 91.5 million from industrial waste. tons, that is 84 percent is accounted for by industrial enterprises operating in Navoi and Tashkent regions. There are 75 industrial waste landfills on an area of 9.5 thousand

3.3 billion tn. industrial waste is stored. Industrial enterprises in the last 4 years

It has increased by 2 times, and the amount of dust and gas in cities has increased by 4 times the norm. 90 percent of the emissions into the atmosphere correspond to the cities of Tashkent, Samarkand, Fergana, Andijan, Namangan, Kokan, Navoi, Bukhara, Chirchik, Angren, Almalik, Bekabad, Gulistan and Nukus.[6]

According to the calculations of the World Health Organization, the annual death rate caused by air pollution in the Republic of Uzbekistan is 81.1 per 100,000 population. In European countries, this indicator is at a very low level, i.e. 59.3 in Romania and 61.8 in Bulgaria.

For this reason, mainly in the big cities of our country, chemical compounds and other gases released into the atmosphere by large industrial facilities, toxic substances created as a result of improper burning of household waste by the population pose a sufficient threat to the ecosystem.

The development of production causes an increase in pollutants. Also, the aging of dust and gas cleaning equipment in industrial enterprises has a harmful effect on the atmosphere.

The analysis shows that a total of 5.6 million tons of pollutants directed to the dust-gas cleaning equipment, due to the malfunction of the equipment or the failure of the pipes leading to it, we can see that an average of 135,000 tons of pollutants are directly released into the atmosphere without treatment in one year.

In solving such problems, a number of comprehensive measures are being implemented in our country with new approaches, new laws are being created and introduced into our lives.

In particular, in the Decree of the President of the Republic of Uzbekistan dated April 21, 2017 No. PF-5024 "On improving the state management system in the field of ecology and environmental protection", fundamental improvement of state management in the field of environmental safety and environmental protection in our Republic, State Nature Protection of the Republic of Uzbekistan to improve the environmental condition, prevent the harmful effects of waste on the health of citizens, create favorable conditions for increasing the standard and quality of life of the population, and further improve the system of collection, storage, transportation, disposal,

processing and burial of household waste Reorganization of the Committee into the State Committee for Ecology and Environmental Protection of the Republic of Uzbekistan[7] (currently the Ministry of Ecology, Environmental Protection and Climate Change) is considered important in the organization of the regulatory mechanism of the field of environmental audit.

One or another aspect of the problem of legal provision of environmental audit in the Republic of Uzbekistan was studied in the scientific works of our country's ecologist-legal scientists Y.O.Zhoraev, M.B.Usmonov, J.T.Kholmo'minov, SH.K.Fayziev, N.K.Skripnikov, Dj.I.Safarov, M.M.Nurmatov [8].

Also, environmental expertise, public control in environmental protection, sanitary-epidemiological control, environmental regulation and normalization, dealing with waste, citizens' comfortable environment Scientific problems related to the provision of the right to have were studied in the works of our country's legal scholars U. T. Ayubov, N. SH. Rajabov, D. U. Aripov, O. Kh. Narzullaev, O. D. Utegenov and others [9].

The Law of the President of the Republic of Uzbekistan No. ORQ-678 dated March 15, 2021 "On Environmental Audit" regulates mutual relations in the field of environmental audit, defines the main tasks, main principles, forms and rights and obligations of environmental audit participants and defines it legally. is important in improving the issues of provision.

At the same time, the year 2022 of the President of the Republic of Uzbekistan Sh.M. Mirziyoyev the adoption of the decree No. PF-60 dated January 28 "On the development strategy of New Uzbekistan for 2022-2026" [10.] is of great importance. In the development strategy of New Uzbekistan for 2022-2026, which consists of seven priority directions and was developed based on the principle of "From the strategy of actions to the strategy of development" approved on the basis of this decree, "the risk of environmental impact on the elimination of existing ecological problems that harm the population's health and gene pool" implementing a system of automatic sampling of pollutant sources of objects of the highest level (category I), improving the mechanisms for assessing the level of environmental pollution, monitoring the environment, forecasting its level of pollution, providing the state environmental control with constant information, the state of polluting sources and It is important to improve the environmental audit in our country.

According to S.V. Miroshnik, the further development of environmental audit depends entirely on the will of the state, and it is stated that it is intended to be an effective tool for solving environmental problems of society [11].

In addition, 2019 of the President of the Republic of Uzbekistan Decree No. PF-5863 of October 31 "On approval of the concept of environmental protection of the Republic of Uzbekistan until 2030" [12], Decree of the President of the Republic of Uzbekistan No. PQ-76 of December 30, 2021 "In the field of environmental protection and ecological control" "On measures to organize the activities of state bodies" [13] and the Cabinet of Ministers of the Republic of Uzbekistan, 2020 No. 541 dated September 7 "On further improvement of the mechanism of environmental impact assessment" [14], as well as 2021 of the Cabinet of Ministers of the Republic of Uzbekistan In the decisions No. 343 of June 3 "On further improvement of the environmental pollution assessment system"[15], priority directions of the state policy on environmental protection, a list of objects that have a dangerous impact on the environment, and legal documents in the field of nature protection special attention is paid to effective mechanisms of prevention of disorders, their detection and prevention. This is important in solving environmental audit problems.

In our opinion, by scientifically studying the issues raised in these decrees and decisions, in New Uzbekistan, which is developing on the basis of the principle of "For human dignity", it is necessary to further accelerate the legal basis of environmental audit relations in the field of environmental protection and rational use of natural resources, not to create conditions for the deterioration of the natural environment, in the field It is not an exaggeration to say that it is appropriate to emphasize that the improvement of state environmental control is one of the urgent

problems. Based on this, it is one of the important factors that determine the urgency of providing the environment and the health of our citizens, as well as increasing the effectiveness of legal regulation of environmental audit relations in the rational use of natural resources.

CONCLUSION

In conclusion, the adoption of laws on environmental audit in our country is an important regulatory legal document in the protection of the environment and ensuring the health of citizens. The fact that production enterprises that have a negative impact on the environment are subjected to a state environmental expertise in the prescribed manner, and that these enterprises, on their own initiative, order audit organizations to conduct environmental audits in a voluntary form, as well as timely elimination of the deficiencies identified in this regard, are part of the company's promising development strategy. provides

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Rezyume: Ushbu maqolada ekologik auditni huquqiy ta'minlashning ahamiyati va huquqiy asoslari, ekologik auditning atrof-muhitni muhofaza qilish va sanoat korxonalari faoliyatining atrof-muhitga salbiy ta'siri bilan bog'liq muammolarini hal qilish masalalari, ishlab chiqarishda ekologik nazorat qilish tizimini takomillashtirish, shuningdek ushbu masalada takliflar bayon etilgan.

Резюме: В данной статье рассмотрены значение и правовые основы правового обеспечения экологического аудита, вопросы решения проблем экологического аудита, связанные с охраной окружающей среды и негативным воздействием деятельности промышленных предприятий на окружающую среду, улучшение экологического аудита. система экологического контроля на производстве, а также предложения по этому поводу.

Kalit soʻzlar: ekologik vaziyat, ekologik audit, sanoat korxonalari, ishlab chiqarish obyektlari, atrof-muhitni muhofaza qilish, ekologik strategiya, ekologik nazorat

Ключевые слова: экологическая ситуация, экологический аудит, промышленные предприятия, производственные объекты, охрана окружающей среды, экологическая стратегия, экологический контроль.

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THE MORAL AND SPIRITUAL BELIEFS OF REVERED INDIVIDUALS IN ANCIENT TIMES

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Summary: *This article offers a philosophical examination of the perspectives of ancient thinkers on spirituality and morals. A person's moral position becomes vital during a pivotal moment in history, when there are significant shifts in the political, economic, and social landscape. As a result, there is a growing need to assist individuals in getting back on a moral and spiritual path. In light of the current circumstances, it is imperative that moral and spiritual development be prioritized as a foundation for lifelong learning. A well-rounded spiritual and moral education gives students the chance to consider and investigate their own personal beliefs and ideals, learn how to create environments that support self-actualization, acquire characteristics that conform to social norms, and gain a firm foundation in spiritual and moral knowledge and principles.*

Key words: *spirituality, Socrates, morality, existence, self-knowledge.*

Introduction. During pivotal historical times, when there are significant shifts in the political, economic, and social landscape, the ethical stance of each individual gains enduring significance. Consequently, the issue of revitalizing one's spiritual and moral state becomes increasingly pressing. In the context of lifelong learning, one of the key focuses of raising and education today is the spiritual and moral aspects. Some of the things that spiritual and moral education includes are creating situations that help people become more self-aware, developing moral qualities and attitudes that are in line with social norms and traditions, building and growing a foundation of spiritual and moral knowledge and values, and using what you've learned about morals and professionalism.

The concepts of spiritual and moral education have been consistently studied throughout history. The concepts of spirituality and morality have their origins in ancient times. The topic of morality and spirituality has been a subject of significant interest among scientists and philosophers throughout history. Socrates, an eminent Greek sage, was among the earliest individuals to discuss morality. He occupies a prominent position in the annals of moral philosophy and ethics, logic, dialectics, as well as political and legal ideas. His impact on the advancement of human cognition continues to be evident, thereby ensuring his lasting presence in the spiritual culture of humanity.

Central to his philosophy is the concept of humanity, encompassing the complexities of existence and mortality, morality and immorality, virtues and flaws, legal obligations and moral duties, individual liberty and accountability, personal identity, and the dynamics of society. Consulting Socrates has perpetually been an endeavor to comprehend oneself and the contemporary era. Despite the uniqueness of our time and the new challenges we face, we are not an exception.

Main part. Socrates directed his attention towards the study of human beings and their conduct, deeming these issues to be of utmost significance in the realm of philosophy. From his perspective, the social sciences possess a significant edge over the natural sciences. Through the study of humanity, they provide him with the essential knowledge of his own nature and actions, a precise understanding of the objectives and intentions behind his endeavors, and a distinct consciousness of moral distinctions such as good and evil, beauty and ugliness, truth and falsehood. According to Socrates, possessing this knowledge bestows nobility on individuals. Socrates defines true justice as the understanding of what is morally just and aesthetically pleasing while also being

beneficial and conducive to an individual's well-being and joy in life. Socrates contemplated the three primary virtues:

1. Temperance (the ability to restrain one's passions);
2. Fortitude (the ability to conquer dangers);
3. Justice (the understanding of how to abide by divine and human rules).

Socrates consistently demonstrated a harmonious alignment between his thoughts, words, and actions, unwaveringly adhering to his life's viewpoints and values. An indisputable demonstration of this is exemplified by the conduct of Socrates, who, when condemned to capital punishment, was charged with a multitude of transgressions. Despite the persistent efforts of his pupils to convince him otherwise, reminding him of his family and children who would be left unprotected and without assistance, Socrates remained steadfast in his convictions to the very end, choosing to drink the poison with grace.

The terrible demise of Socrates bestowed upon his entire existence, his utterances, and his actions an unparalleled worth and wholeness—an enduring allure. Socrates exemplified moral conduct and lived a life characterized by the harmonious alignment of his thoughts, words, and actions. He persuaded me that truth and morality are synonymous. Genuine morality entails having a clear understanding of what is morally right.

Aristotle, another philosopher from ancient Greece, likewise contemplated the concepts of spirituality and morality. He acknowledged the interconnectedness of the world and the inherent link between the concepts of objects and the objects themselves. Aristotle believed that the primary function of human beings, namely those with intelligence, is to engage in activities of the soul that align with rational judgment. Aristotle's ethics, often known as the doctrine of virtue, is founded on the idea of the soul. Virtue resides inside the essence of one's being. Virtue imbues whatever it expresses with goodness. "Virtue, in its broadest sense," Aristotle contends, "represents the optimal condition." Aristotle defines happiness as the ultimate objective of human effort, considering it to be the highest and most inherently valuable good. He characterizes the good as the soul's activity aligned with virtue. According to his viewpoint, individuals acquire goodness and virtue through three distinct factors: "nature, habit, and reason."

Aristotle categorizes qualities into three distinct groups: moral, ethical, and mental. The ethical virtues encompass a balanced position between extremes, avoiding both excess and deficiency. These virtues include humility, courage, moderation, generosity, majesty, ambition, evenness, truthfulness, civility, friendliness, justice, practical wisdom, and righteous indignation. Aristotle posits that moral virtue encompasses the capacity to excel in all matters pertaining to pleasure and pain, whereas depravity stands as its antithesis. Moral or ethical virtues, also known as qualities of character, are developed through the cultivation of habits. As individuals engage in actions and gain experience, their character characteristics are shaped accordingly. Intellectual virtues, also known as qualities of the mind, are cultivated in individuals via the process of acquiring knowledge and education.

Both an excess and a deficiency have the potential to destroy virtue. Aristotle defines virtue as the state of possessing the mean, and the mean is what determines an accurate judgment. The philosopher draws a parallel between reason and wisdom, leading to the acquisition of moderation. He understood that individuals develop qualities throughout their lifetime, while also recognizing that certain virtues are inherent and only manifest when a person becomes older. According to him, the inherent characteristics of humans require the direction of the rational aspect of the soul, which is cultivated through the process of education.

Furthermore, Confucius, one of the ancient thinkers, had a pivotal role in shaping the concept of "self-knowledge." Confucius' teachings were founded on the innate human need for pleasure and encompassed a wide range of topics pertaining to well-being and moral principles.

Confucius recognized the correlation between the erosion of moral principles and the deterioration of traditional practices. Consequently, individuals forfeited their moral standards and ceased to conduct themselves in a suitable manner. Confucius advocated for a reform of the education system to prioritize moral instruction, with the aim of reinstating the perception of virtues as innate and commonplace among young individuals. The only thing necessary for the restoration of public peace and order is for people to act with genuine goodwill. According to Confucius, kindness (ren) is the paramount moral attribute that an individual may possess. This virtue entails the capacity to regard others with the same level of esteem that you have for yourself, and it ought to serve as an exemplar for interpersonal connections. An individual with ren exhibits such remarkable generosity that they do not discriminate based on nationality, as they believe that "within the four seas, all people are brothers and sisters." The primary focus of his teaching is ren, a concept that might be interpreted as "benevolence," "compassion," or "humaneness." The term "ren" refers to a distinctive attribute of an individual as well as the framework of their endeavors. The human principle within an individual simultaneously represents their obligation. One cannot determine a person's identity without simultaneously addressing their moral attributes.

The fundamental concept of the ren principle is encapsulated in the well-known "golden rule of morality": "refrain from treating others in a manner that you would not desire for yourself." Adhere to the principle of reciprocity by refraining from treating people in a manner that you would find undesirable if done to you. Tsu Chang inquired at Confucius about the essence of Ren. Confucius said, "The possession of Ren is achieved by being able to demonstrate the five abilities in all circumstances." When the student asked about these qualities, Confucius responded by stating that they encompass respect, charity, honesty, seriousness, and compassion. By demonstrating respect, refraining from insults, and showing generosity, you will be able to earn people's affection. Your honesty will foster trust, while a serious approach will lead to success. Additionally, by being nice, you will have the ability to mentor others.

"Lun Yu" ("Conversations and Sayings") is an unstructured and sometimes inconsistent piece of literature, mostly comprising moral precepts. Some scholars argue that it is challenging to see it as a philosophical work. Every literate Chinese individual memorized this text from their childhood and relied on it throughout their entire lives. Confucius's primary objective is to achieve harmony among the state, society, family, and individuals.

Confucianism centers on the interpersonal connections among individuals and the challenges pertaining to education. Confucius is dissatisfied with the current state of affairs, although his aspirations are rooted in the past rather than the future. An individual is confronting the past while deliberately ignoring or disregarding the future.

Confucius justifies the philosophy of morality, known as Confucian ethics, by idealizing antiquity. The foundation of this philosophy lies in fundamental principles such as "reciprocity," "the golden mean," and "humanity," which collectively constitute the entirety of the "right way" (tao).

The issue of imparting spiritual and moral education to young individuals is a recurring concern across different historical periods. However, in our present era, this subject holds particular significance.

Conclusion. A notable resurgence of interest in Uzbekistan's moral renaissance, its cultural and spiritual legacy, and the ethical foundations of its civilization characterizes the current stage of development in our society. The topics of moral education, personality development, morality, and spirituality are prominent in the philosophical and pedagogical writings of the most influential ancient thinkers. Socrates, Aristotle, and Confucius significantly contributed to the advancement of spiritual and moral education, which served as the foundation for the discipline of "self-knowledge." The fundamental concepts of spirituality and morality in the rearing of a child have

been established since ancient times, and the objective of the contemporary education system is to restore them.

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Rezyume: Ushbu maqola qadimgi mutafakkirlarning ma'naviyat va axloq haqidagi g'oyalarini falsafiy jihatdan tahlil qilingan. Insonning axloqiy pozitsiyasi tarixdagi muhim bir paytda, siyosiy, iqtisodiy va ijtimoiy muhitda sezilarli o'zgarishlar yuz berganda hayotiy ahamiyatga ega bo'ladi. Natijada, axloqiy va ma'naviy qadriyatlarga ehtiyoj ortib bormadi. Mavjud sharoitlardan kelib chiqib, axloqiy va ma'naviy rivojlanishni umrbod o'rganish uchun asos sifatida birinchi o'ringa qo'yish juda muhimdir. Ma'naviy-axloqiy tarbiya yoshlarga o'zlarining shaxsiy e'tiqodlari va ideallarini ko'rib chiqish va o'rganish, o'zini namoyon qilishni qo'llab-quvvatlaydigan muhit yaratishni o'rganish, ijtimoiy me'yorlarga mos xususiyatlarni olish, ma'naviy va axloqiy bilim tamoyillarda mustahkam poydevor olish imkoniyatini beradi.

Резюме: В этой статье предлагается философский анализ взглядов древних мыслителей на духовность и мораль. Моральная позиция человека становится жизненно важной в поворотный момент истории, когда происходят значительные сдвиги в политическом, экономическом и социальном ландшафте. В результате растет потребность в оказании помощи отдельным людям в возвращении на нравственный и духовный путь. В свете нынешних обстоятельств крайне важно, чтобы моральное и духовное развитие было приоритетным в качестве основы для обучения на протяжении всей жизни. Всестороннее духовно-нравственное образование дает учащимся возможность рассмотреть и исследовать свои личные убеждения и идеалы, научиться создавать среду, способствующую самореализации, приобрести характеристики, соответствующие социальным нормам, и получить прочную основу в духовных и нравственных знаниях и принципах.

Kalit so'zlar: ma'naviyat, Sokrat, axloq, mavjudlik, o'z-o'zini bilish.

Ключевые слова: духовность, Сократ, мораль, существование, самопознание.

**CONSTITUTIONAL AND LEGAL BASIS OF IMPLEMENTATION OF ECOLOGICAL
AUDIT IN ENVIRONMENT PROTECTION: NATIONAL AND FOREIGN EXPERIENCE**

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Summary: *This article describes the constitutional and legal basis of environmental audit, the legislative norms of foreign countries on environmental protection and the improvement of the Constitution and legal system of the Republic of Uzbekistan, as well as proposals on this issue.*

Key words: *Constitution, Environmental Code, environmental issues, environmental audit, industrial zones, atmospheric emissions, industrial enterprises, natural resources, environmental legislation.*

It is no exaggeration to say that environmental problems are one of the factors that threaten humanity and society in the current era of globalization. After all, the pollution of the natural environment, the shortage of fresh water, the erosion of the azaan layer and the reduction of natural resources are causing the deterioration of the life and health of the people of society and countries, which in turn affects the standard of living of people. It is not wrong to say that the elimination and prevention of such national and global environmental problems is an urgent problem today.

Compared to the last century, the human way of life has changed enough that it is clear to all of us that a number of negative situations such as global warming, high reduction of sea and land ecosystems, droughts and floods in various regions and countries are happening. In short, human intervention in nature is causing unprecedented negative situations.

In our country, we can see that air pollution in cities and industrial areas poses a serious threat to the health of our population in the occurrence and increase of respiratory and lacrimation cases. Calculations on the level of atmospheric air pollution are being carried out in our country. According to it, the amount of atmospheric emissions in 2020 amounted to 2,225,000 tons, which decreased by 7% (155,000 and 150,000 tons) compared to 2018 and 2019.

According to the accounts of the World Health Organization, the annual death rate caused by air pollution in Uzbekistan is 81.1 per 100,000 people. Whereas in most European countries this indicator is below 40, in Romania it is 59.3 and in Bulgaria it is 61.8. [1.].

We can see the urgency of the issue of ecology in our country in a number of speeches and state programs of the head of state. In particular, at the meeting of the video selector chaired by the head of our state, Shavkat Mirziyoev, on August 24, 2021, regarding measures to improve the ecological situation, effectively organize tree protection, and expand green areas, "Environmental problems are increasing in our country, as in the whole world. This is sometimes caused by natural factors, and in many cases by man himself.

For example, in the last 4 years, industrial enterprises have doubled, and the amount of dust and gas in cities has increased by 4 times. In the regions of our country, green areas have decreased by 3-4 times. The water has decreased and the groundwater level has also decreased. "Despite the announcement of a moratorium on building constructions in empty spaces between multi-story buildings, cutting down trees, and reducing green areas, many people are offended [2.].

Also, Chapter VI of the Decree No. PF-60 "On the Development Strategy of New Uzbekistan for 2022-2026" adopted by the President of the Republic of Uzbekistan on January 28, 2022, that is, the 79-81 goals of approaching universal problems based on national interests determines the work that is important in ensuring the health of the population and the ecological condition of the environment[3.].

Our Constitution, which is the general constitution of the Republic of Uzbekistan, also describes relations in the field of environmental protection.

2023 by the Oliy Majlis of the Republic of Uzbekistan Article 62 of the new version of the Constitution of the Republic of Uzbekistan[4] adopted on April 30 states that citizens are obliged to treat the natural environment with care, Article 66 states that the use of property does not harm the ecological environment, Article 68 states that land, underground resources, water, flora and fauna and we can see that other natural resources are national wealth, they need to be used wisely, and they are designated as state protection.

In addition, the constitutional legal norms state that every citizen has the right to seek, receive and distribute the information he wants about the natural environment and national natural resources, and restricting the right to seek, receive and distribute information is allowed only within the scope necessary in accordance with the law (Article 33). if environmental pollution and other negative environmental conditions occur in the places where citizens live according to the established procedure, state bodies and organizations in the field of ecology, self-government bodies of citizens, and their officials must provide citizens with the opportunity to familiarize themselves with documents, decisions and other materials related to their rights and interests (Article 34).

In foreign countries, the constitutional rules for the implementation of legal ecological audit of the environment are established, and this is expressed in different forms.

For example, the Italian Constitution (adopted in 1974) states that the state should only protect nature, according to which it is declared that the Republic only protects nature. In accordance with Article 21 of the Dutch Constitution (adopted in 1952), the government shall take care of the quality of life in the country, the protection and improvement of the natural environment.

Also, the analysis of the constitutions of a number of foreign countries shows that environmental and legal norms are regulated in different ways.

In particular, Article 15 of the Constitution of the Federal Republic of Germany and Article 31 of the Constitution of Bulgaria strengthen the existence of independent functions of the state, such as the protection of nature, ensuring the rational use of natural resources. Article 8 of the General Assembly of Hungary and Article 12 of the Constitution of Romania stipulate the absolute property rights of the state over natural objects and resources.

Formation of the rights and obligations of legal entities and individuals on environmental protection in Article 34 of the Federal Republic of Germany. At this moment, it is worth noting that in many cases, the right of citizens to live in a comfortable natural environment is connected with the obligation to protect the natural environment. Also, Article 20 of the Hungarian Constitution defines the integrity of the state's principles regarding the internal and external policy of the country and society on nature protection.

In addition, in countries such as Albania, Belgium, Hungary, Lithuania, Poland, Slovakia, Slovenia, Croatia, the Czech Republic and Estonia, the rights and obligations of citizens and the state in the field of ecology are clearly defined [pages 5.350-351.].

We can divide the constitutional norms of the United States of America, which is considered a developed country in the world, into three major groups:

- 1) Norms defining the powers of Congress to implement legal regulations in the field of environmental protection;
- 2) norms limiting this authority;
- 3) norms regarding the rights of citizens that may affect the legal formation of the sphere of environmental protection.

The main place in US environmental legislation is judicial review of constitutional provisions, and it provides for the application of environmental relations in any field [6. B-57.].

M.M. Brinchuk in his works stated that the most important principle of environmental legislation formation is to harmonize it with advanced world legislation[7. B-61.].

The above foreign and national legal norms show that each country has its own approach to environmental protection, effective use of natural resources and protection of citizens' health.

We can also see that the environmental legislation of foreign countries is regulated by a number of normative legal documents. In particular, environmental legislation in the world is regulated by codes, and such countries include Estonia (1996), Sweden (1999), France (2000) and Estonia (2011). Among the countries of the Commonwealth of Independent States, the Republic of Kazakhstan is one of the first, adopted the Ecological Code (January 9, 2007); In the Russian Federation, the concept of the Ecological Code was publicly announced (October 8, 2007); In the Republic of Belarus, the concept of the Ecological Code was officially approved by the decision of the Council of Ministers (December 16, 2005); The draft Environmental Code in Ukraine was discussed in the Rada (May 14, 2004). [8. B-359.].

In addition, the decision of the head of our state dated December 31 "On measures to organize the activities of state bodies in the field of environmental protection and environmental control" was adopted. came out and was entrusted with the task of introducing it to the Cabinet of Ministers [9.].

Based on the above, it is appropriate to implement the suggestions and recommendations put forward by the researcher:

Firstly, the adoption of the Ecological Code in the Republic of Uzbekistan and the introduction of rules that define and regulate relations in the field of environmental audit;

Secondly, based on the relevant decrees and decisions of the President of the Republic of Uzbekistan, to ensure the adoption and implementation of the state program in the field of environmental audit on "the procedure for the implementation of environmental audit in the protection of the natural environment".

In conclusion, the analysis of the Constitutions and laws of foreign countries shows that in each country, the legal foundations for the protection of the natural environment and the strengthening of public health are created in different forms. In our Constitution, which is the main constitution of our country, it is necessary to improve the norms on the protection of the natural environment and ensuring the right of citizens to live in an environmentally friendly environment. The established norms for the protection of the natural environment are important for maintaining the ecological stability in our country and ensuring the healthy lifestyle of the population, as well as for ensuring the protection of the natural environment of our country in general.

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Rezyume: Mazkur maqolada, atrof muhitni muhofaza qilishda ekologik auditni amalga oshirishning konstitutsiyaviy-huquqiy asoslari, xorijiy davlatlarning atrof tabiiy muhitni muhofaza qilish borasidagi qonunchilik normasi hamda O'zbekiston Respublikasi Konstitutsiyasi va qonunchilik tizimini takomillashtirish, shuningdek ushbu masalada takliflar bayon etilgan.

Резюме: В данной статье описаны конституционно-правовые основы проведения экологических проверок в области охраны окружающей среды, законодательство зарубежных стран об охране окружающей среды и совершенствовании Конституции и законодательной системы Республики Узбекистан, а также предложения в связи с этим.

Kalit so'zlar: Konstitutsiya, Ekologiya Kodeksi, ekologik muammolar, ekologik audit, sanoat hududlari, atmosfera tashlanmalari, sanoat korxonalari, tabiiy resurslar, ekologik qonunchilik.

Ключевые слова: Конституция, Экологический Кодекс, вопросы охраны окружающей среды, экологичкий аудит, промышленные зоны, выбрасы в атмосферу, промышленные предприятия, природные ресурсы, природоохранное законодательство.

**THE CONCEPT OF THE CRIME OF VIOLATING THE RULES OF SAFETY OF THE
MOVEMENT OF VEHICLES OR THEIR USE**

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Summary: *In this article, the problems of responsibility and understanding of the concept of the crime of violating the safety rules of the movement of vehicles or their use, for which responsibility is defined in Article 266 of the Criminal Code of the Republic of Uzbekistan.*

Keywords: *vehicle, road traffic, road safety, traffic accident, vehicle safety rules, crime, railway, sea, river or air transport.*

In the process of establishing a legal democratic state, it is important to create all the tools that ensure its functioning on a large scale. These instruments should be based on the principles of the rule of law, mutual responsibility of citizens and the State, a high level of social protection, rights and interests of the individual. Therefore, in our country, this is an offense related to a traffic accident and the prevention of crimes, including the fight against crimes that infringe on road safety or their use, a radical renewal of the main activity related to their detection and investigation, bringing it to the level of modern requirements and improvement - the requirement of the times. Therefore, in our country, this is an offense related to a traffic accident and the prevention of crimes, including the fight against crimes that infringe on road safety or their use, a radical renewal of the main activity related to their detection and investigation, bringing it to the level of modern requirements and improvement is a requirement of the time. The increase in the number of cars on the roads of our republic has a positive effect on our economy and social relations, but it also causes some negative consequences. These include traffic accidents, air pollution from vehicle emissions, and vehicle-related crimes. [1, p.46; 2, p.93]. Also, the increase in the number and improvement of vehicles is the reason for the increase in the number of crimes related to them. For example, in many countries of the world, the number of people who died from road traffic injuries exceeds the number of people who died from infectious and parasitic diseases. In 19 European countries, the number of people killed by car injuries is 42% of all injuries, and in the USA – 50% [3, p.6].

Violations related to vehicles may cause material damage to the interests of the state, society and the individual, violation of the rights and freedoms of citizens, environmental, property and other damage. Safe operation of motor vehicles on the roads and the elimination of any factors that negatively affect driving are among the urgent tasks of our time.

For this reason, in our country, public relations that ensure and protect the safety of traffic and their use are included among the special objects of criminal law protection.

Chapter XVIII of the Criminal Code of the Republic of Uzbekistan is called "Crimes against the safety of transport and its use", and this chapter provides for liability for 12 types of crimes:

- violation of traffic safety rules or operation of railway, sea, river or air transport (Article 260);
- Illegal (unauthorized) use of the airspace of the Republic of Uzbekistan (Article 2601);
- Admission to driving a vehicle of a person in a state of intoxication (Article 261);
- Violation of the rules for the repair or commissioning of transport (Article 262);
- Bringing into disrepair of a railway, sea, river, air vehicle or communication routes (Article 263);
- Interference with a laser beam during the operation of an aircraft (2631)
- Hijacking or seizure of railway rolling stock, air, sea or river vessel (Article 264);
- Violation of the rules of international flights (Article 265);
- Violation of the rules of traffic safety or operation of vehicles (Article 266);

- Theft of a vehicle (Article 267);
- Violation of the rules for ensuring the safe operation of transport (Article 268);
- Violation of the rules for the use of highways and their protection (Article 269).

It should be noted that the crimes listed in this list are exhaustive, and it is not possible to qualify other types of offenses as crimes and impose punishment for them. In particular, persons using expired vehicles cannot be held criminally liable for using these vehicles. Because there is no provision in the criminal law providing for the liability of individuals for the use of expired vehicles. Consequently, such persons are not considered to have violated the law. The only requirement for them is to annually technically adjust their cars and undergo a special technical inspection of the State Traffic Inspectorate. Vehicles whose expiration date has expired twice are allowed to drive if they are technically serviceable [4, p.35]. However, it should be noted that as society develops, the requirements for vehicles will also increase. Already as society develops, changes and new patterns appear in all aspects of social life. Of course, such changes in society should first of all be reflected in legal documents. Otherwise, laws will lose their regulatory significance in society and become an obstacle to its development [5, p.102].

In this system of crimes against road safety and its use, the crime of violating the rules of road safety or their application, the responsibility for which is defined in article 266 of the Criminal Code of the Republic of Uzbekistan, is of particular importance.

Analyzing the issue of responsibility for this crime in this research paper, we found it necessary to focus on the essence of this crime and the need to determine responsibility for it. The analysis of the essence of the crime of violating traffic safety rules or their application requires a terminological description of a number of concepts and definitions that are directly related to the process of qualifying crimes provided for in Article 266 of the Criminal Code of the Republic of Uzbekistan. These are concepts such as "road", "traffic", "road safety", "traffic accident", "vehicles".

A road is a plot of land or the surface of an artificial structure built or adapted for the movement of vehicles and used for this purpose [6]. In the explanatory dictionary of the Uzbek language, this concept is defined as "a plot of land specially designated for people or transport" [7, p.276]. The road includes highways, urban electric transport routes and sidewalks [3, p.41].

Road traffic is a set of relations that arise when people and goods are moved along roads with or without vehicles [6]. Road traffic is a sociotechnical system that includes pedestrians, drivers, passengers and vehicles that obey certain rules. Traffic is carried out mainly on roads, and sometimes in off-road conditions (on the street, at railway crossings, construction sites, industrial zones of enterprises, yards, fields, etc.) [8, p. 108].

According to article 3 of the Law of the Republic of Uzbekistan "On Road Safety" dated April 10, 2013 (as amended), road safety is understood as the safety of road users.

The state of traffic is understood as the level of protection from road accidents and their consequences [6]. Road safety is assessed as an activity aimed at preventing the causes of road accidents and mitigating the severity of the consequences of such accidents.

A traffic accident is an event that occurred during the movement of a vehicle on the road, resulting in the death of citizens or causing harm to their health, damage to vehicles, structures, cargo or other material damage [6]. However, the corpus *delicti* considered in criminal law is usually not related to the place of its commission [9, p.7]. Responsibility for a criminal act occurs regardless of where the violation of traffic safety rules or the use of vehicles is committed. That is, the nature of the violation of traffic safety rules is determined not by the place of the accident, but by the nature of the functions performed by the vehicle. For example, in the case of industrial use of transport or in violation of the safety rules of mining, construction or blasting operations when using vehicles (Articles 257 and 258 of the Criminal Code). For example, if a self-propelled car is used as a vehicle, the driver must comply with traffic safety rules, and if, as a result of violating

these rules, legally protected interests are violated, the guilty person for committing a crime on a vehicle must be brought to justice. That is, as a criterion for the legal assessment of the actions of a person operating a self-propelled mechanism, the peculiarity of using this mechanism is applied: a) if the mechanism is used as a vehicle, responsibility for the act occurs within the framework of Article 266 of the Criminal Code of the Russian Federation; b) if the mechanism is not involved in the action, but in accordance with its direct purpose - if it is used as a device for performing certain types of work, responsibility occurs under Article 257 or 258 of the Criminal Code.

Below we will analyze some problematic situations concerning the issue of responsibility for the analyzed crime.

It should be noted that the provision of the first part of Article 266 of the Criminal Code of the Republic of Uzbekistan is a gap in which it is noted that a violation of the safety rules for the movement of vehicles or their use by a person driving a vehicle is considered a crime if it caused moderate or severe bodily injury. Accordingly, article 266 of the Criminal Code is entitled "Violation of safety rules for the movement of vehicles or their use".

So, considering that this article is of a general nature, this article has two types:

first, legal documents regulating the "rules of the road" or "rules of road safety";

secondly, there is a liability for violation of legal documents regulating the "rules of vehicle safety".

Regarding the first case, it should be noted that although in some norms of the current legislation the concept of movement of vehicles is given, "rules of movement of vehicles" or there is no normative document regulating "rules of road safety".

It is known that a number of regulatory documents related to the topic under study have been adopted: the Laws "On Urban Passenger Transport" [10], "On Road Transport" [11], "On Road Safety" [6], dated 12.2022 of the Cabinet of Ministers. The rules of the road, approved by Resolution No. 172 of April [12], the Regulation on the procedure for recording road accidents in the territory of the Republic of Uzbekistan, approved by Resolution No. 303 of November 15, 2011 [13], Decision No. 308 of November 13, 2013 "On organizational measures for further improvement of the urban passenger transport system" [14], Rules for the carriage of goods by road in the Republic of Uzbekistan, approved by Decision No. 213 of August 1, 2014 [15], etc.

However, none of these regulatory legal acts defines "rules of the road of vehicles" or "rules of road safety of vehicles". In practice, the traffic rules approved by the Cabinet of Ministers Resolution No. 172 of April 12, 2022, which are considered the main document relating to the qualification of this crime, also fix the "rules of the road", and not the "traffic regulations" or "rules of road safety". The Law on Road Traffic Safety also defines such concepts as "road traffic", "road safety", "Road safety", "Road safety", "Road traffic organization", and establishes norms related to these concepts.

Focusing on the decisions of the plenum of the Supreme Court of the Republic of Uzbekistan on this issue, the resolution of June 26, 2015 "On certain issues of judicial practice in cases related to crimes against traffic and the safety of its use" [16] provides for violation of traffic rules and the use of vehicles, unlike the previous decision. This resolution provides explanations on violations of the rules of the road, the operation of vehicles. However, it would also be desirable to give an idea of the violation of the "rules of the road of vehicles" or "rules of safety of vehicles".

In the latter case, an inventory and analysis of the current legislation show that the words "safety rules for the operation of vehicles" are never used in any legislative act. However, there are certain rules regarding the "rules of use of vehicles". It seems that, although the norm defined in the Criminal Code is a general dispositional norm, there is no norm that directly regulates them (i.e. refers to), we believe that the onset of liability under the relevant article of the Criminal Code is illogical. In this regard, in order to eliminate the gap and inconsistency present in the current

legislation, it is advisable to state the title of Article 266 of the Criminal Code in the following wording:

"Page 266. Violation of traffic rules or operation of vehicles by a person driving a vehicle."

The next problem in understanding the corpus delicti associated with the violation of the rules of safety of movement of vehicles or their use is related to the vehicle.

The legislator, combining all transport crimes into one chapter of the Criminal Code, divided the content of violations of traffic safety rules or vehicle operation into two groups. Depending on their type: the first is crimes related to violations of the safety rules of railway, water (sea, river) transport, the movement of aircraft or their use; the second is a violation of traffic safety rules or the use of motor transport or other vehicles.

The corpus delicti we are considering includes vehicles that belong to the second group.

Article 266 of the Criminal Code does not shed light on the content of the concept of "vehicle". The Law on Road Traffic Safety gives a general definition of a "vehicle" as "a device designed to transport people, goods or perform special work" [6]. That is, this concept means all types of vehicles.

The above-mentioned resolution of the plenum of the Supreme Court of the Republic of Uzbekistan states that the vehicle, as in the law, is a device [16] designed to transport people, cargo or perform special work.

All of the above are treated as vehicles only when they are moving. Production of self-propelled vehicles (construction, road, loading and unloading, etc.) violation of the rules of their use in the performance of their work, causing harm to human health, responsibility for this act comes not under Article 266 of the Criminal Code, but under the articles provided for liability for crimes against the person.

Thus, a vehicle provided for in Article 266 of the Criminal Code means any self-propelled mechanical transport device with an autonomous control unit, with an engine displacement of at least 50 cm³, with a design speed of more than 50 km/h, designed to transport people, cargo or perform special work.

However, the concepts established by Article 266 of the Criminal Code and the Law of the Republic of Uzbekistan "On Road Safety" do not coincide.

In order to eliminate the above -mentioned problems, it is proposed to state the provisions of the first part of Article 266 of the Criminal Code in the following wording:

"If the violation of traffic rules or the use of this vehicle by a person driving a vehicle that is not considered railway, sea, river or air transport, leads to damage to the body of moderate or severe severity – "

We believe that the above-mentioned proposals will serve to correctly understand the crime provided for in Article 266 of the Criminal Code and eliminate inconsistencies that arise in practice when applying legislation and law enforcement practice.

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Rezyume: *Mazkur maqolada O'zbekiston Respublikasi Jinoyat kodeksining 266-moddasida javobgarlik belgilangan transport vositalari harakati yoki ulardan foydalanish xavfsizligi qoidalarini buzish jinoyati tushunchasini tushunish va javobgarlik muammolari ilmiy-nazariy tahlil qilingan..*

Резюме: *В данной статье рассмотрены проблемы ответственности и понимания понятия преступления нарушения правил безопасности движения транспортных средств или их использования, за которое ответственность определена статьей 266 УК РУз.*

Kalit so'zlar: *transport vositasi, yo'l harakati, yo'l harakati xavfsizligi, yo'l-transport hodisasi, transport vositasidan foydalanish xavfsizligi qoidalari, jinoyat, temir yo'l, dengiz, daryo yoki havo transporti.*

Ключевые слова: *транспортное средство, дорожное движение, безопасность дорожного движения, дорожно-транспортное происшествие, правила безопасности транспортных средств, преступление, железнодорожный, морской, речной или воздушный транспорт.*