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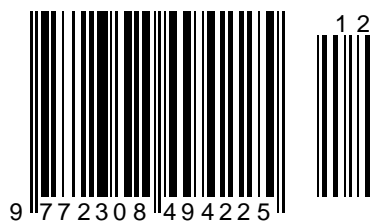
Issue   **Article**

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PREVENTING ACCIDENTS AND ACHIEVING ECONOMIC EFFICIENCY THROUGH A MULTI-FUNCTIONAL DEVICE IN SUBSTATIONS WITH A VOLTAGE OF 110/35/6 KV

Abstract: *Currently, the energy system of Uzbekistan has a number of urgent problems related to the adequacy of distribution networks, electricity accounting systems, power transmission lines and reliability of transformers. One of the main issues is the introduction of automated information systems to monitor the state of the network in real-time, prevent accidents and effectively solve these problems. This article covers the analysis of technological processes of high-voltage substations, accident prevention, and economic efficiency with the help of multi-functional radio measuring devices.*

Key words: *electricity, distribution networks, measurement systems, signaling systems, automated information systems, technology, reliability.*

Language: *English*

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Introduction
Main part.

In 2019-2021, a comprehensive program for digitalize zation of the electric power industry will be developed. Acceleration of the implementation of the project on the introduction of the automation system of resource management, production and con,trol processes (IT), dispatch control and data acquisition software-hardware complex (SCADA), the introduction of the automated system of control and accounting of electric energy specific activities, deadlines and sources of funding are provided [1]. In the new economic conditions, each kilowatt-hour of electricity should cost exactly as much, taking into account its cost and optimal profitability, and should be purchased by consumers or market participants in the amount that corresponds to their needs and economic capabilities [2]. The implementation of this rule requires the installation of a suitable device for each consumer, as well as in the system of electric

power plants (EES) that collects, processes and transmits this data to the ACSD database. Therefore, the essence of the new metering device for accounting for supplied and consumed electricity should be based on the principles of automated energy accounting and, in particular, on the concept of automated management and accounting systems of energy resources (ASKUE) [3].

Theoretical part.

At the current stage of electric power development, improving the energy efficiency of electric power generation, transmission and distribution is the most important task for the electric power system (EET) of every country [8]. This task is particularly important. It is relevant for Uzbekistan, which has energy-intensive production equipment commissioned in the 1960s and 1970s. Energy efficiency in the use of electricity is a quantitative assessment of the technological process that shows the level of technologies used for the conversion, production, transmission and distribution of electricity. The indicator of energy efficiency in the production and distribution of electricity is the total consumption of fuel in the EET, under the regulated conditions of its operation, the absolute or relative normalized value of the total losses of electricity and normative environmental parameters of electricity [4].

The development of the energy sector is related to the continuous growth of electricity production. Why do people consider electricity to be the primary form of energy? For easier use in production, distribution and production [5].

The purpose of the automated system. The distribution of electricity produced by consumers through high-voltage transmission lines is a classic example of complex technological processes that require centralized management and control methods. The concept of "reliability" is widely used every day in all areas of human activity (science, technology, everyday life, art, medicine, etc.), which gives rise to the breadth of its interpretation. However, a practical solution to some problems and sometimes clarifying their nature is completely impossible without clearly establishing certain concepts and relations between them, without showing some features and their quantitative description [9]. Therefore, it is appropriate to start the study of reliability by studying what is understood and what characteristics of reliability are used in solving the problems that arise in the process of creating and using artificial technical systems in general and electric power systems in particular [6] .

The issue of accounting for electricity is the most relevant in the current market relations. The main difficulty is that it is almost impossible to reliably estimate the loss of electricity in distribution networks with existing technical and organizational problems in the electricity accounting system. There are a number

of current problems related to sufficiently high efficiency of electricity distribution networks [16-18]. These include:

- low reliability of electrical devices, associated with excessive wear and poor performance of electrical structures, automation systems, protection, alarm systems;

- lack of timely, reliable operational information about power system operating modes;

- low efficiency of quick management of electrical networks during planned switching and elimination of accidents;

- electrical energy losses at an unacceptable level;

- lack of electricity due to equipment failure and emergencies.

All the above problems are relevant and are widely discussed in our country and abroad. The task of ensuring the reliability of electrical equipment can be solved by replacing old equipment with new ones, but this method is associated with the need to spend a lot of money [14-15]. At the same time, the introduction of an automated information system to monitor power grid modes in real time can become an effective solution to these problems.

The purpose of the automated system. The process of distribution of electricity generated between consumers in connection with electric substations with high-voltage transmission lines is a classic example of complex technological processes that require methods, centralized management and control [19-21].

Characteristics.

• Works on GSM 900/1800 network.

• The server is connected to the GPRS channel using TCP/IP technology.

• It is connected to the server with ADSL and Internet technologies.

• Back up Server availability.

• Works with a maximum of 15 different calculators on one tire.

• The server has a database and records every 20 seconds of data coming from the smart device.

The system is designed and assembled on the basis of telemechanics equipment. After pre-design research, a technical specification was developed according to the geographical conditions and requirements of the communication channel [10]. During the preparation of specifications, the typical structure of the system underwent a number of changes during the design phase. Changes were mainly required in the organization of the communication channel. Communication with CP is carried out by air, there are no wired channels [11]. A number of difficulties arose here due to the distance of the Klyuchevaya checkpoint from the dispatch center (DP). The solution was found by changing the structure of the system and creating an additional intermediate channel, as well as reducing the distance

in the radio channel [12-13]. Taking into account the requirements of the automated system, a set of technical tools was selected for the main DP, intermediate DP, control points and automated workstations (AIS) equipment of users [7].
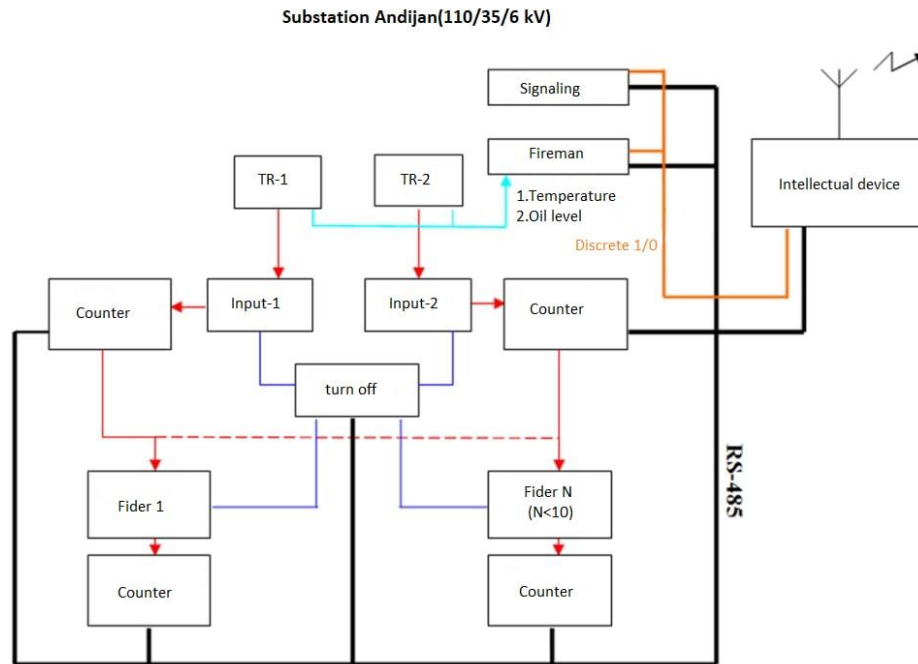
Figure 1. Scheme of the structure of the substation.

Counters included in the program.
- HOLLEY DTS541 / DTS 541U / 531/581;
- HOLLEY DTSD546 / 536/535;
- Energomera (All)
- Mercury 230/234 AR-00-R/C
- Stone electric device TE-73 S-1-3
- DDS 28 and TE-102
- It is possible to add other types of counters.

Information from the meter.
- Current (phases A, V, S).
- Voltage (phases A, V, S).
- Active power, kW (phases A, V, S).
- Reactive power, kvar (phases A, V, S).
- Total power, kVA (phases A, V, S).
- Frequency.
- Input/output active energy, kW/h (+W/-W).
- Input/output reactive energy, kVar/h (+Q/-Q).
- Angles between phases.
- Angles between current and voltage.
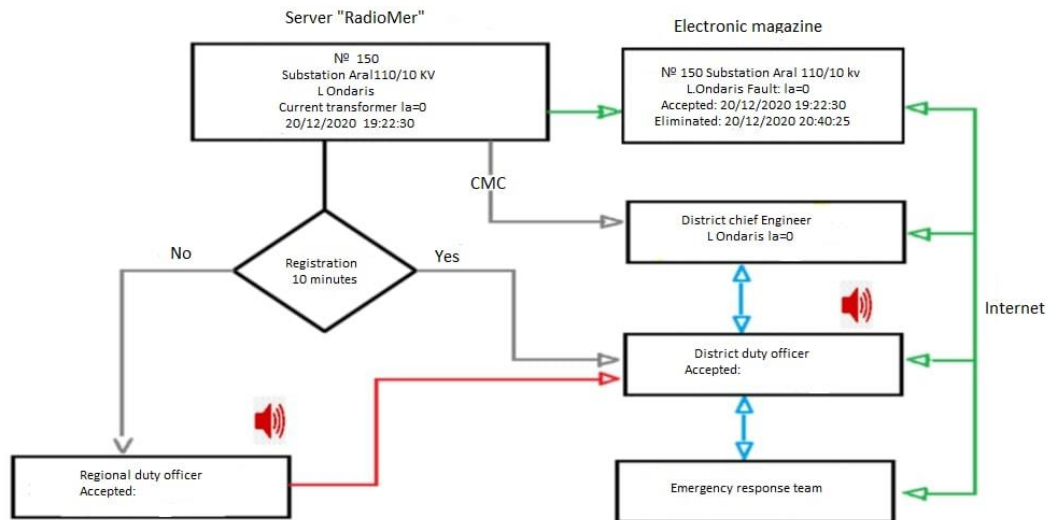
Figure 2. Error recording and elimination algorithm.

Filtering numbers and giving permission to other systems (access) the.

• Intelligent device has the ability to filter phone numbers, which allows the system to work continuously, and it is possible to receive information only through the phone number entered in the memory.

• Program programs of Holley , Energomera, Mercury, Alpha and other meters have the ability to receive information from the meters through an intelligent device [14-15].

Warning, security and fire safety. Through the "Radiomer" intellectual device , you can receive information from the transformer temperature, gas protection, object protection, fire safety (sensor) devices from the station and send this information to the stored phone numbers in the form of a message (SMS) . It is possible to move. If the load of the transformer increases in 2 stages, the SMS j is installed and the unrated feeders installed and inserted after the are turned off.

Step 1: To the duty, district or city chief engineer.

2nd stage: To the provincial emergency chief of staff.

All information is recorded in the telematics database.

Feeder shutdown system. Using a special computer in the dispatcher's home, the dispatcher can turn off the feeder at the required substation with the password given to him.

• Deletions are automatically noted in the server log that they were deleted by the dispatcher.

• Additional discrete input/output unction.

• The smart device has additional discrete input and output ports that can be used for additional data acquisition or processing in the future.

Primary server and secondary server.

• smart device starts up, it will connect to the main server. If the primary server goes down, it will automatically connect to the secondary server. To improve and stabilize the connection, the main server and secondary servers must be connected to different Internet providers.

• The IP addresses of the servers should be static. 213.230.91.140 (RadioMer.uz)

• Web Server and its feaures .

• The fastest and easiest way to get information these days is certainly web sites on the Internet. Another good advantage of web servers is the possibility to get information in the way the user wants, via phone , tablet and similar devices .

The automated system of monitoring power grid modes is designed to perform the following tasks and functions:

• Structure scheme of the substation.
• Structure diagram of the system.
• Characterization of intellectual impact.
• Counters.
• Information from counters.
• A memory.
• Filter numbers and allow other systems (access).
• System password.
• Types of website access permissions.
• Warning, protection, and fire safety.
• Extinguishing system.

- Additional discrete inputs/outputs
- Technical parameters of the substation.
- Error reporting.
- Primary server and secondary server.
- Web Server and its utilities.
- Pod st ancy Balance.
- Real-time telemetric balance
- Consumers' "personal cabinet"
- Methodology of concentration of electric energy flow.
- RaioMer_UDS client program and its features.
- Electronic mnemonic.
- Substation grouping (on 110kV line).
- Limit statistics of feeders in the substation..
- RadioMer devices.
- Malfunctions.

Economic analysis.

- providing centralized management and control of complex regimes of electric networks, which are distributed in large numbers, but connected by a single technological process;

- Effective control of power grid modes from the power supply, where the necessary information must come from the control point of the power grid;

- processing information about the current status of managed objects and providing them in a user-friendly form;

- collection of control and command data at the pace of the current controlled technological process, which means a minimum delay in the transmission of information and control actions;

Ensuring a high level of reliability of information delivery and its reliability, because the damage caused by the transmission of incorrect orders or other urgent messages and the transmission of these messages can lead to large economic losses and in some cases emergency situations. The automated system must meet the following operational requirements:

- the reliability of information transmission and its reliability must be ensured for the radio channel in conditions characterized by a high level of interference;

- to provide reliable information from the points of the power grid to the control center and provide this information to the dispatcher in a way that can quickly and accurately respond to deviations from the power supply regime;

- Save the full amount of data collected in the CP and automatically save the event log;

- the human-machine interface of software (software) must be responsive;

- equipped with automatic fault alarm and self-management functions of the device that maintain the operation of individual boards and blocks;

- the automated system should also allow relatively simple reconstruction when expanding (increasing) the volume of information and ensure compatibility with existing communication channel systems and equipment;

- the automated system must work in different environmental conditions: high humidity, and wide temperature range.

Features of the smart device
Works on GSM 900/1800 network;
C DMA channel using T C P / IP Internet technology ;
connects to the server using ADSL or Internet;
- RS485 interface;
- One bus has a maximum of 15 different counters;
use of counters ;
HOLLEY DTS 541 / DTS 541 U / 531/581;
HOLLEY DTSD546 / 536/535;
All energy counters ;
Mercury AR-00-R / S ;
All counters of Toshelektroapparat;
ALFA counters coming soon;
- reading, saving, and transferring the following meter parameters;
Indicators of active and reactive meters of forward and reverse electricity directions;
Phase power, current, and voltage;
Power factor cos φ?
(Depending on the type of counter, you can enable other parameters)

Conclusion: All the above problems are relevant and are widely discussed in our country and abroad. The reliability of electrical equipment can be solved by replacing old equipment with new ones, but this is associated with the need to spend a lot of money. At the same time, an effective solution to these problems can be the introduction of an automated information system for real-time monitoring of power networks.

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WOMEN'S NATIONAL DRESSES AND ART FABRICS IN EASTERN CULTURE

Abstract: This article covers the types of Central Asian women's national clothes in the end of the XIX century and the beginning of the XX century. At the end of the 19th century, the types of artistic fabrics were studied. By the end of the 19th century, the appearance of sewing machines led to the increase of artistic fabrics. The reasons for the non-disappearance of hand-made gazlams preparation methods were analyzed and its history was studied.

Key words: kaftan, undershirt, outerwear, women's national headdress, khatcha, chachvan, buranji, kovush, mahsi, etik, doriya, bekasam, banoras, adras, atlas, madras.

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Introduction

In ancient times, clothes helped to protect the human body from the environment. According to some reports, the clothes also performed a protective function. In general, it is difficult to imagine a person without clothes. The first clothes were very simple. Gradually, with the expansion of human consciousness, clothing became more complex. Now he is used to the forms. In addition, attention was paid to his aesthetics and appearance. Additional decorations were used for it. National costumes are inextricably linked with the origin of the nation. It can be seen from the ethnographic signs of the national clothes of the Kokan Khanate, Khiva Khanate, Bukhara Emirate, and the Timurid period that clothes related to Islam were used in everyday life in this period as well. The shame characteristic of the peoples of the East was manifested as a sign of modesty and chastity. During the period of those khans, special workshops were established for the preparation of national gazlams, and the most elegant gazlams were prepared in these workshops. Our fine fabrics are known to all countries and peoples through the Great Silk Road. This shows how beautiful, ancient and valuable our gazlams are.

Materials and Methods

The article is based on the principles of methods, analysis, ethnological sequence, ethnographic observation adopted in the science of historiography. Information was given about women's national costumes and artistic costumes.

Results and Discussions

Islam plays an important role in the culture and national costumes of the peoples of the East. This has been proven in men's clothing, women's clothing, and even children's clothing. Women's traditional clothes include underwear, outerwear, dresses, hats, headgear, shoes, and jewelry. At the end of the 7th century - the

beginning of the 8th century, the style of the costume of the peoples of Central Asia became more complicated. Now there are clothes with sleeves that make it easy to stick to the body and allow the hands to move freely. This led to an increase in its species. However, the influence of Kushan tin jacket decorations is still noticeable in the decoration of kaftans and blankets. On the blankets, there were bordered fringes made of colorful fabric. The decorations of their skirts and collars have also changed. Under the influence of Islam, the length of the clothes is now below the knee. The length of the sleeve also fell from the ankle, the front opening of the dress for women was a vertical collar, cut, horizontal opening. Now the sleeves were sewn just below the shoulders and the shoulder seams were decorated with decorative fabric. But it is also possible to see that women's clothes were different. Among them, long shirts and long tunic-like dresses with a high collar are also worn. Such dresses include a tunic-style kandis with sleeves that cinch the wrists. Candice is a coat with faux fur on the inside.

During the introduction of Islam into the lives of the peoples of Central Asia, the socio-economic life of the peoples, family relations, and legal issues were governed by the Islamic ideology, and this situation also led to important changes in the clothing culture. In the spiritual culture of the Eastern renaissance (IX-XII centuries) and the culture of Amir Temur and the Timurids (XIV-XV centuries) and spiritual cultures of enlightenment (XIX-XX centuries), the unique clothing of each period we observe that there was a culture. Each geographical region in Uzbekistan has its own traditions, customs and ethno-specific characteristics, which are clearly expressed in their traditional clothing culture. While studying the specific aspects of Uzbek traditional clothes, it is permissible to classify the representatives of the Uzbek nation as the following subregional-cultural group:

1. Subregional-cultural group of residents of Tashkent city and Fergana Valley;

2. Subregional-cultural group of residents of the cities of Samarkand and Bukhara.

3. Subregional-cultural group of Khorezm residents;

4. Subregional-cultural group of the population of Karakalpakstan;

5. Subregional-cultural group of residents of Kashkadarya and Surkhandarya regions.

Although these sub-regional groups have common and similar aspects in the traditional dress culture, their uniqueness is evident. Such a situation is clearly visible in the fact that research works were carried out separately for each oase. The fact that such uniqueness serves for the development of mutuality and is recognized and awarded as examples of our national culture on the world cultural stage also makes a person feel proud. Stratification was also observed in Central Asian women's clothing. Such differences indicate the social status of women, and their clothes and jewelry did not fail to show their influence. A representative of the rich class During the Koqan Khanate, multi-layered dresses showed that women were representatives of the rich class. Women's dresses of this class are made of nimshoy and kimhob. But the yarn was used in women's underwear. And poor people wore clothes made of gauze. In addition, the convenience of these clothes in the work process was also taken into account.

Women's outerwear. The composition of such clothes consisted of burqa, shorts, tunic, yaktaks, nimchi. In the peoples of the East, the veil was made with a scarf. Chakmon is a net made of horsehair. Its function was used to block the face. Paranjini was made from Banoras in the Kokhan Khanate. Banoras is striped and differs from Bekasam mainly in terms of color. Made of red and green velvet in the Emirate of Bukhara. A burqa is a knee-length top with false sleeves. Ribbons and fringes are used as decoration in veils. It is important that special importance is given to the aesthetic appearance.

Women's jewelry. The art of jewelry is an integral part of the history of Uzbek national artistic culture, which helps to study the highest goals of the people in the distant past. Items made by jewelers show the stylistic features of the art of the period in which they lived. Like every type of Uzbek folk art, jewelry art has its own characteristics. Because they are not only decorative items for people, but also have a positive effect on health and human psyche. The socio-economic role of jewelry in life has not become less important. A person's status in society was often determined by how many valuable ornaments he had. So, through this art, we see that people's imaginations of the material world, the world of sophistication, and divine power are intertwined with each other. The cities of Khiva, Bukhara, Samarkand, Kokand were considered the largest centers of jewelry art of the 19th century. In these cities, jewelers lived in neighborhoods. According to historical sources, there were 12 jewelry stores in Khiva in 1860 and 60 at the beginning of the 20th century. Women's jewelry includes tilakosh, bracelet, zirak, headband, amulet, necklace, ring, etc. Women of the rich class usually wear such jewelry made of gold and decorated with precious stones.

Women's headwear. In the Emirate of Bukhara, kallaposh was considered as a women's headdress, such headdresses were worn mainly by women in the emir's harem. Collars and headbands are mostly decorated with gold embroidery. In the Kokan khanate, women's headdresses were worn with different types of headscarves, indicating their status. In addition, they used kurtapur (type of headdress) and caps. In the Khiva Khanate, women's headdresses were tahiya (cap-like headgear), flat caps, and lachak (a type of headdress).

Women's dresses. In the Kokan khanate, they used cloudy gasses. The meaning of the word Abr (Persian) is described as cloud. There is information that Abr fabrics were developed in the 19th century BC. Atlas (a type of silk fabric) and adras (a type of silk fabric) are now found in more than a dozen types. These are: "Margylan", "Navroz", "Rasadkhana", "Bibikhanim", "Nogora", "Kiprik", "Panja", "Kelinchak", "Bargi Karam", "Chaqirim", "Yaxudiy", "Nomozshomgul", "Shaxmat"(Chess), " Qaro ko'zim"(Black eye). The silk industry in Uzbekistan has a long history and traditions. The cultivation of silkworms and the extraction of fibers from their cocoons, and the weaving of silk shawls, were first introduced in China. According to some information, silkworm breeding spread from China to the territory of present-day Uzbekistan via the Great Silk Road in the 4th century. Various silk fabrics produced in cities such as Samarkand, Bukhara, Khojand, Kokan, Margilon, and Namangan were famous. There were 120 silk weaving workshops in Margilon and 49 in Kokon. Silk (1 kg of silk from 11.8 kg of cocoons) was extracted from the cocoons semi-automatically (boiled in cauldrons) on hand wheels. From hand-dyed silk, satin, adras, bekasam, olacha, gazalams with various shades, velvet, parcha, etc., are woven on hand looms. The main fabrics used in sewing Uzbek national clothes include yarn, silk, wool and gauze. There are many types and varieties of yarn fabrics. Making fabric from yarn, wool, cocoons, leather and other materials at home has existed in Uzbekistan since ancient times. Production of silk and semi-silk fabrics was partially limited. For example, the production of silk and semi-silk fabrics was launched in the centers of Bukhara, Khiva and Kokand khanates, in large cities and villages belonging to them. Ordinary workers mainly used thread-gauze fabrics. Plain fabrics were used for daily wear, and silk and semi-silk fabrics were used for weddings and holidays. In the past, all the cities of our country specialized in weaving only certain types and colors of gauze, and there were local schools of artistic weaving.

Bekasam is a striped gazmol, from which men's and women's daily wear tunics, blankets, blankets are sewn.

Banoras - bekasam, different in color types, from which the veil, which is a women's outerwear, is sewn.

Adras is a gazmol made of flowers with abr threads. Because the flower is two-sided, it is called duroya in some places. Due to the fact that the thread of vodka is thicker, transverse lines are formed on the surface of the gauze. Yellow, blue, pink, and red colors are used for the flowers.

Satin is a single-faced smooth fabric made from natural silk, both warp and weft. Tanda thread is decorated by dyeing in the abr bandi method. The satin is given a shine by separate processing, so it is polished.

There are more than 37 processes involved in making silk abr fabric or silk by hand, all of which are done by hand and only the final weaving process is done by hand or mechanical loom. But the hand-woven cloud gauzes were narrow, and the pattern did not repeat each other and were expensive. On the other hand, the looms woven on a mechanical loom can weave a large amount of cloudy looms in a short time. In one day, a master craftsman can weave 10 meters of fabric, and a mechanical machine can weave 50-100 meters of fabric. Of course, as you can see, in production, this process allows the product to be quickly woven and delivered to the consumer. But the remaining 36 processes are done manually. Currently, silk and silk fabrics are produced in the cities of Margilon, Namangan and Kokhan of the Fergana Valley, and more than 20,000 people work in this process. It covers the entire process from silk processing to finished fabric. In this case, silk fabrics such as adras, satin, silk, and velvet are mainly woven by hand, while cotton adras fabric is finished on a mechanical machine. It can be seen that not all fabrics are woven on a mechanical loom.

Adras and satin weaving has been developed in Margilon for a long time and has spread to other places. At the beginning of the 20th century, many adras and satin weavers worked here. Until the 1920s, Adras was woven in Margilon, Khojand, Bukhara, Samarkand and other places, and was sold not only in Central Asian markets, but also in neighboring countries such as Afghanistan and China. Dyeing threads in the abr method also required great skill. It should be noted that all colors are made naturally from dye-giving herbs.

Women's underwear. Such fabrics are made of yarn. The reason is that cotton has a good air permeability. Fully meets hygienic requirements. These work clothes were also horizontal open with long sleeves. The requirements consist of 3 parts:

1. Leg part (there are 2);

2. Og (the middle part that connects the two legs.)

Conclusion

In the Kokan Khanate, the clothes looked the same. Only in the Bukhara Khanate, the razim consisted of 4 parts. The reason is that in the Bukhara Khanate, they did not use cloudy gas. The dress, nimcha, burqa, ton, and accessories are made of velvet. Velvet is a thick gauze. In terms of hygiene, the upper part of the bag is made of cotton yarn. Women's clothing was different from that of girls. This can be seen in some parts of the dress. For example, the collar on girls' shirts was horizontal, and on women's, it was vertical. A kaba with long or short sleeves is worn over the shirt. During the holidays, women wore a farajiya made of silk decorated with dars, and the lining (so called the inner part) was made of fur. By the 19th century, women's shirts began to

be made wider. Over the shirt, it became common to wear a robe with a more open chest, long or short narrow sleeves, and buttoned up to the waist.

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TRAINING OF THE COURSE "DISCRETE STRUCTURES" FOR BACHELORS IN COMPUTER ENGINEERING AS A PEDAGOGICAL PROBLEM

Abstract: *The article analyzes the current state of the course "Discrete Structures" taught to bachelors of the direction of Computer Engineering as a pedagogical problem and shows the effectiveness of using the Discmath.uz software in the educational process as an innovative and improved methodological support.*

Key words: *Computer engineering, discrete structures, methodological support, innovative technologies, information and educational resource.*

Language: *Russian*

ОБУЧЕНИЕ КУРСА "ДИСКРЕТНЫЕ СТРУКТУРЫ" БАКАЛАВРАМ ПО НАПРАВЛЕНИЮ КОМПЬЮТЕРНЫЙ ИНЖИНИРИНГ КАК ПЕДАГОГИЧЕСКАЯ ПРОБЛЕМА

Аннотация: *В статье проанализировано текущее состояние курса "Дискретные структуры", преподаваемого бакалаврам направления Компьютерный инжиниринг как педагогическая проблема и приведена эффективность применения программного обеспечения Discmath.uz в образовательном процессе как инновационно-улучшенное методическое обеспечение.*

Ключевые слова: *Компьютерный инжиниринг, дискретные структуры, методическое обеспечение, инновационные технологии, информационно-образовательный ресурс.*

Введение

В мире высшие учебные заведения при подготовке специалистов внедряют инновационные технологии, используя современные информационные технологии предоставляют качественные знания и реализуют усовершенствованные методы обучения. В мультидисциплинарной коалиции ЮНЕСКО при преподавании точных наук особое внимание уделяется вопросам последовательной и непрерывной этапам образования в соответствии с новыми тенденциями в образовании (информатизация образования, инновационные технологии, личностно-ориентированное образование), внедрению современных программам и технологий в образовательно-воспитательный процесс для повышения эффективности образования.

В настоящее время особое внимание уделяется внедрению инновационных технологий в образовательный процесс, изучая его дидактические основы, разрабатываются технологии инновационных методов и совершенствуются методологические основы, развиваются творческие способности учащихся, развивается креативное, когнитивное мышление, улучшается общее развитие науки на основе компетенций творческой активности по моделированию проводятся научные и прикладные исследования в таких странах как США, Великобритании, Канады, Кореи и России. В связи с этим преподаваемые высшими

учебными заведениями курсы "Дискретные структуры" в области компьютерной инженерии имеют особое значение в последовательной методологии преподавания выбора образовательного контента, совершенствования с помощью эффективного использования инновационных и информационных технологий и внедрения их в практику.

Преподавание курса "Дискретные структуры" в направлении Компьютерный инжиниринг, организация процесса подготовки будущих кадров в системе электронного образования, разработка и использование интерактивных электронных образовательных ресурсов на основе информационно-коммуникационных технологий создают необходимость подготовки **высококвалифицированных** специалистов. При подготовке бакалавров направления Компьютерный инжиниринг крайне важно повысить требования к их знаниям, умениям, навыкам, базовым и профессиональным компетенциям путем достижения совершенствования в процессе преподавания курса "Дискретные структуры".

В системе высшего образования Узбекистана с использованием современных компьютерных технологий большое внимание уделяется подготовке высококвалифицированных, конкурентоспособных специалистов, при этом обновлена нормативно-правовая и материально-техническая база. В стратегии развития нового Узбекистана «Обеспечение для молодежи доступного и качественного образования, а также получения ею полноценного образования на всех его этапах, создание условий для развития инклюзивного образования в регионах» определено в качестве приоритетной задачи совершенствования государственной молодежной политики.

Вопросами подготовки специалистов направления Компьютерного инжиниринга к профессиональной деятельности, формирования у них необходимых профессиональных качеств и навыков, а также передовые методы эффективного обучения взаимосвязи программирования и математики изучены в исследованиях ученых СНГ и республики Узбекистан Х.Тураева, С.Сададдиновой, Ю.Абдурахмановой, Ф.Рахимовой, О.Ярыгина, М.Кондурара, Н.Прусовой, А.Алфимовой, Е.Фирсовой, Е.Перминова, Е.Исмагиловой, М.Кейва, Е.Мусиновой, С.Суриковой, О.Алламова, Н.Касимова, Р.Дадажанова, Ф.Ибрагимова.

Вышеуказанные исследования являются научно-исследовательскими работами посвященные теории и практике по внедрению информационных технологий, методике развития компетентности обработки информации студентов в преподавании данного курса, но в них не проводились специальные исследовательские работы по совершенствованию методики преподавания курса "Дискретные структуры" на основе инновационных технологий при подготовке бакалавров направления Компьютерный инжиниринг.

В статье исследовано текущее состояние курса "Дискретные структуры", преподаваемого бакалаврам направления Компьютерный инжиниринг как педагогическая проблема, разработаны научно-методические рекомендации по совершенствованию и внедрению в учебную практику на основе инновационных технологий. При выполнении исследования поставлены следующие задачи:

- определение проблемы преподавания курса дискретные структуры при подготовке бакалавров направления Компьютерный инжиниринг и проанализировать его педагогические, психологические аспекты;

- совершенствование имеющегося методического обеспечения при обучении курса "Дискретные структуры";

- формирование профессиональной компетентности студентов путем преподавания курса "Дискретные структуры" на основе педагогических и информационно-коммуникационных технологий;

- разработка рекомендаций по усовершенствованию критериев определения эффективности используя усовершенствованное методическое обеспечение преподавания курса "Дискретные структуры".

Значение курса "Дискретные структуры" для бакалавров направления Компьютерный инжиниринг неизмеримо. Для того чтобы сформировать научно-техническое мировозрение студентов бакалавриата необходимо обучать их математическим наукам чтобы познакомить и научить использовать современные техническимие средства. Дискретная математика была создана несколько десятилетий назад и является математическим языком информатики. Ученые объединяют дополнительные математические темы в один курс в связи с тем, что математических предметов, преподаваемых в университетах, недостаточно для изучения языка программирования. Этот курс теперь называется "Дискретные структуры".

Можно свидетельствовать о том, что при подготовке будущих специалистов в высших учебных заведениях не проводились исследования по вопросам обучения курса "Дискретные структуры" на основе инновационных технологий, а также отсутствие учебных пособий, предназначенных для решения профориентационных задач. Важно отметить, что

научить студентов решать задачи, которые призваны использовать информацию для принятия логических решений и делать выводы, которые будут использоваться в их профессиональной деятельности.

В настоящее время соответствующие курсы в учебной программе направления Компьютерный инжиниринг ограничены аудиторными часами. На курс "Дискретные структуры" выделено всего 180 часов – 60 часов для лекций, 30 часов для практических занятий и 90 часов для самостоятельных занятий. Выделенные часы недостаточно для полного освоения содержания предмета. Поэтому возникает необходимость в дополнительном методическом обеспечении.

Рассматриваемое нами направление "Компьютерный инжиниринг" охватывает широкие области электротехники или электроники и информатики. Она является дисциплиной, которая воплощает в себе науку и технологии проектирования, создания, внедрения и обслуживания программных и аппаратных компонентов современных вычислительных систем и оборудования с компьютерным управлением. Таким образом, это уникальное сочетание готовит студентов к карьере, связанной с компьютерными системами, начиная с их проектирования и заканчивая их реализацией.

Научная значимость результатов исследования заключается в том, что усовершенствование содержания предложенного курса Дискретные структуры, составление рабочей программы предмета, создание программного обеспечения направлены для организации практической деятельности в учебном процессе, который влияет на педагогические, психологические, технические, специальные, эргономические, дидактические требования, компонентов, этапов создания педагогического проекта на организацию самостоятельной деятельности и творческого подхода к профессиональной деятельности бакалавра направления Компьютерный инжиниринг.

Практическая значимость исследования заключается в совершенствовании методического обеспечения курса "Дискретные структуры" на основе инновационных технологий, организации лекционного, практического, самостоятельного обучения курса "Дискретные структуры" с использованием электронного информационно-образовательного ресурса discmath.uz и методического пособия курса "Дискретные структуры" вместе служат мотивацией для эффективного осуществления профессиональной деятельности студентов направления Компьютерный инжиниринг.

Основная идея исследования состоит в объединении мобильного приложения в качестве дополнительной методической поддержки традиционного метода обучения и усовершенствования метода преподавания курса «Дискретные структуры» при подготовке бакалавров направления Компьютерный инжиниринг за счет комплексного использования совместного и смешанного обучения.

Предлагаемая обучающая информация в мобильном приложении – лекционные материалы, инструкции по выполнению практических занятий, программы-интерпретаторы, показывающие моделирование процессов для повышения эффективности практических занятий, индивидуальные задания для каждого студента, самостоятельные учебные задания, которые полностью размещены в системе и поддерживают инструменты обратной связи мобильного терминала в режиме реального времени, где студенты имеют возможность пройти тестирование по изученным темам.

Целью педагогического эксперимента является определение эффективности ведения учебного процесса с использованием усовершенствованного методического обеспечения курса «Дискретные структуры» при подготовке бакалавров направления Компьютерный инжиниринг.

В эксперимент были вовлечены студенты Самаркандкого, Ферганского и Каршинского филиала Ташкентского университета информационных технологий (ТУИТ). Из Самаркандского филиала ТУИТ 97 студентов (2020-2021 учебный год) и 77 студентов (2021-2022 учебный год) второго курса направления Компьютерный инжиниринг, из Ферганского филиала 70 студентов (2020-2021 учебный год) и 70 студентов (2021-2022 учебный год) второго курса направление Компьютерный инжиниринг, из Каршинского филиала было привлечено 54 студентов (2020-2021 учебный год) и 28 студентов (2021-2022 учебный год) второго курса направление Компьютерный инжиниринг.

Экспериментальная работа проводилась в три этапа:

Обосновательный этап проведен в 2019-2020 учебном году, изучены научно-теоретические и научно-методические основы НИР. Разработан банк теоретических и практических заданий, а также контрольных вопросов, определяющих эффективность учебных занятий по курсу «Дискретные структуры».

В течении образовательного этапа 2020-2021 учебного года была проведена экспериментально-испытательная работа для методологического обоснования актуальности предмета и применения усовершенствованных принципов.

Этап определяющего эксперимента совпал с 2021-2022 учебным годом, возможности программного обеспечения Discmath.uz для курса

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«Дискретные структуры» были оценены путем проведения опроса среди специальных экспертных групп.

В ходе нашего исследования стало понятно, что программное обеспечение Discmath.uz является коммуникационным центром. То есть позволяет любому сформировать новые знания и навыки. В рамках нашего исследования был проведен опрос среди экспериментальных и контрольных групп с целью определения преимуществ программного обеспечения Discmath.uz. В опросе приняли участие более 350 студентов. В ответах на вопросы опроса (анкеты), проведенного среди студентов, указали преимущества программного обеспечения Discmath.uz. В том числе:

71 % студентов, принявших участие в опросе, дали положительный ответ, что в процессе обучения можно получить больше информации с помощью программы Discmath.uz, 29 % предложили ввести дополнительную информацию;

70% студентов отметили, что пользоваться программой discmath.uz проще, чем пользоваться учебниками при самостоятельном обучении, а 30% студентов считают, что информацию можно найти из других источников;

85 % студентов одобрили организацию практической работы с помощью интерпретаторов программного обеспечения Discmath.uz, 15 % студентов заявили, что испытывают трудности с использованием программы-интерпретаторов;

69 % студентов выразили положительное мнение об организации промежуточных контрольных испытаний с помощью программного обеспечения Discmath.uz, 31 % студентов одобрили обычный тест;

90% студентов отметили, что программа discmath.uz положительно повлияла на организацию теоретических и практических занятий обучения, для получение новых знаний, при этом 10% студентов не предпочли использовать программу.

Из ответов на вопросы анкеты можно сделать вывод, что большое количество студентов отметили, что использование программного обеспечения Discmath.uz дает прекрасную возможность организовать учебный процесс и получить самостоятельные знания.

Эксперименты показали, что использование программы Discmath.uz на основе инновационного и усовершенствованного методического обеспечения в учебном процессе закрепило знания, умения и навыки учащихся, повысило их творческие способности и логическое мышление, послужило повышению их интереса к курсу «Дискретные структуры».

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Issue   **Article**

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CLASSIFICATION OF CRITERIA AND INDICATORS FOR INCREASING LABOR EFFICIENCY IN INDUSTRIAL PRODUCTION ENTERPRISES

Abstract: *In this article parameters and criterion of increase of efficiency of work in the industrial enterprises are certain. Are certain social and economic criterion of efficiency of labour activity in the industrial enterprises and analyzed social and economic parameters binding with labour activity. And also parameters of the purpose and results between criteria of social and economic efficiency of work and productive and economic efficiency of work are investigated.*

Key words: *social and economic efficiency of work, productive and economic efficiency of work, expense of work, wage fund.*

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Introduction

In the conditions of current innovative development, there is no single conclusion in the comprehensive assessment of labor efficiency in production enterprises. For this reason, the development of a comprehensive assessment of labor efficiency is one of the urgent problems. It is important to theoretically study the criteria and indicators that define it in the development of the methodology of comprehensive assessment of labor efficiency.

So far, scientists have not come to a single opinion on determining the criterion of labor efficiency in enterprises. Economists have different approaches to determining the criterion of labor efficiency. Ensuring high work results with reasonable use of all resources is the main criterion of work efficiency.

A comprehensive analysis of labor efficiency in the enterprise's production activities should not be limited to the inclusion of the efficiency criterion, because the criterion mainly represents the essence and main tasks of increasing efficiency, but cannot serve as a measurement and evaluation tool. Labor efficiency indicators solve this task. The complexity of the criterion of the complex program for the development of production enterprises means the need for indicators characterizing its goals and resources.

In our opinion, it is necessary to systematize indicators for evaluating labor efficiency, because the complexity of the economic activity of enterprises and organizations of any industry makes it inappropriate to separate from the existing indicators of labor efficiency the indicators that take into account and evaluate all aspects of the labor relations of the enterprise and organization as the main indicator.

In the economic literature, efficiency indicators are different:

a) according to the evaluation scale;

b) according to the level of use of resources;

c) on the importance of indicators;

g) on their role in decision-making;

d) generalized level and other classifications are found.

The change in the type of ordinary work in the production economy has led to a wider application of

the concept of "labor efficiency". In order to achieve the final result in order to satisfy human needs, not only actual labor costs are involved, but also all resource reserves in society, including intellectual resources. For this reason, the modern market economy achieves the maximum result in the effective satisfaction of human needs using available resources and knowledge. In the market economy, its value occupies a central place in the evaluation of various production resources and living labor.

The multiplicity of needs that determine the purpose of work and the use of resources requires the creation of a criterion of labor efficiency. In a broad sense, "Criteria" is a sign, a basis that plays a key role in regulating, determining or evaluating something. If we give this tariff a broader tariff based on the nature of the concept of criterion, then the criterion is - 1) the price of the main characteristic used in evaluating a particular characteristic from the point of view of its compliance with certain requirements; 2) the main direction in the assessment process; 3) is an explanation based on a number of quantitative indicators indicating the overall quality indicator and the stage of development.

Based on the broad classification of the concept of the criterion, the efficiency criterion reflects the following goals and tasks: "full satisfaction of the social need and reduction of the consumption of limited resources to a minimum level. For this reason, from the socio-economic point of view, any type of work that can satisfy the material and spiritual needs of society is effective. From the point of view of technical production, reduction of any type of work to a minimum level by means of modern technical means in order to achieve a positive result can determine the criterion of efficiency".

Based on the essence of labor efficiency, the criterion of labor efficiency can be expressed in the form of the following formula 1 through the relationship between the total labor cost and the profit obtained:

$$LEC = \frac{EPLE + SELE + SLE}{LCMP + IPLC} \qquad (1)$$

where: LEC - labor efficiency criterion; EPLE - economic-production labor efficiency; SELE - socio-economic labor efficiency; SLE - social labor efficiency; LCMP - labor cost of material production; IPLC –intangible production labor costs.

It follows from this that it is not difficult to determine the criterion of its efficiency, taking into account the fact that work is directed to the satisfaction of human needs in various forms: it increases as a result of the increase in the value of each result and the reduction of the costs of various forms spent on it.

Since there are different stages in which the product of labor is reflected, their criteria should also be different at each stage. Such a distribution confirms

that economic views do not always lead in the production of social goods. In any case, socio-economic labor efficiency takes a higher place compared to economic-production labor efficiency. In particular, at the individual level, the worker, first of all, considers the effectiveness of his work to satisfy his personal needs. Therefore, the average worker's socio-economic labor efficiency is better measured by the monthly salary he earns as a result of his labor rather than various production indicators that reflect his productivity. It is possible to determine the criterion of individual labor efficiency based on the level of living at the expense of the profit. The main reason for studying a specific branch from the account of general social labor is that each branch determines a specific consumption price based on the needs of society. This serves to determine the criterion of sectoral labor efficiency. After all, each of its directions is aimed at meeting the needs of a certain society.

It is possible to consider the criterion of network and enterprise labor efficiency based on foreign experience. At the core of Western economic science, three main directions - the model of efficiency - have been developed in the study of efficiency criteria at the microeconomic level.

The first group of models consists in the systematic organization of enterprises to achieve their goals. In this, specific groups are organized that organize the effective activity of enterprises, and they work through a specific direction to achieve a certain goal (for example, maximizing profit). The only problem in implementing this theory is the difficulty in calculating the amount of development in this direction.

The second group model is based on systematic criteria. In this case, it is envisaged that each enterprise will operate in accordance with the rules of the external environment, which are determined in advance and are independent of it. In such a situation, it is impossible to deviate from the main goal, because such a goal can be the only one in any enterprise. For example: maintaining internal order and unity. In fact, it would be difficult to find an enterprise that has not changed its internal order, at least for the shortest period of time, in the face of external influences. In addition, if the enterprise is completely resistant to external influences and unchangeable, then there is no doubt that it will store accumulated and unused resources in its reserve for a long time. For this reason, internal system consistency and market performance are hardly a measure of efficiency.

The third group model proposes to study the criterion of labor efficiency in each enterprise by dividing it into parts with different goals and desires. As their separate parts, a specific department or representatives of this enterprise directly related to the organization's activities can be taken. Disadvantages of this model are that the company's activities are

critically interdependent components and it is difficult to study the nature of this interdependence and to balance them strategically.

In our opinion, operating production enterprises in the course of their activities include meeting the needs of all those who are related in one way or another. For example, its employees, shareholders, partners and consumers are interested in the activities of any enterprise.

Basically, socio-economic labor efficiency is based on the economic-production result. Based on this, the economic-production labor efficiency can be divided into two types: 1) private efficiency - the superiority of the labor result over the total costs; 2) effective use of all types of work.

The efficiency indicator should match the economic nature of the process it describes with maximum accuracy. As a factor reflecting the quality level of this category, the labor efficiency indicator should reflect the level of efficient use of the labor force and related material resources in the process of determining the consumer value of the product.

Effective use of factors of production in creating consumer value of the product leads to higher profit at the expense of lower cost.

The relationship between the result and the cost can be not only in the form of the result / cost ratio, but also in the form of (result - cost). This approach allows consideration of all performance indicators: 1) general indicator of resource utilization; 2) specific indicators, including labor productivity, fund return, material productivity, etc.In this case, a single summary indicator cannot fully demonstrate the need for a separate system of indicators reflecting different levels of efficiency. In our opinion, the most accurate indicator of economic-production labor efficiency is profit, because it shows that the total profit is greater than all the resources used in the production of the product, regardless of the value of any resource used in the production of the product.

In the conditions of the market economy, enterprises that produce products that do not have consumer value cannot continue their activities, and it will not be possible to recover the costs of resources spent on the production of products.

Labor productivity is important among the individual indicators describing the cost of some production resources, its essence is that it reflects the production efficiency of people in a certain period of time.

Other specific indicators express the level of use of material resources in production according to need. For example: equipment, raw materials, materials and energy. In the system of separate indicators, the index of fund return has an important place in the calculation of depreciation allowances in the circular cycle of the product production process.

It is necessary to distinguish between physical and economic jobs when determining the indicator of socio-economic labor efficiency. *A physical workplace* can be occupied by several people at the same time, and it depends on how the working hours are organized in the enterprise. *Economic workplace* is a combination of a number of socio-economic conditions that ensure the employment of a person.

In our opinion, the wage fund is taken as the main source (base) when calculating the socio-economic efficiency of labor from the enterprise, sector and territorial point of view. This is important because, as a rule, the real income of workers is higher than estimated, which is directly affected by the funds allocated from the funds of material assistance and social material payment (medical leave, maternity leave), and this causes the income to remain untaxed. Accordingly, the basic wage fund should not be less than the minimum wage when calculated in relation to the general employees.

It is also worth noting that the increase in labor efficiency is a necessary requirement for the increase in wages. On the other hand, the increase in wages motivates workers and is an important factor in increasing labor efficiency. Based on this, socio-economic labor efficiency can be reflected as follows (formula 2):

$$SELE = \frac{BSF}{TE} W \qquad (2)$$

where: SELE - socio-economic labor efficiency; BSF - basic salary fund; TE - total number of employees; W – minimum wage, soum.

High socio-economic labor efficiency will depend on the increase in the relative value of the minimum wage, which is sufficient for the purchase of consumer products and non-food products necessary for each person, with the basic wage fund. Using the above-mentioned formula 2, it is possible to accurately express the average salary of employees employed in the enterprise or sector (region).

In addition to the above indicators, there are other means of determining the socio-economic efficiency of internal labor. In addition to the direct costs of creating a certain product, its duration, speed and the amount of employment in this process also play an important role. For this reason, the wage as an indicator reflecting the main socio-economic efficiency helps to determine the labor efficiency in this form in cooperation with the total labor cost.

Another constant indicator used in economic statistics is the share of wages in the total use of production resources. In this case, it is necessary to take into account the two-sided role of wages, because on the one hand, it is part of the production costs, on the other hand, it also reflects the socio-economic result of labor in the production of society.

Socio-economic labor efficiency is shown from the outside in the form of indicators in the form of increasing needs of the population. Literally satisfying all the needs of society in general and of its members

individually, along with actual needs and needs that can be realistically satisfied, is shown as the most important social result of the activities of producers.

When classifying the socio-economic labor efficiency and economic-production labor efficiency criteria mentioned above, we express the integrity of their results (purpose of the criterion, result indicator) in Table 1.

Table 1. Criteria representing labor efficiency.

№	Criteria classification	The purpose of the criterion	Result indicator
1.	**Socio-economic labor efficiency:** full satisfaction of material and spiritual needs of people	Meeting the needs of personal personnel	Internal labor efficiency
		Meeting people's needs	External labor efficiency
2.	**Economic-production labor efficiency:** achieving high productivity using the minimum amount of resources used in production	High cost effectiveness	Expected result (profit)
		Minimize the consumption of each resource	Personal: productivity, stock returns, etc.

From the above analysis, we can conclude the following:

- it is necessary to determine the labor efficiency of various branch enterprises and organizations using the system of efficiency indicators;

- the criterion of labor efficiency is determined based on the ratio of the total labor cost to the achieved socio-economic labor efficiency, economic-production labor efficiency and social labor efficiency indicators. Indicators expressing the criterion of labor efficiency consist of a system of indicators expressing various goals and tasks in labor relations.

The system of indicators that determine the criterion of labor efficiency in production enterprises allows for wide application to determine labor efficiency in enterprises of all sectors.

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WAYS TO USE DIGITAL TECHNOLOGIES IN THE ACTIVITIES OF SMALL BUSINESSES IN THE DEVELOPMENT OF OUR COUNTRY

Abstract: *This article examines the principles and methods of developing methods for the use of digital technologies by small businesses in our country. In the context of the development of the digital economy, proposals and recommendations have been developed on the need and ways to introduce digital technologies in small businesses.*

Key words: *digital economy, digitalization, small business, digital technology, innovation products, small business rehabilitation.*

Language: *English*

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Introduction

In globally advanced developed countries, small businesses provide about 90% of the total number of enterprises, up to 40% of national income, including 20% of jobs in the European Union and 18% of added value. The jobs created by small businesses, the organization of 7 of the 10 officially created jobs, further stimulate the further development of small businesses in the countries of the world, the sustainable development of their economic activities related to the effective organization of financial management and the efficient use of financial resources [1].

In particular, in accordance with the "Digital Uzbekistan – 2030" strategy in our country, comprehensive measures are being implemented in the system of public education, public services, Court, Finance and banking to digitalize sectors and regions of the economy, introduce State Information Systems and electronic services, as well as ensure the widespread use of digital technologies [2]. At the same time, the lack of an effective rating assessment system of the state of development of the digital economy and e-government, as well as an interdepartmental mechanism for its implementation, prevents an in-depth analysis of the current state of digital transformation of sectors and territories of the economy.

However, the aggravation of competitive processes in the world economy testifies to the urgent issue of introducing modern financial management methods in the activities of small businesses, including optimal cash flow management and increasing the efficiency of the use of financial resources.

Analysis of sources on the topic

In the economic literature of the present time, there is no single scientific definition of the activities of small businesses and private businesses. For Example, A.Busigin describes the private sector as a special type of economic activity aimed at generating profit (income). As the purpose of this activity, it understands the production and sale of such a commodity, whether it is in demand in the market and should benefit the entrepreneur [3]. He considers small business as an economically active sphere, the basis of which is targeted activity aimed at profit, and entrepreneurial activity, in the form of self-understanding of activities for the production and sale

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of products in order to make a profit. As a result, the content of the concept of small business refers to the target activity for the production and sale of a product that is in demand in the market. Foreign economist scientist M.Jonah commented on the financial support of small businesses by stating that the focus should be on the social effect of lending to small businesses that are just beginning to operate [4]. The increase in demand for loans issued at market rates after the expansion of the financial capabilities of small businesses was noted by this scientist. F.Allen, D.Gales, on the other hand, recognize the existence of two systems of financing the activities of small and medium – sized businesses-a system based on the activities of banks and a system based on financial markets, in which the first system is relatively important [5].

Also, one of our local scientists J.K. Kambarov, N.J. Makhmudova, one of our local scientists for improving the process of informatization and digitalization in the field of economy, played an important role in their scientific works in defining the rules of industrial economy telecommunications, in defining technical standards, in supporting research and innovation, which In turn, he expressed the opinion that it helped the emergence of a new sector of the innovative economy - the digital market [6]. Therefore, the modern digital revolution is mainly associated with market and technological innovations. Most of the production activities and services were obtained through information technology. This century has become an age of informatization and digitization of information. Also, in the scientific article written by I. Yu. Umarov, proposals and recommendations were developed on ways to improve business efficiency in the digital economy in the context of innovative management [7]. L.V. Lapidus. In his research, he developed theoretical rules and practical recommendations for managing e-business and e-commerce in terms of changing business models under the influence of the evolution of digital technologies [8].

Also, in the state program for the implementation of the strategy for the further development of the Republic of Uzbekistan [2]: "The opinion is expressed that the key factor in the production of digital economy can significantly increase the efficiency of various production, technologies, equipment, storage, sales, supply of goods and services, compared with traditional forms of management, using the results of digital data, processing and analysis of large volumes."

Taking into account the opinions of a number of economists above, today it is necessary to further stimulate the expansion of investment activities of commercial banks, strengthen their resource base in order to increase the volumes of financing long-term investment projects aimed at modernization of economic sectors, technical and technological re-equipment.

Research methodology

The preparation of this article was determined by regulatory legal acts, the formality of the literature used and the Internet Information, a comparative and critical analysis of the scientific and theoretical views of economists on the topic, the results of the study and generalization of advanced foreign experience and the introduction of proposals and recommendations into practice. In the course of the study of the topic, along with general economic methods, such methods as systematic analysis, generalization, abstract-logical thinking, statistical methods, correlation-regression and empirical analysis were used.

Analysis and results

Today, digital technologies are rapidly penetrating all fields and people's lives. The development of the digital economy has become the most important task in our country. The decision of the President of April 28, 2020 "On measures for the widespread introduction of the digital economy and electronic government" sets the task of increasing the share of the digital economy in the country's gross domestic product by 2 times, the volume of services in this field by 3 times, and their export to 100 million US dollars by 2023.

According to statistics, the share of the digital economy in the gross domestic product of countries is 10.9% in the United States, 10% in China, 5.5% in India. "Vouchercloud" portal researchers announced the list of 25 "smartest" countries in the world. According to the results of the conducted research, the first place was taken by Japan. This country also received the highest rating according to the main indicators of the research - the number of Nobel Prize laureates, the average IQ (intelligence) level of the population, and the mastery rate in schools [1].

Switzerland, China, the USA and the Netherlands took the next place. China ranked third because of its high population intelligence, while the United States ranked fourth thanks to the number of Nobel laureates. South Korea, Taiwan and Singapore are in the leading positions in terms of the number of educated (intelligent) young people, but they did not rank high only because of the small number of Nobel laureates.
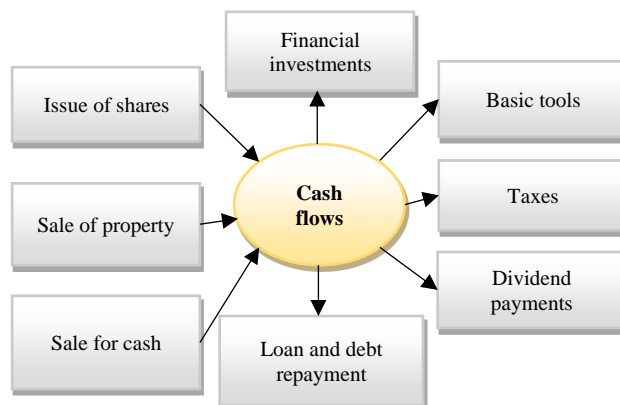
Figure 1. Cash flows in the activities of small businesses*

Author processing

According to McKinsey experts, digital assets currently account for about 10% of global GDP, while their development rate is equal to 30% of global economic growth. The development of digital assets is like an accelerator.

Obviously, the digital economy is the future. The competitiveness of the national economy is in many ways closely related to the adaptation to the revolution of Industry 4.0, which is considered an important component of the digital economy, to how short we can solve the introduction of digital technologies into all sectors of the economy, in particular in the activities of small businesses. The effective organization of digital technologies in the activities of small businesses goes back to mature personnel with sufficient competencies in the field of digital technology. It is also necessary to note that systematic measures have been established in this regard.

Also, an important indicator of the stability of small businesses today is the level of positive and negative flows, both in volume and time. This is especially important for small businesses, as they do not have reserves of financial resources and funds, such as large enterprises. Their essence is to simultaneously ensure a sufficient level of solvency of enterprises in each range of the future financial period.

The growing role and role of small business and private entrepreneurship in the digital economy is evidenced by positive changes in the indicators of this sphere. As a result of reforms in the development of small business and private entrepreneurship, the share of small business and private entrepreneurship in the gross domestic product is produced by one third of the total industrial output, and 98.1% of agricultural products. More than 74 percent of our employed total population work in this network. As you know, among the main advantages of the activities of small businesses, one can single out such as mobility, the ability to quickly adapt to changing market conditions, and the high rate of capital turnover. All these characteristics have become inherent precisely in the sphere of trade, which is abundant in the activities of the entities operating in this area.

Table 1. The share of small business (business) in the economy and its main sectors [9]

Indicators	2017	2018	2019	2020	2021
GDP	65.3	62.4	56.0	55.7	54.9
Industry	41.2	37.4	25.8	27.9	27.0
Construction	64.8	73.2	75.8	72.5	72.4
Export	22.0	27.2	27.0	20.5	22.3
Import	53.6	56.2	61.6	51.7	48.7
Employment	78.0	76.3	76.2	74.5	74.4

From the data of the above table, it can be seen that in 2021 the share of small business (business)in industry in the sectors of the economy was 27.0 percent, Agriculture, Forestry and Fisheries – 96.7 percent, in construction – 72.4 percent, in investment – 47.9 percent, in trade – 82.1 percent, in exports – 22.3 percent, in imports – 48.7 percent, and in services – 51.5 percent.

By the type of economic activity, the largest number of small enterprises and micro-enterprises was established in trade by 38.459 units, in industry- by 19.285 units, in agriculture, forestry and fisheries-

by 11.710 units, in construction-by 6.330 units, in living and eating-by 6.621 units, in transportation and storage-by 2.642 units. From the mentioned indicators, it can be seen that small businesses occupied an important place in their development, occupying the main share in important sectors and sectors of the national economy.

In addition to such traditional features as the mobility of small businesses, a simple organizational structure, a high rate of turnover of funds, a shortage of human and financial resources, the uniqueness of the owner and manager, we can additionally cite the limitations of the ability to diversify the business and conduct activities in the form of Start-ups. At the same time, some features have a positive effect on the financial management process in small businesses in some cases, and in some cases-negative.

In small businesses, the practice of business diversification is rare. As we saw above, the vast majority of small businesses operate in the commercial sector. In addition, if small businesses are engaged in trade, then, according to the regulation, this is a trade in goods of a homogeneous group, which cannot be calculated as a complete diversification. On the one hand, work in one area of activity allows you to achieve high efficiency by studying in detail the market of this product, its characteristics and development opportunities. On the other hand, the limitation of the possibility of diversifying activities increases the risk of complete loss of business, and not one of its components, as in a large holding company operating in various manifestations and directions of economic activity. In addition, the absence of diversification is also manifested from the point of view of internal management among the main types of activities of the organization (Operation, investment, financial activity).

Table 2. Analysis of the characteristics of the activities of small businesses*

	Strengths	Weak sides
Internal environment	Mobility, quick adaptation to market situation changes	Lack of potential human resources in the field of financial management
	Simple organizational structure	
	High rate of turnover of funds	Shortage of financial resources
	Ownership of the property and the uniqueness of the manager	
	Limited ability to diversify business	
	Carrying out activities in the form of Start-up	
	Opportunities	Threats
External environment	Possibility of state support	Presence of high competition
	Limited amount of external factors affecting activity	Higher tax burden

Author processing

For most small businesses, activities in investment and financial operations are not systematic, but one-time (if necessary). In this regard, the main focus in financial management is on operational (basic) activities. In addition, most of the newly created business projects called" Start-up " represent in themselves not only a newly created legal entity, but also some kind of innovative business idea (a new type of product, a New Sales Market, a new form of Service) belonging to small businesses.

Operating in the form of a "Start-up", similar to the characteristics discussed earlier, is in some cases a competitive advantage and has a positive effect on financial management or, conversely, can negatively affect the financial condition of a small business entity. On the one hand, a successful business idea can be quickly implemented and accurately pay off due to its novelty for the market.

On the one hand, a successful business idea can be quickly implemented and bring effect due to its novelty for the market. On the other hand, the failure of a business idea is a high risk that a small business entity will face major financial difficulties due to the fact that the project will not be in demand.

Traditionally, one of the main problems of financial management in small businesses is the need to attract additional borrowed funds due to the lack of financial resources. According to numerous studies, debt capital in small businesses accounts for 85% of all sources of property formation (Figure 2).

If we want the digitalization of the activities of small businesses to come in faster, Let various amenities appear in our lives under the influence of digitalization, then in the form of digitization, of course, a systematic approach is necessary. We have been striving to introduce a system of e-government into the activities of small businesses for ten years. The digitization programs implemented by our state allow us to correctly understand the wishes of our people, as well as entrepreneurs. Naturally, these programs need to be further expanded, improved. But there are some problems, the solution of which is required to be found in a short time [10; 11; 12].

First of all, digitization is a "data warehouse", the data consists of a fairly large volume. Secondly, it is important for us to manage, store and process the flow of" huge data " to expand different platforms. Thirdly, while the implementation mechanisms and sources of financing are indicated in ensuring the implementation of these programs, we believe that it is important to strengthen public control in the monitoring process.
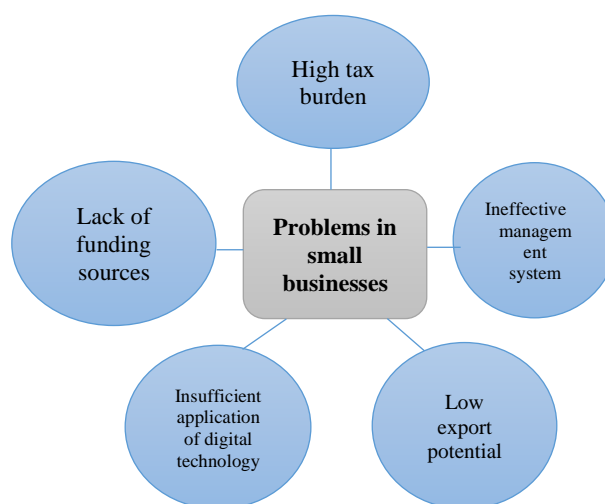

Figure 2. The main problems in small businesses*

*Author processing

The results of the World Bank's study "digital dividends" show how relevant and important the digital economy is in the development of the economies of countries. In particular, a 10% increase in Internet speed will also lead to a country's GDP growth. In developed countries, this figure is 1.21 percent, while in developing countries it is 1.38 percent. Hence, if the speed of the Internet increases by 2 times, the volume of GDP can also be achieved by an increase of about 15%.

In developed countries of the digital economy, both the volume of GDP and the share of GDP per capita are high. In this regard, the focus of the head of state on this issue at the state level pursues one goal, if it is also, firstly, to raise the living standards of the population, and secondly, to increase the Real incomes of the population.

Conclusions and suggestions

In the process of scientific research carried out in our country to ensure the development of the use of digital technologies by small businesses, the following conclusions were formulated:

1. Creating the necessary conditions for ensuring the well-being of our people through the development of the digital economy and the introduction of the use of digital technologies by small businesses is undoubtedly necessary to be considered as an urgent and priority task of today. If the tasks intended for the digital economy are carried out, huge practical results are clearly visible in all areas, and the well-being of the population increases significantly.

2. The most important aspect and at the same time the most complex stage in the development of the digital economy is the simplification of the business environment and the maximum reduction in costs that will be spent on the communication of entrepreneurs and businesses with the state.

3. Due to the fact that the use of digital technologies by small businesses covers the whole world, any state project on informatization and digitalization should be studied in a comprehensive manner and on the basis of a unified coding system, identification of information related to economic and management.

4. The most active driver of the digital economy is the state. He is the main customer and consumer of the digital economy. For example, China has invested around $ 9 billion for these purposes. Market capitalization is 210 billion. the Alibaba Internet resource, which is worth more than a dollar, has proven that these investments are spent correctly. The

state, wishing to get the maximum benefit from digitalization, needs to create and support the market for the necessary high-tech products. At the same time, in parallel with the development of private applications for Public Administration, important industries and enterprises, it is also important to maintain in its imprint the instruments that control the main platforms of the electronic economy.

5. By introducing a unified rating assessment system for assessing the state of development of the digital economy and e-government in sectors of the economy, social sphere and regions, it is advisable to introduce an effective system of interdepartmental coordination of assessment processes for the development of network and territorial programs of future digital development.

6. The attention paid to the development of the digital economy, which is considered an integral sphere of developed countries, returns its result several times more. To be a developed state in the field of small business, of course, the focus on the field of the digital economy is always important today, because the shortest path to growth is the digital economy.

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OPPORTUNITIES FOR THE DEVELOPMENT OF AGRICULTURE IN MOUNTAINOUS AND FOOTHILL AREAS

Abstract: The article describes the current state of agriculture and its role in providing the population with food, features and capabilities of these regions. The problems that impede the development of mountain and foothill areas are also presented, and ways to solve them are justified. Formed scientific proposals and practical recommendations for the development of mountain and foothill areas based on targeted programs.

Key words: mountain and piedmont areas, food security, diversification, value chain, biodiversity.

Language: English

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Introduction

In recent years, we have created a favorable business environment and value chains based on the rational and efficient use of natural resources in the agricultural sector, modernization of agriculture and diversification of agriculture across the regions, increasing the export potential of the sector, protecting the environment, and maintaining biodiversity. A number of new laws and regulations have been adopted to ensure food security of the population, and these measures have been identified as a priority. The concept, road maps and programs developed and implemented step-by-step measures [1; 2; 3].

Indeed, the "Strategy of Action" on the priority directions of development of the Republic, implemented by the President of the Republic Sh.Mirziyoyev, is aimed at further development and liberalization of the economy, rational and efficient use of land and water resources in the regions, the introduction of a digital economy in the field of agriculture, "green economy", "smart agriculture" and "organic agriculture" "The priority given to the development is not surprising, of course. Along with strengthening the organizational and economic foundations of such large-scale and promising activities, the improvement of their legal and

regulatory frameworks in line with international standards is a distinctive feature of today's agrarian reform.

At the same time, in the regional and regional context, such sectors and industries, including mountainous and low-mountain areas, are subject to legislative, legal, organizational, economic, technological and implementation assistance for agro-economic and agro-bio-climate, labor and investment potential, and production and export opportunities. The innovative, scientific and practical base is not fully formed, and the existing ones need to be improved in accordance with the modern requirements.

The extent of the problem studied. Widespread use of opportunities in mountainous areas, the presentation of foreign scientists by F.K.Kocherga [4], M.A.Galbatsdibirova [5], S.A.Gashkina [6], A.E.Maltsev [7], G.E.Avakiyan [8], P.G.Abdulmanapov, M.N.Mirzon [9], Lester R.Brown and Christopher Flevin, Yu.Karaev, K.N.Fayzullaeva, E.A.Dostiev, A.Kaziev, E.A.Egorova, O.Yu.Voronkova, I.K.Gerter, S.A.Karyuk, V.S.Missakov, M.A.Morozov others works are noteworthy [10].

From the Uzbek economists presented the peculiarities of agriculture in mountainous and piedmont areas A.Mukhtorov, T.Djumaev, H.N.Ammonov, A.S.Alibekov, S.L.Alibekova, K.A.Choriev, R.Adilchaev, T.H.Farmonov, Sh.Abdulazizov and others.

Methodology

The data obtained in the article based on statistical and monographical surveys and questionnaires is the research database. Summarizing and comparing results using economic analysis, expert evaluation and other economic research methods.

Analysis and Results

Currently, 43.6% of the total land area of the Republic of Uzbekistan (2018) is located in mountainous and mountainous areas, including 55.3% of agricultural land, 55.6% of pastures.

37% of the total population of the republic, including more than 46% of the rural population, lives in these regions. This territorial unit accounts for about 40% of the country's labor resources.

In the 67 (42.1%) districts of 9 regions of the country, agricultural activities are carried out by farmers and dehkan farms, production cooperatives of pasture users, LLCs, network and cluster systems and joint ventures, private businesses and other agricultural enterprises. He has been doing so. In addition, 46.5% of gross domestic product, including 45.6% of livestock production and 47.2% of crop production, is being created.

Indeed, in the Republic 46% of grain crops, 53% of potatoes, 63-70% of fruit and grape fields are located in mountainous and mountainous areas, 38.5% of grain crops grown in the country, 55% of potatoes, 51% and 67% respectively. About one per cent is grown.

Mountain and piedmont areas account for more than 48% of the exported fruit and vegetable products (more than by some types).

As is well-known, mountain and piedmont pasture plays an important role in the pasture cattle breeding in our country. Currently, about 43-56% of the cattle and small cattle in the country are concentrated in the mountains and in the foothills, where 46-44% of meat and dairy products are grown.

More than 80-90% of meat and milk in these areas is produced by dehkan farms and farmers in the country as a result of organizational and economic measures and conditions aimed at supporting dehkan farms, developing family entrepreneurship, especially for rational and efficient use of pastures. Production of high value added products based on the processing of meat, dairy products.

Table 1. Information on cultivated area and gross yield of major types of agricultural and mountainous areas, in percent

Main types of crops	Crop area, %	Gross crop yield of agricultural crops %
Grain crops	46.0	38.5
Cotton	30.2	27.9
Potatoes	53.0	55.0
Vegetables	45.0	46.9
Melons	30.8	31.1
Fruit	62.8	51.0
Grapes	69.9	67.0

In mountainous and piedmont pasture-breeding areas, pasture fodder accounts for 56-65%, and even higher (70-75%) in the formation of livestock fodder base (depending on seasonality). At the same time, pasture productivity in the foothills ranges from 2.0 to 2.5 centners per hectare (Kashkadarya, Surkhandarya, Samarkand) and 2.5 - 3.5 centners per hectare (Jizzakh, Fergana, Andijan, Namangan regions), 8-5,5 c / ha (Namangan, Fergana, Andijan) 5.5 - 8.0 c / ha (Kashkadarya, Samarkand, Surkhandarya, Samarkand and Jizzakh regions) and above.

Meat and dairy cattle breeding and meat breeding have been developed in the foothills and piedmont areas, increasing pasture productivity, limiting their degradation and sustainable supply of meat and dairy products not only in these areas but also in urban and industrial centers in the flat areas of the country. In markets, they provide a balanced price.

Grain per capita production in the mountainous and piedmont areas is 3% higher than the national average, potatoes 1.5 times, vegetables 1.3 times, fruits 1.4 times, grapes 1.8 times, meat and milk by 1.3 times. quitting. 76 kg (38%) of grain crops per capita, 48 kg (55%), potatoes - 138 kg (46.5%), fruit - 41.5 kg (51%), grapes - 32 kg. 66,7%), meat - 33 kg (45%), milk - 137 kg (43%) and 16 kg (42,1%) of honey - mountain and piedmont areas.

Clarivate Analytics indexed

The share of mountain and piedmont areas in the agriculture of the country is increasing as a result of the measures taken to ensure the innovative development of the agricultural sector in the country and the regions.

Most notably, these indicators have shown steady growth in recent years.

The role of the industry in ensuring food security and socio-economic development of the country, if we take into account that in these regions fruit and vegetable, dairy and meat products for consumption, as well as agricultural and raw materials for industrial and processing industries are being created. We can see that the Alpine and mountainous agriculture are a distinctive regional component of our national economy as a whole, and the specifics and capabilities of this region in agricultural production are as follows:

- Highly susceptible to climatic changes and impacts of agricultural production on mountain and foothill areas;

- plays an important role in providing water resources to the population and agriculture in mountainous and piedmont areas (70% and more of the agricultural water resources in the country are formed in mountainous areas);

- The formation of water flow depends on the cover and volume of glaciers in the mountainous regions, and in the context of mountain and mountainous ecosystem services, the "water quality and water" services of these areas are of not only regional but also national and interregional significance;

- High level of minimum natural amount of precipitation and humidity;

- high natural fertility of land resources and low level of bonuses of pastures and rainfed (non-irrigated) lands;

- Characteristics of natural environment of mountain and piedmont areas, ecosystem structure and wide range and range of ecosystem services - mountain, piedmont, forests, pastures and hayfields, reservoirs and others;

- The peculiarities of demographic processes in mountainous and piedmont areas, and as a consequence, uneven distribution of labor resources in mountainous and piedmont areas, high density in one area, and in others;

- Spatial distribution of industrial and social infrastructure facilities in mountainous and mountainous areas, underdeveloped infrastructure for agricultural production, and so on.

Possibilities of mountain and mountainous agriculture:

- Increasing employment of labor resources through the use of mountain natural conditions and resources, and the development of non-traditional, scientific and intellectual activities with a high proportion of intellectual labor;

- Non-traditional and traditional agriculture in mountain and piedmont areas (goat breeding and dairy farming, goat farming, intensive Greek nuts, almonds and pistachios, beekeeping in the final cycle, cultivation of green feed in the hydroponics system, vegetable growing in the vegetation system; , innovative development of plants used in the pharmaceutical and food industries, production of highly liquid and profitable products);

- application of water-saving technologies on mountain and mountain slopes;

- development of pasture cattle breeding based on the principles of cooperative pasture cooperatives and associations of pasture users based on pasture management planning in mountain and foothills;

- Possibility of development of ecologically pure, high-yield and original horticulture and fruit-growing branch;

- unconventional use of land and water resources (eg terrace);

- the availability of food for wild plants in the foothills and foothills, access to medicines, various dyes, and development of entrepreneurship in this area;

- the possibility of cultivation of relatively less demanding crops;

- production of traditional agricultural products;

- Opportunity to grow seedlings and seeds in favorable environmental conditions in the mountains;

- Opportunities for development of agriculture;

- Opportunities for fishery development, etc.

Our analyzes and observations show that today the main obstacles to further development of mountain and piedmont areas are the following:

- Lack of economic and financial resources, inadequate income for agricultural commodity producers to expand production and upgrade their material and technical base;

- Lack of technologies and enterprises for processing agricultural products;

- inadequate infrastructure and in some areas of the agricultural infrastructure of mountain and piedmont areas, taking into account the peculiarities of production in the mountainous and piedmont areas;

- Inadequate use of agricultural export potential of mountain and piedmont areas;

- There is no legal and regulatory framework for the production of ecologically clean agricultural products in mountainous and piedmont areas, and thus the organizational and economic foundations for the production of such products are broken down by regions and regions;

- Low level and narrow scope of attraction of investments in the agricultural sector in the regions, especially foreign direct investments;

- In agricultural production, the use of differentiated territorial norms (coefficients) in determining indicators of labor and material resource consumption, as well as in other areas, taking into

account the natural-climatic and agro-ecological conditions of the mountain and mountainous regions, is considered appropriate;

- Inadequate consideration of existing and expected demographic processes and features of the region in the formation of production and social infrastructure, as well as the structure of agricultural production of mountain and piedmont areas;

- agricultural production in mountainous and foothill areas is extremely sensitive to climate change and its effects on plains and desert areas, and restriction on the formation and production of MTT systems, etc.

The analysis shows that at present time not only the mountainous and piedmont areas, but also the mountainous areas are not fully utilized.

As for the mountainous and piedmont areas, the development of the industry requires a comprehensive solution of a number of interrelated issues. That is:

A. Land resources of mountain and piedmont areas have not been fully explored, soil quality has not been studied sufficiently in quantity and quality. Also, the study of the water composition and water regime of mountain streams and springs was ignored, and the economic value of plants, meadows and pastures was not calculated. Measures in this area are not organized systematically and periodically.

B. Mountains and foothills, which have been making a significant contribution to the development of our national economy over the past half century, are beyond the scope of science, fundamental, applied and innovative research on agricultural economics, industry, management, financing and development left.

Only in the last two or three years, the views on these issues have changed, and the concept, roadmap, programs and measures have been developed and implemented, taking into account the agricultural features of the mountain and piedmont areas. This can be seen also in the tasks set out in the Decree of the President of the Republic of Uzbekistan dated 23 October 2019 "On approval of the strategy of agricultural development of the Republic of Uzbekistan for 2020-2030".

Ensuring the solution of the tasks specified in this Strategy and further development of mountain and piedmont agriculture can be carried out by the state on the basis of targeted, comprehensive programs.

Discussion of results

In agro-economic science it is desirable to prioritize the problems of economic, social and environmental efficiency of agricultural development of mountain and piedmont regions, land, water, labor resources and investments.

Due to the peculiarities of agriculture in the mountainous and piedmont areas, its present and future potential and impact in the national economy, as well as the experience of foreign developed and

high-growth countries, the Institute of Agricultural and Mountain Research in the Surkhandarya region. We think it is necessary to establish in Sariasiya (or Baysun) district.

The main task of this research institute is to conduct a comprehensive study of mountain and piedmont agriculture and to improve land, water, investment and labor resources in accordance with agro-economic and agro-climatic conditions, crop rotation, diversification of agriculture, livestock and livestock production. development of technological maps for the production of agricultural products, development of territories and scientifically-grounded plans and forecasts of agricultural production development of scientific recommendations and practical recommendations aimed at economic assessment of natural resources in mountain and piedmont areas, training of personnel, prevention of degradation of pastures and hayfields and drylands, formation of economic management systems adapted to climate change.

It is also important to note that most of the water resources used in agriculture are located in the mountainous regions of our republic and neighboring countries, and the prediction of food availability across the regions is not only national, but also regional and regional based on fundamental, applied and innovative projects is of global importance. The establishment of such an institute is the only one in Central Asia.

It is well-known that in the agricultural practice of the Republic, the organizational, technological and implementation measures for the formation of business plans of agricultural enterprises in the production of goods, works and services, the scope and direction of government support, the prospects of financial and economic activities of agriculture. Require cultivation of advisory agricultural products once every five years for use in decisions of financial and economic nature labor and material costs hitting the standards are systematically developed. That's a positive thing, of course.

As our analysis shows, the factors that shape and characterize regional mines (precipitation, land-grade bonuses, etc.) are not fully taken into account in the development of standard process maps. As a result, the demand for pruning, fuel and mineral fertilizers on government-produced products is based on the same approach for all, without regard to the nature of the regions. This does not ensure the high labor and material resources costs associated with the production of agricultural enterprises, especially the farms, their inability to compete in the agricultural products market, and, as a result, the re-establishment of the economic and financial situation.

One of these regional features is the coefficients of adjustment of production (works and services) and fuel costs, taking into account the "altitude of the territories relative to the sea level", which must be

taken into account when developing the standard technical maps for agricultural production.

This normative document was approved in 1987, and it was stated in 1993 that the Ministry of Agriculture of the Republic would remain in place until new recommendations were developed and adopted. In the normative document, agricultural activity is carried out at a height of 500 to 2000 meters above sea level, with the amplitude of the coefficients of correction of work and production and the expenditure of fuel, depending on the terrain, the structure, and the configuration. It is recommended that the range from 0.88 and 0.93 to 0.82 be calculated from 1,04 to 1.12 per cent of fuel consumption and from 1,07 to 1,16.

If we take into account that in the republic 85-100% of the rural areas are located at 1000 meters above sea level and 18% in rural areas, the area is 500 to 1000 meters above sea level and is engaged in agricultural production under such conditions. the impact of the introduction of coefficients on the economic and financial performance of farmers, dehkan and other agricultural enterprises located in these regions.

According to our research, applying these correction coefficients for cereal crops (38-40% of the total area of cereal crops in the country) is averaged over 6.0% of income for farmers and other agricultural enterprises engaged in grain production. Increase to 11.0-15.0%, increasing the level of provision of petroleum products necessary for timely and qualitative carrying out of agro-technical processes from 6.0% to 9.0-14.0%.

93% district of Samarkand region, 85% of Kashkadarya region, 55% of Andijan region and 46% of Surkhandarya region apply the methodological approach to developing technology maps in mountainous and mountainous areas, and farmers and agricultural enterprises in these regions scientifically justified, objective reliability of the plans and plans for the future, the average income of each cultivated area 6,0-15,0 from 7.0 to 18.0%. Determining the cost of GRP required for technological processes is based on real and objective position, along with an increase in the average fuel demand by 7-12%, optimization of business processes, the use of innovative, resource-saving and multifunctional agricultural machinery and the optimal timing of agrotechnical measures. Increase the productivity by an average of 13-16% due to implementation and increase the level of mechanization of agricultural production by 16-20%. to work.

For this purpose,

- Firstly, the development of phased and updated regional and regional peculiarities of labor and material resources required for agricultural production, as well as more than 260 standards, quality and regulations applicable to agricultural production; exit is offered;

- Secondly, we believe that these measures are practical in establishing joint activities of dozens of research institutes, laboratories and centers, standardization and standardization institutions in various directions;

- Thirdly, to integrate these standards in all processes of forming the value chain of agricultural products, to integrate the process into digitalization, to form a standard technological card of agricultural production in electronic software, and to the agricultural information and information centers of district-level information centers is recommended. This will allow farmers and peasants and other agricultural enterprises to use these regulatory documents online;

- Fourth, it is desirable to organize these tasks and activities within the framework of targeted projects in the category of "proactive" innovative and innovative projects provided by the network ministries.

Implementation of these measures was approved by the Decree of the President of the Republic of Uzbekistan dated October 23, 2019 "On approval of the Agriculture Development Strategy of the Republic of Uzbekistan for 2020-2030" No. 2 "Strategy of Agricultural Development of the Republic of Uzbekistan for 2020-2030". The strategic priorities set out in Chapters II and IV provide the solution of the goals and objectives for achieving them.

- Fifth, studies have shown that globalization and global economic integration in the mountainous and piedmont regions of our national economy and global warming have a direct impact on the level and scale of the use of natural resources in the mountainous areas, including land and water.

In this context, the need for improving the existing legal and regulatory framework is needed to maintain the integrity of natural resources in the mountainous and foothill areas, and to ensure the sustainable socio-economic development of these areas on the basis of their rational and efficient use.

World experience shows that the relationship between the use of natural resources in the mountainous and piedmont areas, the balanced development of these areas, and the preservation of ecological sustainability and biodiversity, is regulated by the Law on Mountainous Areas in each country.

Therefore, it is advisable to develop and adopt the Law of the Republic of Uzbekistan "On mountain territories of the Republic of Uzbekistan" aimed at regulating relations aimed at preserving the integrity of natural resources of mountain and mountainous regions of the republic, ensuring their sustainable socio-economic development. is calculated.

Local residents, farmers and dehkans, as well as rural entrepreneurs in Tashkent, Jizzakh and Surkhandarya regions on prospects of agricultural development in mountainous and mountainous areas, diversification of the network structure, organization

of targeted and rational use of pastures and hayfields in the regions. Most of the beneficiaries participating in the interactive interviews and questionnaires with the Republic of Uzbekistan Ikast "the Law" On the pasture after the adoption of this law is critical to ensure the development of agriculture in the mountain and foothill areas of legal and normative basis of mutual respect.

This law is a hypometric measurement of each province and district, and its height is above sea level. Although there are various opinions on this issue today, there is no officially recognized scientific and practical framework. Therefore, in the area of construction and industry, mountainous regions are classified into one category, and finance, taxes, GRP, labor and social issues are included in another category. on the basis of another normative legal act.

With the adoption of this law, the classification of mountain territories is legal, and the natural features of mountainous areas are defined within the law, which is the legal and regulatory approval of the ecosystem that provides the conditions for a healthy life, health and employment. We believe that this law will serve as the legal basis for the state's policy in the area of mountainous areas, but will also ensure the state's regulation of the development of these territories.

- Finally, in our opinion, this law should specify the areas in which the use of mountainous areas should be paid or free of charge, the scope and amount of payments, directions and methods of use.

At the same time, priority is given to the state support of mountain territories, creation of favorable conditions for sustainable development of mountain territories, protection of economic and production and ecological basis, rational and effective use of natural resources, ensuring their integrity and stability without negative impact on natural resources of mountain regions. The basis for this law should be the creation of favorable conditions for the development of entrepreneurship on the basis of this principle.

The main objectives of the proposed law are:
- Creation of conditions for improving living standards and employment of people living in mountainous areas;
- Decreasing the mountainous regions from other regions by the level of socio-economic development;
- protection and protection of natural resources of mountain territories;
- Creation of `favorable conditions for attracting investments while ensuring the investment attractiveness of mountain regions;
- development of entrepreneurial activity in the mountain regions, especially family business.

In order to further strengthen the cooperation of the agro-industrial complex of mountain and mountainous areas with industries and industries, to provide social support to mountain and mountainous agricultural activities, as well as to support the development of mountain regions with various tools and mechanisms. land tax, legal entities and individuals registered in the high and medium altitude mountainous areas, electricity, utilities payments for water, irrigation, irrigation system, which for the use of water for irrigation to reduce by 50% the amount of payments that are considered appropriate.

As the experience of the neighboring country (the Kyrgyz Republic) shows, the legal introduction of such a regime ensures comprehensive development of mountain territories, rational and efficient use of natural resources, and balanced development of the territories.

Such a law was adopted in a number of foreign countries, including the Republic of North Ossetia-Alania (1998), the Kyrgyz Republic (2002), and the Republic of Tajikistan (2013). This indicates that it plays an important role in ensuring sustainable agricultural development.

Adoption of laws and regulations will ensure the saturation of the domestic market with agricultural products based on the development of the agricultural sector in the mountainous and piedmont areas, and the raw materials processing industry, as well as the export potential of the regions.

The law should also provide for a system of measures taken by state and local governments to create conditions for sustainable development of mountainous areas, and to protect their economic and environmental foundations.

Favorable climatic conditions of the mountainous and piedmont areas of the Republic, increase of export potential of these regions, creation of new jobs, increase of income of the population along with creation of opportunities for cultivation of many kinds of ecologically pure agricultural products, natural resources of which are currently formed separately in the market. and, ultimately, improve the welfare of the population.

However, this potential has been largely untapped today due to the lack of regulatory framework for further development and support of agriculture in the mountainous and piedmont areas.

This requires assessing the agricultural potential of these regions and implementing them within the targeted programs.

For this purpose, we believe that it is necessary to develop "Targeted development programs for mountain and piedmont areas of the Republic of Uzbekistan for 2020-2030". In the future, such programs should be developed periodically across regions, and should be developed over the years, in conjunction with other interested sector research institutes.

The objectives and directions of the state program of this category should be aimed at ensuring the objectives outlined in the agricultural development strategy of the republic, which clearly specify the mechanism and tools for implementation of measures,

monitoring and support, timely and complete implementation of the tasks. We believe that it will also help us to make better decisions and decisions on management and regulation.

The first step in the development of such a targeted and comprehensive program is retrospective analysis of the sector, assessment of its status, preparation of conclusions and recommendations.

Conclusion and recommendations

Implementation of the above suggestions and recommendations is approved by the Decree of the President of the Republic of Uzbekistan dated October 23, 2019 "On approval of the strategy of agricultural development of the Republic of Uzbekistan for 2020-2030". Strategic Priorities, Strategic Priorities, Goals and Objectives for the Achievement of These Goals will provide a performance solution.

Based on the foregoing, we believe that it is necessary:

- First, to develop the Concept, target program and complex of measures for the development of agriculture in the mountainous and piedmont areas of the republic for 2020-2030 and 2040;

- Secondly, to expand the scope and scale of scientific research in the agricultural sector of mountain and piedmont areas.

In the development of such a Concept and Program it is recommended to consider the following:

- The formation of legislative or other normative acts specifying the special status of "mountain and piedmont areas" and regulating its agricultural development;

- Considering the vulnerability of mountainous areas to anthropogenic impact, their biodiversity is regarded as a reservoir of water, mineral and recreational resources, and is not considered a priority for the development and improvement of the legal framework to support sustainable agriculture in these areas;

- Development of mechanisms for the implementation of targeted state programs, targeting, financial support and implementation of the proposed measures based on the peculiarities of agricultural and mountainous areas.

The program should focus on the development of mountain and piedmont areas:

- Increasing agricultural production, including environmentally friendly and non-traditional products;

- specialization of mountain and mountainous areas for specific types of entrepreneurial activity based on the existing natural and climatic conditions, the national culture and skills, opportunities and conditions in the neighborhoods of villages and villages, the formation of "smart villages" on the basis of family business support; development (eg potatoes, beekeeping, Greek nuts, grapes and apricots, goats, sheep breeding, medicinal plants and feed crops, etc.);

- Creation of tourist resorts, mountain sports, various forms of recreation, development and stimulation of eco-tourism, mountain hunting, alpinism;

- development of production infrastructure of mountain and piedmont areas, ensuring ecological balance, etc.

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IMPROVING THE EFFICIENCY OF SMALL BUSINESS ENTITIES

Abstract: The article analyzes issues such as the scientific-theoretical basis of small business, current problems, activities of small business entities in the country and opportunities to increase its efficiency.

Key words: small business, private entrepreneurship, macroeconomic policy, potential, gross domestic product, stability, modernization, diversification, integration, specialization, efficiency.

Language: English

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Scopus ASCC: 2000.

Introduction

The global economic changes taking place in the world economy in turn affect the economy of each country. Positive changes in internal and external economic activity occurring in the economy of countries are largely the result of positive activity in small business facilities in the country. In developed countries, the share of small business entities in the gross domestic product is 50-60%, 51% in Poland, 53% in Germany, 60% in Finland, 63% in the Netherlands [1]. According to the data of January 28, 2021, more than 6 million business enterprises were registered in Italy, one of the European countries, in 2020. Individual enterprises have the largest segment, 3131611, companies with authorized capital 1791853, partnership-based enterprises 945236, and other forms of enterprises 209331 [2]. It can be seen that the activity of individual business entities is expanding in Italy as well as in many countries.

Today, the sustainable development of the economy in developed countries is inextricably linked with the positive changes taking place in the field of small business. It is important to increase the standard of living of the population through the rapid development of small business. Notably, small business is used as a concept of "small and medium-sized business" in Japan, and "small production" in India and Asian countries. It is worth noting that mature specialist scientists of developed countries consider the socio-economic development of the

scientific society as the most important task of studying the problems related to small business, preparing promising programs for identifying directions for their elimination, and applying them to life.

In Uzbekistan, the organizational and economic mechanisms for the formation of small business entities at the level of demand have been defined as the main directions of fundamental reform. The necessary regulatory and legal frameworks for the improvement of the organizational and economic mechanisms of small business development have been adopted and will create large-scale opportunities for the development of small enterprises in the economy. It is not for nothing that the scientific justification of the organizational and economic mechanisms of small business development, the identification of the factors that negatively affect their activity, the acceleration of research in this regard, the determination of the mechanisms of the achieved results, and the conduct of new scientific research related to the field are among the most urgent issues. The reason is that small business is the driver of socio-economic development of society.

Although the direction of small business in Uzbekistan is characterized by the slow pace of development compared to neighboring countries, the indicators related to the sector are noticeable, but the level of sustainable development of small business enterprises is being ensured slowly. The increase in

the share of small enterprises among the leading sectors and sectors of the economy began to emerge as a solid foundation for economic growth and social stability. In 2020, compared to 2015, Uzbekistan rose by 29 places in the global innovation index, taking 93rd place among 131 countries [3].

As one of the main factors of the above successes, it is related to the result of the economic reforms being carried out in our country and the correct selection of the measures taken from its structure. The main achievements of the development of the Republic of Uzbekistan are distinguished by the fact that the development of small business has been raised to the level of state policy and focused as one of the main strategic areas.

Methodology

Statistical analysis, factor analysis, survey and selective observation methods of small business entities operating in the Republic of Uzbekistan were used in the research. The obtained results are presented in tables and diagrams, based on which a logical observation was made.

Results and discussion

Small business enterprises have taken a strong place in the experience of world countries with their high results and successes, the share of the sector in the gross domestic product was 60-70 percent, the indicator was only 1.5 percent in 1991, and 31 percent in 2000. In 2016, the share of this sector in the GDP reached 64.9%.

Demand in the economy for small business enterprises creates new production in rapidly growing sectors and industries. During 2017-2020, a total of more than 288 thousand enterprises were established in our country. 14800 of them belong to large enterprises and 273200 to small business enterprises. If we analyze the state of this indicator in our country, it can be observed that its level in small business enterprises was 6.2 times higher in 2016 and 6.9 times higher in 2020 than in large enterprises.

At the same time, the largest share of newly established small business enterprises during 2017-2020 is trade (32 percent of all enterprises), industry (21 percent), agriculture, forestry and fisheries (12 percent), construction (10 percent), living and corresponds to the food industry (7 percent).

In 2020, the share of income from small businesses in the total income of the population was the highest in Jizzakh, Bukhara, and Khorezm regions. In the Republic of Karakalpakstan, Fergana, Navoi regions and Tashkent city, it was noted that the weight of income in the form of wages in large industrial enterprises and organizations is high.

The stable development of this sector is strongly influenced by any changes taking place in the business sector. At the same time, the experience of economically developed countries shows that the constant high standard of living of the population has been achieved primarily through the rapid development of small businesses. Based on this, the development of small business, the digitalization of the economy, as well as the digitalization of the activities of small business enterprises, are of great importance for the people of Uzbekistan.
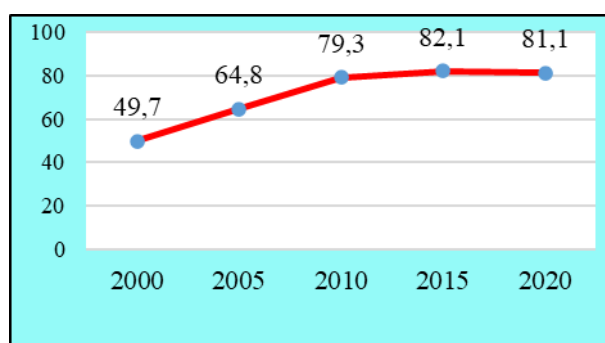
Figure 1. The share of small business and private entrepreneurship in the total number of people employed in the economy (%) [3]

If in 2000 the share of small business and private entrepreneurship in the total number of people employed in the economy was 49.7 percent, in 2005 it was 64.8 percent, in 2010 it was 79.3 percent, in 2020 it was 81.1 percent, and it increased by 31.4 percent compared to 2000. Despite the growing share and importance of small business in the economy of our country, it can be noted that the value of these indicators is equalizing compared to developed and developing countries. More than 32 million small businesses in the United States employ more than 57 million people[4], and in the European Union, small businesses account for 99.8% of all businesses and 85% of jobs [5].

In order to increase their profits, it is desirable for small business enterprises to know how to evaluate

the specific conditions that arise in the market relations and to choose the right way, and to correctly allocate the investments they attract to the directions [6]. This ultimately leads to an increase in the efficiency of small business enterprises and the development of the country's economy (Table 1).

Table 1 shows that the gross domestic product of the Republic of Uzbekistan was equal to 3255.6 billion soums in 2000, and the share of small businesses and private enterprises increased by 31.0 percent. As a result of increased attention to the economic and social sphere in the country and consistent implementation of reforms in the sphere,

these indicators amounted to 602551.4 billion soums in 2020, and the share of small business entities was 53.9 percent.

It should be noted that these indicators are in accordance with the indicators presented in the target parameters of the socio-economic development of the Republic of Uzbekistan until 2030. Small business entities are economic activities characteristic of market economy conditions. In other words, it is a conscious and purposeful economic activity of the owners or their representatives on the organization of production and exchange of goods and services in order to achieve a certain socio-economic result.

Table 1. The volume of GDP of the Republic of Uzbekistan and the share of small business and private entrepreneurship in it [3]

Indicators	2000	2005	2010	2015	2020	Change in 2020 compared to 2000 (-,+)
GDP, billion soum	3255,6	15923,4	78936,6	221350,9	602551,4	599295,8
Share of small business and private entrepreneurship in GDP	31,0	38,2	52,5	62,9	53,9	22,9

In the republic, great attention is being paid to deepening socio-economic reforms and improving the efficiency of small business and private business

entities in order to improve the living standards of the population, reduce the unemployment rate, and ensure the employment of the population.
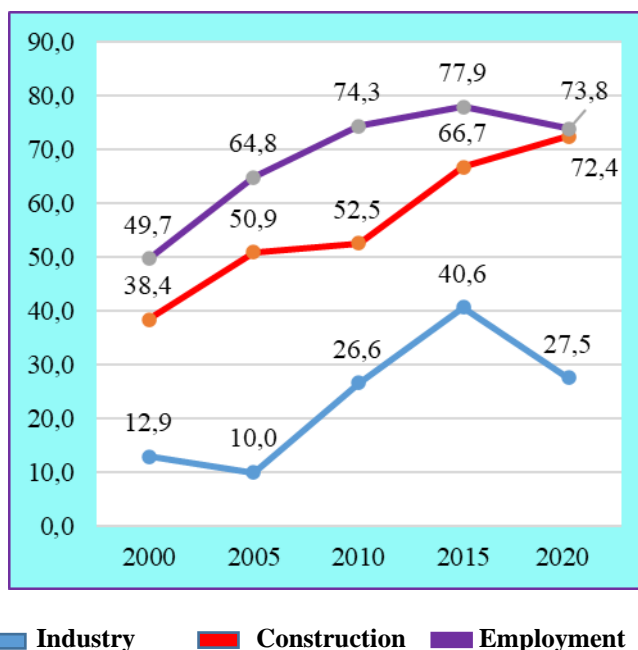
Figure 2. Share of small business and private entrepreneurship in industries [4]

From the data presented in Figure 2, it can be seen that the share of small business and private

entrepreneurship in construction and employment in 2000 was 49.7 percent and 38.4 percent, respectively,

by 2020, the share of small business and private entrepreneurship in these sectors will be respectively 73.8 percent, and made 72.4 percent. The share of small business and private entrepreneurship in industry increased by 14.6% compared to 2000 and reached 27.5% in 2020. This serves the socio-economic development of the regions. Its main task is to scientifically substantiate a reasonable compromise between the economic interests of the whole country and its individual regions [7].

The most important factors of the economic development of the regions include the optimal combination of diversification and specialization of the economy and the centralization of innovations in priority areas [8].

In addition, information technologies are deeply penetrating all spheres of human life and activity to improve the efficiency of small business entities. Digital technologies not only improve the quality of products and services, but also reduce excess costs. At the same time, it also plays a major role in eliminating the most serious disease that hinders the development of the country – corruption [9].

To sum up, the share of small business in developed countries is 60-70 percent of GDP [10]. In order to increase the share of small business in the economy of the Republic of Uzbekistan, it will be possible to ensure the efficiency of the small business sector through a practical approach to development.

Conclusion

In conclusion, it is necessary to provide information about the conditions and privileges created for the development of small business in our country. It is necessary to show the population the experiences of countries that have achieved the welfare of the population through the development of small businesses. The development of this sector is necessary to ensure the well-being of every citizen to develop or start his own business. It is necessary to improve the organizational and economic mechanisms of the development of small business entities in the country, to develop a system of new mechanisms by determining the influence of several factors, and to put them into practice.

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Issue **Article**

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THE MAIN DIRECTIONS OF THE DEVELOPMENT OF GEOINFORMATION SYSTEMS IN IMPROVING THE EFFICIENCY OF THE USE OF LAND RESOURCES IN UZBEKISTAN

Abstract: *Rational use of land resources is the most important factor in the economic development of Uzbekistan, its approval in the world community, improving the standard of living of the population. The data obtained as a result of the study of the state of lands become a reference point for state authorities and local self-government bodies in the development of regulatory legal acts, federal target programs, the general scheme of land management, land use schemes, establishing the procedure for land management, planning and determining the prospects for rational use of land, their protection, making managerial decisions on the development of territories.*

Key words: *geoinformation technologies, land management, cadaster, land resources, planning, monitoring, information support.*

Language: *English*

Introduction

The current state of society and the significant complication of its infrastructure require mastering new means of processing and analyzing spatial information, methods of operational solution of management tasks, evaluation and control of changing processes [1]. Geographic information systems (GIS) are an effective means for solving the designated tasks. GIS are defined as information systems that ensure the collection, storage, processing, display and dissemination of data, as well as obtaining new information and knowledge about spatially coordinated phenomena on their basis. It is necessary to emphasize their ability to store and process spatial data, which distinguishes GIS from other information systems.

Main part

A way of organizing data in GIS is a layer model, the essence of which is the division of objects into thematic layers. Layer objects are stored in a separate file, have their own system of identifiers, which can be accessed as a set. GIS provides for working with the graphical part of the data in the form of electronic maps and the attribute part of the data containing a certain semantic load of the map and additional information that relates to spatial data, but cannot be directly mapped (description of territories or information describing the qualitative characteristics of objects – attributes) [2]. Graphical objects and attribute data are related to each other, in particular, graphical information is stored as one of the fields of the attribute table. The user, by manipulating information layers and objects, using arrays of digital map data, can form the necessary aggregates of objects in the form of cartographic coverings. GIS tools make it possible, using attribute and spatial data queries, to carry out simulation modeling. In addition, the built-in internal GIS programming languages allow you to create your own applications that contribute to solving specialized tasks [3].

The list of modern GIS products is quite diverse and extensive. Among the most common: MapInfo, Arc/Info, ArcViewGIS, AutoCADMap, GeoMedia,

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GeoDraw, QGIS, Global Mapper, Maptitude, ArcGIS Pro and others [4].

With powerful visualization, analysis and modeling tools that allow bringing together knowledge about the surrounding world, measurements and calculations, GIS technologies have become widespread in various fields and are the information basis for decision-making procedures [5]. The fields of application of GIS technologies today are land management, land cadasters; design, engineering surveys and planning in urban planning; thematic mapping; inventory and accounting of objects; marine cartography and navigation; terrain analysis; navigation of ground transport; air traffic control; geology; environmental monitoring; management of environmental protection measures and natural resources [6].

The objectives of GIS in the use of land resources are to discover new patterns characterizing the use of land in connection with the demands of society, the availability of other resources, population growth, scientific and technological progress; improving the methodology of analysis, forecasting and planning of land use; determining the efficiency of land use from economic, social and environmental positions; setting new tasks, problems, questions in accordance with the development of the company, its production forces, needs and requests for the use of research results in the preparation of forecast and planning documents [7].

Considering GIS at different levels of generalization of land-resource information and various purposes, we will identify the main directions and areas of application of GIS technologies in the effective use of land resources, as well as their content in solving issues of land resources redistribution and land use formation.

1. Systematic monitoring of the state of land resources, assessment and forecast of changes in their condition under the influence of anthropogenic and natural factors (land monitoring). The purpose of monitoring is to regulate the quality of the environment, prevent land pollution, and ensure their productivity. Based on the results of land monitoring, operational reports, reports, scientific forecasts, thematic maps and other materials provided to state bodies are compiled. GIS, combining various information into a single information and analytical complex based on spatial data, contribute to solving the main task of monitoring the creation of effective land management.

2. Forecasting and planning of the development of territories based on the assessment of the resource potential of lands, the organization of effective agriculture. Forecasting is an organic part of the planning system, is an important form of pre-planned developments. Being aimed at a longer-term perspective, obtaining economic effects from land based on the use of their resource potential,

forecasting avoids mistakes and miscalculations in land management [8]. Operational cartographic display of the results of forecasts of the development of territories using GIS allows making appropriate management decisions on the development of territories at the scientific level.

3. Modeling of rational use and protection of land resources. Rational use of land resources implies a comprehensive improvement in the use of land as the needs and material and technical capabilities of society grow. Land use modeling is based on GIS capabilities to automate calculations of quantitative indicators of land resources and their subsequent visualization. For example, automated calculation of yield and gross output from crop rotation fields, taking into account the soil conditions of the area [9]. On this basis, it is planned to place fields and working areas of crop rotations. Initially, a digital model of land use is being built, including thematic layers (topography, soils, hydrography, land management map, etc.). Fields are placed when digital maps (topographic, relief, existing land management map and soil) are superimposed. At the same time, the main directions of processing are displayed on the land management map, on-farm driveways from fields to production centers are designed, forest belts are designed. The overlay of maps during land management design ensures optimal consideration of the directions of surface runoff, taking into account the location of topographic objects (ravines, gullies, etc.).

4. Qualitative assessment of lands, study of their natural, ecological and economic potential, assessment of changes in the state of the natural environment under the influence of human economic activity. It is noted that the Land assessment in Russia is carried out in accordance with the division of land resources into categories, that is, according to the intended purpose (agricultural land, land of settlements, industrial land, energy, land of specially protected areas, forest land, water land, reserve land). Thus, the object of evaluation is a land plot. The assessment is based on its intended use, provided for by the category status, without coordination with the main array of the resource, that is, without taking into account its integrity. With the trend of population growth (by 2050, the population is expected to grow to 9.5 billion people), increasing the burden on the natural environment and its resources, there is a need to revise the policy of using land as a separate area, but as a land resource that is interconnected with the atmosphere, lithosphere, hydrosphere, living matter of the biosphere. It is necessary to determine the real economic value of land, taking into account the variety of factors that provide a comprehensive assessment. In addition to economic indicators in the structure of land value, indicators of the ecological condition of lands in agricultural use are of great importance, the quality of assessment of which increases with the use of GIS technologies [10]. The

active use of GIS technologies with the refinement of the production, environmental and socio-economic functions of the land user, allows for a more complete assessment of land resources and to form a system of rational agriculture that combines efficiency with environmental safety.

5. Territorial planning aimed at determining the purpose of territories based on a combination of sociological, economic, environmental and other factors in order to ensure the sustainable development of territories, the development of engineering, transport and social infrastructure. GIS technologies make it possible to transfer the organization of rational use of land resources to a qualitatively new basis, taking into account all components.

6. Information support and maintenance of the land cadaster. GIS provides an opportunity to work with land cadaster information data and is in demand by state and municipal authorities, land services, commercial structures, land owners and tenants, allowing each group of users to receive the information they are interested in. For state and municipal authorities, it is proposed to: obtain visual information about the values of land, the status of neighborhoods and land plots; the ability to analyze data based on information about the percentage of land by type of law, by category, etc.; formation of information for planning tax revenues to the municipal budget from the city's land resources; formation of information for planning lease payments on municipal property lands; formation of vacant land plots, maintaining their register, preparation of information for organizing auctions for their sales; information for the preparation of analytical reports on the efficiency of land use. For land services: identification of compliance with cadastral and market values; preparation and updating of information for market entities and the public; provision of information services to the public and firms.

For commercial structures of the information services market: obtaining information about a land plot according to the permitted type of functional use according to the following indicators: cadastral number of the quarter, cadastral number of the plot, specific indicator of the cadastral value of the quarter, cadastral value of the land plot, tax rate, amount of rent, terrain parameters of the plot; formation of output documentation according to standard forms, including the scheme plot boundaries; performing spatial analysis of the selected land plot: the composition of infrastructure facilities in a given radius, the presence of neighbors, transport, shops, the remoteness of pollution objects; obtaining information on requests; forming a database on the market value of land plots; providing analytical services on land value issues, including forecasts of the market value of land plots; providing information services to the population and firms.

Conclusion

The main issues that the authorities should be concerned about in the application of GIS technologies in the management of the country's land resources are:

- state policy in the use of geoinformation technologies and spatial data;
- problems of formation of spatial data infrastructure;
- government, regional and commercial services using spatial data;
- prospects for improving the legal and regulatory support of geodesy, cartography and geoinformatics in the Republic of Uzbekistan and the experience of other countries in creating spatial data infrastructure.

There is a need to create some kind of environment that will allow you to combine and integrate the received data. A common coordinate system is required, which will ensure the unity of the coordination description of objects. Thus, the main tasks for the development of spatial data infrastructure that the authorities of the Republic of Uzbekistan face are the creation of a single coordinate space, obtaining up-to-date spatial data, the adoption of legal acts on spatial data infrastructure and ensuring the availability of data on spatial objects.

To solve the listed tasks, it is required:

1. A full-fledged GIS of the country for land management should be built on an integral basis, focused on the collection and processing of data of various types (maps and plans, satellite and aerial photographs, tabular information of various regularity, text descriptions, etc.) and of various levels (republican, regional, city), presentation of materials in various types: maps and blocks maps, tables, etc.

2. The geoinformation system for monitoring the land resources of the region should include:

- a system for collecting data from a continuous survey of the lands of the territory of the region based on remote sensing technologies;
- a system for collecting data from sample surveys (including expeditionary surveys);
- a system for collecting data from hospitals (which will be used as reference points for analyzing the state of the land);
- a system for integrating data obtained from various sources and different departments;
- a data processing system (interpretation of remote sensing data based on hospital and expedition research data, analysis of archival data, etc.).

3. Regional and local authorities, relevant state and non-governmental organizations should be involved in the information content of the monitoring system, data from public organizations and educational institutions, independent research can be involved.

4. Data entry into the system should be carried out both on a regular basis (in accordance with the survey programs) and promptly (in case of information about changes in the boundaries of land plots, significant changes in the condition of land as a result of natural disasters, environmental disasters, etc.).

5. Access to the processing results should be made selective, in accordance with the tasks of the organizations using it and their contribution to the monitoring system.

6. Information processing should be carried out centrally (in the regional center), which will ensure the methodological unity of processing and interpretation of the results.

In modern conditions, the use of GIS technologies in land management and land cadaster is an opportunity to adopt scientifically sound, provable project proposals based on a comprehensive computer analysis of the current state of land and focused on the most efficient use of territories. GIS technologies open up new opportunities to increase practical productivity, environmental friendliness and profitability of land use.

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INTERPRETATION OF SOCIAL LIFE IN ANALYTICAL GENRES (ON THE EXAMPLE OF THE ANALYSIS OF THE PRESS OF KARAKALPAKSTAN)

Abstract: *This article discusses analytical genres in the group of journalistic genres and their features of coverage and analysis of events and phenomena of public life. The requirements and theoretical aspects of analytical genres are also considered. At the same time, the appearance of analytical genres in the modern press of Karakalpakstan, the topics covered in them were analyzed and appropriate conclusions were drawn.*
Key words: *Society, problem, newspaper, analytical genres, article, correspondence, genre features.*
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ИНТЕРПРЕТАЦИЯ СОЦИАЛЬНОЙ ЖИЗНИ В АНАЛИТИЧЕСКИХ ЖАНРАХ (НА ПРИМЕРЕ АНАЛИЗА ПРЕССЫ КАРАКАЛПАКСТАНА)

Аннотация: *В данной статье рассматриваются аналитические жанры в группе публицистических жанров и их особенности освещения и анализа событий и явлений общественной жизни. Также рассматриваются требования и теоретические аспекты аналитических жанров. Вместе с тем были проанализированы появление аналитических жанров в современной прессе Каракалпакстана, освещенные в них темы и сделаны соответствующие выводы.*
Ключевые слова: *Общество, проблема, газета, аналитические жанры, статья, корреспонденция, жанровые особенности.*

Введение

В журналистике особое место занимают аналитические жанры в раскрытии события, в освещении явлений посредством метода анализа. Аналитические жанры, в свою очередь разделяются на несколько групп. Рассмотрим свойственные каждому жанру особенности и различия формы, чем они отличаются друг от друга.

Основная часть

Аналитическое интервью. Жанр интервью в тексте журналиста является видом, формой результата «закрепления» или получения определенных сведений, и действительности с помощью метода интервью со стороны автора этого текста. Как известно, метод интервью относится не к теоретическому, а эмпирическому методу. Поэтому, жанр интервью во многом относят к информационным жанрам, основанных на получение информации в результате использования эмпирических методов исследования. А, в аналитическом интервью, как и другие эмпирические методы для подготовки не только информационных, но и аналитических материалов упускается из виду, что оно используется для получения необходимых основных сведений. Информация, полученная

методом интервью в газетной полосе, могут даваться в виде корреспонденции, отчета, статьи. Это означает, использование этого метода в сборе информации сам по себе не может создать жанр интервью. Как отмечено выше, когда ярко проявляется «ход» использования этого метода только в тексте, он может определить форму этого материала в виде диалога, вопроса-ответа. Поэтому, в тексте, когда преобладает этот признак можно назвать жанром интервью. Но, отнесение одного из интервью к группе информационного или аналитического жанра зависит от содержания изложенного текста в виде интервью.

Информационное интервью отвечает на вопросы Кто? Что? Где? Когда?, содержит в себе только информацию о факте, а в аналитическом интервью, кроме этого отвечают на вопросы: Для чего? Каким образом? Что это означает?, анализируется факт. Тут приведены печатные материалы относительно информационному и аналитическому интервью.

В выпуске газеты «Қарақалпақстан жаслары» от 7 января 2010 года напечатана беседа А.Жаксымуратовой с директором информационного библиотечного центра на тему: «Возможности библиотеки». Этот материал по жанровой сущности относится к информационному интервью. Так как, в нем обращается с вопросом информационного характера для получения ответа. К примеру, автор задает следующие вопросы:

«– Инжигул апа, сначала поздравляю Вас с наступающим Новым годом.

– Что можете рассказать о проводимых работах в библиотеке на сегодняшний день?

– В конце прошлого года с 26 ноября по 26 декабря прошла выставка книг. Ваше мнение о выставке?

– Расскажите о книгах, имеющихся в книжном фонде?

– Какие еще отделы и секторы в вашей библиотеке оказывают услуги?

– Всем известно, вашей библиотеке отвели новое здание в 2007 году. Какие удобства там созданы?

– Какие изменения и новшества произошли в 2009 году и расскажите о планах на будущее?» [2].

Как видно, ответы на заданные вопросы имеют информационный характер. Поэтому, мы имеем полное право назвать это интервью - информационным.

В выпуске газеты «Еркин Қарақалпақстан» от 23 марта 2009 года дается аналитическое интервью А.Оразова с заместителем дирекции государственной акционерной страховой компании Каракалпакстана «Узагросугурта» под названием «Застрахованный дехканин не проиграет». В этом интервью журналист требует

ответы аналитического характера на заданные вопросы.

Роль автора аналитического интервью больше всего определяет направление анализа своими вопросами.

Обычно, это осуществляет сам, кто дает интервью. С этой целью вопросы формируются подобным образом. При этом требуется освещение ими основных моментов, какое это событие, явление, процесс, положение.

А также, заданные во время интервью вопросы станут причиной осознания своих знаний и понятий. И уточняется связь причины и результата обсуждаемого события, дается определенная оценка, прогнозируется развитие события, приводятся необходимые аргументы в пользу изложенной позиции. Таким образом, содержание текста интервью «обогащается» элементами анализа действительности, оно превращается в аналитический материал.

Действительно, бывает случаи, когда тот, кто дает интервью, не дожидаясь направляющих вопросов, сам осуществляет анализ событий, процессов, положения. Но, это во многом проявляется, когда собеседник заинтересован в полном и широком освещении предмета разговора, а это облегчает задачу автора аналитического материала.

Комментарий. Этот жанр, как и интервью, является методом и жанром журналистики. Тут в основном, на первом месте стоит разъяснение события. Например, в жанре корреспонденции, статьи события вовлекаются в глубокий анализ, факты сопоставляются, а в комментарии разъясняются происходящие события. Разъяснения могут даваться в различных формах. Не ошибемся, если скажем, что комментарий в качестве жанра вошел в журналистику в последние годы. В материалах, соответствующих этому жанру до или после, случаи разъяснения важных событий встречаются сначала редко, впоследствии - часто. В настоящее время в комплексе основных форм журналистики комментарий имеет важное место. С его помощью, автор выражает свое отношение к важным событиям, формирует в виде краткого анализа задачи и проблемы, достижения или упущения, связанные с ним. Также, дает оценку, прогнозирует их развитие и т.д. В частности, анализ и разъяснение в комментарии, отличает жанр от других информационных жанров. В отличие от статьи, обзора и других аналитических жанров, комментарий обычно отличается известным аудитории явлением и посредством анализа предмета освещения, тут преобладает отношение.

Статья. Жанр статьи является одним из весомых жанров среди жанров журналистики. Жанр по своему содержанию и написанию имеет

определенные правила [3; 61-63]. Особенно, в жанре преобладает публицистический характер. Данный жанр является материалом, на основе публицистики, посвященным важным вопросам для общества в целях своевременной ликвидации возникших проблем в обществе, находит решение посредством представления проблемы самому обществу или определенной среде. Можно его представить различными способами. Например, посредством одного из видов средств массовых информаций или обращением непосредственно самого субъекта (публицист) к народу. Русский исследователь В. В. Ученова отмечает: "Публицистика – краткое освещение какого-либо действия общественно-политического содержания, заключение о пользе и вреде этого действия для общества" [4]. С этой точки зрения, данная характеристика несколько сближает с жанром статьи. Если обратить внимание на основное значение слово статья, то оно с арабского языка означает «сказанное слово». Целесообразно принимать это определение как **повествование происходящих событий** (Ж.М.). Этот термин много времени используется в сфере журналистики, вместе с тем была одной из тем, интересовавших многих ученых.

Одно из специфических свойств жанра статьи, это его глубокая публицистичность [5; 88-92]. Например, в жанре корреспонденции время и место освещается на основе ограниченного времени, в жанре статьи событие освещается шире и сжато. В ней автором всесторонне сопоставляются факты, делается глубокий анализ, и выносятся заключения. Если точнее выразить мнение, то в жанре корреспонденции говорится о внутренних вопросах какого-либо факта, проблемы, задача статьи – определяется раскрытием связи события с другими проблемами общества.

Вместе с тем, единство содержания и формы в статье напрямую связано с политическим знанием, мировоззрением и профессиональным мастерством автора. Фактам и событиям следует отнестись оригинальным способом, без субъективных размышлений, мыслей и чувств. Как отметил известный теоретик ученый Е. Е. Прохоров: «Точность идеальной позиции публициста с профессиональным мастерством – основное условие реальности и действенности публицистического слова в жанре статьи» [6].

В труде коллективных авторов сообщества русских ученых под редактором М. С. Черепахова отмечено: "Статья – поднятая проблема анализируется с заключением широкого содержания на основе обобщающих факторов и теории неограниченного объема" [7].

Известный узбекский ученый Р.Мухаммадиев, проводивший ряд научных исследований в сфере теории публицистики, свои

рассуждения о статье отмечает следующим образом: «В статьях факты и события из материальной и духовной жизни общества научно изучаются, в них определенная мысль последовательно развивается, углубляется, определенная задача теоретически систематизируется, доказывается и освещается»[8].

М. Худойкулов отмечает: «Статья - это публицистический материал с поднятой проблемой, с определенным вопросом по одной отрасли общественной жизни" [9; 154]. А также, жанр статьи по содержанию и значению темы и написания можно разделить: теоретическая статья, практическая, научная, литературно-художественная, публицистическая, нормальная и критическая, юмор-сатирическая статья» [9]. Таким образом, всестороннее изучение фактов, их глубокий анализ – считается основными признаками жанра статьи. Также, исследователь разделяет статью по тематике на: общественно-политическая, экономическая статья, посвященная производству и культурно-просветительской теме статья. А по стилю написания разделяется на: научный, художественно-литературный, публицистический, сатирический и другие виды. Чтобы не было, мы не должны забывать публицистический и аналитический характер статьи.

На сегодняшний день теоретик ученый А. А. Тертычный, в ряде научных работ по жанрам современной печати, в частности, труде, посвященном классификации жанров печати, разделяет жанр статьи на общие три группы, то есть **общеисследовательская статья**, **тактико-аналитическая статья** и **полемическая статья,** подтверждает их примерами [1; 149-171].

Веб страницах в Интернете газет «Erkin Qaraqalpaqstan» и «Вести Каракалпакстана», в статье известного публициста Ш.Уснатдинова на тему: «Преданность традициям предков», [10] автор выражает свое отношение относительно Указа Президента Республики Узбекистан «О мерах по дальнейшему совершенствованию деятельности фонда по социальной поддержке ветеранов Узбекистана «Нуроний». Автор с гордостью отмечает прогрессивные перемены нашего общества: «Перемены и обновления, происходящие перед нашим взором, намеченной по пути первого Президента, улучшение качества и уровня жизни народа, достижения каждого нашего соотечественника вызывает чувство гордости у каждого из нас, за престиж нашего государства перед мировым сообществом» [10]. Уместно отметить мнение автора относительно принятого Указа Президента Ш.М.Мирзиёева от 28 декабря 2016 года «О мерах по дальнейшему совершенствованию деятельности фонда по

социальной поддержки ветеранов Узбекистана «Нуроний» весь наш народ, особенно ветераны восприняли с большим воодушевлением, как проявление заботы и внимания лидера страны к каракалпакскому народу [10]. Вместе с тем, автор статьи самобытность и менталитет нашего народа излагает следующими строками: «Нет ни одного государства, который поднял бы на уровень государственной политики заботу одиноких пожилых людей, пенсионеров и инвалидов, оказание медицинско-социальной помощи людей преклонного возраста и лиц с ограниченными возможностями. На такие благородные дела способны лишь духовно богатое поколение великих предков с чистыми помыслами». Действительно, статья с систематической стороны поднимает вопросы человечности, глубокого уважения наследия предков. Указ уважаемого Президента наряду с сосредоточением в себе преданности к традициям предков, важное место занимает в дальнейшем совершенствовании неповторимых качеств, которые являются духовным наследием нашего народа.

Статья Ш.Елмуратова на тему «Театр – гордость нации...» [10] представлена в виде беседы, в ней раскрывается творческий путь народной артистки Узбекистана и Каракалпакстана Райхан Сапаровой. Автор с первых строк статьи выражает свое отношение к искусству и культуре: «Особую роль играет искусство и культура, являющиеся символом духовности в ознакомлении каждого народа в качестве нации. Театральное искусство с самых ранних периодов своего развития до наших дней внес весомый вклад в обогащение духовности всего человечества». Каракалпакский театр сформировался в начале XX века, в дальнейшем его развитии можно отметить имена многих творческих деятелей. Заслуженный артист Узбекистана и народный артист Каракалпакстана Халмурат Сапаров и Сулыу Алламуратова одни из них, их творческий путь продолжает дочь Р.Сапарова, в статье раскрывается её роль в искусстве, грани творчества. Автор в статье обращает свое внимание на творческий путь деятелей искусства. Автор отмечает, что Р.Сапарова начала свой трудовой путь в Каракалпакском государственном музыкальном театре, она своими привлекательными и задушевными ролями быстро обрела уважение народа и создала образы многих героинь в продолжении своего творчества. Она исполняла роли в спектакле «Жумагуль» Т.Каипбергенова — роль Турдыгуль, «Суймегенге суйкенбе» С.Хожаниязова — Ханша, в спектакле «Гарип ашык» А.Бегимова и Т.Алланазарова — Хурлиха, в «Беруний» Т.Сейтжанова — Гули, в спектакле «Ай тутылган тунде» М.Карима — Зубаржат и

другие образы, которые заняли свое место в сердцах зрителей особой привлекательностью, естественностью, жизненной правдивостью. Также, Р.Сапарова знакома народу через телепостановки и художественные фильмы по каракалпакскому телевидению, её роли («Непокорная» Т.Каипбергенова — сноха, «Танк» М.Нызанова – главный врач, и роли в цикле «Тропинки жизни»), большое значение имеет её деятельность в качестве ведущей в больших концертах в рамках дней культуры и литературы Каракалпакстана, проведенного в городе Ташкенте, в республиках Татарстан, Башкортостан, Дагестан, Казахстан и других республиках». Действительно, автор в статье тематически раскрыл вопросы мастерства на примере известного деятеля искусства Р.Сапаровой и смог осуществить задуманное в ходе беседы.

Словом, единственное свойство статьи - своевременное изучение всех проблем, происходящих в общественной жизни и на этой основе предотвращение проблемы или внесение ясности. Также, посредством высказывания мыслей общественностью и народом можно найти решение поднятой проблемы.

Заключение
В заключении следует отметить, в аналитических жанрах социальная жизнь интерпретируется различными способами и в разных направлениях. Основной целью является найти решения проблемы. Наряду с этим, аналитические жанры служат появлению социального отношения в обществе и призывает население к решению проблемы. Уместно отметить, что в составе аналитических жанров имеются обзор, письмо и рецензия. В них тоже имеется подход, исходя из целей и задач каждого жанра. Результат изучения показывает, что в современной прессе Каракалпакстана недостаточно освещены статьи, свойственные аналитическому жанру. Освещаемые статьи не отвечают требования. Причины можно указать следующие:

- журналисты недостаточно используют возможности жанра;
- в Каракалпакстане не наложены работы учебных центров по переподготовке практикующих журналистов;
- низкий уровень правовой грамотности журналистов;
- отсутствует доверие между журналистами и аудиторией.

Если эти проблемы будут ликвидированы, то думаем в журналистике Каракалпакстана освещение аналитических жанров и его требования наладятся.

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Issue   Article

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THE ROLE OF KARIMBAY TNYBAYEV IN KARAKALPAK ART

Abstract: *In this article, it is discussed in detail about the great features of the Karakalpak art. The role of K. Tnybayev is very important in the development of the art of bakhsishiliq in our country in the early days. It is analysed that Karimbay Tnybayev was contemporary of Qiyas jiraw, Khojambergen jiraw, Japak bakhsi, Eshjan bakhsi, Shaniyaz bakhsi, Shernazar bakhsi, Amet bakhsi and Genjebay bakhsy, as well as took lessons from great teachers and learnt our national music.*

Key words: *National art, bakhsi, jiraw, culture, heritage, national music, tradition, music.*

Language: *English*

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Introduction

The Karakalpak people, like other people of Central Asia, were considered to be one of the people who held a rich culture from early history. The Karakalpak people based on their rich history hold a colourful literary legacy in various genres, depicting the life of the Karakalpak people. Such as folk song, love songs, folk tales, folk proverbs, epics of bravery and romance. And among them the most important one is "Milliy muzika" (National songs).

Main part

The root of Karakalpak national songs is related with the musical instrument "kobiz" and the person who plays it, that is "jiraw". Fast success of this type of ntional music gave birth to other musical professions such as "baksi", "qissakhan" and "sazende". These people have been hugely admired and respected among Karakalpak people. Because they not only performed in front of thousands of people with their phenomenal talent but also shared their knowledge with many representatives of young generation. As a result of it there is appeared a notion called "ustaz-shakirt" (teacher – learner). One of the best examples of this tradition can be Korkit ata and Akhimbet bakhsi who were the founders of bakhsi school and contributed to raise many young musicians. Even today you can easily notice this tradition among Karakalpak musicians.

The nationality of the people will never be lost. Each nation is proud of its own national customs, culture, music, and its own unique nation. About Karakalpak culture and its traditions were remarked by a famous Kazakh ethnographer Chokhan Valikhanov, "Karakalpaks are the first poets and musicians in the great desert".

We know that our national music is closely connected with historical events. The reason is that the past historical stories are connected with music, and our stories and legends are told among the people. So that national music is the face of time, people's life, their happiness and their sadness.

From the earliest times music has been closely connected with the life of people. Music was created based on their lives so that it became so popular. Even though the authors of many songs are unknown many songs became as a national song because people learnt the lyrics by heart. And this is the reason of appearing the term "xaliq namasi" (national song). Of course that songs were created by many talented people, who were good at music, but there were no written lyrics or the names of authors to give credits. So that's why we just have to consider them as national songs.

The most powerful and rapidly developing thing in the Karakalpak people is "folk items", as well as the national heritages, customs, dishes, and arts that have been passed from generation to generation thanks to people who had a great memory (since there was no

written language) and teacher-student tradition. However, one thing that makes us happy is people are loyal to their nationality and tried their best to keep it. In particular, national music is one soul, one body with the nation. As every child is brought up by listening to national music, and also at that times national music was closely connected with children's education.

The well-known scientist Abu Ali Ibn Sina in his book "Kitabi Shypa" paid special attention to the upbringing of children and said: "You need to follow two things to satisfy your child's wishes. Firstly, you have to cradle the baby gently, secondly, helping him sleep with the help of national music. Following these steps makes the baby physically and mentally strong. So, music mixes with the world of a person from the moment he enters the world. As it has been mentioned above, in national music, words of wisdom have a great place in the education of a person. Such advices, should be carried out with the help of music rather that simple words. Since it is clear for all of us that in the former way they will reach the heart of a person in a meaningful way.

People's poems seem to be an image of human love for beauty in all directions, giving aesthetic education to humanity with their best ideas. National music plays a huge role in people's aesthetic education, mental health, upbringing, ethics, world-view. So that our people appreciate the national songs and consider them as the image of the most beautiful things in nature, and the pearl of national art.

The great part of our national music is bakhsishiliq (the profession of bakhsi). National music cannot be separated from people, and people cannot be separated from national music. The reason is that national music has been with people since the past, history, happy and sad times. In this way, it should be kept as an apple of an eye and passed to the next generation. After getting its independence, Uzbekistan began to pay a serious attention to re-establibiling national culture and identity. Our national traditions, customs, and great nationalism, which we had built up a lot, were regained.

Due to this attention, our national music has been renewed. In order to teach our national music, which has been taught to our students for a long time, all the children in our republic have started to create departments under the name "Folklore" in music and arts schools and cultural centers. One of the people who too the responsibility to run that schools was K. Tnybayev who was a contemporary of Qiyas jiraw, Khojambergen jiraw, Japak bakhsi, Eshjan bakhsi, Shanyaz bakhsi, Shernazar bakhsi, Amet bakhsi, Genjebay bakhsi.

Tnybayev Karimbay was born in Kegeyli region in the village called "Kum shungil" in the family of Tnibay, who is a *bakhsi* (a folk singer/narrator, performer of folklore among the Turkic peoples, usually perform at holidays and weddings) as well as a farmer, on 15 of March in1941. His father Tnibay

was not only a well-known bakhsi but an experienced farmer as well. Tinibay's mentor was his father Khudaybergen, Khudaybergen's mentor was Artik bakhsi, Artiq bakhsi's mentor was Muwsa, Muwsa bakhsi's mentor was a famous bakhsi Akhimbet bakhsi. Tinibay bakhsi's brother Koshkarbay, was also a bakhsi and his son Tilepbay was a also one of the well-known bakhsi of his time.

Karimbay is the descendent of a well-known bakhsi family. Karimbay went to a school situated in Khalkabad city in 1957 and successfully finished it in 1957. While he was studying at school, one of his teachers was, a well-known bakhsi among Karakalpak nation, Genjebay bakhsi Tilewmuratov. Karimbay was interested in being a bakhsi from his early childhood, and whenever his father was going to some kind of toy (wedding), he used to take Karimbay with him. Despite of his mother's disapproval, his father never stopped this action. Being interested in this field from his childhood, Karimbay was be able to perform well some compositions from the age of 10-13. By providing his father in many events, he learned a lot of compositions performed by experienced and well-known artists of that time.

After finishing the 10th grade, he continued his studies at school, specialized in driving tractors. One day when he was passing through the cultural centre, he heard the music and unintentionally he entered the centre. And it is there he met and got acquainted with Raman Sultanov who is the head of that ensemble.

Noticing his talent and enthusiasm, Raman Sultanov asks him to come in his spare time to attend the classes. Attending the classes gives him a chance to go on tour with this ensemble. Successfully finishing his studies, he comes back to his hometown and starts working as a tractor driver.

Unfortunately, after loosing his mother in 1951 and his father in 1959, he moves to Nukus city. His serious journey related to being a bakhsi starts here, namely. However, at the very start of his life in Nukus he had to do various jobs in order to make a living, however, one day being able to find some free time he goes to one of his father's apprentices called Oten Toreshov, to ask him to be his mentor. Nevertheless, Oten Toreshov explains him that he can not be his real mentor as he hugely respects him and his late father (usually mentors are very strict with their apprentices) so that he sends Karimbay to Ubaykhan bakhsi, and from that day he starts his studies as an apprentice of Ubaykhan Sadikov.

Becoming the apprentice of a famous Ubaykhan Sadikov from 1962, he learns many compositions. Apart from being a bakhsi he also learns to play in the *girzhek* (a national Karakalpak musical instrument with a three-string bowed with a gourd-shell resonator and a leather soundboard, usually accompanies a bakhsi who is playing in the dutar) and while his mentor was singing, he played in the girzhek. Seeing his great ability, one of the famous poets, Sadiq

Nurimbetov appreciated his talend by remarking "-you have become a great bakhsi my son".

In 1962, he meets Genjebay bakhsi again and learns many songs from him. In 1976, under the leadership of Genjebay bakhsi, he contributes to the organization of the ensemble called "Mukhalles" and becomes one of its members. Working along with Genjebay Tlewmuratov he also contributes to the training of many students. In 1977, as a part of the "Mukhalles" ensemble takes part in the cultural days of the Republic of Bashkortostan. In 1977 and 1982, together with Genjebay bakhsi, he participated twice in the "People's Music" symposium held in the Moscow city.

In 1981, he participated in the Days of Culture of Uzbekistan, which took place in the Republic of Tatarstan, and in 1984, in the Republics of Azerbaijan and Dagestan.

Moreover, he successfully participated in Berdakh poet's150th jubilee which is held in Tashkent and Moscow, and the 100th jubilee of Karakalpakstan's accession to Russia. Beside that attends Culture Days held in Tashkent city and Khorezm region.

Also he attended an international festival called "Goruglunin at oynatisi" in Turkmenistan, bakhsi Maqtumquli Garliev's 100 year jubilee, three times participated "Ashik Aydin" in Old Urgench and together with Turganbay Kurbanov attended an international festival about Makhtimquli's poetry.

Since 1976, he starts training many students, most of whom have been awarded by the state. Among them are the national artist of Karakalpakstan, late bakhsi Turganbay Kurbanov, a honored artist of Karakalpakstan, late Gulbahar Rametova, national artists of Uzbekistan, Gairat Utemuratov and Tenel Kalliev, national artists of Karakalpakstan, Ziyada Sheriypova and Gulnara Allambergenova, cultural workers of Karakalpakstan, Inzhigul Saburova, honoured artists of Karakalpakstan Tlepbay Koshkarov and Uzakbay and Nasyr Nuratdinov Penen Genzhebay Sultamuratov, the winner of "Nihol" (special award given to young artists) Lola Makhammadinova and etc.

Till 2000, worked in the ensemble "Mukhalles" named after Genzhebay bakhsi. During the 1992-2013 he worked as a teacher of bakhsi, music and girzhek in the department "Milliy muzika" (National music) of Nukus college culture and art.

Nowadays his two sons Murat and Polat Tnybayevs, four daughters Aygul, Tamara, Fatima and Ziynegul Tnybayevs, three daughters-in-law Bekzada, Azira and Bazarkhan, three sons-in-law Eliwbay and Bazarbay are National zhiraw of Karakalpakstan, and Bakhbergen Sarimbetov are continuing his work. He has 25 grandchildren and six great-grandchildren, among them Alimbay, Quatbay, Dauletbay, Ayzada, Manzura, Biybinaz, Guldaste, Islam, Sultan, Dildora are continuing their grandfather's way.

K.Tnybayev was the master who mastered many national songs and knew the history of them as well as he learned the various options of national songs created and redesigned by other musicians. Nowadays his heritage is continued by many students and we hope that this tradition will continue and never disappears.

Conclusion

In conclusion, it should be noted, K.Tnybayev was the master who mastered many national songs and knew the history of them as well as he learned the various options of national songs created and redesigned by other musicians. Nowadays his heritage is continued by many students and we hope that this tradition will continue and never disappears.

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Issue   **Article**

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ISLAM AND PILGRIMAGE TOURISM: SPIRITUAL AND EDUCATIONAL POWER

Abstract: *This article draws important conclusions by analyzing the role of travel in Islam and its relevance today and the issues of promoting pilgrimage mentioned in the Holy Quran and hadiths are covered. Also, this article highlights the positive impact of pilgrimage tourism on the human psyche and the importance and effectiveness of traveling to historical places.*
Key words: *Islam, pilgrimage tourism, halal, culture, history, travel.*
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Introduction

Looking at the historical literature, researchers associate the emergence of tourism with the period before century. With the invention of money, trade rose to a new level, which made it possible to open a new era in terms of the concept of travel. The development of a medium of exchange, such as money, was an invention that greatly increased existing trade activities. Changes in trade, the most important reason for travel during this period, also had a positive effect on travel.

Historically, Muslim travelers traveled to different places and shared their knowledge and experiences with others. In fact, some Muslim travelers, like archaeologists, visited many ancient countries and cities long before the europeans and conducted detailed studies of the regions. Some of these travelers made travelogues and some drew maps.

The active participation of Muslim individuals in travel from the first periods of Islamic history shows that there is a positive view of travel in Islam. In Islamic philosophy, it is believed that God's glory can be understood by seeing the richness and beauty of the things he has created. At the same time, traveling and participating in tourism activities allow people to feel better, relieve stress and thus perform better.

Tourism in Islam is an effort to be physically, mentally and socially healthy for the sake of Allah. We can also learn that religious sources have many useful tips about the purposes for which the journey should be made.

For example, Allah Almighty says this in surah "Ankabut", verse 20 of the Holy Quran [8, p.762]

قُلْ سِيرُوا فِي الْأَرْضِ فَانظُرُوا كَيْفَ بَدَأَ الْخَلْقَ ثُمَّ اللَّهُ يُنشِئُ النَّشْأَةَ الْآخِرَةَ
إِنَّ اللَّهَ عَلَى كُلِّ شَيْءٍ قَدِيرٌ

Say: Go about the earth and see how He created for the first time, and then Allah will recreate life. Surely, Allah has power over everything.

As mentioned in this verse, walking brings many benefits to a person. It is said that while traveling one can enjoy the wonders of the earth. Also, when a person travels to a place other than where he lives, he learns from the surroundings, sharpens his mind and renews himself.

Clarivate Analytics *indexed*

At the same time, the hadiths also contain the most famous and authentic hadiths that promote pilgrimage and grave visits. This is what they say about the nature of the pilgrimage to the grave:

"I turned you back from visiting the graves. Now visit them! Because it reminds you of the hereafter, it reminds you of death. Hey, keep visiting.

Because it softens the heart and makes the eyes smile. Because there is an example for you. He makes one pious in this world" (Muslim, Termiziy, Abu Dawud, Ibn Majah, Hakim, Tabarani's narrations).

In another hadith, the Messenger of God, may God bless him and grant him peace, says:

سَافِرُوا تَصِحُّوا وَتُرْزَقُوا:رضي الله عنهما قَالَ: قَالَ رَسُولُ اللهِ صَلَّى اللهُ عَلَيِهِ وَسَلَّمَ عَن إِبنِ عَبَّاس

It is narrated from Ibn Abbas, may God be pleased with him: "The Messenger of God, may God bless him and grant him peace, said: "Travel, you will be safe and you will be provided for."

We can give many examples of such hadiths and sayings of great people. According to Imam al-Nasa'i, may God have mercy on him, it is said that the virtue of visiting the graves is: "Their visit increases the good for you" [25, p.6738]. Indeed, visiting the graves of the great and famous scholars and the past reminds one of the hereafter, showing that the difficulties and all kinds of problems in this world are transitory, and makes the soul calm and peaceful.

In Islam, Muslims are encouraged to engage in any self-improvement activity. Islam is a religion that encourages Muslims to develop in beneficial ways and live in peace. [27, p.8]

According to statistics published in the 2013 edition of Tourism Highlights published regularly by the World Tourism Organization (WTO), 27% of people participating in tourism activities worldwide in 2012 were "pilgrimage tourism, health tourism and visiting relatives" acted with passion. According to this, about 300 million people around the world have traveled with motives such as "pilgrimage tourism, health tourism and visiting relatives and friends". All the three tourist attractions listed above correspond to the orders and recommendations of the Islamic religion. On December 21-23, 2015, the 9th Islamic Conference of Ministers of Tourism, held in Niamey, Republic of Niger, adopted a resolution on the development of tourism among OIC (Organization of Islamic Cooperation) member states.[6, p.12] The participants of this meeting approved the proposal for the implementation of the "Strategic Plan for the Development of Islamic Tourism" project. With this, the development of tourism based on Islamic teachings was started in OIC member states, and later in other countries. In particular, cooperation planned the following projects [22, p.106]

• conduct research on the origin, aspects and dimensions of Islamic tourism in OIC member countries and its importance;

• conducting a situational analysis of the state of Islamic tourism in OIC member countries;

• to propose a strategic direction with an action plan for the development and promotion of Islamic tourism in OIC member countries.

In Islam, tourism is an effort to gain God's approval and to be physically, socially, and psychologically healthy. We can also observe that many issues have been pointed out about the benefits of travel. For example, travel reduces stress in individuals. It helps him to listen and get rid of various mental, physical and spiritual problems. Thus, the concept of travel in Islam is purposeful action. Personal development such as stress relief, physical relaxation, health, education and upbringing are among the main goals of travel. In pilgrimage tourism, tourists travel to seek Allah's approval on the one hand and to fulfill their individual recreational activities. [1, p.86]

Today, it is very important to preserve places such as historical places and monuments and pass them on to future generations. The reason is that preserving historical places gives people a sense of the past. One feels a different feeling when visiting time-tested places than when visiting modern buildings. Then a question may arise. Why ancient heritage sites still play an important role in society today?

Traveling to historical places is good in many ways. First of all, it improves our knowledge of history. Ancient monuments help us to understand the history that happened before, and increase respect for the society that lived in that time and had different traditions. [27, p. 1242]. Visiting historical places is not just about traveling and visiting, but also about discovering and learning new things. It should be noted that one of the main reasons that influence people to visit various historical places is personal satisfaction, increasing their knowledge and spiritual strength. For example, travelers want to see the historical places they have read and heard about and go back in time to experience the historical processes themselves, and this creates opportunities for them to acquire new knowledge.

Our ancestors who lived in history were knowledgeable and made world-class discoveries in various fields. The fact that the historical monuments that we see today were built in a time when there were no technical equipments like today, and yet these monuments continue to surprise the tourists of the world with their strength and luxury, is an inspiration for children and the young generation. Children can learn a lot from such cultural heritage tours that become educational.

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Cultural heritage and historical monuments perform the following important functions in society:
- helps to form social capital;
- important in preserving local traditions and culture plays a role;
- promotes positive behavior;
- improves the image and pride of the community;
- helps improve society [4, p. 314].

The role of historical and cultural heritage in the development of pilgrimage tourism is very important. In this sense, we can call pilgrimage tourism as cultural and spiritual tourism. In particular, "cultural tourism" provides an opportunity for tourists to get acquainted with the history, traditions, economic activity and culture, customs and other historical potential of this country. People's visits to such cultural places contribute to their spiritual enrichment and broadening of their worldview [3, p. 890].

During pilgrimage, five real experiences are embodied in a person and we can call them spiritual, cultural, ecological, worldly and educational. For people, happiness can be a factor of positive behavior and emotions that they perform. As an example, the famous psychologist Martin Seligman said: "A person's happiness is related to 3 elements, which are positive thoughts, the work he is doing, and its meaning."

So, in order for a person to live a happy life, he should have positive thoughts along with his favorite occupation. Pilgrimage is one of the sectors that serve to provide such feelings. The reason is that pilgrimage tourism awakens positive and exciting emotions in a person's memory and serves to increase his love for life. In turn, one experiences processes of self-learning, self-reformation, and personal transformation during the journey. Researches show that one of the main goals of pilgrims to travel to holy places is the feeling of a person in holy places, the experiences that arise during the trip. In addition, it is necessary to emphasize here the possibility of religion to create a feeling of satisfaction and happiness in life. [12, p.5]

Places visited by pilgrims, including shrines and tombs of prophets, Sufis and saints, mausoleums and madrasahs, mosques, which have risen in religious atmosphere, create such an environment for pilgrims.

Historical monuments and places attract a lot of domestic tourists [2, p.4438] as well as foreign citizens. Communication prepares a thorough ground for self-correction, re-education, realization of personal potential based on external positive influences, examples, leads to perfection. Therefore, pilgrimage tourism provides a platform for visitors to interact and share experiences with foreign tourists of different nationalities and people they have never met before [13, p. 35].

During pilgrimage tourism, there are also customs that have a positive effect on human spirituality. In particular, a person begins to pay attention to cleanliness and cleanliness and gets into the habit of dealing with the environment in this manner. That is, shrines and cultural monuments are always kept clean and tidy. Tourists visiting these places are required to follow the same order, to keep the surroundings of cultural monuments, shrines and holy places clean, to pay attention to personal hygiene and cleanliness. It is natural that these acts of cleanliness will benefit the pilgrim in his future life as well. This shows that the act of pilgrimage leads to spiritual growth and self-control of a person.

Conclusion

It is important that the historical and cultural heritage potential of the country is one of the main factors of the development of pilgrimage tourism. Because familiarization with historical and cultural heritage is the strongest tourist incentive and is an important means of attracting many tourists. In addition, it should not be forgotten that cultural and historical heritage is an important asset of modern cities, which benefit the objects and have a significant impact on economic development.

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Issue   **Article**

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EDUCATIONAL INSTITUTIONS IN THE SOUTH-EAST ASIAN REGION

Abstract: This article discusses higher educational institutions of the South-East Asian region, educational institutions of Indonesia, Malaysia and Brunei-Darussalam. Institutions such as Islamic University of Indonesia, Ayirlangga University, and activities of Islamic University of Bandung, International Islamic University of Malaysia and University of Brunei Darussalam are discussed in details. Research finds that mentioned institutions are well established and highly ranked among the world universities rankings. Moreover, Malaysian and Bruneian institutions' success secret they are attracting international professors as well as many of their classes are delivered in English.

Key words: Islamic University of Indonesia, Ayirlangga University, and activities of Islamic University of Bandung, International Islamic University of Malaysia, University of Brunei Darussalam.

Language: English

Introduction

Indonesian, Malaysian and Bruneians are always stayed close nations, even they call themselves as Nusantara or the Malay world. Historically these countries had strong ties. For instance, many Indonesians moved to Malaysian lands. This increase in the population of Selangor and other Federated states was mainly due to the contribution of the inflow of immigrants from Indonesia, Kelantan, Kedah, Perlis and Patani. Javanese immigrants settled in coastal areas such as in Klang, Kuala Langat and Kuala Selangor [2, p.61]. Hence, such mixture made possible these countries have similar culture and worldview. In case of education, closeness can be seen in the language aspect, where all Malay, Brunei-Malay and Indonesian languages are very close and widely accepted in all three countries. However, there are different history path for all three countries. Below

we discuss above mentioned countries' education systems on the example of their educations institutions.

Islamic University of Indonesia is a private university in Yogyakarta, Indonesia. It was established on 27 Rajab 1364 (Islamic calendar) or 8 July 1945 as STI (Sekola Tinggi Islam - Islamic Higher School) by political figures of the time. STI was transformed into the University of Islam Indonesia on December 14, 1947 in Indonesia. Historically, the university was the first national university in Indonesia and the oldest private university in the country.

The Islamic University of Indonesia strives to improve the integration of Islamic values into education, research, community development and Islamic endeavors. Its mission is to uphold Islamic teachings and values through the development and

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dissemination of science, technology, culture and art to produce knowledgeable, professional, independent and morally responsible individuals with leadership skills.

In order to strengthen internationalization and actively participate in the international direction, the Islamic University of Indonesia has established the Directorate of Cooperation, Marketing and Alumni.

Ayirlangga University is the oldest university in Indonesia and a public university located in Surabaya, East Java. Although it was officially established in 1954 by a decree of the Indonesian government, Ayirlangga University was first established in 1948 as a branch of the University of Indonesia. Its roots date back to 1913 and began as a medical and dental school. Currently, Ayirlangga University has more than 35,000 students (during the 2015-2016 academic year) and 1,570 professors and teachers and 15 faculties. Ayirlangga University has university hospitals for the faculties of Medicine, Veterinary Medicine, Nursing and Dentistry, as well as a Tropical Infectious Hospital for the Institute of Tropical Diseases.

Ayirlangga University is consistently ranked among the top universities in the world and is one of the "Big 5" universities in Indonesia, along with the University of Indonesia, Bandung Institute of Technology, Bogor Agricultural University and Gadja Mada University.

Ayirlangga University has international partnerships around the world, including the University of Bonn, Seoul National University and the University of Adelaide.

Bandung Islamic University. Founded in 1958, Bandung Islamic University (Universitas Islam Bandung) is located in the large city of Bandung in West Java (population 2.5 million). Officially accredited by the Ministry of Research, Technology and Higher Education of the Republic of Indonesia. Bandung Islamic University is very large and has more than 10,000 students. It is a higher educational institution officially associated with the Islamic religion. The university offers courses and programs leading to officially recognized higher education degrees in several fields of study [16, p. 130].

Acceptance and selection. Bandung Islamic University admits only 25% of the 10,000 applicants each year from its entrance exams.

The university received A (very good) accreditation from the Higher Education Accreditation Council. Accreditation of higher education institutions was received in 2017. The accreditation score includes 15 indicators covering leadership, student affairs, personnel, curriculum, infrastructure and facilities, funding, governance, education system, academic environment, quality assurance: systems, alumni, research and community service, and academic programs.

According to the Ministry of Research, Technology and Higher Education College Ranking (2015), the University was ranked 32nd among 3,320 educational institutions in Indonesia. In mid-2017, the University won the 1st award in Indonesia from the Ministry of Research, Technology and Higher Education. The university also won the Best Regional University in Education award from the Oxford European Business Assembly.

Bandung Islamic University has 18 Academic and 4 professional programs and 10 faculties:

- Faculty of Sharia: Sharia economic law, Islamic family law;

- Faculty of Education: Islamic Education, Early Childhood Education;

- Faculty of Law: Islamic Broadcasting Communications;

- Faculty of Law: Legislation;

- Faculty of Mathematics and Natural Sciences: Statistics, Mathematics;

- Professional pharmaceutical program;

- Faculty of Psychology;

- Faculty of Economics and Business: Business and Management, Accounting, Economics, Professional accounting program;

- Faculty of Engineering: Mining Engineering, Industrial Engineering, Urban Planning and Regional Planning, Professional Engineering Program;

- Faculty of Communication: Research on communication;

- Faculty of Medicine: Medicine, Professional medical program

Master's programs. Bandung Islamic University has eight graduate programs:

1. Master's programs in Islamic economics: Islamic finance; Islamic Bank, Sharia Business Management [12, p.128];

2. Islamic education master's fields: Islamic education, Early childhood education, Islamic education management;

3. Master of Law: Islamic Law, Criminal Law, Business Law, International Law, Public Administration Law, etc.;

4. Doctoral program;

5. Doctor of legal sciences.

Ibn Khaldun Institute of International Scientific Research (ISLAH) of the International Islamic University of Malaysia is a research center of the International Islamic University (IIUM) located in Kuala Lumpur, Malaysia. It was founded in 1987 by the Muslim philosopher Syed Muhammad Naqib al-Attos. Until 2015, the center, which was known as ISTAC, was renamed the Ibn Khaldun Institute for International Scientific Research (ISLAH). Later, all program courses housed at ISLAH were consolidated and its faculty and students moved to the main building of the International Islamic University of Malaysia in Gombak. The center can also be considered as an "Islamic University" based on

religious principles [3, p. 879]. It tries to unite the Islamic world through the various educational programs it offers. The center's academic programs offer master's and doctoral degrees in Islamic thought, culture, and science. The program includes the study of the most widespread religions in the world today and the modern world. Its professors and students are trying to raise the center's position on the international level.

The International Institute for Advanced Islamic Studies (IAIS) was established in Kuala Lumpur in September 2007 as an independent non-profit research center based on an initial grant from the Government of Malaysia. On October 9, 2008, the institute was officially launched by the Prime Minister of Malaysia and its founder, Tun Abdullah Haji Ahmad Badawi. The Institute conducts objective scientific and political research on Islam, as well as research aimed at solving the problems of the global ummah relevant to Malaysia. Also, he deeply studies the actual problems of relations of Islamic civilization with other civilizations.

At the same time, IAIS is based on the original teachings of Islam and seeks to promote the renewal (tajdid) of Islamic civilization based on the Qur'an and Sunnah. By studying the texts of Islamic sources, the Institute provides scientific and practical recommendations to governmental organizations, multinational organizations [5, p.55] and non-governmental organizations, taking into account the serious problems facing Islamic societies [4, p. 909]. It supports activities and projects that contribute to the formation of modern Islamic thinking and the improvement of human well-being.

University of Brunei Darussalam. The University of Brunei Darussalam was the first university in Brunei and was established in 1985 and has since become the largest university in the country in terms of student numbers and curricula offered. Universiti Brunei Darussalam in 1985 and the first intake was a total of 176 students. [14, p. 92] The University of Brunei Darussalam is based on its four core values: people, experience, relevance and leadership. These values include eight academic faculties, eight research institutes and faculties and centers in Islamic Studies, Business, Arts, Science, Health Sciences, Asian Studies, Political Science, Education, Biodiversity and Integrated Technology, which play an important role in the development and operation of the University.

In a relatively short period of time, the University of Brunei Darussalam has developed and expanded in both education and infrastructure, delivering influential leaders, entrepreneurs and professionals.

In 2009, the University of Brunei Darussalam introduced the GenNEXT program, a broad-based and interdisciplinary framework that allows students to tailor their curriculum to their individual learning styles. This is the discovery year of the University of Brunei Darussalam, which currently provides its students with opportunities to study on a global platform through partnerships with universities and institutes on six continents.

International reputation. The University of Brunei Darussalam is one of the leading higher education institutions in the Sultanate of Brunei Darussalam. The University of Brunei Darussalam has been ranked globally for the first time this year in the Times Education World University Rankings, in the 401 to 500 group. This places the University of Brunei Darussalam fourth in ASEAN's ranking of the world's most prestigious universities, confirming its status as an internationally recognized institution for teaching and research.

The University of Brunei Darussalam has also shown steady growth in the QS World University Rankings. It currently ranks 298th in the latest edition, up 25th from last year's 323rd. In all indicators, the University of Brunei Darussalam showed significant improvements in academic reputation, employer reputation, faculty, student ratio, citations per faculty, international faculty, and international students. The University of Brunei Darussalam is currently ranked 100th in the QS Asian University Rankings and ranked 34th among universities established 50 years ago.

The university ranks 1st in numerous categories, including 1st in foreign student exchange, 13th in international faculty, 15th in the number of faculty and students, and 23rd among international students in the 2019 QS Asian University Rankings.

The QS ranking also measures research performance as the practical part of its ranking. Since 2011, the university's research activity has grown exponentially, and the number of articles published annually has tripled over the past 5 years.

University research is conducted on the basis of national relevance, with a special focus on innovative and entrepreneurial initiatives. Such initiatives are carried out by collaborating with industry players to ensure that the university's active networks and its research and teaching are relevant to market needs.

In the past three years, the university has filed more than 40 patents through its Innovation and Corporate Office, eight of which were granted both in Brunei and internationally. The university is focused on its comparative advantages and major research projects in the fields of biodiversity, herbal medicine, halal products, Islamic governance and energy, all of which are of interest and have global impact.

The success of university students is not limited to academic fields. In essence, the university strives to create a mature generation with innovative and entrepreneurial skills, industry-specific skills and a passion for lifelong learning based on three principles. Its motto is: "Ke Arah Kesempurnaan Insan" or "Towards Human Perfection".

There are 4 higher education institutions in the Sultanate: University of Brunei Darussalam, Brunei University of Technology, Islamic University named after Sultan Sharif Ali and College of Religious Education Teachers University. In the country, education in universities is completely free for citizens of Brunei, with monthly stipends and free bed and 3 meals. Classes in universities are conducted in English, Arabic and Malay. Almost all foreign students receive education on the basis of the Bruneian government grant. Every university has religious subjects taught by experienced professors [1, p. 562].

Sultan Omar Ali Saifuddin Center for Islamic Studies (SOASCIS) at the University of Brunei Darussalam. The Sultan Omar Ali Saifuddin Center for Islamic Studies (SOASCIS) was established on September 30 with the approval of the Sultan of Brunei, Haji Hassanal Bolkiah Mu'izzaddin Waddaulah. One of its main goals is to produce graduates and scholars [7, p. 12; 8, p. 6736; 9, p. 9; 10, p.207; 11, p.886; 13, p. 127; 15, p.157] equipped with the necessary knowledge and experience to educate Muslims facing the changes and challenges of today's world. At the same time, this center prepares intellectuals who think about modern issues and have a high intellectual potential, who have strong Islamic thinking.

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HISTORIOGRAPHY OF THE STUDY OF FAKHRUL-ISLAM PAZDAVI'S SCIENTIFIC LEGACY

Abstract: *The article examines information on the ancient Pazda of Kashkadarya Oasis, its history and tangible as well as intangible heritage. Article sheds light on the life, scientific activity and contribution of more than ten Pazdawian scholars from Pazda to the development of Islamic theology and education in Mavarannahr. It also provides information on the importance of their scientific work and the impact on the literature of the subsequent period.*

Key words: *Pazdavian scholars, muslim Renaissance, Islamic theology, usul al-fiqh, faqih, Doctrine of Maturidiyyah, hadith, Nasaf.*

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Scopus ASCC: 3300.

Introduction

In the areas where Hanafi fiqh is widespread in the world, many scientific works have been written on the theoretical rules (usul al-fiqh) as well as practical (فروع الفقه) of this madhhab. In the Middle Ages, thousands of jurists in Mowarounnahr became the authors of many books in this direction. Fakhrul-Islam Ali Pazdavi (400/1009-482/1089) wrote the work «Usul» (اصول البزدوي – «Usul al-Bazdawi») for the first time, the rules of Hanafi usul al-fiqh (أصول الفقه) were systematized and regulated. As a result, the work served as a theoretical basis for the system of development of laws of this sect in the later period. More than twenty commentaries have been written on the work so far, and the fact that it is accepted as a high-level source of textbooks in the science of usul al-fiqh indicates its high scientific and practical importance. Therefore, it is of urgent importance to clarify the rules specific to the Hanafi method presented in Fakhrul-Islam Ali Pazdavi.

«Representatives of the Pazdavi's family» who made a significant contribution to the development of Hanafi law and the Muturidiya doctrine, in particular, Fakhru-l-Islam Pazdawi scientific heritage, the topics raised in them were involved in scientific research by Eastern and Western scientists.

Eastern Muslim scholars Umar Nasafi (1067-1142), Abdulkarim Sam'ani (1113-1167), Yakut Hamavi (1179-1229), Shamsuddin Zahabi (1275-1348), Abdul Qadir Qurashi (1297-1373), Abdul Qadir Tamimi (died 1597) was among the eastern Muslim scholars), Haji Khalifa (1609-1657), Abdulhai Laknavi (1848-1887), in their bibliographic works provided important information about Pazdavi's family tree, teachers-students, trips abroad, scientific and political activities, colleagues, and written works [1, p.378]. Pazdavi's contribution to the development of Hanafi usul al-fiqh in the monographs of Khozaribek (محمد الخضري بيك)entitled «Tarikh al-tashri' al-Islamiy» and «Usul al-fiqh al-Hanafi» by Wahba Mustafa Zuhaily(الزهيلي وهبة مصطفي). The theoretical and logical rules and concepts added to the madhhab method are explained in a general way. Nevertheless, these sources are dedicated to the study of the history of the jurists and the sectarian method, and the information provided in them serves as a source for independent research on Pazdawi's scientific heritage [2, p.885].

European scholars such as C.Brockelman, F.Sezgin, A.Masse, A.Shagaviev, F.Magill, K.Glass, J.Johnson and Turkish scholars M.Gormez, H.Arslan, A.Boynukalin, Yu.Kavakchi researched about Muslim jurists [3, p.5]. For example, Carl Brockelman gave information about the manuscripts of Pazdavi's works stored in the world's book funds, while the German professor Haqqi Arslan in his article entitled «Language games in the works of classical Hanafi usul al-fiqh» revealed the methods of applying linguistics and vocabulary rules in Pazdavi's book usul al-fiqh[4, p.489]. However, these sources do not focus on the subject of Hanafi methodical rules found in Pazdavi's works.

In Uzbekistan scholars such as Sh.Juzhoniy, U.Uvatov, I.Bekmirzaev, M.Komilov, Sh.Kamoliddin, S.Oqilov, Q.Zahidov, N.Muhamedov, H.Aminov, S.Primov, K.Mirzaahmedov, and other scholars of Movarounnahr and their Hanafism a number of scientific studies have been carried out, which shed light on his contribution to the development of legal doctrine, the role of his writings in the development of the sect. In particular, a series of articles related to the research of Fakhrul-Islam Pazdavi scientific heritage of professor Ubaydulla Uvatov was published. M.Komilov, in his research titled «Development of Movarounnahr jurisprudence and Alauddin al-Samarkandi» discussed issues such as Fakhrul-Islam Pazdavi's scientific activity as the teacher of Alauddin Samarkandi and his influence on the development of science in the region by scholars who came from the Pazdavi family [5, p.44]. Also, in the studies of Sheikh Mohammad Sadiq, N.Nabijan and A.Ahmadaliev on the topics of usul al-fiqh, the work «Usul al-Pazdavi» was referred to in the clarification of some issues.

Fakhrul-Islam Abul Hasan Ali ibn Muhammad ibn Husain ibn Abdulkarim Pazdavi was born around 400/1009, and this does not conflict with the information about the life of the scholar's mentors and students. The exact date of the scientist's death is Thursday, the fifth day of Rajab 482 (September 14, 1089 AD). Pazdavi lived in the 11th century, when science developed in Central Asia, and was a great scientist who was the chief judge, "Sadr" (chairman of scholars) and mentor in Samarkand for a long time. 542/1147) and his son Abu Sabit Hasan (476/1083-557/1161) were great scholars and judges of their time. Abu Sabit Hasan Abdulkarim Sam'ani (1163-1167) and Sirajiddin O'shi (d. 575/1175) were tutors [6, p.69].

In the sources, Pazdavi's teachers are: Shamsul-Aimma Abdulaziz Halavani (d. 452/1060), Abu Hafs Umar Bukhari Bazzaz (d. 460/1068), Abul Walid Hasan Balkhi Darbandi (d. 456/1064) given [7, p.154]. Also, the Pazdavi brothers noted in their works that their father, Qazi Muhammad, passed on the education they received from their great-grandfather, Abdulkarim Pazdavi Abdulkarim Pazdavi, along with

being a close student of Moturidi, traveled to Basra and learned from Abu Ali Muhammad Lu'lui (d. 945), the main student of Abu Dawud Sijistani, and Abu Talha Mansur Pazdavi (d. 329/941), a student of Imam Bukhari in Pazda learned hadiths [8, p.879].

Fakhrul-Islam Ali Pazdavi first became the chief judge in Bukhara and then in Samarkand. In Samarkand, the work of a judge and mudarris began in 1052, when Boritegin Ibrahim (d. 1070) moved the capital from Uzgand to Samarkand, and ended in 482/1082, when the Seljuk sultan Malikshah Movarounnahr took over the administration [9, p.315]. He died on Rajab 5 (September 14, 1089 AD). Then he was brought to Samarkand by a large number of disciples and buried in «Babul Mashhad» in Chokardiza cemetery [10, p.129].

During the research, it was determined that the scientific heritage of Pazdavi is diverse in terms of content and subject, and they were classified according to their topics. It was found that the scientist wrote a total of 19 works on the sciences of the Qur'an, kalam, jurisprudence, mysticism, ethics, history and vocabulary. Among the scholar's works are the 120-volume Kashful Astar (Opening the Veils in the Meanings of the Qur'an) on the interpretation of the Qur'an, the 12-volume al-Mabsut (Extended Collection) on jurisprudence, the al-Muyassar fil kalam (al-Muyassar fil kalam) on the science of speech.) there were also large collections such as «Siirat al-mazhab fi sifat al-adab» (Sirat al-Mazhab fi sifat al-adab) on ethics and Sufism [11, p.77].

In the work, the rules of Hanafi usul al-fiqh were systematized and organized for the first time. In particular, the scientist's classmate Abu Bakr Sarakhsi and his student Alauddin Samarkandi used «Usul al-Pazdawi» in their works on usul. Also, it is known from his manuscripts and comments written on the work that the work was taught as a textbook before a century of the author's time. Manuscript copies of the work are widely distributed around the world, and only in the catalog of manuscripts prepared at the institution "Oli Bait Islamic Knowledge and Culture" in the Kingdom of Jordan, information is given about 108 manuscripts of the work. Among them, the closest to the author's time is the copy copied by Muhammad ibn Ishaq al-Razi in 546/1151, 62 years after Pazdavi's death, and the colophon contains an ijaza (certificate) given by his teacher in honor of reading this book. The manuscript stored in the National Library of Paris with number №836 was copied in 651/1253. Among the Tashkent manuscript copies of the work, the manuscript stored in the library of the Office of Muslims of Uzbekistan with the number №677 is of special importance due to its neatness and good condition [12, p.9].

Also, Husamuddin Ahsikati Farghani (d. 644/1246) «al-Muntakhab al-Husamiya» and Abul Barakat Nasafi's (d. 710/1310) «Manor al-anwar» summary based on «Usul al-Pazdavi» is designed for

elementary students to learn the basic concepts of science. Abulfida Zainuddin Qasim ibn Qutlubuga (d. 1474) studied the hadiths in «Usul al-Pazdawi» in his book «Tahrij ahadis Usul al-Bazdawi» and analyzed a total of 130 hadiths and 186 words of the companions based on reliable hadith collections [13, p.125].

As a result of the research, it was found that 17 commentaries, 2 summaries and 1 review series were written on «Usul al-Pazdavi» in the 12th-16th centuries. Among the commentaries, Abdulaziz ibn Ahmad Bukhari's (d. 730/1330) work entitled «Kashfu-l-asrar an Usuli Fakhrul-Islam Pazdavi» gained great fame in the science of usul al-fiqh, and Abul Makarim Ahmad Jorbardi Tabrizi (d. 746/ 1346) and the commentary entitled «Sharhu Usul al-Pazdavi» is famous for being written by a Shafi'i jurist. 3 as the closest to the Pazdawi period: "Fawaid al-Bazdavi" by Hamiduddin Ali Romishi (d. 667/1268), "at-Takmil sharhu Usul al-Bazdavi" by Vajihiddin Umar Arzinjani (d. 700/1301) [14, p.6739] and 50-volume commentary by Maulana Qutbiddin Shirozi (d. 674/1276) can be shown.

CONCLUSION

During the activity of Fakhrul-Islam Pazdavi, he was first the chief judge of Bukhara and later in the capital Samarkand and the chairman of scientists («Sadr») and organized a large scientific meeting in the capital. Even in 465/1072, he had a scientific discussion with Imam Juwaini, a scholar who was in Mowarounnahr, and at the end he admitted that «the meanings of (the science of Sharia) were revealed to the Hanafis». It was also determined that Pazdavi's work as a «chairman» was not a political task, but a career related to the scientific process.

«Usul» was used by Sarakhsi and Alauddin Samarqandi in writing their scientific works during the author's time. Because the Hanafi method was fully collected in one source through the work, it was started to be studied as a science in scientific institutions. As a result, the tradition of first copying the work «Usul» and then writing a comment on the source arose. In addition to five commentaries written in the Central Asian region, twelve large and medium-sized commentaries were written by scholars from Hijaz, Egypt, Syria, Rum, Iran, and the Indus region. Also, Nasafi and Ahsikati prepared a «mukhtasar» (abbreviated) treatise from the work in order to memorize the basic information of the rules of the Hanafi method to the primary students in the madrasa.

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ANALYSIS OF RELIGIONS AND BELIEFS IN IMAM MOTURIDI'S "TA'WILAT AHLI-S-SUNNAH"

Abstract: The origin of sects in Islam was greatly influenced by religions and beliefs other than Islam. Therefore, Imam Moturidi elaborates on the influence of the representatives of different religious beliefs and philosophical teachings on the beliefs of Muslim communities, as well as their views that may cast doubt on Islam. When a scholar enters into a discussion of a religious issue, he first examines the beliefs and views of the opposing party and the evidence on which they are based. He then cites the Islamic faith and evidence on the subject. Therefore, the tafsir of "Ta'wilat ahli-s-Sunnah" also contains rare information about the teachings and concepts of a number of religions and beliefs.

Key words: Imam Moturidi, tafsir, Ta'wilat ahli-s-sunna, Kitab at-tawhid, non-Islamic faiths, Islamic sects, mental evidence, narrative evidence, mu'tazilites, atheists, fanatical currents.

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Introduction

Among the world's Sunni Muslims, the two main major doctrines are Ash'arism and Moturidism, and the wide spread of Muturidiya doctrine (المدرسة الماتريدية) is increasing interest in it. Imam Moturidi, the founder of this doctrine, which belongs to the majority of muslims in about twenty countries today, is from Samarkand, his views, which formed the basis of his religious teaching, are recorded in the books "Kitabu-t-Tawhid" (كتاب التوحيد) and "Ta'wilat Ahli-s-Sunnah" (تأويلات أهل السنة). It is these sources that serve as the basis for determining the specific aspects of Moturidism. "Ta'wilat Ahli-s-Sunnah" is a scholarly work on the tafsir of the Qur'an, it was written in environment of Samarkand, where people of different religions and faiths live together [1, p. 878-879]. Therefore, with the help of this tafsir, it is acceptable to identify the specifics of many religious doctrines and views and to regulate the social relations between them.

Scientific research centers specializing in Islamic studies around the world are conducting research on the methods of tafsir of "Ta'wilat Ahli-s-Sunnah", its sources and manuscripts, comparative analysis with other authoritative tafsir, revealing the social significance of the source. In such research, it is expedient to focus on finding solutions to current religious issues and problems in Islam through the views of scholar [12, p. 4540]. Indeed, the scientific study of the essence of the texts related to religion and religious teachings in the work of Imam Moturidi "Ta'wilat Ahli-s-Sunnah" serves to correctly understand and comprehend the essence of Islam [2, p. 77-76].

"Ta'wilat Ahli-s-Sunnah" contains information on a total of 34, including 16 non-Islamic faiths and 18 Islamic sects. They are as follows:

- Non-Islamic religions and beliefs:
1) Ashabi tabai' (أصحاب الطبائع);
2) Ahli tanosuh (أهل التناسخ);
3) Brahmins (البراهمة);
4) Materialism (الدهرية، أهل الدهر);

5)Zanadiqah (الزنادقة);
6)Priesthood (أصحاب كهانة، أهل كهانة);
7)Majusiyyah (المجوس، المجوسية);
8)Atheism (الملحدون);
9)Munajjimah (منجمة);
10)Arab polytheists (مشركو العرب، المشركون);
11)Monasticism (الرهبانية، الراهبون);
12)Christianity (النصارى، النصرانية، قوم عيسى);
13)Sanaviyyah (الثنوية);
14)Sabi'iyyah (الصابئون);
15)Hanifism (الحنيف);
16)Judaism (اليهود).
- Islamic sects:
1)Ashobu-l-hadis (أصحاب الحديث);
2)Batiniyyah (الباطنية);
3)Jahmiyyah (الجهمية);
4)Zahiriyyah (أصحاب الظاهر، أصحاب الظواهر);
5)Imamiyyah (أصحاب الإمامة);
6)Karromiyyah (الكرامية);
7)Qadariyyah (القدرية);
8)Qarmatiyyah (القرامطة);
9)Mu'attilah (معطلة);
10)Murji'ah (المرجئة);
11)Mutaqashshifah (المتقشفة);
12)Mushabbihah (مجسمة، المشبهة، أهل التشبيه);
13)Mu'tazilah (المعتزلة، أهل الإعتزال، مذهب الإعتزال، أصحاب الأصلح);
14)Raphysiyyah (رافضة، روافض);
15)Philosophers (الفلاسفة);
16)Xarijiyyah (الخوارج، أهل الخوارج);
17)Hashaviyyah (الحشوية);
18)Shia (الشيعة).

Among the non-Islamic teachings in the work, Jews and Christians, as well as Arab polytheists, Atheists, Sanaviyyah, Majusiyyah and Materialists are discussed in detail. This is due to the fact that they are often mentioned in the Qur'an, lived in areas close to Muslims, or became active during the time of Moturidi.

In the tafsir, the doctrine of Judaism and the Jews were mainly mentioned in the context of religious debates, historical events with the prophets, especially Moses, various events that took place between Muslims and the Jewish community at the time of the revelation of the Qur'an. That is why the Ta'wilat Ahli-s-Sunnah contains valuable information about the history, beliefs and religious laws of Judaism. In particular, verse 38 of Surah "al-Qaf":

"And We did certainly create the heavens and earth and what is between them in six days, and there touched Us no weariness".

"… As for the denial of the claims of the Jews, they say: "Allah created the heavens and the earth in six days, and then rested on the Saturday", so they do not work on the Saturday. However, against the claims of the Jews, Allah Almighty says (in the verse) that He did not toil or fatigue in creating these things" [3, p. 66].

Today, some scholars consider Zoroastrianism,

that is, Majusiyyah, to be a celestial religion, Zoroastr a prophet, and the "Avesta" a divine book. Later it is said that this belief and the heavenly book have changd [4, p.47]. This concept was also present in Maturidi's time, and the scholar gives a number of arguments against it in his commentary on verse 5 of Surah "al-Maida".

In a number of places in his commentary, scholar enters into a debate with the materialists and atheists, and surpasses them in their methods, that is, in terms of intellectual and logical arguments. In particular, in the tafsir of verse 56 of Surat "an-Nisa", Moturidi says:

"A group of mulhids (atheists) said: "The reward that will be given in the Hereafter will not be given to this "nafs" (body) who eats and drinks and does various deeds. It may be given to a soul whose original ore is light". We say that the life of the "nafs" is tested in the world by such things as eating and drinking, which is surrounded by various shortcomings and calamities. If the nafs can avoid guilt and shortcomings in spite of all the obstacles that stand in its way, it will be worthy of a great merit and a huge reward" [5, p. 286]. It is clear that some mulhids in the time of Imam Moturidi did not completely deny the Hereafter. Perhaps, those who are against the beliefs that do not agree with their minds.

Today, in many countries of the world, especially in Muslim societies, atheistic ideas mixed with "popular culture" are spreading widely [16, p. 884]. Therefore, the legacy of scholars like Moturidi, who were able to respond appropriately to atheism, is of great practical importance in the preservation of national and religious identity.

The tafsir also contains rare information about other non-Islamic beliefs. Speaking about different religions and beliefs, Maturidi does not analyze their teachings, but only focuses on their views related to the verse being interpreted.

During this period, the socio-political processes of Mawaraunnahr were greatly influenced by various religious movements and sects [15, p. 4563]. In particular, the movement of Mutazilites and Shias has intensified and has had a significant impact on the ruling circles, albeit for some time [18, p. 154]. Therefore, in his tafsir, Moturudi paid special attention to the beliefs of these sects and denied them.

The study found that the "Ta'wilat Ahli-s-Sunna" contained information about 18 Islamic sects. Among these currents and sects, the most mentioned in tafsir is Mu'tazilism, which is mentioned in a total of 408 places. Also, in Moturidi's tafsir, none of the scholars belonging to any sect or creed is mentioned as much as Abu Bakr al-Asam, one of the prominent representatives of Mu'tazilism. In a total of 242 places, the scolar dwells on his views on tafsir.

Abu Zayd Balkhi (d. 322/934) and Abul Qasim Ka'bi (d. 329/941), the well-known representatives of Mu'tazilism, lived at the same time as Abu Mansur

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Moturidi, and the scholar cites their views in his tafsir. He especially pays much attention to Ka'bi and writes special works against him.

The first belief, which is the basis for the separation of Mu'tazilism, is the belief that the believer, who commits a great sin, leaves the faith and remains between faith and disbelief. This belief, called "al-Manzil baynal-manzilatayn", is strongly refuted in the tafsir. For example, in verse 178 of Surah "al-Baqarah" about revenge:

"... Whoever is forgiven by his brother...". Moturidi says the following in his commentary on this verse:

"Here is a proof that faith does not go away because of a great sin. Because Allah called the killer "brother". This is a brotherhood in religion, not in lineage..." [6, p. 328]. In this way, Moturidi dwells on every misconception of the Mu'tazilites regarding the verses of the Qur'an. He tries not to leave open any religious topic related to this sect.

Many Western scholars and some of the scientists influenced by them try to link the early Islamic renaissance with Mu'tazilism. They explain this by the great importance given to rationalism in Mu'tazilism [7, p. 55-56]. Actually, this view is not correct. This is because that majority of Muslim encyclopedic scholars are followers of Ahli Sunnah, or at least there is no convincing evidence that they were mu'tazilites. It can also be seen in the "Ta'wilat Ahli-s-Sunnah" that when Moturidi enters into a scientific debate with the mu'tazilites, he defeats them not only in terms of narrative evidence, but also in terms of logical reasoning [8, p. 98-99].

Mental evidence is usually used in the absence of narrative evidence or to support narrative evidence. It was also used in order to provide a suitable rebuttal to those who consider reason as the main criterion, such as the Mu'tazilites and the materialists.

During the time of scholar, there was also an active movement of sects belonging to the Shia group. Russian orientalist V. Barthold, based on the information of the classical Arab historian Ibn Asir, says that the Samanid ruler Nasr II ibn Ahmad (301-331/914-943) entered the Qarmatism [9, p. 303]. Other sources state that Nasr II ibn Ahmad belonged to the Shiite Ismaili sect and supported Qarmatism [10, p. 25]. These events correspond to the period when Moturidi reached the level of a scientist. For this reason, in his works, the scholar also strongly criticized the sects of the Shiite sect, such as Rafizi, Batinism and Qarmatism.

The sect of Xarijiyyah that arose during the time of Ali ibn Abi Talib split over time into many small sects [17, p. 902]. Abdul Qahir Baghdadi, in his book on the history of sects, lists twenty sects of Xarijiyyah [11, p. 72]. Fakhriddin Razi increased their number to twenty one [12, p. 46-51]. Moturidi, unlike them, does not divide Xarijiyyah into sects. In "Ta'wilat Ahli-s-Sunna" the following beliefs of them are discussed:

the one who has a major sin leaves the faith, that all major sins are associating with Allah Almighty, and the judgment belongs to Allah alone.

The work contains relatively more information about the Batiniyyah, Mushabbiha and Raphysiyyah. It should also be noted that the study also mentions Mutaqashshifah (an extreme sect of asceticism) and Islamic philosophers as separate sects. This is because they are listed as independent sects in the "Ta'wilat Ahli-s-Sunna" under a separate name and have distinctive features.

Freedom of conscience and religion is the foundation of religious tolerance. There are clear expressions of this principle in the scholar's tafsir:

"There is no compulsion in religion..." (al-Baqarah: 256).

In the tafsir on this verse, Moturidi says:

"There is no compulsion in religion, that is, no one is compelled to believe in religion... Some scholars interpret Allah's sentence "There is no compulsion in religion" as "Religion is not accepted by compulsion. Otherwise, this is not considered faith".

Second, the difference between right and wrong has become clear, and it has become clear to everyone. Therefore, religion is accepted not through coercion, but through clarification and understanding. Based on this a group of scholars say: "There is no compulsion in religion, that is, one is not compelled to pray after the conversion to Islam". Because Allah has made these prayers dear to the hearts of the believers and they will not feel any heaviness from it...

Some scholars also say that a group of Ansar used to give their children to the Jews for breastfeeding. With the advent of Islam, the Ansar became Muslims and their children, who were left before the Jews, remained Jewish. As a result, the Ansar tried to force them to convert to Islam. Then the verse "There is no compulsion in religion" was revealed" [13, p. 158-160].

As can be seen in the interpretation of the above verse, Moturidi states that no one can be forcibly converted to any religion, and cites the narration that the revelation of this verse was also due to the practice of forcing members of other religions to convert to Islam. He also emphasizes that those who convert to Islam should not be forced to pray, and that believers should follow the requirements of Islam voluntarily, as required by faith. These principles laid down by the scholar are fully consistent with the universal principles of modern international law.

Maturidi's tafsir is also of great importance in refuting the concepts and views of misguided currents and extremist groups. This is because it covers a wide range of issues, such as "faith", "action", "herecy", "al-shirk to Allah", and "the fate of the sinner", which are important today.

Conclusion

At present, fanatical currents, by misinterpreting the verses of the Qur'an, are not only arousing hostility towards members of other religions, but are also trying to make the Muslim community hostile to each other. Of course, in such a situation, the need for the tafsir of "Ta'wilat Ahli-s-Sunna", which interprets the verses of the Qur'an in accordance with the traditional Islamic view, increases.

In the process of reviving today's religious concepts and traditions, "Ta'wilat Ahli-s-Sunnah" plays an important role in ensuring religious tolerance and protecting Islam from various perverted beliefs. This is because, although most of the heretical sects that existed in Moturidi's time had died out, their tenets have left a great influence on the teachings of today's fanatical groups. From this point of view, it is one of the important tasks for today's scientists and researchers to scientifically in-depth study of the heritage of the scholar and to show ways to solve existing problems on this basis.

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THE ROLE OF THE ISLAMIC REPUBLIC OF IRAN IN THE MIDDLE EAST AT THE END OF THE 20TH CENTURY

Abstract: The article examines changes in the political life of the Islamic Republic of Iran in the Middle East at the end of the 20th century, namely, the conduct of an independent foreign policy by the president without the approval of other authorities (the clergy are meant). As a result, Tehran began to fulfill its foreign policy tasks, and this in turn contributed to maintaining friendly relations with the Arab monarchies of the Persian Gulf.

Key words: Islamic revolution, Rukhalla Musavi Khumeyni, Shia clergy, export of Islamic revolution, internal and foreign policy, Persian Gulf.

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Introduction

It is known that in the second half of the 20th century - the beginning of the 21st century, the influence of the "Islamic factor" in the domestic and foreign policy of the states was increasing in various regions of the world. This effect is connected with the global geopolitical changes that took place as a result of the end of the "cold war", the disappearance of the bipolar system, the beginning of the process of unipolar development in the world, the violation of the interests of various states, the emergence of new independent states and their participation as active subjects in global politics and economy. depends. The globalization of the role of Islam in society and politics has not only covered Muslim countries and territories, but also non-Muslim, Western countries.

Studying the role and influence of the "Islamic factor" in the domestic and foreign policy of the Islamic Republic of Iran is of great importance for Islamic studies and political science of Uzbekistan. After all, it is an important task for political scientists and Islamic scholars to study the direction of Shiism in Islam, to study its various currents, and to study the capture of the Iranian state system by Shiite scholars

after the Islamic revolution of 1978-1979. In addition, religious freedom in Uzbekistan's current conditions of independence requires, first of all, good knowledge of existing religious knowledge and elimination of illiteracy in the field of religion. This issue is important for prevention of various misleading ideas and opinions among today's youth, and for the correct implementation of educational work.

After the death of Ayatollah Ruhollah Khomeini in 1989 in Iran, the people gave him the title of imam out of special respect. After that, there was a peculiar vacuum at the top of the Shia scholars. Ayatollahs elected to religious leadership - Syed Abul Khoi (died August 8, 1992), Gulpayagoni (died December 9, 1993), Arokiya (died December 1994) died quickly due to old age. After their deaths, Syed Ali Khamenei was elected to the position of "velayat-e faqih".

Before his death (June 4, 1989), Khomeini agreed to review the relationship between the Council of Control and the Cabinet in order to increase the freedom of government. According to the new version of the 1989 constitution, the most important changes were the abolition of the office of prime minister, the status of the government and the increase in the role

of the president, who is considered the highest position according to the constitution after the leader[4; 307-308]. Ali Akbar Hoshimi Rafsanjani (1989-1997) won the presidential election on August 17, 1989.

Rafsanjani took an active part in the downfall of the Shah's regime, held key positions in Iran after the revolution, and had every opportunity to become the country's supreme leader after Khamenei's death (in 1989). However, he preferred to remain a secondary position in the Iranian political system. After that, the supreme leadership fell to Ali Khamenei. Rafsanjani was the president of Iran in 1989-1997.

In the early 1990s, Iran rose to a new level in the economic sphere, began to move to a market economy model of development, and some countries called this policy Islamic economy [4; 308].

A number of reforms in the country's economy and the liberalization of many sectors of the economy are associated with Rafsanjani's presidency. He was considered the leader of the "moderate practitioners" wing of the country's leadership and opposed the radical conservatives.

Also, Rafsanjani was a supporter of dialogue with the West and supported negotiations with the United States on the Iranian nuclear issue.

After Iraq invaded Kuwait on August 2, 1990 and occupied it as its 19th province, the EIR turned its attention to regional insecurity. Because the accumulation of foreign military forces in the region during the Kuwait conflict worried Iran.

Long-term security and stability in the region, the need to eliminate aggression, and the need to create a system that guarantees compliance with UN principles. This system should be created in cooperation with the UN Secretary General, and the countries of the region should take a leading role in it.

The created "Gulf region security and cooperation system" should include all the countries of the Gulf basin. Because not including any of them in this system could cause tension and instability in the region. In addition, this system should eliminate the interference of foreign countries, which has historically been a factor of instability in the region.

Taking into account these principles, the EIR actively sought to find political ways to end the war and its negative consequences and to end the hostility between the two countries, keeping the means of communication with the leaders of Iraq, Kuwait, Saudi Arabia and other regional countries [1; 391].

On February 28, 1991, Iraq agreed to the strict requirements of the UN Security Council regarding Kuwait and withdrew its troops from Kuwait[4; 343]. After that, the statement of the EIR said that although the second war in the Gulf has ended successfully with the end of aggression, the problems of the region have not been resolved and to some extent it has deepened the security problem of some countries [1; 437].

At the beginning of the 1990s, relations between Iran and the GCC (Cooperation Council of the Arab States of the Persian Gulf) countries became somewhat cold. The Emirate of Sharjah and the Iran Treaty signed in 1992 have been the cause of most disagreements and continue to this day. These disputes are related to the UAE's claim to the Big Tomb, Little Tomb and Abu Musa islands in the Persian Gulf. The issue of these islands remains one of the most complicated and unresolved issues in the relations between the Arab countries of the Persian Gulf and Iran. The Islamic Republic of Iran insists that these islands belong to it unconditionally, and at the same time, it has regularly proposed to solve the problem only through bilateral political negotiations. The UAE government has called for a peaceful settlement of the EIR through bilateral negotiations and, if negotiations fail, to resolve the issue with the help of the International Court of Arbitration in The Hague[2].

Although Tehran insisted on resolving the issue through bilateral negotiations without the intervention of foreign countries, in fact it denied any claims of the UAE to the ownership of these islands as baseless. For example, L. Maliki, the former Deputy Minister of Foreign Affairs of the EIR, stated in one of his interviews with the media that the positive changes in the negotiations between Iran and the member states of the FKAMHK do not mean that Tehran will give way on the issue of these islands.

Tehran reacted negatively to the demands of the Arab countries that Iran should abandon the construction of fortifications on the islands of Abu Musa, Big and Small Tomb, and assessed it as a clear interference in the country's internal affairs. The main reason for the above demands of the Arab countries was that Iran placed surface-to-surface missiles on these three islands in the Persian Gulf.

Regarding Iran's influence on the domestic political situation in the Gulf countries, the country's foreign minister K. Kharrozi said that Tehran does not support terrorist organizations in other countries, especially in the Gulf countries, and that such actions are completely contrary to the principles of Iran's foreign policy.

In May 1997, the election of Muhammad Khotami (born in 1943) as the President of the EIR (1997-2005) opened a new page in the country's domestic and foreign policy. In December 1997, as the chairman of the Organization of the Islamic Conference of Iran, Khatami held high-level meetings with the participation of leading leaders of Arab countries. Official representatives of Iranian diplomacy have made consecutive visits to the Arab countries of the Persian Gulf. The visit of Iranian Foreign Minister K. Kharrozi to the UAE in 1998 was positively evaluated by Iranian analysts. According to these opinions, S. M. Khotami's new foreign policy doctrine aimed at reconciliation with neighboring

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Arab countries could eliminate tension in the region and create an atmosphere of mutual trust in the future. However, according to these analysts, warm and friendly relations between the UAE and Iran have not yet been established due to Abu Dhabi's claims to the three islands in the Gulf.

Consequently, in his speeches, Khotami put forward a new formula about the need for "dialogue of cultures" instead of "exporting the Islamic revolution". But after Khotami called for the expansion of informal ties between Iran and American nations, EIR's religious leader, Ayatollah Ali Khamenei, clarified, "There is no contact with the Great Satan. America was and still is Iran's number one enemy" [4; 308]. Such statements of the head of the EIR, Iran's independent political path has attracted criticism and exposed the country to economic and other sanctions and threats.

In general, according to the existing estimates, the position of the EIR on the issue of the three islands is firm and Tehran will not allow any deviations in this regard. Even the prospect of future relations with the Gulf states was unlikely to influence Iran's change of position.

Therefore, the global political and economic processes that took place in the 1990s led to important changes in the Persian Gulf region. New economic relations between the countries of the world and conditions of new international polarization in the fields of industry and technology have increased the attention of the great powers and ruling circles to the rich oil resources in the Persian Gulf. The events that took place during this period showed how weak the countries of the region would be in isolation in front of the world's great powers and policies. Even the existing security system in the region has failed to bring practical results due to various reasons, including the non-participation of all the countries of the Gulf basin.

In conclusion, the recent improvement in Iran-Arab relations and signs of increased cooperation in the Persian Gulf are undoubtedly due to the resolution of territorial disputes between Iran and its Arab neighbors. Statements made by Iranian representatives from the platforms of the UN and other international organizations in the mid-1990s indicate that after the two wars in the Gulf, Tehran has taken a more moderate position in relation to the security problem of the Persian Gulf. An analysis of the situation in Iran at the end of the 1990s showed that the balance of society and state institutions gradually shifted in favor of a secular state system. In particular, Muhammad Khotami's re-election to the presidency in 2001 can be a proof of this.

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PRE-ISLAMIC RELIGIONS IN CENTRAL ASIA AND THEIR INFLUENCE ON SOCIAL AND POLITICAL LIFE

Abstract: On the eve of the introduction of Islam, Central Asia was a region where the assimilation of different peoples and cultures was active, and various religions and doctrines were deeply rooted in the region. These beliefs have had a significant impact on the socio-political life of society.

The article describes the ancient pre-Islamic religions and governing system of Central Asia on the basis of primary sources and scientific literature.

Key words: zoroastrianism, buddhism, nestorianism, Central Asia, Ahamonids, Great Silk Road, Western Turkic Khanate, Black Budun.

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Introduction

In the VI-VII centuries, the peoples living in the territory of the Turkic Khanate were influenced by various religious ideas. Almost every clan or tribe and people had their own religion. Therefore, many religions are widespread in Turkic tribes.

Animism and shamanism existed in Central Asia even during the Turkic khanate. Also, the worship of the spirits of ancestors remained a widespread religious idea among the Turkic peoples until the 10th century. This belief is based on the belief that the soul does not die, it lives in the afterlife. Such imaginations caused unusual practices in the life of ancient Turks. For example, in 576, at the funeral of Istami Khagan, his son sacrificed the horses that his father was riding, along with four prisoners of war, to his soul. Some sources also provide doubtful information that does not correspond to the reality of that time. One of them is related to the death of Muqan Khaqan. It is reported that after the death of Muqan Khagan, 20,000 people

were sacrificed and buried together to serve him on the "abandoned day"[1] [8:105].

During this period, the majority of the inhabitants of Khakhan were in the belief of godliness - related to the blue sky, the age-old - Ashina period. In addition, the Turks understood the common belief in the creator in the theism, Zoroastrianism and Buddhism. In the "Monument of Bugut" as well as in the inscriptions of Urhun, it is emphasized that the Khagan is a mediator between God and the people. Because the common religious faith of the Turks united them in a union of tribes within twenty years (535-555) and allowed them to form a powerful state. In the 70s of the 6th century, the introduction of religions such as Zoroastrianism and Buddhism into the lives of the peoples of the Turkish khanate and their place in their lives was nothing but religious and national tolerance[7:53].

In addition to the above-mentioned beliefs, religious doctrines such as Zoroastrianism, Buddhism,

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[1] "Abandoned Day" - Turks called the Day of Judgment "Abandoned Day". Turks placed stone statues of people next to their gravestones. They are called "balbals". Balabals are memorials dedicated to the soul of a dead person.

Monism, Mazdakism, and Tangriism, as well as Nestorianism, were widespread among Turkic peoples in the VI-VII centuries[15:153].

During this period, Zoroastrianism was especially widespread in Central Asia, and it was distinguished from Zoroastrianism practiced in Sassanid Iran. In Iran, Zoroastrianism developed as an official state religion, based on strict requirements. In Central Asia, it was followed due to religious tolerance[7:50].

Zoroastrianism, which arose in ancient Khorezm, became the state religion in the kingdoms of the Achaemenids, Africans and Sassanids. These empires ruled over a large part of the Near and Middle East for almost thirteen centuries from the 6th century BC to the 7th century AD[5:64]. Since Zoroastrianism, which has been practiced as the state religion for many years, is deeply rooted in the social and cultural life of the society, as well as in the state administration system, it was not easy for local peoples to abandon their religion after the introduction of Islam.

Iso Jabbarov gives detailed information about the Zoroastrian religion in the "Patron Saints and Goddesses of the Ancient Khorezmshahs" section of the book "The State of the Great Khorezmshahs" and cites the following opinion of the famous theologian Mary Boyce; "The government of Iran (also of ancient Khorezm - I.J) brought great prestige to Zoroastrianism, and some of the most important aspects of its teachings were adopted by Judaism, Christianity, Islam, and Gnostic sects. In the East, Zoroastrianism influenced the development of the northern variant of Buddhism" [5:64]. Of course, Mary Boyce may have made this point based on her years of research. But the above-mentioned religions of Judaism, Christianity and Islam are heavenly religions, and the books revealed to them confirm each other's information. In addition, the religion of Judaism was established in Egypt during the reign of Ramses II in the 13th century BC, that is, long before Zoroastrianism lived (according to Zoroastrian tradition, his life period corresponds to the end of the 7th century and the beginning of the 6th century BC)[16:903]. Also, in both Christianity and Islam, there are absolutely no rituals similar to fire worship or customs such as drying the dead in the sun, sometimes feeding the dead to dogs, and then burying the bones in special containers (ostadon). Abu Rayhan Beruni in his work "Asor ul-Baqiyya" ("Memorials left by ancient peoples") calls Zoroaster a "kazzab", that is, a false prophet [2:238].

Nevertheless, Zoroastrianism had a great influence on the social life of the society and for many years was at the level of the state religion.

Zoroastrianism developed differently in different regions. Zoroastrians of Iran and Zoroastrians of Central Asia had unique differences in their beliefs.

In the VII-VIII centuries, the majority of the population worshiped the Central Asian type of Zoroastrianism. An example of this is the following information. One of the Chinese sources mentions about 200 families living around Samarkand and how they buried their dead people: they build a fence in a large place, lock dogs in it, and carry the corpses of dead people into this fence, then collect their bones and bury them in the ground[24:6736].

These customs are similar to those of the fire-worshippers who lived much earlier, recorded by Strabo and Justin: according to them, the above ceremony is a Zoroastrian funeral, with the difference that the bones of Zoroastrians are buried in a special clay coffin - an ossuary (ossuary). were [10:182].

Al-Mas'udi writes about Kason, which was the capital of Fergana before Islam, that there was a temple named Kovuson[2], built by a king named Kovus, and its building had a strange appearance. In it, people prayed to the sun and the heavenly bodies, and a sacred fire burned continuously in a special hearth inside the building[3:249].

Another religion spread in the region was Buddhism. From the time of the Kushans, Buddhism began to spread widely in the southern regions of Central Asia, mainly in cities, among merchants. Before the Turkish khanate, Central Asia (Bactria and Parthia) served as a transit area for the spread of Buddhism to China. One of the areas where Buddhism was widespread was Eastern Turkestan. According to Chinese sources, 5358 monasteries and 126100 monks were registered there in 713[7:52].

In the pre-Islamic period, there was a Buddhist temple in the city of Quwa consisting of two buildings with separate doors. At the entrance to the temple is a huge statue of horses and bearded goddesses with a human skull on its forehead[23:885]. Colorful clay figurines of the deities of the Buddhist pantheon were also found in the temple buildings. Also, according to Chinese sources, there was a temple in the 7th century in the city of Kushonia (near Kattakorgan), where the mayor of the city held some kind of ceremonies every day early in the morning; "The paintings of Chinese emperors on the wall on the north side of this building, the Iranian and Roman emperors on the western wall, and the Turkish and Indian governors on the eastern wall" [10:185]. Such information indicates that visual art and sculpture are very widely developed in Central Asia[27:132].

Muqan (553-572) Khagan's brother Tagpar (572-581) adopted Buddhism and sponsored the

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[2] Kovuson is a fire-worshipping temple in the city of Koson, Ferghana Valley, which existed in the early Middle Ages. This temple was destroyed during the reign of Caliph al-Mu'tasim (reigned 218-227/833-842).

construction of monasteries and the translation of Buddhist canonical works [11:333].

In the 30s of the 7th century, Xuan Jiang[3] saw two empty Buddhist temples in Samarkand. However, at the beginning of the 7th century, Buddhism declined in Sogd, but it was found that there are still Buddhist monuments in other regions - Ferghana and Toharistan [10:182].

Before the Arabs, the Nestorian religion was also spread in Central Asia. Nestorianism spread to Samarkand, Bukhara and Choch between 412-720, and religious institutions such as bishoprics and metropolitans were established. In addition to propagating their religion, Christians also took an active part in state affairs as doctors, scientists, and businessmen in the palaces of rulers. Only the Arab conquest put an end to this tradition[7:55].

In the 6th century, Nestorianism continued to spread in Central Asia, albeit slowly and haphazardly. Feophylact Simokatta[4] and Feofan Byzantium[5] have preserved very interesting information that some Turks in Bahrom Chubin's army had idol marks on their foreheads. Mothers drew such signs on their children's foreheads when they were young in order to protect them from diseases [10:182].

At first, Christian propaganda in the Turkish khanate had little effect. The Turks raised their worldview to the level of the state principle, but later the collapse of the Khaganate, the despair of the war ideology among the survivors of the massacre, reached the hands of Christian propagandists [4:271].

According to the information given by Ibn Havqal: "There is a temple where Christians gather in the village of Ash-Shavdar belonging to Camarqand, where they have their rooms, beautiful and neat houses.

I met some Christians from al-Iraq there. They chose this land because of its convenient location, and moved here because of its isolation and healthy climate. The temple is a waqf land, and some people have devoted themselves entirely to this work[26:71]. This land is located much higher than the other lands of al-Sughd and is called Vazkarda[6]"[6:62]. According to the information provided by Ibn Havqal, we can see that the Nestorian religion did not lose its importance in some regions even during the Samanid period from Movarounnahr[14:125].

Descendants of the Christian Steppe Turks survived until the 13th century among the Qarluq and Basmil clans. Also later, Christianity appeared among the Uyghurs in the east.

The Mazdakian[7] movement and ideology, which existed in the territory of Iran in the 5th - 6th centuries, spread widely to Central Asia. Residents involved in the Mazdak movement (kadivars - landless dependent farmers) rebelled in Bukhara, attacked and destroyed the yards of large landowners, and seized land. They began to persecute themselves, that is, the landowners. In the 80s of the 6th century, the Mazdak movement reached its peak in Bukhara[25:880]. Abokhan[8] (Abruy) skillfully used the uprising in Bukhara. With the help of the rebels, Abruy managed to establish his power by occupying the city of Poikand in 585. After seizing the power, he began to rule Bukhara harshly [9:142]. Peasants and rich people who suffered from Abrui's tyranny fled from Bukhara and built a city near Turkestan and Taroz[9] and called it Hamukent, because the name of one big farmer who was the head of the group that fled from Bukhara was Hamuk. According to Narshahi's "History of Bukhara"; "Hamuk" means a gem in Bukhara, and "ket" means a city, that is, Hamuket means "Hamuk is a city of gems". In Bukhara, a big person is called "hamuk", that is, so-and-so is a gem [1:91].

Most of the rich and nobles fled from Bukhara, and the majority of those who remained in the city were the poor and destitute[17:30]. They sent men to their fugitive generals and asked him to rescue them from Abrui's tyranny. Then the commanders in Hamuket go to the presence of Karajurin (Korachorin), the king of the Turks, for help. The king sent his son Sheri Kishwar with a large army to Bukhara. When Sheri Kishwar arrived in Bukhara, he caught Abrui in Boykand and took him prisoner. Then, on his orders, a large sack was filled with gourd bees, and Abruy was put into that sack, and he died inside the sack. [12, p.315]. Sheri Kishwar built the city of Bukhara and built several villages. When the Chinese king's daughter was brought to Bukhara as a bride, they brought an idol from China among her equipment and installed it in Romiton [1:92]. The above data show that initially Central Asia served as a transit point for the spread of Buddhism to China, and later it returned to the region through the cultivation

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[3] Xuan Jiang (602-664) was a Buddhist monk, scientist, philosopher, traveler and translator who lived during the Tang Dynasty. Xuan Jiang was born in 602 to an intellectual family.

[4] Theophylact Simocatta (580-630) was a Byzantine historian and writer who lived at the beginning of the 6th century.

[5] Feofan Byzantium was a Byzantine historian who lived in the second half of the 6th century. Theophon's ten-book history describes the history of the Byzantine Empire from 562-581, mainly about the war with the Persians led by Emperor Justinian II.

[6] Vazkarda – This village was on the site of Qingir village near Urgut.

[7] Mazdakism is a religious and philosophical doctrine. Its founder, Mazdak (470-529), led the struggle of the people against the

Zoroastrian priests and nobles. According to the teachings of Mazdak, the processes in the universe consist of a struggle between the conscious and purposeful goodness, the source of light, and the blind and random source of darkness (ignorance). This struggle will end with the inevitable victory of "good" over "evil". Mazdakism is essentially one of the stages in the evolution of the Zoroastrian religion.

[8] Abruy was the son of Turkic king Mooho. After his father's death, along with other princes, he claimed his father's throne. After his struggle for the throne was unsuccessful, he fled to the oasis of Bukhara with his loyal people. Shaniozov K. The formation process of the Uzbek people. p. 142

[9] Taroz - present-day Jambul (Kazakhstan)

of Buddhism, took deep roots and occupied a large place in the social life of the society [13, p. 202].

Monism occupies a special place among the religions that exist in Central Asia. The founder of this doctrine was Moni, who lived in Iran in the 3rd century. Moni knew the sects of Paganism, Christianity and Sanawiyyah (doubters). He is one of the people who claimed prophethood. About this, Abu Rayhan Beruni gives the following information in his work "Osor ul-Baqiyya": "Moni wrote at the beginning of his book called "Shapuraqan" to Shafur ibn Ardashir[10]: "Wisdom and good deeds are always those that the messengers (of God) bring from time to time. At one time it (wisdom and good deeds) was sent to the land of India through an ambassador named Buddha, at one time to the land of Iran through Zarathustra, and at another time to the Maghreb countries through Jesus[20:85]. Then, in this last century, this revelation was revealed to Moni, the messenger of the true God, and this prophet was sent (through me) to the land of Babylon[21:219]. It is also mentioned in the work that Moni, in his Bible composed using twenty-two letters, presented himself as the "Foracle" and "seal of the prophets" announced by Jesus Christ [2:241].

In his teachings, Moni forbade slaughtering and harming animals, harming fire, water, plants - in the clearest word. The pious and hermits of the Moni sect made laws that were obligatory for them[19:801]. According to the law, he is required to choose poverty, to turn away from lusts, to observe continuous fasting, to give alms as much as possible, to eat more than one day's food and one day's clothing, to abstain from sexual intercourse, to constantly travel around the world in order to lead the people[22:139]. Улар ўзларининг эргашувчиларига ўз мулкининг 1/10 ни садақа қилиш, умрининг еттидан бирида рўза тутиш, биргина хотин билан чекланиш, даъватчиларга ғамхўрилик каби бошқа расм-русумларни фарз қиладилар[2:242].

When the people of Central Asia converted to Islam, the Monites influenced the Shia and Islamic sects[7:58]. According to Beruni, the Monites mostly sought refuge in countries far from the influence of Islam.

In the 7th and 8th centuries, the whole of Asia became a region where different religions spread. Islam spread in the west, Buddhism in the east, and Nestorianism and Monism, which were pushed out of the territory of Iran, in the north.

At the beginning of the 7th century, Central Asia rose economically and culturally, agriculture, crafts and trade developed very quickly[18:8]. Although the peoples of the region believed in different religions, they lived peacefully among themselves. On the trade route from China to Byzantium, gold jewelry was made for the wives of merchants and farmers in cities such as Bukhara, Samarkand, Choch (Tashkent), Kashgar, Turfan. But all this prosperity was the result of the submission of Sogd to the Turkish khanate [4:111].

Conclusion

In conclusion, it should be noted that on the eve of the introduction of Islam to Central Asia, many religious beliefs and doctrines were widely spread in the region, and their place in the life of the society was quite high. Some teachings rose to the level of state religion and had a direct impact on social and political life. During this period, the territory of Central Asia was part of the Turkish khanate, but it was divided into about 15 small independent states. Therefore, there were different religious views in each region. For example, Zoroastrianism, which has been in practice for several centuries, was practiced in Khorezm, while Buddhism, which was introduced by merchants, was widespread in Sogd and Ferghana. In addition, the country also believes in such doctrines as Nestorianism, Orthodoxy, Monism, and Mazdakism. We can also learn that the above-mentioned beliefs have taken a deep place in the lives of the peoples of the country, after the Arabs conquered Central Asia and introduced Islam, it took almost a century and a half for all the local peoples to accept Islam.

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COMPOSITIONAL CHARACTERISTICS OF SMALL EPIC GENRES
(On the examples of the work of A.Atajanov, O.Oteuliyev and M.Taumuratov)

Abstract: *This article discusses the small epic genres of a story, a short story, an artistic essay, etc. A complete and spectacular coverage of life events requires skill from the writer. It is required that the compositional structure of the work has its own characteristics, a reliable presentation of events. That is, the space and time, where the real events of life take place, is narrated in an artistic way by the writer-poet. This process performs the function of the basis in the structure of the plot and composition in the work, in the deep coverage of the lifestyle and psychology of the characters. The article widely analyzes the artistic features of small epic genres on the example of the works of A.Atajanova, O.Oteuliyev and M.Taumuratov.*

Key words: *Small epic genres, detail, short story, artistic essay, work, plot, writer, events and actions.*
Language: *Russian*

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КОМПОЗИЦИОННАЯ ХАРАКТЕРИСТИКА МАЛЫХ ЭПИЧЕСКИХ ЖАНРОВ (На примерах произведении А.Атаджанова, О.Отеулиева и М.Таумуратова)

Аннотация: *В данной статье рассматриваются малые эпические жанры рассказа, новеллы, художественного эссе и др. Полное и эффектное освещение событий жизни требует от писателя мастерства. Требуется, чтобы композиционный строй произведения имел свои особенности, достоверную подачу событий. То есть пространство и время, где происходят реальные события жизни, художественно повествуется писателем-поэтом. Этот процесс выполняет функцию основы в построении сюжета и композиции в произведении, в глубоком освещении образа жизни и психологии героев. В статье широко анализируются художественные особенности малых эпических жанров на примере произведений А.Атаджанова, О.Отеулиева и М.Таумуратова.*

Ключевые слова: *Малые эпические жанры, деталь, рассказ, художественный очерк, произведение, сюжет, писатель, события и действия.*

Введение

Развитие эпохи и общества, рост и изменение сознания людей привели к определенному прогрессу в художественной литературе. Писатели, как и прежде, не изображали события простым, незамысловатым, т.е. только «объективным» сюжетом, но тщательно выстраивала композицию произведений. Каждой части произведения авторы стараются художественно обогащать, рассказать историю, глубоко раскрыть психологию героя. Заметно, что диалоги и монологи персонажей в композиции произведения, а также сны, письма, написанные персонажами друг другу, несут особую литературно-поэтическую функцию, увеличились приемы изображения. Очевидно, что такая

ситуация способствует обогащению содержания произведения и повышению читательского интереса.

Основная часть

Малые эпические жанры рассказ, новелла, художественный очерк и д. полное и эффектное освещение событий жизни требует от писателя мастерства. Требуется, чтобы композиционный строй произведения имел свои особенности, достоверную подачу событий.

Своей артистичностью обладают произведения А. Атаджанова, О. Отевлиева и М. Таумуратова в каракалпакской прозе, романах и других жанрах.

А. Атаджанова «Қаталлық хәм мийирбанлық», «Бәринен де исеним артық», «Сен – парлаған қуяшсаң», «Алжасық», «Уйқы», «Адам кеўлиниң…», «Мениң бахтымсаң» и другие. Композиционные особенности стихотворений показывают также, что лиризм и психологизм персонажей сильнее эпического стиля, то есть в этих произведениях преобладает лирико-психологический стиль. В рассказе «Адам кеўлиниң…» он изобразил события распада семьи двух влюбленных друг в друга молодых людей, их воспоминания, т. е. события с первой страницы. Красивая женщина рассказывает своему знакомому об ошибках, которые она совершила в молодости. Молодой студент, обучающийся в далеком городе, присоединяется к своей возлюбленной, он оставляет жену со свекровью и отправляется учиться самостоятельно. Молодая женщина не любит сидеть дома и идет работать в химическую лабораторию и отправляет свои зарплаты мужу. Муж постепенно холодеет. Так продолжаются события, и в семье рождается новый ребенок. Отец мальчика все еще недоволен. Окончательный вид студента раскрывает его характер и сокровенные мысли. Автор описывает безнравственность отца студента, беспечность, пренебрежение собственными детьми, а также то, что он не находится на виду у своих домочадцев и привязан к другим мечтам: «...Ерим приехал в эту поездку с обожженным лицом, как будто он хотел стыдиться публики. Вместо подарков у него пустая рука. Он ничего не получил ни для матери, ни для ребенка. Темная туча затмила светлый дом, настроение было мрачное, и наши слова после приветствий были друг против друга, как враги. Один идет с неба, другой тянет на землю». Заметно, что смывка рассказе умело сочетается с этой композицией. Для того, чтобы автор сказал своему герою фразу «Мне одиноко», он сделал акцент на росте и изменении характера. Из-за того, что его жена имеет среднее образование, он презирает ее как личность, считает студенткой учебного заведения, груб и холоден даже с любящей матерью, далек от своего ребенка.

Сравнение диплома о человеческой судьбе, бесчеловечности, гордыне, высокомерии, поверхностном рассмотрении семейной ответственности, отцовского долга, бесчеловечности можно увидеть всего в двух словах этого человека. В то время А. Атаджанов хорошо знал женитьбу и писал с глубокими мыслями. Он красиво рассказывает о событиях в своих рассказах, как человек, повидавший много правды.

Написанные в каракалпакской литературе произведения М. Таумуратова отличаются своим жанром и художественным стилем. Его повесть «Аманат» тоже отличается стилем. Произведение было опубликовано сначала в журнале[1; 73-75.], а затем в книжном издательстве [2; 26-30]. В книжной версии произведения автор сделал дополнения, чтобы углубить различия между словами, событиями и внутренними переживаниями героев. Кроме того, тот факт, что по тексту этого романа был написан сценарий и показан на голубом экране, также расширил возможности произведения по влиянию на массы. Герой произведения руководствовался принципом «доверием не злоупотребляют». В процессе изображения событий отчетливо видно умелое использование автором приемов повествования. Также показаны внутренние сожаления героев в своих поступках и речах. Работа содержит большое содержание с идейной и тематической точки зрения. Содержание романа таково: Ержан с лихвой выполнил поручение, данное Низаматдину, раскопавшему собранный им при жизни мир богача с целью погребения. Однако в романе происходит неожиданный поворот, и Ержан Бай приказывает Низаматдиину поверить ему под дулом пистолета, говоря: «Об этих богатствах никто не должен знать». Автор мастерски изобразил положение героев того времени и ярко отразил на наших глазах их психологию. Юноша, у которого ничего нет на сердце, вышел из выхода своего хозяина легкими шагами и чуть глаза не вылезли из орбит, когда увидел направленное на него оружие! Его подбородок был опущен, язык перевязан, и он потел, как лед! В этом состоянии казалось, что его подошвы усеяны крошечными порезами, и он онемел. Если они хотят двигаться, в их конечностях нет души! Мышцы на лице были растянуты, а нервные волокна, связанные со спинным мозгом, всегда были повреждены… Теперь он увидел, что его хозяин, смотревший на узел железа, двигался в ночном тумане, и даже не понял, что плачет?..." [3; 27]. Поэтому автор сумел умело раскрыть через эти строки весь потенциал человеческой жизни. Конфликт между ними обостряется. Теперь Низаматдиин Ержан готов умереть, говоря: «Я готов».

« – Не дейин басқа, бай аға? Қолыңыздағы бир балаңыз едим. Өзиңиз аш-жалаңаш жүргенимде пана бердиңиз, үлкен өмирге қайтардыңыз. Бир қысым жаным қолыңызда. Оны қәлеген ұаққытта қыйып жибериўге толық ҳақылысыз…» (стр. 28). Это было знаком верности Низаматдина Ержан-баю. В новелле происходят неожиданные события, и Ержан Бай вдруг чувствует происшедшие в нем перемены. В произведении автор коротко и понятно описывает прошлое героев и то, что они за люди, и это можно показать как одну из отличительных особенностей его стиля. Этого требуют и возможности жанра. Из следующих строк сияет прошлая жизнь и образ Ержан Бая. Например: «Дөгерек тустағы қараңғылық кем-кем ағараңлап көрине баслады… Әкесин қарақшылар баўызлап кеткенинде де көзлерине жас алмаған тасбаўыр Ержан бай босасқан еди! Ол өмиринде биринши мәрте еңкилдеп жылады!... Усы ҳалатта мылтығын қайтарып ийнине асты. Нызаматдийинди қасына ымлап шақырды да қоржынынан бир түйиншик теңге алды» (стр. 29). Писанием он выводит на новый уровень поток переживаемых в душах героев чувств. Для того чтобы объяснить, что жизнь Низаматдия меняется к лучшему, важную роль в произведении сыграло описание природных явлений. Осветление тьмы указывает на то, что события изменятся к лучшему « – Өмиримше жолыңызға қарап өтемен бай аға! Аманатыңызға қыянет етпеймен…» (стр. 29) Этот депозит зарыт в отцовском доме. Даже если их дети просят « – Аманатқа қыянет етилмейди, балларым» (стр. 30) как он сказал, он взял от меня секрет помощи тому миру... Несомненно, послание, представленное в романе, окажет сильное влияние на сердце любого человека. Как сказал узбекский ученый Б. Саримсоков: «…Художественность произведения (образа) определяется не только правдивостью произведения, но и степенью художественной правды, воздействующей на сердце, чувства и мысли читателя книги, и степенью художественной правды, которую оно принимает место в сердцах других» [4; 99]. Этот новелла привлекает внимание читателя своей способностью превращать реальность жизни в реальность художественную и тем, что герои раскрывают себя. В этой новелле автор по-иному подходит к раскрытию душевного состояния героев, не описывает полностью их психологическое состояние, но сумел дать результаты этого процесса и реализовать его через действие и речь. «Ббб-аааа-йййййй… аааа-ғғғғ-ааааа. – Күнине нешше мәрте ап-аңсат ғана айтып жүрген еки аўыз сөзди сөйлеўдиң бунша аўыр екенин билсе екен? Даўысы да әжептәўир естилди…» (стр. 27). Здесь дополнительные образы и описания, данные автором произведения,

послужили укреплению душевного состояния Низаматдина. Произведения писателя М. Таумуратова отличаются от других своей выразительностью и композиционным мастерством.

Исполнительское искусство Омирбая Утеулиева имеет свои особенности с жанровой точки зрения. Его работы ««Барсакелмес» аспанынан аққан жулдыз» (Звезда, сошедшая с неба Барсакельмес) (2009 г.), «Жабайы көк» (Дикая синева) (2013 г.), «Балалыққа қайтыў» (Вернуться в детство) (2014 г.), «Бултты саялаған ылақлы кийик» (Олень, увидевший облака) (2015 г.), «Қумырысқа кәрўаны» (Караван муравья). (2016), «Өз жетиминди өзиң бақ» (Ты сам заботы свою сироту) (2017), «Сырлы тас» (Таинственный камень) (2018), «Бақаншақлы үйдиң турғыны» (Житель Баканчаклы) (2019), «Қорқыт атаның желқобызы» (Желкобыз Коркыт Аты) (2020) построены на всевозможных историях, и в них природные сцены тесно связаны с человеческой судьбой, излучают собственное излучение. Его писательский стиль отличается разнообразием жанров. В нем рассказы, повести, романы, художественные очерки, публицистические жанры, интересные рассказы, беседы, воспоминания, интересные рассказы самого писателя.

В книгу под названием «Барсакелмес» аспанынан аққан жулдыз» вошли произведения, написанные в жанрах очерка, публицистики, беллетристики и рассказа. В своих произведениях автор рисует яркую картину событий, произошедших в современном обществе.

В очерке «Барсакелмес» аспанынан аққан жулдыз» упоминается плачевная судьба работника таможни Амангельды Кыдырова. "Барсакельмес", вас плохо зовут, кого вы оставили и кто не вернулся?! Хотя сыновей и дочерей тридцать, у каждого из них есть отдельное место для родителей. Почему вы убили Амангельди, которого назвали с благим намерением «пусть он идет целым и невредимым», куда бы ни пошли брат Шамурат и сестра Токтагул?! Если у вас есть культиваторы, говорите, луна, солнце, звезды, темное поле - Устюрт?! Точное содержание произведения определяется строками. В композиции эссе рассказы рассказываются языком рассказчика, а автор излагает свой рассказ.

Также в книгу вошли «Жолбарыс палўанның дәрьяға кеткен суў тулпары», «Қайта егилежақ бағ», «Зергер қайда, зер қайда?!», «Қайықшы», «Аралқум»ды сексеўилдиң тамырына байлап қойсақ», «Ылай сүўға сағағын шайған Аралдиң кити», «Гулбий» очерки и публицистические произведения, обладают жанровой и художественной самобытностью.

В повести писателя «Бақаншақлы үйдиң турғыны» отражена тема острова и вопросы

экологии. По словам автора, «авторы своих художественных произведений привыкли писать на хорошо знакомые им темы. Более того, я счел уместным посвятить эту книгу Аральскому морю, вода в котором отрезана, Амударье, близкому моему сердцу, становящемуся живым описанием красоты природы, делающим знакомым весь мир. Образ Сейдуллы напрямую связан с событиями. Одной из особенностей композиции произведения является то, что автор углубляет идейное содержание, оживляя рыбу. «Институтқа хүжжет тапсырып жүрген күнлери Нөкистеги тири балық сатылатуғын «Арал» дүканына арнайы излеп барады. Үлкен суў ыдыстағы былғанлаған адам бойы ылаққа көзлери уясынан шығып кетердей бадырайып:

- Мени излеп келдиң бе, Сейдулла! Қуслардай қанатым болғанда дүньяның төрт мушын шарлап, теңиз, океанларда жүзер едим. Бир теңиздиң сүўы қурыса балықлары пүткиллей қырылып кетеди деген ойда қалмаң. Суўға шашылған уўылдырықларымыз дәрьядан көлге, теңизге қусардың аяқларына жабысып өтеди, - деген сөзлерин айтарда таңлайындағы мөри көтериледи». Поэтому здесь отражена жалкая судьба рыб, пострадавших и исчезнувших из-за высыхания Аральского моря. Включение таких фантастических образов в композицию произведения ясно проясняет авторскую цель. Судьба Сейдуллы параллельна Аральскому морю.

«Он вырос без отца, гора Аскар опирается на его спину, место его упокоения светло, его могила наполнена светом, и ему грустно разлучаться с учителем, когда наступает очередь Сейдуллы: «Арал, Әмиўдәрья – бул менiң тиришилигим! Оларсыз келешегим жоқ» деп жылап жиберди». В книге раскрывается судьба Сейдуллы и Софии. На мой взгляд, в произведении проблема человека и природы, чувства двух эпох представлены со всевозможными композиционными различиями. Художественной услугой в творчестве служило сновидение и использование буквенных мотивов.

Заключение

Короче говоря, от писателя требуется мастерство, чтобы уметь компактно передать большое содержание через объемное произведение. В произведениях А. Атаджанова, О. Отеулиева и М. Таумуратова, занимающих значительное место в каракалпакской прозе, главное место занимает передача реальности брака через правдоподобный и привлекательный сюжет. А. Атаджанов затрагивает события, происходившие в повседневности, а О. Отеулиев изображает взаимоотношения человека и природы, Аральское море. А в новеллах М. Таумуратова он реализует сокровенные мысли героя на основе психологии. Конечно, такие различия хорошо видны в композиционном построении.

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FROM THE HISTORY OF RUSSIAN-UZBEK LITERARY RELATIONS (COMPARATIVE TYPOLOGICAL ANALYSIS)

Abstract: *The article examines the historical and cultural prerequisites for the formation and development of Russian-Uzbek literary ties. The emphasis is placed on the types and forms of comparative typological analysis, and an overview of the works of Uzbek and Russian literary critics is given. The publication provides a thorough and detailed analysis of the works of Russian and Uzbek writers in the context of a comparative typological approach.*

Key words: *literary connections, poetic symbol, instructive genres, enlightenment, poetic manifesto, Russian culture.*

Language: *Russian*

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ИЗ ИСТОРИИ РУССКО-УЗБЕКСКИХ ЛИТЕРАТУРНЫХ СВЯЗЕЙ (СРАВНИТЕЛЬНО-ТИПОЛОГИЧЕСКИЙ АНАЛИЗ)

Аннотация: *В статье рассматривается историко-культурные предпосылки ставновления и развития русско-узбекских литературных связей. Делается акцент на виды и формы сравнительно-типологического анализа, дается обзор работ узбекских и русских литературоведов. В публикации приведен тщательный и детальный анализ произведений русских и узбекских писателей в контексте сравнительно-типологического подхода.*

Ключевые слова: *литературные связи, поэтический символ, поучительные жанры, просветительство, поэтический манифест, русская культура.*

Введение

В русском и узбекском литературоведении не имеется серьёзных работ, в которых бы целостно был рассмотрен вопрос о типологической характеристике русской и узбекской литератур в их историческом развитии и сопоставлении. Но в некоторых в ряде исследованиях [3,1983; 8,1972; 15,1974,14,2021] рассматриваются отдельные вопросы этого плана, в других [9,1980; 6,1979; 10,1988; 13,2021; 19,1990; 22,1985; 23,1983] подробно рассматриваются факты контактного взаимодействия литератур на уровне целых процессов или творчества отдельных авторов, что

прокладывает путь к обобщениям типологического характера. Наконец, история культурных контактов рассматриваемых регионов тоже содержит богатый материал для исследования материала. Мы не претендуем на самостоятельное всестороннее и системное толкование всей проблемы типологической характеристики русской и узбекской литератур - это задача целой отрасли литературоведческой науки.

Первые попытки систематизировать материал по вопросам литературных связей Узбекистана с другими национальными литературами, в первую очередь с русской, были

предприняты в таких работах ученых-литературоведов, как «Из истории узбекской литературы» В.Вохидова [1961], «Исторические корни русско-узбекских литературных связей» Г.Каримова [1964], «Взаимодействие и взаимообогащение русской и узбекской литератур» М.Расули [1978].

Литературные связи узбекского народа с другими соседними народами выделяются своими яркими творческими результатами на всех этапах исторического развития. Узбекский народ испокон веков бывал в близких отношениях с соседями из Ближнего и Среднего Востока (иранцами, арабами, туркменами, уйгурами), поддерживал дружеские культурно-экономические связи и с Россией.

История экономических связей народов Средней Азии и Россией уходит в глубокую древность. Издавна русские купцы оправлялись со своими товарами в Бухару. Здесь они закупали хлопок, шёлк, шерсть. И с той и с другой стороны снаряжались| посольства. К этому периоду относятся первые переводы с русского языка на узбекский и наоборот. Это были переводы дипломатических документов, а также «ярлыков», выдававшихся русскими царями торговым людям, направлявшимся в Бухару, Хиву и дальше в Индию и другие восточные страны Литературные связи осуществляются между народами прежде всего посредством переводов. Традиции художественного перевода имеют в Узбекистане тысячелетнюю историю. Древнейшие переводы, начиная с X века, принадлежат таким учёным и поэтам, как Абу Наср Фараби, Абу Али Ибн Сина, Абу Райхан Беруни, Махмуд Кашгари, Махмуд Замахшарии, Навои, Кутб Хоразми, Мунис Хоразми и другим.

Переводы художественных произведений с арабского, с фарси и некоторых других языков составили значительную часть художественного наследия древней узбекской литературы. Художественные переводы с русского на узбекский стали осуществляться после присоединения Туркестана к России во второй половине XIX века. Присоединение дало толчок к развитию востоковедения в России. Особое место в изучении истории Средней Азии принадлежало выдающемуся востоковеду В.В.Бартольду. Прекрасное знание восточных языков позволило ему познакомиться с огромным количеством первоисточников по истории не только Средней Азии, но и всего мусульманского Востока. Такие его труды, как «Туркестан в эпоху монгольского нашествия», «Улугбек и его время» - бесценный вклад русской науки в изучение прошлого Средней Азии.

В Средней Азии появились русские поселения, воздействовавшие на жизнь и обычаи местных жителей. Но общение с коренным населением влияло и на жизненный уклад обосновавшихся здесь русских. При непосредственном соприкосновении русского народа с народами Средней Азии стали устанавливаться и крепнуть добрососедские отношения между ними, углубился обмен духовными ценностями. Так, с 1885 года в крае стали функционировать так называемые «русско - туземные школы», в которых преподавался русский язык и другие предметы на русском языке. В Ташкенте, Коканде, Самарканде, Кагане были организованы типографии и литографии. С 1870 года в Ташкенте издавались газеты «Туркестанский курьер», «Туркестанская туземная газета». В оживлении литературной жизни края большую роль сыграла газета «Туркестан вилоятининг газети», в 1870 году она издавалась под названием «Туркестанская туземная газета» в качестве приложения к «Туркестанским ведомостям», а в 1873 году превратилась в самостоятельное издание. Хотя первая узбекская газета по своему направлению был призвана блюсти интересы колониальной администрации, но нельзя отрицать её известную положительную роль в распространении знаний, так как в ней систематически публиковались материалы, знакомившие читателей с русской жизнью и историей, наукой и техникой, культурой и литературой. В ней приводились сведения о классиках русской литературы - А.С.Пушкине, М.Ю. Лермонтове, И.А.Крылове, Н.В.Гоголе, И.С.Тургеневе, Л.Н. Толстом. В целом ряде статей содержался призыв к овладению художественным опытом русской литературы, говорилось о необходимости переводить на узбекский язык произведения русских классиков. Эти переводы произведений играли большую роль в распространении просветительских идей в узбекской литературе. Вообще понятие «просветительство» выдвигало на первый план борьбу разума против неразумия, защиту естественности человеческой природы против всех форм нарушения естественного состояния. В России просветительские идеи получили распространение в середине и в последней трети XYIII века, но проявилось в разных формах и в литературе XIX века, вплоть до 60-годов. Среди лучшей части интеллигенции Туркестана возник интерес к творчеству русских писателей. В 70-80-е годы были сделаны первые переводы их произведений на узбекский язык. Одними из первых были переведены на узбекский язык басни Крылова «Слон и Моська», «Ворона и Лисица», «Мартышка и очки», помещенные 21 апреля 1875 года в «Туркистон вилоятининг газети». Переводы басен Крылова включались и в школьные хрестоматии. Они способствовали созданию нового типа узбекских басен. Несколько позже в этой газете были напечатаны переводы

произведений Пушкина «Поэт», «Поэту», «Бахчисарайский фонтан», «Сказка о рыбаке и рыбке».

В 1887 году газета опубликовала рассказ Л.Н.Толстого «Чем люди живы». Это произведение в том же году было издано на русский язык отдельной книжкой, предназначавшейся для русско-туземных школ. Исследователями были обнаружены переводы 32 рассказов Л.Н.Толстого, осуществленные ещё в дореволюционный период и включенные в хрестоматии. В чём же заключалась популярность его произведений в Туркестане? - «…рассказы Толстого при всём своём новаторстве, оригинальности, как то перекликались с традиционным восточным жанром нравоучительной притчи, уходящей в глубь веков - вплоть до «Сокровищницы тайн» Низами» [21, 47]. «Туркистон вилоятининг газети», в которой часто печатались стихи узбекских поэтов, выходила с буквальным переводом узбекского текста на русский язык. Так, на русский язык были переведены «Зарбулмасал» Гульхани, ряд газелей Машраба, «Шайбонийнамэ» Мухаммада Салиха, многие сказки, пословицы узбекского народа. Произведения Мукими и Фурката также были изданы здесь на русском языке. Однако эти переводы представляли собой лишь прозаическое изложение содержания поэтических произведений. Все эти факты, являясь по существу явлениями контактных связей, но дают все же и возможность обобщения типологического рода, ибо только с этих позиции можно понять, почему переводились, усваивались и влияли именно эти произведения.

Как видим, среди наиболее быстро и активно усваиваемых русских художественных произведений преобладали жанры поучительного характера (басни, религиозная проза Толстого), близкие к дидактическим произведениям узбекской литературы; и романтические произведения («Бахчисарайский фонтан»), перекликающие отдельными мотивами с восточными дастанами. Под влиянием демократической русской культуры и исходя из внутренних национальных потребностей в Узбекистане зарождалась просветительская идеология, отличающаяся в своей основе, как от феодального, так и от буржуазного мировоззрения. Характерные черты прогрессивной идеологии конца XIX века отражены в творчестве многих узбекских поэтов. Среди них можно назвать Фурката, Завки, А.Утара и других, боровшихся за интересы народа, светские знания, творческое освоение достижений передовой русской науки и культуры. Так, под воздействием русской культуры узбекский поэт Закирджан Фуркат значительно расширил тематику своих произведений и их жанровый

состав. В его творчестве отразились прогрессивные идеи того времени. Он был страстным поборником народного просвещения. Фуркат сумел правильно понять основную тенденцию общественно-исторического развития родного края - усиление экономических и культурных связей с Россией. Своё страстное желание увидеть свой народ свободным и счастливым, Фуркат выразил в аллегорическом стихотворении «Охотник, отпусти газель», где особенно ярко проявились его демократические настроения:

В горах тюльпаны расцвели, сияет мир, пришла весна,

Зачем же рок несправедлив и ей одной земля тесна?

Таясь в дому своём, она всегда в тоске, всегда одна...

Д если вышла хоть на миг - ей злая гибель суждена.

Стрелой разлуки пронзена, и в мире ей темно, как мне.

Немая скорбь ждет, и счастья не дано, как мне. [17,295]

Образ газели, тоскующей «на путях скорби», был понятен и близок читателям Фурката и сделался поэтическим символом. Новая жизнь, установление системы новых отношений между людьми определили тематику многих произведений поэта Мукими. В своих сатирических произведениях он вскрывал пороки нарождавшегося в его стране буржуазного общества. Такие его стихотворения, как «Сатира на Виктор-бая», «Проделки Виктора», «Новоявленный бай», «Вексель» разоблачают торговые махинации господ и приказчиков, которые смогли обманным путём присвоить крупные суммы. Если Некрасов огонь своей сатиры направляет против крепостного строя и послереформенного ограбления мужика, то Мукими близок ему своим протестом схожих феодальных порядков и буржуазного гнёта. Поэт резко осуждает, как и его соратник в России, эксплуатацию народа, пренебрежение к правам человека. В центре поэзии Мукими стоит труженик, дехканин и ремесленник-народ, ограбленный и забитый, доведенный нещадной эксплуатацией и угнетением до нищенства, народ, осознавший собственную угнетенность и униженность своего человеческого достоинства.

Мукими, объективно изображая невыносимо тяжкое, трагическое положение народа, живёт и остаётся с народом. Судьба народа, как полагает Мукими, находится в его собственных руках. Эта мысль начинает всё явственнее проявляться в творчестве поэта от года к году и с особой силой сказывается в газели «Давайте танцевать, давайте веселиться, давайте здравствовать и жить» [18,108]. В центре поэзии Мукими стоит сам

народ, с его исторически трудной и бедственной судьбе Поэзия Мукими объективно воссоздала социальную картину жизни народа, в которой причудливо сосуществовали различные типы укладов - «феодально-патриархальный и колониально -полицейский» [9, 122].

Простой и ясный язык поэзии Фурката и Мукими-это по преимуществу язык узбекского народа, очищенный от усложненной архаической книжной лексики.

Для этих поэтов характерно стремление к фактологической точности. Например:

Был сентябрь. Восемьсот девяностый год.

Отовсюду на выставку ехал народ.

Довелось эту выставку видеть и нам.

Всё, что есть в нашем мире, представлено там.[17, 318]

Стремление к хронологической конкретности присуще и поэзии Н.А.Некрасова:

Вчерашний день, в часу шестом

Зашёл я на Сенную

Там били девушку кнутом

Крестьянку молодую...

Как мы видим из примеров, в литературном движение Средней Азии во второй половине XIX века под воздействием общественно-политических событий эпохи, элементов русской культуры развивается демократическое течение, уходящее своими истоками в многовековою культуру и литературу. Усваивая новые формы взаимодействия с русской культурой, узбекская демократическая культура оставалась глубоко национальной. Но сам факт их творческого усвоения и развития свидетельствует о правомерности поиска типологические схождений.

При характеристике литературы XX века (особенно литературы послереволюционного периода) в настоящее время возникают противоречивые оценки, определяемые сложными преобразованиями в политической, экономической и культурной жизни нашего современного общества.

Русско-узбекские литературные связи XX века исследовались в целом ряде работ узбекских литературоведов, например, Дж.Шарипова «О художественных переводах», А.Абдугафарова «Русско-узбекское литературные связи», М.Юнусова «Интернациональные связи узбекской советской литературы», У.Нурмухаммедова «Жангчи шоирлар ижодида харбий ватанпарварлик», М.Расули «Взаимодействие и взаимообогащение русской и узбекской литератур», Р.Собировой «Роль русской литературы в утверждении новых традиций в узбекской советской прозе», Н.А.Рахимова «Чехов и узбекская советская проза». Эти исследования представляют материал

и убедительные примеры возможности и целесообразности поиска решения нашей задачи.

В первой четверти XX века в узбекской поэзии начался период интенсивных поисков новых литературных форм, отвечающих новизне содержания. Нужно было преодолеть некоторые устоявшие традиции восточной поэтики, найти иные художественные изобразительные средства. Новаторы узбекской литературы, и прежде всего Хамза, создают образцы политической публицистической лирики, впервые используя и развивая жанры революционных маршей и песен. Написанные Хамзой революционные марши и песни напоминают стихотворения-марши Маяковского. Они имеют своеобразное построение, лаконичны, язык их предельно прост, наиболее важные по содержанию строки напоминают и образуют рефрен. Сложный классический стихотворный размер аруз, господствовавший в дореволюционной узбекской поэзии, Хамза заменил народным силлабическим размером бармак. Он принёс в свою поэзию особенности ритмики, рифмовки и изобразительных средств народной поэзии, менее изощренной, но зато более лаконичной и ёмкой. При изучении пьесы Хамзы «Последние дни мирового капитала» исследователи не раз отмечали поразительное сходство этого произведения с «Мистерией-буфф» Маяковского. Обе пьесы - плакатны, их отличает специфические особенности изображения. В пьесе Маяковского это прежде всего художественная конкретность, наличие в ней героев и художественного сюжета, основанного на библейском сказании, наличие элементов фантастики, связанных с потусторонним миром (участие в действии ангелов, чертей, святых). У Хамзы герои и характеры как таковые отсутствуют, действуют в основном символы, обобщенные социальные категории- Могущество, Правда и так далее. В этой связи пьеса приобретает некоторую абстрагированность, что более созвучно восточному типу назидательной литературы. Песни Маяковского и Хамзы отличаются масштабностью и плакатностью, рассчитанные на народное представление на площадях. По размаху и политическому накалу пьеса Хамзы напоминает в какой-то степени и политические памфлеты Горького, в частности, «Город Жёлтого дьявола», особенно тем, что одной из действующих сил выступает Золото. Как и у Горького, господствующая сила капитала-золото-наращивает свою мощь за счёт слабых и угнетённых, а основными его помощниками выступают Государство, Гнёт, Религия и так далее. Золото - это олицетворение капитала как силы, подчиняющей власть, духовенство, армию в лице Генерала. Ради служения золоту последние идут на насилие, гнёт, порабощение народов. Как

Горький, Хамза на глубоко национальной основе, уходящей корнями в узбекский фольклор, раскрывает тему золота. Интересно отметить, что осмысление, сути золота в духе классовых теорий той эпохи выражено еще в 1918 году в пьесе «Бай и батрак» устами Салихбая: «Золото моё такой пронырливый соглядатай, такой ловкий вор, такой могущественный ишан, великий властитель, в землю уйдёшь от меня, оно тебя за уши вытянет, на небо взлетишь-за ноги стащит и, как спелое яблочко, за пазуху мне закатит» [9, 92].

Типологически оно близко горьковскому пониманию золота. По горьковски звучат слова Золота и в пьесе Хамзы «Последние дни мирового капитала»: «Все на свете- власть и государство, религии и войны, слава и страдания, мечети и церкви, идеологии и их разные толки, течения, законы и богослужения-все это для меня, служат мне...» [9,103]. Говоря о сходстве пьесы Хамзы с пьесой Маяковского и в какой то степени с политическими памфлетами Горького, мы должны отметить, что русским писателям в их творческих поисках помогал богатый опыт предшествующей литературы (её революционно-демократическое направление), в то время как Хамзе пришлось начинать все сначала, основываясь лишь на веяниях эпохи, на довольно поверхностном знакомстве с произведениями русских писателей. Поэтому примитивная обобщенность, декларативность, социальный схематизм составляют слабость его произведений в художественном отношении. Но посильное для того времени осмысление политических сил, своеобразный взлёт фантазии свидетельствует о его особом таланте. Интерес к жизни, культуре, духовному миру другого народа издревле характерен для любого народа. Издревле характерен и интерес к Востоку на Западе. Для каждого народа в каждый исторический период направленность этого интереса определяется специфическими социальными, культурными, историческими факторами. Россия, русская культура и эстетика в этом отношении имеют свои национальные особенности как в плане восприятия и понимания Востока, так и соответственно в его интерпретации. Интерес к художественной мысли Востока, особенно, обострившийся на рубеже XX века, имеет давнюю традицию. Исторические корни, органические связи Руси с Востоком уходят в глубокую древность. «Русь в древнейшие времена внимательно слушала сказания мудрых восточных гостей. Сношения с Востоком были гораздо глубже, нежели западники старались этого представить» (8, 26). Обращаясь к русской культуре XX века мы можем отметить, что тема Востока и Запада, Востока и России, раздумья над их историческими судьбами нашли отражение во многих произведениях русской литературы.

Свидетельство тому «На поле Куликовом» и «Скифы» А.Блока, «Грядущие гунны» В. Брюсова, «Ярь» Городецкого, творчество И.Бунина, И. Сельвинского. Восток своеобразно преломился в художественном творчестве В. Хлебникова, в философских воззрениях В. Соловьёва.

Как известно, в первой четверти XX века ведущими жанрами в узбекской литературе были поэтические. Это обусловлено тем, что поэзия преобладала в классической литературе Востока. Но осмысление исторических процессов требовало новых литературных форм, главным образом прозаических, могущим отобразить новые явления жизни в аналитическом плане. Большое значение для развития новой узбекской прозы начала XX века имело новое общественное течение - Просветительство, породившее литературу так называемого «просветительского реализма». Она рождалась на стыке двух различных культур- русской и узбекской, вбирая и синтезируя в себе элементы этих культур, чтобы представить их в качественном виде. Так, под влиянием русской культуры, возникли в узбекской просветительской демократической литературе первые образцы прозы европейского типа - очерк, путевые заметки, фельетон, рассказ, повесть.

В первые годы появления таких прозаических произведений, многие из них, хотя и сохраняли ощущение времени, были ещё абстрактны, с неопределившейся формой, часто расплывчатым содержанием. Молодые прозаики ещё не могли уложить в рамках новой формы всё, что видели, чувствовали, что считали особенно значимым и необходимым. Насущные проблемы жизни, сама логика общественного и художественного развития заставила узбекских писателей обратиться к опыту русских писателей в области прозы. Почти все узбекские прозаики - А.Кадыри, С.Айни, А.Каххар, Г.Гулям и другие- соприкоснулись со школой русской прозы, учились у неё и создавали оригинальные образцы прозаических произведений. При этом творчество русских писателей не вызывало рабского подражания, не ограничивало самостоятельности других писателей, оно способствовало развитию подлинного таланта. Процесс овладения реалистическим методом в 30-е годы проявил интерес к соответствующему этапу русской литературы. Сравнительно позже других оценённый и переведённый А.Пушкин оказал большое влияние на рост и развитие узбекской литературы XX века.

Характерные особенности воздействия А.Пушкина на узбекскую литературу можно проследить не только в развитии поэзии, но и в становлении прозы. Яркий показатель положительных результатов этого процесса, отразивший прочность завоевания позиции

реалистической прозой- творчество одного из её зачинателей - А.Каххара. В основе его своеобразной талантливой писательской манеры лежит усвоение лучших традиций: и восточной и русской литератур. Как мы выше указывали, в установлении межлитературных связей в 20 -30-х годах XX века была велика роль переводческой деятельности, причём обращенный к раннему периоду русского реализма. Одним из активно переводимых поэтов наряду с Пушкиным был Лермонтов. Своеобразие творческих приёмов М.Ю.Лермонтова, поэтическое богатство его языка стали доступны узбекскому читателю в 1928 году, когда Т.А.Юнусов перевёл стихотворение «Утёс [9,183]. Позже, в 1931 году появился перевод из отрывка романа «Герой нашего времени» («Бэла») в переводе Х.Алимджана. В 1936 году в журнале «Гулистан» было напечатано стихотворение «Парус» в переводе Амина Умари. С этого времени началась широкая публикация на узбекском языке произведений великого русского поэта. Первыми переводчиками стихов Лермонтова были видные узбекские поэты Максуд Шейхзаде, Усман Насыр, Хамид Гулям, Ёнгин Мирза, Холид Расул, Миркарим Осим, Аскад Мухтар и другие. Излюбленные жанры Лермонтова - баллада и лиро-эпическая поэма стали достоянием узбекской поэзии. К ним и сейчас охотно прибегают многие поэты Узбекистана.

Типологическую близость русской и узбекской демократической просветительской литературы можно отметить в творчестве целого ряда писателей. Характерным явлением стало обращение к Некрасову и осмысление его творчества в 20-30 годы. Этот этап, типологическими корнями схожий с первым (творчество Фурката и Мукими) имел ещё и фактор обогащения этих связей контактными формами, выразившимися прежде всего в переводе. Так, начиная со второй половины 20-х годов узбекские читатели могли знакомиться на родном языке со стихами Некрасова. В 1935 году была издана книжка с переводами стихотворений Некрасова, автором которой был поэт Эльбек. Многие писатели Узбекистана считали Некрасова своим учителем. Они восхищались его беззаветной, страстной любовью к простым людям, к народу, в лице которого определяли прежде всего крестьянство. Привлекала в Некрасове широта социальной проблематики, гражданственность, умение использовать всё богатство образной речи народного языка, выражение высокой поэтической мысли подчас в простонародной форме.

Стихотворение Некрасова «Поэт и гражданин» воспринималось узбекскими поэтами как поэтический манифест. Его строки «Поэтом можешь ты не быть, но гражданином быть обязан» стали их девизом. В данном случае можно привести высказывания узбекских писателей о Некрасове, например, узбекский поэт Миртемир писал: «Для меня, узбекского писателя, отдавшего немало труда переводам поэтических произведений Некрасова на узбекский язык, он всегда был и остаётся великим учителем, наставником... Для меня всегда были образцом глубокая народность, национальная поэзия поэта» [21,52]. Таким образом, нельзя отрицать непосредственного положительного влияния творчества Некрасова на узбекскую литературу. Но это было определено не только могучим талантом русского писателя, но и подготовленностью узбекской поэзии к его приятию, ибо она настоятельно искала своих путей в том же направлении, которое было определяющим и для Некрасова.

Знакомство с русской литературой создало благоприятную почву для создания прозы европейского типа, таких жанров, как очерк, рассказ, путевые заметки, повесть, фельетон, роман. Однако эта форма отражает, прежде всего конкретный тип связей, который как бы «лежит на поверхности» и который теперь необходимо осмыслить в рамках литературной типологии.

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MULTIPLE-SENSE EQUATIONS WITH KNOWN AND UNKNOWN SEMANTIC VARIABLES, CORRESPONDING TO MULTIPLE EQUATIONS WITH NUMERICAL PARAMETERS AND VARIABLES

Abstract: *The article describes the formula and semantic concepts of substances, reactions between them during the absorption reaction. Representations are confirmed on the numerical material corresponding to the developed multi-sense equations with known unknown semantic variables. A pair of matrices $(\Lambda^{(s)}_{55}, C_{55})$ allows an expert to construct a system of multi-meaning equations with known and unknown semantic variables. The same system of multisense equations corresponds to the initial pair of matrices (Λ_{55}, C_{55}), where Λ_{55} is the spectrum of the "real" symmetric correlation matrix R_{55}. Two systems of multi-sense equations do not change with a special change in the values (simulating the dynamics of reactions) of the elements of the matrix R_{55}. The use of the matrix of eigenvectors C_{55} (matrix of (z,y)-correlations) and the new matrix of (z,y)-correlations $C^{(s)}_{55}$, equal to the previous matrix C_{55}, led to the invariance of the number of dominant variances (in the matrix of eigenvalues $\Lambda^{(s)}_{55}$) and retained the old system of multisense equations. A cognitive analysis of the system of multi-meaning equations, the elements of the matrices $C^{(+)}_{55}$ C_{55} (according to the signs of 14 indicators of the presence of hidden knowledge) and $\Lambda^{(s)}_{55}$ was carried out. The study was carried out on the material of sense, numerical data.*
Key words: *Formula units, semantic multidimensional equations with semantic variables and numerical parameters.*
Language: *Russian*

МНОГОСМЫСЛОВЫЕ УРАВНЕНИЯ С ИЗВЕСТНЫМИ И НЕИЗВЕСТНЫМИ СЕМАНТИЧЕСКИМИ ПЕРЕМЕННЫМИ, СООТВЕТСТВУЮЩИЕ МНОГОМЕРНЫМ УРАВНЕНИЯМ С ЧИСЛОВЫМИ ПАРАМЕТРАМИ И ПЕРЕМЕННЫМИ

Аннотация: *В статье описаны формульное и смысловое представления о веществах, реакциях между ними при реакции абсорбции. Представления подтверждаются на числовом материале, соответствующего разработанным многосмысловым уравнениям с известными не известными смысловыми переменными. Пара матриц $(\Lambda^{(s)}_{55}, C_{55})$ позволяет эксперту конструировать систему многосмысловых уравнений с известными и неизвестными семантическими переменными. Та же система многосмысловых уравнений соответствуют начальной паре матриц (Λ_{55}, C_{55}), где Λ_{55} – спектр "реальной" симметрической матрицы корреляционной R_{55}. Две системы многосмысловых уравнений не меняются при специальном изменении значений (имитирующем динамику реакций) элементов матрицы R_{55}. Использование матрицы собственных векторов C_{55} (матрицы (z,y)-корреляций) и новой матрицы (z,y)-корреляций $C^{(s)}_{55}$, равной прежней матрице*

C_{55}, привело к неизменности количества доминирующих дисперсии (в матрице собственных чисел $\Lambda^{(s)}{}_{55}$) и сохранило прежнюю систему многосмысловых уравнений. Проведен когнитивный анализ системы многосмысловых уравнений, элементов матриц $C^{(+)}{}_{55} C_{55}$ (по знакам 14 индикаторов присутствия скрытых знаний) и $\Lambda^{(s)}{}_{55}$. Исследование проведено на материале о смыловых, числовых данных.

Ключевые слова: *Формульные единицы, смысловые многомерные уравнения с смысловыми переменными и числовыми параметрами.*

Введение

Под термином «многосмысловое» уравнение подразумевается многопеременное уравнение, в котором переменными являются не числовые переменные, не функции, не символы, а смысловые переменные. В многомерном (n-мерном) смысловом пространстве (если разнородные смыслы изображать точкой аналогично многим числам) «многосмысловая» переменная ((смысл(z1), смысл(z2), смысл(z3), смысл(z4), смысл(z_5)) при n=5 соответствует многопеременным z-переменным (z_1, z_2, z_3, z_4, z_5). Мы рассматриваем пока отдельные точки 5-мерного смыслового пространства. Мы рассматриваем в рамках реакции абсорбции вышеприведен ное представление как формульное и эмпирически осмысленное. Представление подтверждается на числовом материале, соответствующих многосмысловым уравнениям с известными не известными смысловыми переменными. Иное смысловое представление символических систем, которыми реальные люди пользовались в реальной практике для придания формы своим мыслям. Исследование осуществляется на материале о смыловых, числовых данных.

Записи формульных единиц в смысловых нехимических уравнениях с смысловыми переменными (присущих реакции абсорбции) выявляют не только то, что реагируют между собой отдельные частицы веществ, но и их неразделенные химическими формулами компоненты. В каждой из которых содержится огромное число химических частиц, не отраженных в химических формулах.

Исходные данные

Исходные данные – значения удельных масс выделенных 5 физико- химических веществ: ионы аммония (z1), растворенный кислород (z2), взвешенные вещества (z3), БПК(z4),ХПК (z5). Матрица C_{55} (Таблица 2) соответствует как паре матриц (R_{55}, Λ_{55}) таких, что: $R_{55}C_{55}=C_{55}\Lambda_{55}$, вычислена при решении ПСЗ: $R_{55}=>(C_{55}\Lambda_{55})$, где $R_{55}=R^T{}_{55}$ - исходная матрица (z,z)-корреляций (Таблица 1) $R_{55}=\{r_{ij}=corr(z_i,z_j)\}$, i=1,...,5;j=1,...,5, диагональная матрица $\Lambda_{55}=diag(2.8198, 1.3987, 0.8343, 0.465, 0.2856, 0.1965)$. Многомерными данными для вычисления матрицы (z,z)-корреляций (Таблица 1) $R_{55}=\{r_{ij}=corr(z_i,z_j)\}$ служит матрица $Z_{m5}=\{z_{ij}\}, z_{ij}=(x^0{}_{ij}-x^{me}{}_j)/s_j$ значений z–изменчивостей, вычисленных по m=12 значениям удельных масс $x^0{}_{ij}$, i=1,...,m; j=1,...,5, пяти вышеприведенных веществ. Диагональные элементы матрицы $\Lambda_{55}=diag(2.8198, 1.3987, 0.8343, 0.465, 0.2856, 0.1965)$ содержит дисперсии 5 у–изменчивостей: $\Lambda_{55}=(1/m)Y^T{}_{m5}Y_{m5}$, где $Y_{m5}=Z_{m5}C_{55}$ – матрица значений у–изменчивостей. Вычислительная схема $Z_{m5}=>R_{55}=>(C_{55}\Lambda_{55})$ предшествует схеме вычисления многомерной выборки $Y_{m5}=Z_{m5}C_{55}$.

Таблица 1. Матрица $R_{55}=\{r_{ij}=corr(z_i,z_j)\}$ (z,z)-корреляций и матрица $C_{55}=C^{(s)}{}_{55}=\{c^{(s)}{}_{ij}=corr(z^{(s)}{}_i,y^{(s)}{}_j)\}$ (z(s),y(s))-корреляций

z_2	z_3	z_4	z_5	c_1	c_2	c_3	c_4	c_5
1.0000 0.1096	0.3888	-0.6098	0.3026	**0.4861**	0.2650	**0.4480**	**0.6563**	-0.2491
0.1096 1.0000	0.3285	0.0539	-0.0285	0.1414	**-0.7165**	**0.5713**	-0.2937	-0.2325
0.3888 **0.3285**	1.0000	-0.2139	0.7258	**0.5292**	**-0.4054**	-0.2630	0.2043	0.6669
-0.6098 0.0539	-0.2139	1.0000	-0.3654	**-0.4432**	**-0.4979**	-0.2961	**0.6322**	-0.2614
0.3026 -0.0285	**0.7258**	**-0.3654**	1.0000	**0.5169**	-0.0651	**-0.5622**	-0.2039	-0.6090

Таблица 2. Матрица $R^{(20)}{}_{55}=\{r^{(s=20)}{}_{ij}=corr(z_i,z_j)\}$ (z,z)-корреляций

1	2	3	4	5	
1,0130	-0,0132	-0,0369	-0,0215	0,0375	1
-0,0132	0,9862	0,0074	-0,0088	0,0003	2

-0,0369	0,0092	0,9806	0,0185	-0,0246	3
-0,0215	-0,1560	0,0185	0,9788	-0,0026	4
0,0375	0,0702	-0,0246	-0,0026	1,0356	5

Таблица 3. Матрица $C_{66}=C^{(+)}{}_{55}=\{c^{(+)}{}_{ij}=corr(z^{(+)}{}_i,y^{(+)}{}_j)\}$ $(z^{(+)},y^{(+)})$-корреляций при $\Lambda^{(20)}{}_{55}=diag(\lambda^{(20)}{}_1,…,\lambda^{(20)}{}_5 = diag(1.0666,1.0091,0.9967, 0.9695,0 .9581)$

	1	2	3	4	5
1	**0,5868**	**0,0793**	**0,5506**	**0,4689**	**0,3555**
2	**0,1536**	**-0,8827**	**0,2589**	**0,3439**	**-0,1091**
3	**0,1538**	**-0,1386**	**-0,3283**	**-0,4096**	**0,8256**
4	**-0,4609**	**-0,2542**	**-0,3545**	**0,6972**	**0,3335**
5	**0,6293**	**0,3615**	**-0,6296**	**0,0896**	**-0,2625**

Таблица 4

№	s: $r^s(i,j)=$ (1/s)r(i,j)	$\Lambda^{(s)}{}_{55}=diag(\lambda^{(s)}{}_1,…,\lambda^{(s)}{}_5$					ℓ
1	1	2.3329	1.1803	0.9349	0.3906	0.1613	
2	2	1,6664	1,0902	0.9674	0.6953	0.5807	
3	3	1,4443	1,0602	0.9783	0.7969	0.7205	
4	4	1,3332	1,0451	0.9837	0.8476	0.7904	
5	5	1,2665	1,0361	0.9870	0.8781	0.8323	
6	6	1,2221	1,0301	0.9891	0.8984	0.8603	
7	7	1,1904	1,0258	0.9907	0.9129	0.8802	
8	8	1,1666	1,0226	0.9919	0.9238	0.8952	
9	9	1,1481	1,0201	0.9928	0.9323	0.9069	
10	10	1,1333	1,0181	0.9935	0.9390	0.9162	
11	11	1.1211	1.0165	0.9941	0 .9446	0.9238	
12	12	1.1110	1.0151	0.9946	0.9492	0.9302	
13	13	1.1025	1.0140	0.9950	0.9531	0.9356	
14	14	1.0952	1.0130	0.9953	0.9565	0.9402	
15	15	1.0888	1.0121	0.9957	0.9594	0.9442	
16	16	1.0833	1.0114	0.9959	0.9619	0.9476	
17	17	1.0784	1.0107	0.9962	0.9641	0.9507	
18	18	1.0740	1.0101	0.9964	0.9661	0.9535	
19	19	1.0701	1.0096	0.9966	0.9679	0.9559	
20	20	1.0666	1.0091	0.9967	0 .9695	0.9581	

Применяемые вычислительные модели

Применяемые вычислительные модели [3-5,8] соответствуют 5 шагам решаемых задач для одного из значений s=1,...,20:

а) Вычисление «реальной» матрицы $R_{55}=(1/m)Z^T{}_{m5}Z_{m5}$ (матрица Z_{m5} стандартизованных реальных данных) и новая матрица (z_i,z_j)–корреляций $R^{(s)}{}_{55}=\{(1/s)r^{(1)}*\}$;

б) вычисление матрицы собственных чисел $\Lambda^{(s)}{}_{55}$, s>1 такой, что выполняется условие неизменности (z,y)-корреляций для 2-х матриц R_{55} и $R^{(s)}{}_{55}$: $R_{55}C_{55}=C_{55}\Lambda_{55})$, $R^{(s)}{}_{55}C^{(s)}{}_{55}=C^{(s)}{}_{55}\Lambda^{(s)}{}_{55})$, $\Lambda^{(s=1)}{}_{55}=diag(2.3329,1.1803, 0.9349, 0.3906,0.1613)$, значения элементов матрицы $\Lambda^{(s)}{}_{55}$ при s=2,3,…,20 приведены в Таблице 5. Вычисление каждой

матрицы собственных чисел $\Lambda^{(s)}{}_{55}=diag(\lambda^{(s)}{}_1,…,\lambda^{(s)}{}_5$ (матрица $C^{(s)}{}_{55}=C_{55}$) происходит по формуле $\Lambda^{(s)}{}_{55}=C^{(s)T}{}_{55}R^{(s)}{}_{55}C^{(s)}{}_{55}$ (после вычисления элементов матрицы $R^{(s)}{}_{55}$ по формуле $r^{(s)}{}_{ij}=(1/s)r_{ij}$);

в) поиск и находение связанной с матрицей $R^{(s)}{}_{55}$ матрицы $C^{(s=1654)}{}_{55}$ такой, что элементы матрицы $C^{(1654)}{}_{55}$ «близки» к элементам исходной матрицы C_{55} только по значениям 14 индикаторов (без изменения знака элемента) из прежней мозаики индикаторов;

г) разработка многосмысловых уравнений с известными и неизвестными семантическими переменными 1,2];

д) моделирование новых матриц $Y^{(t+)}{}_{m5}$, $Z^{(t,s)}{}_{m5}$, соответствующих системе

многосмысловым уравнениям с известными и неизвестными семантическими (смысловыми) переменными [3-8].

Моделирование связанной с матрицей $R^{(s)}_{55}$ матрицы $C^{(+)}_{55}$ с 14 ндикаторами

Начальные матрица $R_{55}=\{r_{ij}=corr(z_i,z_j)\}$ (z,z)-корреляций и начальная матрица $C_{55}=C^{(s)}_{55}=\{c^{(s)}_{ij}=corr(z^{(s)}_i,y^{(s)}_j)\}$ (z$^{(s)}$,y$^{(s)}$)-корреляций приведены в Таблице 1. Вычисленная матрица $R^{(20)}_{55}=\{r^{(s=20)}_{ij}=corr(z_i,z_j)\}$ (z,z)-корреляций приведена в Таблице 2. Матрица $C_{66}=C^{(+)}_{55}=\{c^{(+)}_{ij}=corr(z^{(+)}_i,y^{(+)}_j)\}$ (z$^{(+)}$, y$^{(+)}$)-корреляций при $\Lambda^{(20)}_{55}=diag(\lambda^{(20)}_1,…,\lambda^{(20)}_5)=diag(1.0666,1.0091,0.9967,0.9695,0.9581)$ приведена в Таблице 3. Вычисленные при s=1,…,20 значения $\Lambda^{(s)}_{55}=diag(\lambda^{(s)}_1,…,\lambda^{(s)}_5)$ приведены в Таблице 4. Соответствующие разным дисперсиям $\Lambda_{55}=(1/m)Y^T_{m5}Y_{m5}=diag(2.3331,1.1802,0.9349,0.3906,0.1613)$, $\Lambda^{(+)}_{55}=diag(1.0666,1.0091,0.9967,0.9695,0.9581)$ матрицы C_{55} и $C^{(+)}_{55}$ таковы, что нужно найти из их числа те матрицы, которые имеют 14 индикаторов, близких по значениям и адекватных по знаку (+) или (-).

Поиск происходит среди 1000 матриц $C^{(\ell)}_{55}$, $\ell=1,…,1000$. Ниже покажем алгоритм поиска матрицы $C^{(+)}_{55}$ (среди матриц $C^{(\ell)}_{55}$), «близкой» к исходной матрице C_{55} только по значениям 14 индикаторов (без изменения знака элемента) из прежней мозаики индикаторов. Далее подвергают ся интеллектуальному анализу матрицы $Y^{(t+)}_{m5}$, $Z^{(t,s)}_{m5}$, соответствующие многосмысловым урав-нениям с известными и неизвестными семантическими (смысловыми) переменными. Матрицы $C^{(t)}_{55}$, $\ell=1,…,1000$ соответствуют одному и тому же спектру $\Lambda^{(+)}_{66}=diag(1.0666,1.0091,0.9967,0.9695,0.9581)$. Для спектра $\Lambda^{(+)}_{66}=diag(1.0666,1.0091,0.9967,09695,0.9581)$ будем моделировать матрицу $Y^{(t,s)}_{m5}=U^{(t)}_{m5}\Lambda^{(s)1/2}_{55}$ и матрицу $Z^{(t,,s)}_{m5}=Y^{(t,s)}_{m5}C^{(s)T}_{55}$, характеризующие изменчивости конца реакций абсорбции. Если все недиагональные элементы матрицы R_{55} умножить на одно число, то вся матрицы $C^{(20)}_{55}$ не изменится, а если менять знак одного элемента c_{ij} матрицы $C^{(20)}_{55}$, то изменятся все значения элементов i-ой строки и j-го столбца) матрицы $R^{(20)}_{55}$. Значения элементов матрицы $R^{(20)}_{55}$ могут хаотично менять свои значения из-за больших хаотично изменяющихся z-изменчивостей расходуемых в реакциях z-веществ. Мы не будем регулировать элементы матрицы $R^{(20)}_{55}$ из-за их неактуальности и из-за неизменности матрицы $C^{(20)}_{55}=C_{55}$: $C^{(20)}\Lambda C^{(20)T}=R^{(20)}$. Наша модель точно моделирует и объясняет реакции, нежели чем моделирует z-изменчивости расходуемых в реакциях z–веществ. Поэтому значения элементов матрицы $R^{(20)}_{55}$ могут хаотично менять свои значения, они зависят от более сильно хаотично изменяющихся как-то

связанных z-изменчивостей расходуемых в реакциях z–z-веществ. Мы зафиксируем доминирование их дисперсии из матрицы $\Lambda^{(20)}_{55}$, менять будем только знаки элементов матрицы $C^{(20)}_{55}$, вычисляя новую матрицу $R^+=C^+\Lambda^{(20)}C^{+T}$ для новой матрицы C^+ (с измененным знаком ее элемента). Программа в ЭТ Excel реализована для матричного равенства $R^+=C^+\Lambda^{(20)}C^{+T}$, измененное значение матрицы R^+_{55} при замене знака элемента из C^+_{55} видно на листе ЭТ Excel (Таблица 5). Алгоритм смены знака следующий. При выборе индексов (i,j) элемента из C^+_{55}, знак которого будем менять на противоположный, пользуемся удобной программой-таблицей (Таблица 5) на листе ЭТ Excel. В ней сразу виден результат r^+_{ij} замены знака элемента c^+_{ij}: $c^+_{ij}=>r^+_{ij}$. В матрице $R^+=C^+\Lambda^{(20)}C^{+T}$ контролируем величины ее ндиагональных элементов $diag(R^+_{55})=(r^+_{11},…,r^+_{55})$ так, чтобы они были близки к 1 и заметно отличались от 0. Эту ситуацию мы можем контролировать вручную при замене знака элемента, ибо сильная хаотичность присуще на практике изменяющимся z-изменчивостям расходуемых в реакциях z–z-веществ. Использование следующих равенств полезно при замене знака элемента из C^+_{55}:$(-)(c_i)\Lambda(c^T_j)=(-)r_{ij}$, так как $r_{ji}=r_{ij}$, то верна формула $(-)r_{ji}=(-)(c^T_j)\Lambda(c_i)$, $i\neq j$. При близких к 0 значениях $r_{ji}=r_{ij}$ можно приравнять значения $r_{ji}=r_{ij}$ нулю: $r_{ji}=r_{ij}=0$. Замена знака на противоположный только в одной строке матрицы $C^{(20)}_{55}$ не изменит нулевое значение $r_{ji}=r_{ij}=0$. Поэтому на очередном шаге замен знаков в парах строк матрицы $C^{(20)}_{55}$ мы можем изменить знаки компонент только строки c_{2*}. Замена знаков на противоположные изменяет ненулевые коэффици енты корреляции, как показано выше. Но мы значения коэффициентов корреляции меняли их с $r(i,j)$ на $r^s(i,j)=(1/s)r(i,j)$, от этого не менялись значения других коэффициентов (z,y)-корреляции из другой матрицы C_{55}. В матричном равенстве $C_{55}\Lambda_{55}C^T_{55}=R_{55}$ обозначим строку матрицы C_{55} в виде вектора-строки $b=(c_{i1},…,c_{i5})$. Элемент (число r_{ij}) матричного равенства $C_{55}\Lambda_{55}C^T_{55}=R_{55}$, расположенный на пересечении i–ой строки и j–го столбца, имеет формулу вычисления вида $(b_i)\Lambda_{55}(b_j)^T=r_{ij}$. Значение и знак числа r_{ij} не изменятся, если поменять знаки одновременно у всех компонент 2-х векторов b_i и b_j: $(-)(b_i)\Lambda_{55}(-)(b^T_i)=r_{ii}\neq1$, $(-)(b^T_j)\Lambda(-)(b_j)=r_{jj}\neq1$, $i\neq j$. Свойство неизменяемости числа r_{ij} при при одновременной смене знаков на противоположный у всех компонент 2-х векторов b_i и b_j позволяет сменить знак элемента c_{ij}: если нужно сменить знак элемента c_{ij}, то меняем знаки у элементов i–ой строки и j–ой строки матрицы C_{55}. Или можно одновременно сменить знаки на противоположный у всех компонент 2-х векторов-стобцов c_i **и** c_j матрицы C_{55}**.** Выбор номера столбца j (или строки i) влияет на знаки остальных

компонент 2-х 5-мерных векторов. Среди них могут быть номера (один или несколько), относящиеся к другим индикаторам из мозаики индикаторов, знаки которых возможно надо менять на другом шаге. Величины индикаторов не меняем, если требуются, то меняем только знаки выделенных индикаторов из матрицы $C^{(20)}_{55}$ до тех пор, пока все знаки совпадут с знаками из мозаики индикаторов из исходной матрицы C_{55}. Заметим: мы не меняем знаки элементов строки или столбца матрицы $C^{(20)}_{55}$ из пары матриц $(\Lambda_{55}, C^{(20)}_{55})$, без учета свойства стандартизованности будущих 5-ти z–переменных, которые будут вычислены после корректно полученных модельных y–переменных (в виде матрицы $Y^{(20)}_{m5}=U_{m5}\Lambda^{(20)}_{55}$), где «текущая» матрица $\Lambda^{(20)}_{55}\neq\Lambda_{55}$ нужна для моделирования матрицы $Y^{(20)}_{m5}$ новых 4-х смысловых y-переменных (самых главных для нас, ибо они формируют систему смысловых уравнений) с новыми (как должно быть) дисперсиями $\lambda_1=1.0666, \lambda_2=1.0091, \lambda_3=0.9967, \lambda_4=0.9695, \lambda_5=0.9581$. эти новые дисперсии–измерители изменившихся к моменту времени s=20 информаций об 5 y-реакциях, нехимические формулы которых мы вычисляем, не обращая внимания на отсутствие или наличие стандартизованности значений изменчивости z–

переменной, (j-ого столбца матрицы $Z^{(+)}_{m5}= Y^{(20)}_{m5}C^{(+)T}_{55}$) важной для формальной модели, но не важной для реакций. Матрица $Z^{(+)}_{m5}=Y^{(20)}_{m5}C^{(+)T}_{55}$ будет иметь нестандартизованные (не равные 1 длины) стобцы, а матрица $Z^{(20)}_{m5}=Y^{(20)}_{m5}C^{(20)T}_{55}$ имеет стандартизованные (равные 1 длины) стобцов. Мы сохраняем химические смыслы 4-х из 5 y-реакций и сохраняем доминирование их дисперсий. Это показывает соответствие модели стабильности химических, биохимических реакций в моменты времени 1,2,…,20. Наша модель больше моделирует и объясняет реакции, чем моделирует z-изменчивости расходуемых в реакциях z–веществ. Наша модель сохраняет количественные параметры, процесса самоочищения воды в течение 20 интервалов времени, которые соответствуют смыслам реакций z–веществ и y-веществ. Имеем полное соответствие разработанных многосмысловых уравнений с известными и неизвестными семантическими переменными, соответствующие ногомерным уравнениям с числовыми параметрами и переменными.

Таблица 5

1	2	3	4	5						
0,5868	0,0793	0,5506	0,4689	0,3555	1,0666					1
0,1536	-0,8827	0,2589	0,3439	-0,1091		1,0091				2
0,1538	-0,1386	-0,3283	-0,4096	0,8256			0,9967			3
-0,4609	-0,2542	-0,3545	0,6972	0,3335				0,9695		4
0,6293	0,3615	-0,6296	0,0896	-0,2625					0,9581	5
					1	2	3	4	5	
0,6259	0,0800	0,5488	0,4546	0,3406	1,0100	0,2868	0,0000	-0,0728	0,0286	1
0,1638	-0,8907	0,2580	0,3334	-0,1045	0,2868	1,0043	-0,1589	0,2570	-0,3241	2
0,1640	-0,1399	-0,3272	-0,3971	0,7910	0,0000	-0,2597	0,9678	0,0629	0,0155	3
-0,4916	-0,2565	-0,3533	0,6759	0,3195	-0,0728	0,0232	0,0629	0,9949	-0,2029	4
0,6712	0,3648	-0,6275	0,0869	-0,2515	0,0286	-0,4272	0,0155	-0,2029	1,0232	5

Многосмысловые уравнения с известными и неизвестными семантическими переменными

Рассматриваемые ниже многосмысловые уравнения с известными и неизвестными семантическими переменными соответствуют ногомерным уравнениям с числовыми параметрами и z-переменными $(z_1, z_2, z_3, z_4, z_5)$, образующих те или иные «формульные единицы» в нехимических уравнениях y-реакций. В той или иной формуле y-реакции самоочищения воды присутствуют «формульные единицы»,

изображающие биологически активную или химически активную части растворенного кислорода. Присутствие ионов аммония служит фоновым «катализатором» протекания биохимических процессов разложения *взвешенных веществ* (*взвешенных веществ* (z_3) в виде белковых веществ, соединений азота). «Формульная единица» имеет разные виды. «Формульная единица» вида $z_1*\delta+z_5*\gamma$ из переменной $y_{i3}=z_{i1}*0,5506+z_{i2})*0,2589+z_{i3}*(-0,3283) +z_{i4}*(-0,3545) +z_{i5}*(-0,6296)$ изображает химически активную часть растворенного

кислорода (смысл(z_5)=ХПК)) при присутствии ионов аммония (смысл(z_1)=«ионы аммония»). «Формульная единица» вида (z_{i3}*α+z_{i4}*β) из переменной y_2 (из вещества «y_2») соответствует биологическому поглощению кислородом (смысл(z_4)=БПК)) разных *взвешенных веществ* (смысл («z_3»=«взвешенные вещества»). Ниже приведены записи формульных единиц в смысловых нехимических уравнениях с смысловыми переменными (присущих реакциям самоочищения) выявляют нехимические формулы не только того, что реагирует между собой, но и их неразделенные химическими формулами компоненты реагентов. В каждой из реагентов содержится огромное число химических частиц, не отражаемых в химических формулах. «Формульная единица» реакции y_{i3}=z_{i1}*0,5506+z_{i2}*0,2589+z_{i3}*(-0,3283)+z_{i4}*(-0,3545)+z_{i5}*(-0,6296) состоит из простых «формульных единиц», описание которых легче начинать с последних компонент 3-го собственного вектора c_3=(0.5506,0.2589,(-0.3283), (-0.3545),(-0.6296))^T Анализ и интерпретация 5-ой компоненты (c_{53}=(-0.6296, смысл(z_5)**=**«ХПК») собс твенного вектора c_3: происходит химическое потребление кислорода (c_{53}=(-0.5622), смысл(z_5) =«ХПК»)-окисление частиц (взвешенных веществ, c_{33}=(-0.3283), смысл («z_3»=«взвешенные вещества») в 1л воды. Две простые «формульные единицы» вида z_{i3}*c_{33} (z_{i3}*(-0.3283) -показывает (соответствует) наличие взвешенных веществ при присутствии ионов аммония. А в «формульных единицах» других видов «работают» индикаторы вида **c_{33}**=(-0.3283), c_{43}=(-0.3545). Эти 2 компоненты **c_{33}, c_{43}** из матрицы индикаторов показывают наличие взвешенных веществ (c_{33}=(-0.3283), знак минус показывает уменьшение взвешенных веществ), одного поглотителя кислорода (c_{43}=(-0.3545), знак минус показывает уменьшение) знак минус при «весе» c_{43}=(-0.3545) показывает уменьшение биохимического потребления кислорода ($c43$=(-0.3545), смысл($z5$)=«БПК»), обусловленные:

а) присутствием «катализатора» ионов аммония ($c13$=**0.5506, смысл($z1$)=**«ионы аммония»);

б) наличием растворенного кислорода ($c23$=**0.2589,** смысл($z2$)=«растворенный кислород»).

Познание смыслов компонент 3-го собственного вектора позволяет перейти к познанию «формульной единицы» другой реакции, а именно y-реакции y_1 смысл которой и смысл содержащихся в ее формуле «формульных единиц» определяем из смыслового равенства смысл(y_{i1})= смысл(z_{i1})*0.5506+смысл(z_{i2})*0.2589+ смысл(z_{i3})*(-0.3283)+смысл(z_{i4})*(-0.3545)+ смысл(z_{i5})*(-0.6296)= «окисление+ поглощение +(сопутствующие ионы аммония,

присутствующие в природных водах)».

Проценты участия *z*-веществ и поглотителя в *y*-реакции y_2(23,60%): растворенного кислорода (51,34%), взвешенных веществ(16,43%), био-поглощенного кислорода ((24,79%)).

Три элемента из матрицы индикаторов показывают наличие 3-х поглотителей кислорода (c_{31}=0,1538,c_{41}=-0,4609,c_{51}=0,6293, знак (минус при c_{41}=-0,4609) убывающего объема биологически активного кислорода (смысл(z_4)=«БПК») противоположен знаку потребляемого растущего объема взвешенных веществ (c_{31}=0,1538, смысл(z_3)=«взвешенные вещества»). Наличие в поверхностных природных водах иона аммония связано с биохимическими процессами разложения белковых веществ, соединений азота. Поэтому c_{11}=0,5868 (смысл(z_1)=ионы аммония) служит фоновым индикаторов протекания реакции. Но объем взвешенных веществ возрастает вместе с объемом химически потребляемого актвного кислорода (c_{51}=0,6293,смысл(($z5$)=ХПК)). Один индикатор (c_{21}=0,1536≈0)–отсутствие растворенного кислорода (смысл(z_2)=«растворенный кислород»), обусловленное окончанием процесса общего самоочищения воды от взвешенных веществ с присутствием 3-х видов (z_3,z_4,z_5) поглотителей растворенного кислорода. Эта валидная переменная y_1 своими вычисленными значениями у–изменчивостей характеризует общее самоочищение вод водоемов от взвешенных веществ.

Ниже показано: y_2–краткосрочное самоочищение биохимическим способом (БПК) взвешенных веществ, y_3-краткосрочное самоочищение вод водоемов от взвешенных веществ путем химического *потребления* кислорода (ХПК) – химическое *окислением* частиц взвешенных веществ, y_3-краткосрочное самоочищение биохимические процессы *разложения* белковых веществ, соединений азота *при присутствии* иона аммония в поверхностных природных водах.

Компоненты 1-го собственного вектора **c_1** из матрицы собственных векторов (индикаторов) **C_{55}** определяют формулу 1-го модельного у–вещества в виде функции y_{ij}=$z_{i1}c_{1j}$+$z_{i3}c_{3j}$+$z_{i4}c_{4j}$+$z_{i5}c_{51}$, y_{i1}= z_{i1}(0.4861)+z_{i3}(0,1538)+z_{i4}(-0,4609)+z_{i5}(0,6293), i=1, … ,m, Компоненты 2-го собственного вектора **c_2** из матрицы собственных векторов (индикаторов) C_{55} определяют формулу 2-го модельного у–вещества в виде функции y_{i2}=$z_{i1}c_{22}$+$z_{i3}c_{32}$+zy_{i2}=z_{i2}(-0,8827)+z_{i3}(-0,1386)+z_{i4}(-0,2542), i=1,…,m. Компоненты 3-го собственного вектора c_3 из матрицы собственных векторов (индикаторов) **C_{55}** определяют формулу 3-го модельного у–вещества в виде функции y_{i3}=$z_{i1}c_{1j}$+$z_{i2}c_{2j}$+$z_{i5}c_{5j}$, y_{i3}=z_{i1}*0,5506+z_{i2})*0,2589+z_{i3}*(-0,3283)+z_{i4}*(-

0,3545)+z_{i5}*(-0,6296), i=1,… ,m.

Все вычисленные нехимические формулы 3-го модельного y–вещества зависят от значений 3-х изменчивостей z_{i1}, z_{i2}, z_{i5}, i=1,…,m. Смыслы изменчивостей z_1, z_2, z_5 смысл(z_1)=«ионы аммония», смысл(z_2)=«растворенный кислород», смысл(z_5)= ХПК)) формируют смысл другой y–переменной смысл(y_{i3}): «ионы аммония химически окисляются в среде растворенного кислорода». Мы получили неизвестный смысл смысл(y_{i3}), «сложив» 3 известные смыслы, соответствующие формуле 3-го модельного y–вещества $y_{i3}=z_{i1}*0,5506+z_{i2})*0,2589+z_{i3}*(-0,3283)+z_{i4}*(-0,3545)+z_{i5}*(-0,6296)$: смысл($y_{i3}$)=смысл($z_{i1}$)*(0.4480)⊕смысл($z_{i2}$)*(0.5713)⊕смысл($z_{i5}$)*(-0.5622). Словесная форма этого смыслового равенства: «ионы аммония химически окисляются в среде растворенного кислорода»= «ионы аммония»⊕«растворенный кислород»»⊕ «химическое поглощение кислородом». Смыслы этих двух фраз «химически окисляются», «химическое поглощение кислородом» совпадают и создают итоговую фразу смысла смысловой переменной смысл(y_{i3}) «химически окисляются».

Первый химический процесс, в отличие от 2-го биохимического процесса, длится краткосрочно по времени, протекает в среде растворенного в воде кислорода (в лаборатории, где испытуемые образцы находятся в темном помещении при постоянной температуре 20ºС). При 2-ом биологическом процессе происходит потребление взвешенными веществами растворенного кислорода биологическим способом (БПК). Растворенный кислород действует биологически активно. Другие 3 элемента c_{22} c_{23} из матрицы индикаторов показывают наличие кислорода (c_{22}=(-0.8827), знак минус показывает уменьшение), одного поглотителя кислорода (c_{32}=(-0.4054), знак минус показывает уменьшение) и одного окислителя вредных частиц (индикатор c_{42}=(-0.2542), знак минус показывает уменьшение), обусловленные наличием растворенного еще непоглощенного веществами кислорода. Третий процесс, также протекающий за краткосрочный период времени, протекает в воде (H_2O, в тех же лабораторных условиях) при наличии растворенного кислорода. Но происходит химическое потребление кислорода (ХПК) - окисление частиц (взвешенных веществ) в 1 л воды. Другие 2 индикатора **c_{33}, c_{43}** из матрицы индикаторов показывают наличие взвешенных веществ (c_{33}=(-0.3283), знак минус показывает уменьшение взвешенных веществ), одного поглотителя кислорода (c_{43}=(-0.3545), знак минус показывает уменьшение) и уменьшение одного окислителя вредных частиц (индикатор c_{43}=(-0.3545), знак минус показывает уменьшение биохимического потребления кислорода (БПК)), обусловленные наличием растворенного и еще непоглощенного веществами кислорода. Вторая и третья валидные y-переменные посредством своих формульных единиц показывают отличие второго БПК-процесса от третьего ХПК-процесса.

Первый процесс наиболее информативен–1-ая y–переменная формульно показывает и биохимическое потребление растворенного кислорода (БПК) и химическое окисление кислородом (ХПК): дисперсия disp(y_1)=λ_1=2.3331 намного превосходит дисперсии 2-х других y–переменных: λ_2=1.1802, λ_3=0.9349. Первые 2 y–переменные соответствуют 2 ситуациям: ситуация 1 отсутствия растворенного кислорода для одних взвешенных веществ и ситуация 2 присутствия растворенного кислорода для других взвешенных веществ. Смысл первой переменной–окисление+поглощение (при отсутствии O_2), смысл второй переменной – окисление кислородом+небольшое поглощение взвешенными веществами кислорода (в присутствии растворенного кислорода). Четвертая реакция (ее дисперсия $\lambda^{(s)}_4$=0.9695 мала, едва дотягивает до 1) имеет формулу с 2-мя заметными «весами» c_{14}=0,4689, c_{44}=0,6972**.** смысл(y_{i4})=смысл(z_{i1})*0.4689+смысл(z_{i4})*0.6972, Четвертая смысловая переменная имеет когнитивный смысл смысл(y_{i4})=«биохимические процессы (c_{44}=0,6972 (ХПК) разложения белковых веществ, соединений азота при наличии иона аммония (c_{14}=0,4689, смысл(z_1)=«ионы аммония») в поверхностных природных водах». Смысл четвертой смыслоой переменной y_4 (disp(λ_4)=0.9695) является частью смысла первой переменной y_1 (disp((λ_1)=1.0666). Получается: смыслы 2-ой, 3-ей, 4-ой y-переменных (с дисперсиями 1.0091,0.9967, 0.9695) входят в смысл y-переменной y_1, имеющей максимальную дисперсию 1.0666. Достигнутые постоянные «веса» соответствуют 3 вычисленным нами из реальных данных скрытым реакциям самоочищения воды 12 рек и озер. Доля извлеченной информации для y-реакции y_1 равна λ_1=1.0666/5=21.33%, доля извлеченной информации для y-реакции y_2 в 2 раза меньше - λ_2=1.0091/5=20,18%, немного меньше такой информации для y-реакции y_3: λ_3=0.9967=/5=19,93%, для y-реакции y_4: λ_4=0.9695/5=0,19. 39%, Сумма информации, преобразованной в знания, равна 80,84%. Проценты участия z-веществ и поглотителей в y-реакции y_1(21.33%): ионов аммония(11,74%), растворенного кислорода (3,07%), взвешенных веществ(3,08%), био-поглощенного кислорода (9,22%), химически окисляющего кислорода (12,59%).

При когнитивном моделировании к 5 показателям добавились 2 реакции поглощения, окисления, а также 2 биохимические процессы (c_{44}=0.6322,(ХПК) разложения неизмеренных

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белковых веществ, неизмеренных соединений азота, протекающих в присутствии ионов аммония. Наша модель так познает изучаемые данные. В рамках реакции абсорбции данное представление является формульным, и эмпирически осмысленным, является подтверждаемым на числовом материале, порождает многосмысловые уравнения (с известными не известными смысловыми переменными). Это иное смысловое представление символических систем, которыми реальные люди пользовались в реальной практике для придания формы своим мыслям. Исследование осуществляется на материале о смыловых, числовых данных. Записи формульных единиц в смысловых нехимических уравнениях с смысловыми переменными (присущих реакции абсорбции) выявляют не только то, что реагируют между собой отдельные частицы веществ, но и их неразделенные химическими формулами компоненты. В каждой из которых содержится огромное число химических частиц, не отраженных в химических формулах.

Моделирование новых матриц $Y^{(t,s)}_{m5}$, $Z^{(t,+)}_{m5}$ для системы многосмысловых уравнений

Вычисление матрицы $Z^{(t,+)}_{m5}=Y^{(t,s)}_{m5}C^{(+)T}_{55}$ (Таблица 7) происходит с применением модельной матрицы (Таблица 6) $Y^{(t,s)}_{m5}=U^{(t)}_{m5}\Lambda^{(20)1/2}_{55}$ и матрицы собственных векторов $C^{(+)}_{55}$, смоделированной по схеме: $\Lambda^{(s)}=>(C^{(20)}_{55},R^{(20)}_{m5})$, где матрица $C^{(20)}_{55}$, преобразуется в матрицу $C^{(+)}_{55}$ так как описано выше. Здесь матрицу $R^{(20)}_{m5}$ не используем, а ищем и находим связанную с ней матрицу $C^{(s=1654)}_{55}$ такую, что ее 14 элементы-индикаторы близки в по своим значениям 14 индикаторам из матрицы C_{55}. Моделирование (не вычисление) матрицы $Y^{(t,s)}_{m5}=U^{(t)}_{m5}\Lambda^{(s)1/2}_{55}$, $s\in\{1,2.///.1000\}$ такой, что: $(1/m)Y^{(t,s)T}_{m5}Y^{(t,s)}_{m5}=\Lambda^{(s)}$, происходит с применением ППП «Спектр» [9,10] и комплекса программ считывания\записи бинарных данных [10]. Модельную случайную матрицу $U^{(t)}_{m5}$ с номером t=1,…, $k_t<\infty$ моделируем, применяя программы из ППП «Спектр» [9,10] и применяя вновь вычисленную матрицу собственных чисел $\Lambda^{(20)}$ (реализуется вычислительная схема $(\Lambda^{(20)}_{55},U^{(t)}_{m5})=>Y^{(t,20)}_{m5})$.

Таблица 6. Матрица $Y^{(20)}_{m6}$ y–изменчивостей

№					
1	-0.2741	-1.3205	0.5244	-0.7419	-0.5685
2	-1.7156	1.7954	-0.2510	-0.8854	-1.1079
3	1.4603	-0.4892	-0.1442	0.7610	-0.7389
4	-0.3587	0.4525	-1.8582	0.3940	1.1940
5	1.9911	1.1460	-0.4410	0.2123	-1.1389
6	0.9762	1.2794	0.5165	-1.3558	1.3260
7	0.7251	-0.7211	1.1389	0.1264	0.0550
8	-0.3222	-0.7105	-1.1484	1.2276	1.1667
9	-0.2195	-1.6169	-0.9589	-1.9999	-0.2374
10	-1.0071	-0.1425	1.4288	0.7172	-0.2548
11	-0.8746	0.0316	-0.2397	1.2478	-1.1491
12	-0.3809	0.2958	1.4328	0.2968	1.4538
13	0.0000	0.0000	0.0000	0.0001	0.0000
14	1.0666	1.0091	0.9967	0.9695	0.9581

Таблица 7. Матрица $Z^{(+)}_{m5}$ z–изменчивостей

№					
1	-0.526802	1.066155	-0.196767	-0.430743	-0.897257
2	-1.811562	-2.09726	-0.982321	-0.563477	-0.061068
3	0.832868	0.063753	-0.582003	-0.213433	1.095056
4	-0.588513	-1.101008	1.316547	1.381927	0.829649
5	0.711109	-0.928485	-0.735058	-1.284484	2.262915
6	0.794334	-1.606531	1.453329	-1.461296	0.282083
7	1.074205	0.968845	-0.168801	-0.448166	-0.524536
8	0.112665	0.624722	0.886343	1.981196	0.067161
9	-1.807142	0.517113	1.128312	-0.62139	-0.235791
10	0.430144	0.770145	-1.108345	0.408942	-1.453708
11	-0.4661	0.464534	-1.519996	0.966785	0.025394
12	1.24484	0.053309	0.508719	0.284208	-1.389889
13	0.0000	0.0000	0.0000	0.0001	0.0000
14	2.0499	-0.4038	0.0909	-0.1060	1.0231
	0.0000	0.0000	0.0000	0.0000	0.0000
	1.0000	1.0000	1.0000	1.0000	1.0000

Использование матрицы собственных векторов C_{55} (матрицы (z,y)-корреляций) и новой матрицы (z,z)-корреляций $\mathbf{R^{(s)}_{55}}$, имеющей матрицу собственных векторов, равной прежней матрице C_{55}, позволило нам сохранить неизменным количество доминирующих дисперсийи (из матрицы собственных чисел $\Lambda^{(s)}_{55}$) и увеличить количество смысловых y-переменных с прежнего количества $\ell=3$ до $\ell=4$. Мы привели другую ситуацию моделирования и извлечения когнитивных знаний [4-8] из многомерных данных типа «объект-свойства», рассмотрев случай когда матрица (z,y)-корреляций $C^{(+)}_{55}$ предпочтительней классической матрицы (z,z)-корреляций R_{55}. Но матрица (z,z)-корреляций R_{55} является исходным объектом, характеризующим смыслы исходных реальных многомерных данных X^0_{m5} (относящихся к разным предметным областям) без которой невозможно провести когнитивное проектирование смысловых уравнений [4-8]).

В данной статье найденным при помощи моделирования объектом является матрица (z,y)-корреляций $C^{(+)}_{55}$ – матрица преобразования y-изменчивостей в z-изменчивости. Регулятор – матрица $R^{(+)}_{55}$ в программе-таблице Excel без применения надстройки «Поиск решения» (Solver) автоматически изменяет элементы матрицы $R^{(+)}_{55}$, показывая нестандантированность $z^{(+)}$–переменных. При этом полученный модельный спектр $\Lambda^{(s)}_{55}$ является (f_1,f_4)-адекватным "реальному" (f_1,f_4)-спектру Λ_{55}. Наш

(f_1,f_4)-спектр $\Lambda^{(s)}_{55}$, такой что его f-параметры f_1,f_4 равны заданным значениям, а остальныеf-параметры-произвольны, где: $f_1(\Lambda_{55})=\lambda_1+\ldots+\lambda_5)=5$, $f_2(\Lambda_{55})=(\lambda^2_1+\ldots+\lambda^2_5)$, $f_3(\Lambda_{55})=\lambda_1/\lambda_5$, $f_4(\Lambda_{55})=(\lambda_1+\ldots+\lambda_\ell)/6<1$, $f_5(\Lambda_{55})=\lambda_1\times\lambda_2\times\lambda_3\times\ldots\times\lambda_5$, $f_6(\Lambda_{55})=\lambda_1/\lambda_2+\ldots+\lambda_{5-1}/\lambda_5$). Так как $tr(R^TR)=tr(\Lambda^2)$, то соотношения между f-параметрами функционально зависят от элементов корреляционной матрицы R_{55}.

Матрица C_{55} соответствует как паре матриц (R_{55},Λ_{55}) таких, что: $R_{55}C_{55}=C_{55}\Lambda_{55}$, так и паре матриц $(R^{(s)}_{55},\Lambda^{(s)}_{55})$ таких, что $R^{(s)}_{55}C_{55}=C_{55}\Lambda^{(s)}_{55}$. Параметр s – вещественное число, определяющее значения элементов как матрицы $R^{(s)}_{55}$, так и ее спектра $\Lambda^{(s)}_{55}$, но не влияет на матрицу C_{55} Число s не влияет на матрицу C_{55} собственных векторов симметрических матриц $R_{55},R^{(s)}_{55}$. Две разные симметрические матрицы $R_{55},R^{(s)}_{55}$ с существенно разными элементами имеют одинаковые матрицы собственных векторов, но имеют разные спектры, соответствующие разным объемам скрытых, но извлекаемых знаний из одной и той же матрицы реальных многомерных данных, для которой подвергается анализу матрица значений z-изменчивости Z_{m5}. Возможность извлечения немного больших знаний из той же матрицы реальных многомерных данных является заметным преимуществом перехода к матрицам $\mathbf{R^{(s)}_{55}}$ и $\mathbf{\Lambda^{(s)}_{55}}$.

Матрица C_{55} содержит индикаторы присутствия извлекаемых знаний из матрицы Z_{m5} и знаний из множества когнитивных смыслов

имен z-переменных, количество которых будет превышать ℓ. При $\ell=5$ работа аналитика существенно усложняется, ибо потребуется осмысление и конструирование одной фразы, равной сумме из 5 смыслов. Привлечение новой матрицы (z_1,z_j)-корреляций $R^{(s)}_{55}=\{r^{(s)}_{ij}\}$, имеющей ту же матрицу C_{55} индикаторов, что и матрица (z_1,z_j)-корреляций $\mathbf{R}_{55}$ не увеличивает количество смысловых y-переменных, что является правильным свойством.

Изменения значений чисел не учитывалось до сих пор. Наш глубинный анализ позволил определить 2 параметра изменения величин $\{x^0_{ij}\}$. И обнаружить за этими изменениями чисел реальные химические реакции абсорбции, иные поглощения или иную реакцию соединения.

Заключение

В рамках реакции абсорбции данное представление является формульным, и эмпирически осмысленным, является подтверждаемым на числовом материале, порождает многосмысловые уравнения (с известными не известными смысловыми переменными). Это иное смысловое представление символических систем, которыми реальные люди пользовались в реальной практике для придания формы своим мыслям. Исследование осуществляется на материале о смыловых, числовых данных.

Матрица (z_1,z_j)-корреляций $R_{55}=\{r_{ij}\}=(1/m)Z^T_{m5}Z_{m5}$, $r_{ij}=corr(z_i,z_j)$,**,i,j=1,…,5,** является функцией, зависящей от матрицы $Z_{m5}=\{z_{ij}\}$,$z_{ij}=(x^0_{ij}-x^{me}_j)/s_j$ изменчивостей z-переменных, вычисленных значениям x^0_{ij} реальных данных. По известной корреляционной матрице $R_{55}=\{r_{ij}\}$, $i,j=1,…,5$, ее собственные числа λ_j, $j=1,…,5$, зависят от величин всех коэффициентов корреляции. Необходим поиск постоянных и мало меняющихся матриц, таких, что они не влияют на состав и мозаику индикаторов присутствия скрытых, но извлекаемых знаний. Такой матрицей является матрица $\mathbf{C}_{55}$ собственных векторов, образующей

вместе с описываемым ниже спектром $\Lambda^{(s)}_{55}$ образует новую пару $(\Lambda^{(s)}_{55},\mathbf{C}_{55})$ матриц, позволяющих иметь систему многосмысловых уравнений, с известными и неизвестными семантическими переменными. Система аналогична системе многосмысловых уравнений, соответствующих начальной паре матриц $(\Lambda_{55},\mathbf{C}_{55})$, где Λ_{55} – спектр "реальной" симметрической матрицы $\mathbf{R}_{55}$. Две системы многосмысловых уравнений не меняются, как показано ниже, при специальном изменении (применемнии регулируемого параметра s) значений элементов матрицы $\mathbf{R}_{55}$. Использование матрицы собственных векторов C_{55} (матрицы (z,y)-корреляций) и новой матрицы (z,y)-корреляций $C^{(s)}_{55}$, равной прежней матрице C_{55}, позволило нам не изменить количество доминирующих дисперсии (в матрице собственных чисел $\Lambda^{(s)}_{55}$) и сохранить прежнюю систему многосмысловых уравнений. Глубинный анализ будет проводиться над матрицами $\mathbf{C}_{55}$ и $\Lambda^{(s)}_{55}$. Извлеченные из них знания относятся к вычисленным матрицам значений z-изменчивостей $Z^{(+)}_{m5}=\{z^{(+)}_{ij}\}$ коррелированных z-переменных) и к матрице y-изменчивостей $Y^{(20)}_{m5}=U_{m5}\Lambda^{(20)}_{55})$. Приведенное в статье формульное и эмпирически осмысление представление реакций абсорбций реализовано в рамках реакций самоочищения воды рек и озер. Представление подтверждено на числовом материале, соответствующем многосмысловым уравнениям с известными не известными смысловыми переменными.

Мы привели очередную ситуацию моделирования и извлечения когнитивных знаний [4-8] из многомерных данных типа «объект-свойства». Извлеченные значимые знания в начальный момент из данных типа «объект-свойства» делает возможным извлечение знаний и в конечный момент завершения процесса самоочищения воды.

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HEAVY METALS - LEAD AND CADMIUM DISTRIBUTION IN THE ADJACENT AREA OF THE BOLNISI AND DMANISI REGIONS

Abstract: The presented work refers to the contamination of the environment with heavy metals, including lead and cadmium to study the risk factors for environmental pollution. The expedition was held in the Kvemo Kartli region: particularly Bolnisi, Dmanisi, and Tetritskaro municipalities. In 2022, the lead and cadmium concentrations in 58 soil samples and 22 surface water samples were examined to determine the extent of environmental contamination and the risks associated with potential food chain contamination. Total Sample Analysis was performed at the Chemical Risk Factors Research Laboratory of the National Center for Disease Control and Public Health (NCDC).

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Introduction

The research focuses on assessing lead and cadmium concentrations in soil and surface waters as well as environmental contamination. The provision of good living circumstances for the populace, the smooth operation of the economy, and the protection of the environment all depend heavily on the availability of water supplies. Providing water to the

population, industry, energy, and agricultural sectors is one of the top priorities for the sustainable growth of the country. Fresh water is frequently in short supply in many nations around the world [1]. The causes of this include inadequate removal of wastewater and industrial waste from water bodies, a decrease in natural watersheds, logging of large tracts of forest, improper farming practices, etc. [2].

In the circulation of air and water, anthropogenic contaminants extend throughout the earth, significantly changing climate, soil, water and chemical condition of the atmosphere, biodiversity decreases and ecosystems are polluted. Consequently, the problem of pollution has become global and its resolution has become a global challenge [3-4-5]

One of the sources of emission of technogenic substances in the environment is mining production. If necessary precautions are not taken, the environment can severely deteriorate during the extraction of raw materials, particularly in open quarries. The Bolnisi region is home to mining operations for gold and copper. Polymetric mine and production, located 80 kilometers southeast of Tbilisi, is considered to be the first non-ferrous metal production facility. Around the 1940s, the field of deposits started to be explored. [3].

One of Georgia's biggest non-ferrous mining operations began to take shape in 1959.

The facility has been mining copper, barite, and quartzites containing silver, gold, and polymetric ores since 1975 [2]. Primary processing, enrichment, and sale of the mined copper and barite resources are also carried out. Particularly in the vicinity of Kvemo Kartli, the Bolnisi-Dmanisi municipalities' land has long been renowned for its mineral deposits, including those that are barite-polymetic, copper-colchedanic, and quartzites that contain gold, among other types of deposits. All of the above may have a significant negative impact on the environment and then on human health [3].

The research paper deals with the determination of lead and cadmium contents in surface waters and soils in Kvemo Kartli region. [6-7-8]. In particular, three target groups were investigated using samples from environmental matrices (soil and surface water).

1. Settlements located near production - Bolnisi and Dmanisi municipalities;

2. Presumably the settlements living on the mine - Bolnisi Municipality;

3. Control district - Tetri Tskarko municipality.

Water samples were taken from the following rivers: Partskhisi, Geta, Algeti, Dvaltakhevi, Asuretistskali, Ktsia Khram, and Mashavera to assess the impact of technogenic load. The soil sample was taken from the following villages: Kazreti, Balichi, Didi Dmanisi, Kianeti, Senebi, Orbeti, Berthakari, Geta, Mushevani, Tandzia, Darbazi, Kveshi, Old Kveshi, Javshniani, Akaura, Ratevani, Koda, Ghoubani, Vashlovani, Pantiani, Didgori, Big Toneti,

Manglisi, Algeti. Environmental monitoring was carried out during 2022. [9-10]

The above -mentioned research is extremely timely and necessary.

Research methods

One of the directions of the research was to conduct chemical analyses on soil and surface water samples to ascertain the presence of heavy metals and to study the regularity of distribution of toxic metals in pre-selected target groups.

Target groups were selected in advance and sampled (using GPS) periodically (twice in a year) in 2022. Methods for determining toxic elements in surface water and soil specimens and subsequently the results are given below: 1.

After the field work, chemical analyzes were carried out, the laboratory defined the overall forms of heavy metals - Pb, Cd;

Analysis of soil samples were carried out by using modern methods and equipment that fully comply with European standards, namely:

1. Agilent 8900 ICP-MS/MS;

2. Analytic Jena AAS ContrAA 800D;

3. Milestone ETHOS UP high performance MW Digestion System;

4. pH-meter VioLab PC 50;

In 2022, 58 soil sand 22 superficial water samples were analyzed at the National Center for Disease Control and Public Health (NCDC) Chemical Risk Factors Research Laboratory. In the soil, lead and cadmium research was conducted by: EPA 3051A (see Table 1.) The permissible concentration (MPC) was indicated, methodical instructions in accordance with MM 2.1.7.004-03.

Analyzes of surface water samples were performed in accordance with EPA Method 200.8. The evaluation of the results was carried out according to the legislation of Georgia, the Resolution of the Government of Georgia No. 425 (December 31, 2013, Tbilisi) on the approval of the technical regulations for the protection of surface waters of Georgia from pollution.

Epidemiological investigations were launched in 2021 in order to research the health status of the population in all three target categories in addition to the environmental sample studies (1. Settlements located near production - Bolnisi and Dmanisi municipalities; 2. Settlements likely to live on the mine - Bolnisi municipality; 3. Control area - Tetri Tskaro municipality.).

Research on the health status of the population in the target groups is carried out randomly, using the survey method. The study also examines the levels of lead and cadmium in the blood of various age groups of the population in a laboratory setting.

The examination and analysis of the data gathered from the epidemiological research, which is now underway and set to end by the beginning of

2023, will servey as the foundation for more thorough findings and conclusions.

Results

Table 1 shows the results of chemical analysis of surface water and soils:

**Table 1. The results of analysis of soil patterns**

N	N of Target groups	Sampling location	GPS coordinates	Soil			
				Pb mg/kg	MPC, Pb mg/kg	Cd, Ə mg/kg	OPC mg/kg
1.	I	Village Balichi, (Kvemo Ubani), V. B. garden (0-5cm)	41.376232/44.398838	24.12	32	0.48	2
2.	I	Village Balichi, (Kvemo Ubani), V. B. garden (20cm)		22.06		0.32	
3.	I	Village Didi Dmanisi N. N. garden (0-5cm)	41.376246/44.398791	24.11		0.36	
4.	I	Village Didi Dmanisi N. N. garden (20cm)		24.09		0.3	
5.	I	Village Kianeti M. O. garden (0-5cm)	41.421506/44.426915	18.03		0.28	
6.	I	Village Kianeti M. O. garden (20cm)		22.11		0.48	
7.	I	Village Kianeti Kh. A. garden (0-5 cm)	41.42716/44.431929	50.18		0.32	
8.	I	Village Kianeti Kh. A. garden, (20cm)		36.19		1.15	
9.	I	Village Senebi J. B. garden (0-5cm)	41.470282/44.409776	18.11		0.79	
10.	I	Village Senebi J. B. garden (20cm)		14.17		0.13	
11	I	Daba Kazreti, Corp. 60/4, "Five District", (0-5 cm)	41.377127/44.420166	144.52		0.98	
12	I	Daba Kazreti, Corp. 60/4, "Five District", (20 cm)		142.71		0.66	
13.	I	Village Bertakari T. A. garden (0-5cm)	41.472191/44383182	36.07		0.22	
14.	I	Village Bertakari T. A. garden (20cm)		26.23		0.53	
15.	I	Village Mushevani A. A. garden (0-5cm)	41.4373/44.460223	12.04		0.3	
16.	I	Village Mushevani A. A. garden (20cm)		18.05		1.34	
17.	I	Village Tandzia R. G. garden (0-5cm)	41.453396/44.367262	18.03		0.36	
18.	I	Village Tandzia R. G. garden (20cm)		20.17		0.08	
19.	II	Village Geta Z. N. garden (0-5cm)	41.425251/44.379249	30.25		0.42	
20.	II	Village Geta Z. N. garden (20cm)		22.28		0.2	
21.	II	Village Darbazi A. G. garden (0-5cm)	41.419963/44.336902	36.17		0.38	
22.	II	Village Darbazi A. G. garden (20cm)		28.25		0.28	
23.	II	Village Darbazi M. B. garden (0-5cm)	41.412289/44.319629	36.22		1.28	
24.	II	Village Darbazi M. B. garden (20cm)		32.24		1.14	
25	II	Village Kveshi, I. M. Corn field (0-5 cm)	41.440013/44.458921	28.28		3.63	
26.	II	Village Kveshi, I.M. Corn field (20 cm)		30.1		1.14	
27.	II	Village Kveshi B. B. garden (0-5cm)	41.435986/44.44839	32.09		0.34	
28.	II	Village Kveshi B. B. garden (20cm)		34.12		0.64	
29.	II	Village Potskhveriani S. J. garden (0-5cm)	41.436319/44.391674	64.26		0.44	
30.	II	Village Potskhveriani S. J. garden (20cm)		34.38		0.26	
31.	II	Village Old Kveshi Sh. M. garden (0-5cm)	41.448301/44.425528	12.05		0.38	
32.	II	Village Old Kveshi Sh. M. garden (20cm)		14.08		0.22	
33.	II	Village Javshniani B. Z. garden (0-5cm)	41.433111/44.438195	62.15		0.58	
34.	II	Village Javshniani B. Z. garden (20cm)		40.19		0.52	
35.	II	Village Akaurta M. M. garden (0-5cm)	41.453413/44.453356	22.08		1,45	
36.	II	Village Akaurta M. M. garden (20cm)		22.09		1,45	
37.	II	Village Ratevani M. R. Corn field (0-5cm)	41.446502/44.504776	24.05		1.64	

38.	II	Village Ratevani M. R. Corn field (20cm)			32.17		1.79	
39.	II	Village Ratevani, N. L. garden (0-5cm)	41.445873/44.506637	26.18		0.48	
40.	II	Village Ratevani, N. L. garden (20cm)		26.06		0.54	
41.	III	Village Koda Z. M. garden (0-5cm)	41.581096/44.769420	14.03		0.3	
42.	III	Village Koda Z. M. garden (20cm)		14.06		0.24	
43.	III	Village Ghoubani E. S. garden (0-5cm)	41.609141/44.721275	22.08		1.18	
44.	III	Village Ghoubani E. S. garden (20cm)		18.16		0.24	
45.	III	Village Vashlovani N. M. garden (0-5 სმcm)	41.613980/44.741009	32.12		1.39	
46.	III	Village Vashlovani N. M. garden (20cm)		18.07		1.07	
47.	III	Village Orbeti E. N. garden (0-5cm)	41.664258/44.53113	20.12		0.91	
48.	III	Village Orbeti E. N. garden (20cm)		22.09		0.58	
49.	III	Village Pantiani S. garden (0-5cm)	41.657204/44.600725	16.1		1.17	
50.	III	Village Pantiani S. garden (20cm)		16.06		0.58	
51	III	Village Didgori F. S. garden (0-5cm)	41.695529/44.514783	12.07		0.44	
52.	III	Village Didgori F. S. garden (20cm)		10.04		0.2	
53.	III	Village Big Toneti V. M. garden (0-5cm)	41.687736/44.420117	32.13		0.32	
54.	III	Village Big Toneti V. M. garden (20cm)		18.1		0.36	
55.	III	Village Manglisi, G. Ch. garden (0-5cm)	41.692797/44.384442	28.12		0.42	
56.	III	Village Manglisi, G. Ch. garden (20cm)		16.05		1.08	
57.	III	Village Algeti T. V. garden (0-5cm)	41.620608/44.387862	36.18		0.72	
58.	III	Village Algeti T. V. garden (20cm)		28.08		0.52	
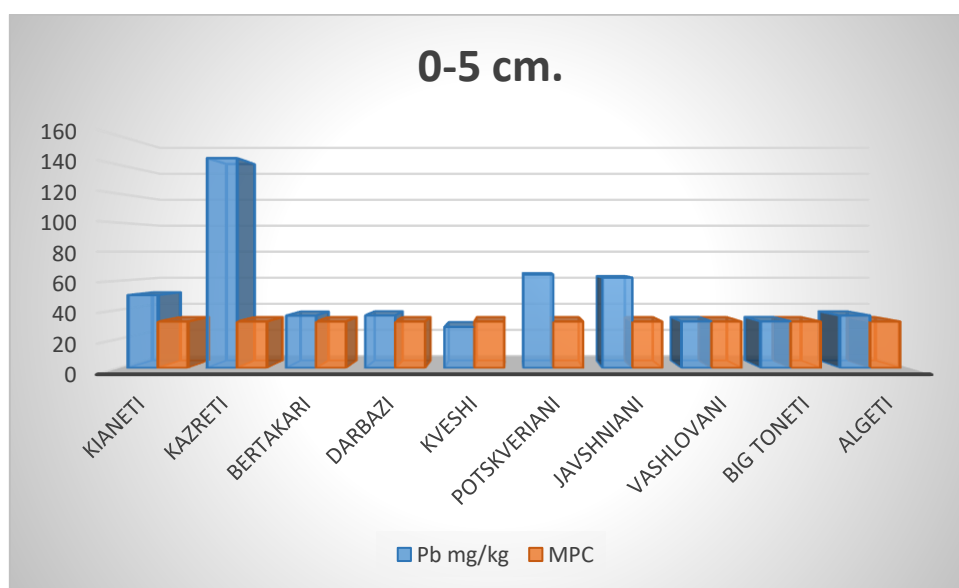
Figure 1. Lead content 0-5 cm in the soils of Kvemo Kartli region

Figure 2. Lead content 20 cm in the soils of Kvemo Kartli region
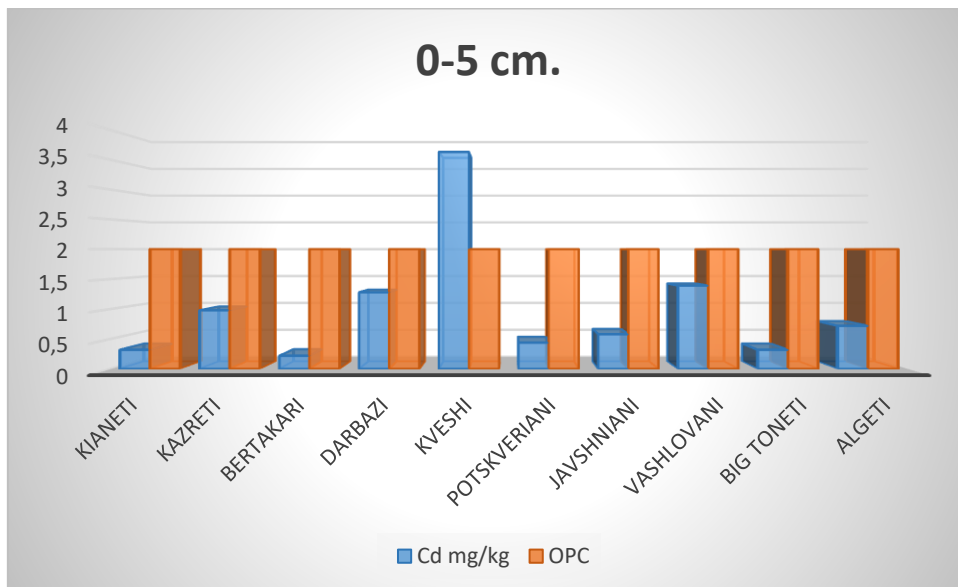
Figure 3. Cadmium content 0-5 cm in the soils of Kvemo Kartli region
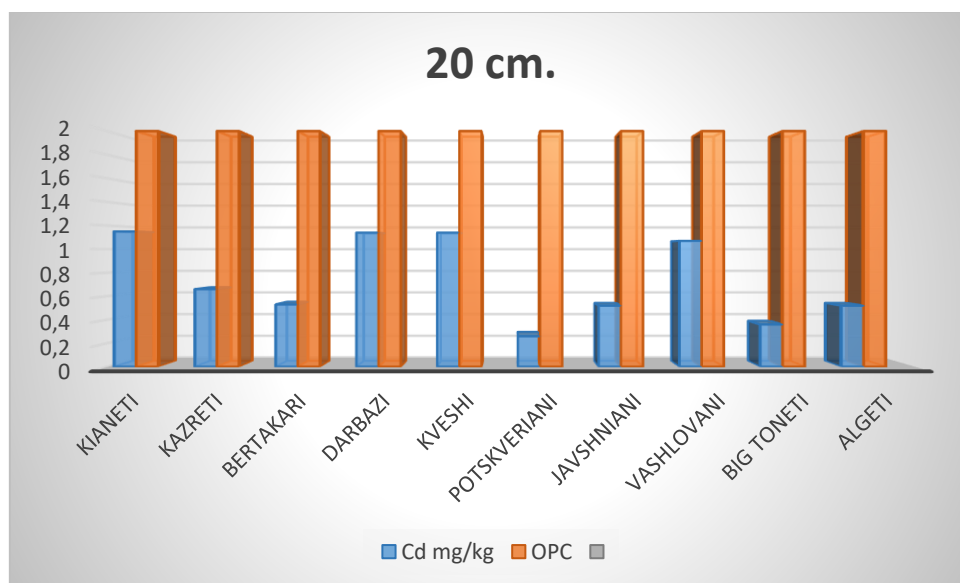
Figure 4. Cadmium content 20 cm in the soils of Kvemo Kartli region

Table 2. Research results of superficial water samples

N	Target groups	Water sampling locations	GPS Coordinates	Surface waters Pb mg/l	MPC, Pb mg/l	Surface waters Cd, mg/l	MPC, Cd mg/l
1	I	Kazreti Riv. Near Kazretula Bridge	41.39029/44.417978	0,005	0,03	<0.0002	0,001
2	I	Village Balichi Riv. Mashavera	41.37694/44.394776	0,005		<0.0002	
3	I	Village Didi Dmanisi Riv. Mashavera	41.377683/44.386906	0,004		<0.0002	
4	I	Village Kianeti Riv. Mashavera	41.419885/44.428386	0,003		<0.0002	
5	I	Village Mushevani Riv. Mashavera	41.437532/44.460731	0,006		0,0003	
6	I	Village Tandzia Riv. Khrami	41.459009/44.360667	<0.0002		<0.0002	
7	I	Village Kianeti Riv. Mashavera	41.423491/44.435399	0,005		0,0003	
8	I	Village Javshniani Riv. Mashavera	41.429235/44.438231	0,007		0,0003	
9	I	Big Dmanisi, Riv. Mashavera	41.36234/44.377793	0,001		<0.0002	
10	II	Village Geta Riv. Geta	41.424584/44.379633	0,0014		<0.0002	
11	II	Village Darbazi Riv. Geta (1)	41.42299/44.33036	<0.0002		<0.0002	
12	II	Village Darbazi Riv. Geta (2)	41.412444/44.330705	0,003		<0.0002	
13	II	Village Kveshi Riv. Mashavera	41.412289/44.319629	0,004		0,0003	
14	II	Village Potskhveriani Riv. Geta	41.433696/44.391678	<0.0002		<0.0002	

15	II	Village Old Kveshi Riv. Geta	41.446005/44.423154	0,003		<0.0002	
16	III	Village Koda Riv. Algeti (iriigation water)	41.577225/44.763917	0,0005		<0.0002	
17	III	Vil. Asureti Riv. Asureti water	41.596138/44.671467	<0.0002		<0.0002	
18	III	Village Algeti Riv. Algeti (1)	41.667980/44.391517	<0.0002		<0.0002	
19	III	Village Algeti Riv. Algeti (2)	41.668462/44.390805	0,003		0,0004	
20	III	Riv. Dvalta Khevi	41.644678/44.447048	0,0003		<0.0002	
21	III	Riv. Algeti (3)	41.64103/44.446192	<0.0002		<0.0002	
22	III	Village Partskhisi. Riv. Partskhisi	41.579763/44.567376	<0.0002		<0.0002	
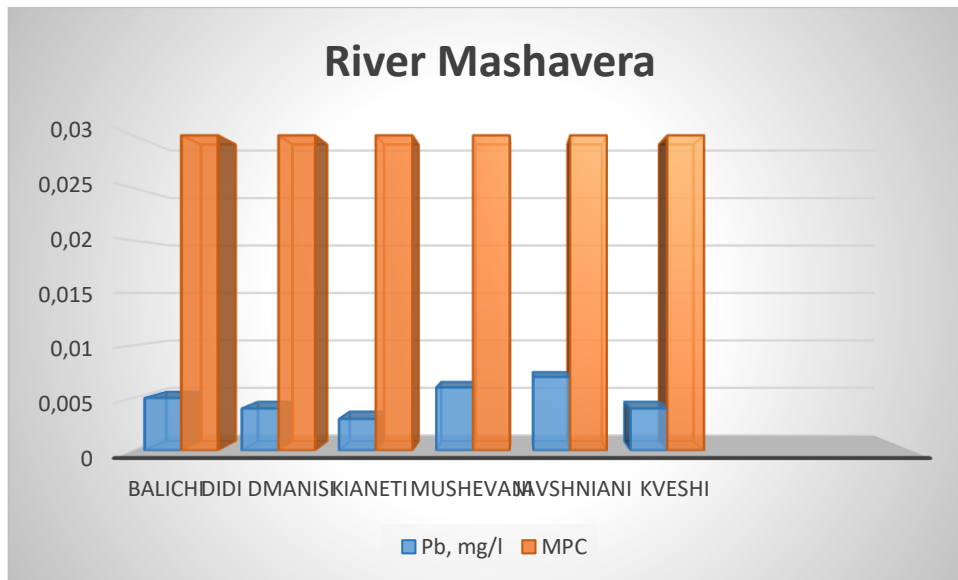
Figure 5. Lead concentration on the river. Mashavera
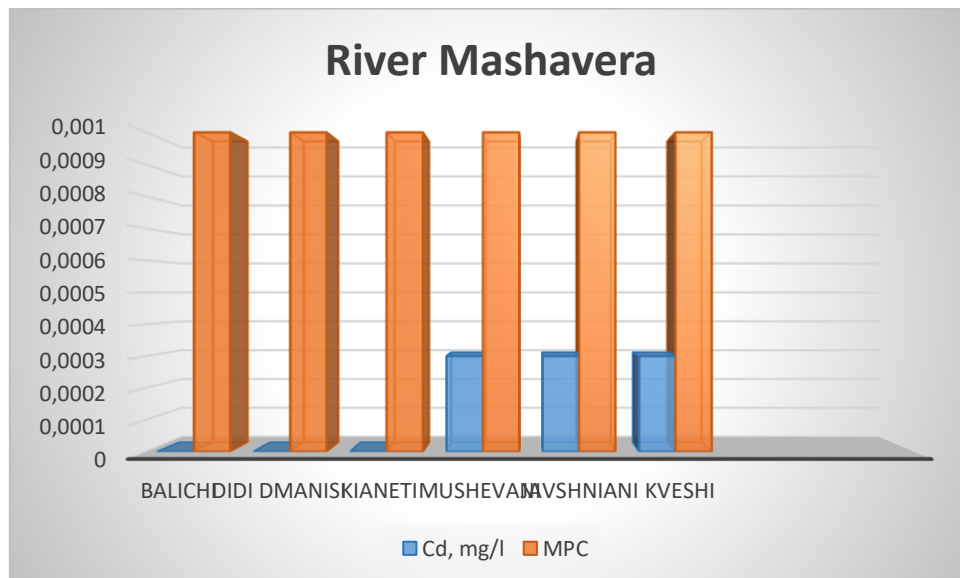
Figure 6. Cadmium concentration on the river. Mashavera

Conclusions

According to the analysis from 2022, no excessive heavy metal contamination has been observed in the surface waters of Partskhisi, Geta, Algeti, Dvaltakhevi, Asuretistskali, Khrami, and Mashavera.

In the soil samples, the maximum concentration of lead was observed in Kazreti (town of Kazreti, Corp. 60/4, "Five District", (0-5 cm)) and amounted to 144.52-4.5 times; Cadmium concentration was 3,63 (in the village of Mashavera (0-5 cm)) and 1.8 times the corresponding OPC.

Based on the analysis of the received data and various scientific and public information, we may conclude that the measures taken at the enterprise in recent years have reduced the technogenic impact of the environment, which was reflected in the results of the study, namely:

- An environmental program was developed in 2018;
- RMG-Gold implemented 97 mitigating measures under the environmental program, most of which are aimed at improving water, air and soil quality;

The conducted studies have shown that the situation in terms of environmental and especially surface water pollution in the Bolnisi and Dmanisi regions has improved compared to previous years. As for soil quality studies, it is necessary to constantly monitor and evaluate quality parameters; Establish specific corrective actions systematically to further reduce the potential for contamination.

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THE TRUTH OF THE CHARACTERS OF THE POLYPHONIC NOVEL BY JULIAN BARNES

Abstract: The aim of the article is to show the "multiple" truth that readers are exposed to in a polythonic novel according to Julian Barnes' famous novel Talking It Over (1991). As expected for a polyphonic novel, the main protagonists, Gillian, Stuart and Oliver are completely different characters. "Pluralism" of the novel of this genre, or "Democracy" if you will, allows the autonomous narratives of three narrators: there are as many people, as many points of view, as many truths. Rare is the case when the main characters see eye to eye when accounting for one and the same cruical events in their lives. The article shows how the diverse personalities being juxtaposed with one another are bound to deliver their truth, self-justifying in most cases, to their listeners, that is to us, the readers.

Key words: Barnes, polythonic novel, truth, plurality of voices, diversity.

Language: English

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Introduction

Julian Barnes (b.1947) is one of the major British contemporary novelists. When *Talking It Over* was published in 1991, Barnes had already earned a remarkable reputation through his previous 5 novels, with one of them *Flaubert's Parrot* (1984) having been shortlisted for the Booker Prize. The author's scope of interests is quite large and he has touched many existential issues in his works. Eventually, he was awarded the Man Booker prize for *The Sense of an Ending* (2011).

Review of the Literature

Author Michael David Lucas writes about the polyphonic novel: "Just as polyphonic music combines melodies to create texture and tension, the polyphonic novel collects a multiplicity of distinct, often conflicting voices around a single place, family, object, or idea. Polyphony widens the novel's geographic, psychological, chronological, and stylistic range, while simultaneously focusing its gaze. Drawing inspiration from classics like *The Brothers Karamazov, The Sound and the Fury, Mrs. Dalloway,* and John Dos Passos's *USA Trilogy*, contemporary polyphonic novels make music from the messy cacophony that is life in the 21st century.

Bypassing traditional notions of character and plot, polyphonic novels create meaning at the intersection of seemingly random plot lines. Harmonies are found in the artful assemblage of disparate voices. As the Russian literary critic Mikhail Bakhtin described the work of Fyodor Dostoevsky: "A plurality of consciousnesses, with equal rights and each with its own world, combine but are not merged in the unity of the event." Eschewing objectivity and uniformity, polyphonic novels rely instead on simultaneity, contradiction, and the empty space between voices"(https://themillions.com/2013/02/a-multiplicity-of-voices-on-the-polyphonic-novel.html). In the novel in question, there are three main and several episodic characters exposed with their own versions of the story to the reader. The versions differ and who is a reader to trust? "Postmodern writing triumphantly affirms its own capacity to escape the limiting oppositions which once promiced to deliver the truth. Indeed, the nature of truth itself becomes the stake pillar in the textual games that characterise novels invoking history,

fiction representing fact, and presenting it as a fiction" (Belsey, 1994:687). When you listen to the protagonists, you will undoubtedly get the feeling that "they tell theier stories in a series of spoken−rather than internal−monologues, as if to an invisible interviewer. They give verbal performances, then, meant for public consumption, and so of course laden with rationalization, self-justification and half-truth. Barnes's neat epigraph is a Russian saying: "He lies like an eyewitness" (Flower, 1992:337).

Analysis of the Data

Julian Barnes' novel *Talking It Over* was released in 1991 and it became so popular that the writer offered its sequel to the readers. In a few years, a movie adaptation was made, *Love,etc*. What made the book so popular and what is the main charm of this polyphonic novel? *Talking It Over* is not a collection of interconnected stories that unfold chronologically, one after the other. It belongs to the sub-category of the genre, which is tied around one story and all the characters tell us their versions, that is, the voices of the narrators are synchronized.

As for the plot of the novel, it is ancient and represents one of the tritest of the dramatic situations−a love triangle. What weapon is a writer left with facing this mega-archetypal plot? This is his writing genius alone, to create original, memorable characters, which, thanks to their credibility, will remain in the reader's mind for some time. "Credibility" is a necessary word here, because the main characters presented to the reader try to tell their own versions, their own truths.

Stuart is a more or less traditional type of a Brit and seems to fit the widespread stereotype of a young civil servant: balanced, stable, reliable. He does not mind his "unromantic" name "Stuart" and is not at all worried that he does not know any foreign language. He certainly realizes that his firework of a best friend, Oliver outshines him a little. However, he is cleverer and brighter than it might seem at first glance. In conversation with Oliver, he sometimes makes a fool of himself and asks stupid questions to his friend. Stuart says: "A wotsit?' I asked, playing Dumb Stu. He smiled his smile, playing Sophisticated Ollie" (Barnes, 1992:22). Stuart secretly applies to a dating agency and is exceptionally lucky: he meets Gillian on the very first day. Gillian is pleased by what she saw in the shy Stuart; polite, decent, serious, orderly Stuart exudes reliability, stability, a secure future.

Oliver has been Stuart's best friend since high school and they are complete opposites. He teaches the English language to overseas students. Oliver is a gifted, artistic nature, extremely expressive, emotional, romantic, exceptionally verbose, adventure seeker, financially unstable and moody. He knows French and many phrases in different languages. Being content with casual romances, he doesn't seriously consider starting a family of his own until he falls for Gillian, Stuart's wife, on her wedding day.

Stuart and Oliver complement each other; They are like two sides of a coin. Their different personalities are better seen juxtaposed to each other, especially when seen through the eyes of one woman. They both often say about each other that they are the closest of friends. Stuart on Oliver: "He is my oldest friend" (Barnes, 1992:4, 8, 141). Oliver on Stuart: "I think Stuart was the person who understood me best" (Barnes, 1992:252).

We think Gillian is the most complex of the three. Gillian is the woman whom both friends fall in love with. The writer created a character that would be largely unfathonable and unpredictable. Naturally, we know less of her than of the men. Gillian has her distinctive heritage−her mother is French. Mme Wyatt brings a French flavor, a tradition of *Maximes* and *Pensées* to the novel. The sophisticated middle-aged French lady enriches the novel with wise sayings and in a way popularizes Nicolas Chamfort introducing us to some of his maximes, like: "Marriage comes after love as smoke comes after fire" (Barnes, 1992:146). Contrary to her mom, Gillian doesn't like to talk a lot, she's more of an introvert than an extrovert: "That's the trouble with talking it over like this. It never seems quite right to the person being talked about. I met Stuart. I fell in love. I married. What's the story?'' (Barnes, 1992:41). Many readers will surely think that she has an ideal profession for her nature. She is a restorer of paintings. In our opinion, this is a symbolic profession. For hours, weeks, often months, she works on each painting to reveal the original work under the layers of soot, dust or another painting. The author often emphasizes that Gillian is quite realistic and practical person. She regards love practically too. After several failed relationships, she also turned to a dating agency, where she met Stuart on her first visit. Once, Gillian starts her story like this, "Now listen to me. *Me*" (Barnes, 1992:243). As if she seems afraid that others' incorrect versions of the whole thing will overshadow *her* truth. On the other hand, she is ready to delve into herself and not be afraid of what she sees in the depths: "If two such different people as Stuart and Oliver can both fall in love with me, what sort of *me* is it? And what sort of *me* falls in love first with Stuart and then with Oliver? The same one, a different one?" (Barnes, 1992:176).

The scholar Vanessa Guignery, who thoroughly studied Barnes' archives, where he had made notes on every detail of the novel, writes that Gillian was conceived from the beginning as a practical and pragmatic young woman who fights for happiness (Guignery, 2020:146). Gillian says: "You can't just 'be happy'; you have to manage happiness" (Barnes, 1992:255). After her divorce from Stuart, Gillian tries to face the future calmly and practically. Her attitude is seen from the following: "I didn't choose what happened. I didn't manipulate things, suddenly decide

that Oliver was a "better deal" or something than Stuart. It happened to me. I married Stuart, then I fell in love with Oliver. I don't think complacent about that. Some of it I don't even like. It just happened" (Barnes, 1992:179).

Although first Stuart and then Oliver are happy with Gillian, they both look back with a kind of regret at the time when they were really best and loyal friends. Of course, the opposing characters of Stuart and Oliver reveal more different qualities next to each other. And when the crisis comes, Oliver finds himself explaining the situation to Stuart in marketing terms. As if Gillian is becoming a commodity. As if the emphasis is on her passivity. Indeed, Gillian seems relatively without a distinct color and passive at first: "Look, I just don't particularly think it's anyone's business. I really don't. I am an ordinary, private person. I have not got anyhing to say" (Barnes, 1992:9-10). But this line develops in a completely different way at the end of the novel; Gillian gathers strength and becomes powerful. At the end of the novel, we see that the center of gravity shifts onto her and she becomes the main agent. It is Gillian who makes a very risky decision to sort out the situation once and for all. In addition to her own peace, she is also driven by her remorse of conscience. She often says: "It is something I owe to Stuart."

The writer equipped his protagonists with different characters and gave each of them their own idiosyncratic voice. The fact that in the very first chapter all three of them have different points of view on a specific grammar point, already makes it clear that this linguistic difference of opinions is only a prelude to a larger conflict. Which of them is a stronger and more convincing protagonist? Perhaps the one whom we believe and trust the most. When we listen to them, we realize that even the "truth" of all three of them is not always enough to understand the whole picture. Sometimes only after having listened to a "secondary" character, the light of truth is cast on some details. For example, the only cameo of Gillian's father towards the end of the novel convinces us of the misconceptions his ex-wife and daughter had been living with. Like in real life, only when we bother ourselves and listen patiently and carefully to others, we might find that there are other "truths" as well.

All three protagonists, like everyone else, want to be happy. They fight for it by different means. And at one point, when everything is messed, when Gillian

decides she's fallen in love with Oliver and has to leave Stuart, there's a moment when all three are thinking the same thing—only about their own pain. This is the rareest case where all three say the same thing. Stuart says:"Whatever happens...whatever happens, I'm the one that's going to get hurt" (Barnes, 1992:129). Gillian says: "I am the one in the middle of this story, the one that's being squeezed every day. I'm the one that's going to get hurt" (Barnes, 1992:130). And finally, let's listen to Oliver: "Bash, bash, bash. I'm the one that's going to get hurt" (Barnes, 1992:130).

Critic Catherine Belsey describes this situation as follows: "Oliver's love is intimately invilved with power and possession. ... Gillian, who has no style, acknowledges her seduction, her surrunder in the simplest terms: "I feel lost". ... and Stuart, who works in a bank and has no imagination, laments his lost love by quoting Patsy Cline lyrics" (Belsey, 1994:691).

The truth of the protagonists may not coincide with the truth gathered and perceived by the reader. As we have seen, they all have their own truth. Maybe it sounds paradoxical, but if we come back to the epigraph chosen by the writer, the reader may think that the one who lies most convincingly is the right one. In one of the interviews, Barnes says: "Part of a novelist's job obviously is to understand as wide variety of people as possible. And you put them in situations where there isn't necesserily an easy answer, and things aren't necesserily resolved. But this does not mean you don't have strong personal views about how life should be lived, and what's good and bad behaviour, as I certainly do". (McGrath, 1987).

Conclusion

To summarize, by applying Julian Barnes's novel as a sample, we can say that a polyphonic novel actually resonates with our modern world as it too offers plurality of voices. This kind of text gives more food to think about, and we also realize that no matter how convincing one character seems, another character may also have their own truth. Typically, such texts are characterized by more psychologism than other novels; by means of a polyphonic novel, not only the understanding of what the author has to say, but also the reading process itself becomes more diverse.

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SADRUSH SHARIA ACCORDING TO THE CLASS OF MUJTAHID SCIENTISTS

Abstract: Disagreements on the method of mujtahids in jurisprudence have increased, imitations and deviations from it have increased. In it, debates were observed among those who based the judgments of the four sects. The interpretation of methods and concepts related to the views of Abu Hanifa and his students served to enrich the harmony with other madhhabs. For example, seven classes of determination were discussed. Sadrush Sharia, who belonged to the Bukhara school of jurisprudence, is mentioned in this classification as a versatile scholar who produced independent works in various fields. A number of famous scholars recognize Sadrush Sharia as a researcher, researcher. According to Imam Birgivi, Sadrush Sharia belonged to the fourth class of Mujtahid, i.e. the people of Tarjih. He relies on the Hanafi school of reasoning in his arguments. According to his method, he first gives metaphorical arguments and then moves to metaphorical arguments. Then the objections of the opposing side will be raised and their arguments will be accepted in the necessary places.

Key words: jurisprudence, madhhab, Hanafi, opposition, ijtihad, mujtahid, imam, tabaqa, mashoyih, Sadrush Sharia, usul, furu', intellectual and practical evidence, taqlid, Shafi'i.

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Introduction

In the science of fiqh, various disputes arose due to the differences in the methods and views followed by the mujtahids, and as a result, disputes increased after the mujtahid imams. Muqallids had the opportunity to imitate their chosen mujtahids. Finally, this ijtihad and taqlid was increasingly traced back to the four imams who, in the eyes of the people, had a positive image. The people were satisfied with imitating them and refrained from imitating others. In this process, ijtihad became difficult, and the sciences that made up its articles were divided over time for various reasons. Among the mujtahids who remained outside the four madhhabs, there were almost no loyalists of their madhhabs, so the institution of ijtihad also began to lag behind in development.

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opportunity to imitate the mujtahids of their choice. Finally, this ijtihad and taqlid was increasingly traced back to the four imams who, in the eyes of the people, had a positive image. The people were satisfied with imitating them and refrained from imitating others. In this process, ijtihad became difficult, and the sciences that made up its articles were divided over time for various reasons. Among the mujtahids who remained outside the four madhhabs, there were almost no loyalists of their madhhabs, so the institution of ijtihad remained undeveloped. Moreover, these four madhhabs are held at the level of the method of Islam, and the late disagreements among those who hold the madhhab firmly and base its rulings, the differences in the Shari'i texts and fiqh foundations remain in the judgment. In order to demonstrate the correctness of the Madhhab of the Imam who was followed, discussions took place among the members of the entire Madhhab based on reliable methods. Each of the members of the madhhab imitates these principles

and methods and is used as an argument in favor of the madhhab he belongs to and against other madhhabs, and these arguments are applied in all the debates in fiqh in all matters of Shari'ah. In these discussions, the foundations of the four imams were revealed, the origin of their disagreements and ijtihads were revealed. This type of knowledge is called khilafiyat (knowledge of khilaf, comparative Islamic law).

It is known that most of the information given in the books on Hanafi jurisprudence is the result of jurisprudential achievements of the Mashaikhs who lived in the 3rd and 4th centuries of Hijri. During this period, the first classic works of Hanafi jurisprudence began to be compiled, some of the views narrated by the imams of the sect were discussed, and in this way, the science of caliphate and jurisprudence, defined as inter-sectarian comparative law.Knowledge of the evidence and sources of the imams, and acquiring the skill to demonstrate the range of features in reading this science, has many benefits. The methods and concepts related to the views of Abu Hanifa and his students have a special place in the field of jurisprudence in the matter of finding and interpreting them, working according to the conditions of the time, and enriching the unity of madhhabs and passing them on to the next eras. Based on this, Sadrush gave place to the views of Mashaikh in his Sharia work, used past studies and continued their sectarian concepts.

For example, Sadrush Sharia, the distribution of words indicating the meaning of the word in the form of ısılatun-nas, isharatun-nas, iktizaun-nas and dalalatun-nas, the absolute command does not indicate haste, his views on the servant's lack of creativity and timing, and the description of the mind as the sun, have been quoted from Mashaikh. In his work "Tawzih", which organized the comparative fiqh method of Sharia, Sadrush dealt with the topics of the fiqh method, and along with the different views of the Hanafi madhhab, he also addressed a number of conflicting issues. In this respect, the science of the work is reminiscent of the books of hilaf and jadal. In this work, Sadrush Sharia gave space to opinions opposing the views of the sect, and used the jadaal method to defend the views of the sect and reject the opposing views. He used more mental reasoning in rejecting or accepting.

In particular, regarding the classification of mujtahids, Qurashi, ibn Kamalposha and Birgivi classified the mujtahids of Zarkashi into seven classes, who were divided into two classes for the sake of being absolute-muqayyid.

First class; class of mujtahids in circumstances; The four Imams (Imam Abu Hanifah, Imam Malik, Imam Shafi'i, and Imam Ahmad ibn Hanbal) who are considered to be mujtahids of this class, are perfect and or possessors of ijtihad, and established comprehensive ijtihad and usul rules. They are protected from taqlid both in the method and in the

furu, as they deduced the furu' rule of "adilai arbaa" from four proofs. Ibnus Salah states that in order to be an absolute mujtahid, he must be able to know the proofs of Shariah rulings through istidlal in a way that is far from taqlid and taqyid.

The second class; the class of mujtahids in the madhhab; Mujtahids from this class, such as Imam Abu Yusuf and Imam Muhammad, were absolute ijtihad masters in Furu' and did not perform ijtihad by method. Although they disagree on some furu' rules (contradiction), they are able to judge from "adilai arbaa" based on the rules of method set by their teachers. And in manners, they imitated their imams.

The third class; the class of Mujtahids in the matter; Mujtahids of this class, such as Abu Ja'far al-Tahawi, Karhi, Halwani, Sarakhsi, Bazdawi and Qazi Khan, perform ijtihad on topics that have not received a single narration from the master of the sect, and they belong to the second class. But they cannot oppose the imams of the sect either in the method or in the furu. Only in non-scriptural matters they judge according to the rules of their imams.

The fourth class; Ahl al-Mujtahid class of Tahrij;

Mujtahids like Razi belong to this category, and they are not capable of ijtihad at all. However, due to their strong knowledge of method, they are able to explain the various and probable views passed down from the imams of the sect. The mujtahids of this class also made ijtihads on the issue of revealing the reasons for rulings.

The fifth class; Tarjih Ahl Mujtahid class;

Mujtahids such as Quduri and Marginani belong to this category, and their job is to select some of the narrations from the imams of the sect. The mujtahids from this class used expressions that are nobler, more reliable, and wazih, more suitable for comparison. In other words, the mujtahids of this class performed ijtihad in a limited way, translating between views and narrations. It is correct to consider them muqallid. Only those who showed ijtihad and intellectual activity in the scope of the madhhab, such as revealing and interpreting the views of the madhhab.

The sixth class; the class of ahl mujtahids who separate the authentic from the non-authentic (tamyiz ahli);

Mujtahids like Umar Nasafi, Maulana Mawsili, Tajush Sharia and Ibnus Saati belong to this class. Their job is not to allow weak and rejected views in their books. After all, they are mujtahids who are able to distinguish between a weak view and a strong view, and between an apparent narration and a rare narration.

The seventh class; Only a class of imitators;

People of this class are not capable of any of the mentioned. They cannot distinguish right from wrong. Rather, they are like those who gather wood in the dark. They collect whatever they can get their hands on.

According to Imam Birgiwi, mujtahids who are listed in the sixth and seventh categories are completely taqlidists and do not do any ijtihad. They are only engaged in gathering and preserving the works of past ancestors.

Now, based on the classification of Ibn Kamolpasha, we will begin to think about the place of Sadrush Sharia in this classification. Sadrush Sharia, a versatile scholar who has produced independent works in various fields, is a mujtahid of the Bukhara school of jurisprudence. Sadrush Sharia was formed as a follower of Shaykhs such as Dabusi, Sarakhsi, Bazdavi, who were the leaders of this school.

In the Hanafi sources, it can be seen that Sadrush Sharia's knowledge of Usul and Furu' issues was a source of strength and pride for Hanafi scholars. In the books of Usul, Furu' and Tabaqat, only praiseworthy opinions are expressed about him.

Imam Kafawi: "There is no doubt about his Imamate and his knowledge, he is knowledgeable in various sciences, a master of Shariah laws, an opener of problems related to asl and far', a shaykh in usul and furu, a scholar in maqul and manqul, usul, fiqh, khilafiyat, jadal, hadith, tafsir, nahv, a mature scholar in vocabulary, literature, theory, speech and logic. Skilled in every field of knowledge. His knowledge is a proverb, a symbol of knowledge and manners.

Muhammad Sayyidbek, one of the teachers of the Faculty of Law of Darul, states that Sadrush Sharia is a superior and powerful scholar from the point of view of jurisprudence in the following words: He can only be a good student.

In this sense, the Islamic scholars describe Sadrush Sharia as "Imam humam wa fahrul ulamil alam..." and then they say about him: "This person was a scholar whose knowledge was unattainable by the sea, and he was a complete scholar and researcher."

According to Taftazani (792/1389), Sadrush Sharia: "He is a scholar, a scholar and a scholar, who has a firm grasp of mental and narrative balance, and is a scholar of method and furu".

Famous scholars such as Ibn Battuta, Ibn Qutlubuga (879/1474), Toshkoprizoda (968/1561) and Ali al-Qari (1014/1605) recognized Sadrush Sharia as muhaqqiq, mudaqqiq, according to Imam Birgivi (981/1573), Sadrush Sharia is a mujtahid from the fourth class of mujtahid from the people of tarjih.

In this place, it was mentioned about Sadrush sharia Ubaydullah ibn Mas'ud Sadrush, whose scientific activities are widespread and many of his works have been translated into different languages.

We also tried to determine the classification of mujtahids of Sadrush sharia and its class. Therefore, Sadrush belongs to the sixth class of sharia, the class of mujtahids who separate the authentic from the non-authentic, and he is a mujtahid who is able to distinguish between an apparent narration and a rare narration.

Conclusion

In this place, it is mentioned about Sadrush sharia Ubaidullah ibn Mas'ud Sadrush, whose scientific activities are widespread and many of his works have been translated into different languages. Also, an attempt is made to determine the classification of mujtahids of Sadrush Sharia and its class. According to him, some say that he is from the fourth class, while others recognize that the scholar is from the fifth or sixth class. Those who rely on Qurashi's information consider Sadrush to be one of the mujtahids who separate the shari'a from the sixth category, i.e., the authentic from the non-authentic, and admit that he was able to distinguish between apparent narrations and rare narrations.

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Issue   Article

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COMPOSITION AND STRUCTURE OF HOUSEHOLD INCOMES AND EXPENDITURES IN THE REPUBLIC OF UZBEKISTAN

Abstract: *this article discusses the concept and socio-economic essence of household expenditures, describes the main types of household expenditures, and analyzes the dynamics of the structure of household expenditures in the Republic of Uzbekistan.*
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Introduction

The development of the economy and the social sphere, the implementation of the state financial policy and various state and local programs have the ultimate goal of improving the standard of living of the population, ensuring the realization of its labor, entrepreneurial and investment potential, improving financial well-being and increasing the role of households in the financial system of the state [1-2].

A household can be defined as one individual or group of individuals who live together in the same building and make various economic and financial decisions independently. Households are one of the most important economic entities. They are the final consumer of many manufactured goods, works and services, provide enterprises and organizations with various factors of production, pay taxes and other obligatory payments, save part of the income received, and also invest in real and financial assets [3-4].

The functioning of household finance is associated with the formation, distribution, and use of the family budget and other money funds, the formation of financial resources and the adoption of various economic and financial decisions, for example, decisions on spending or saving income

received, paying expenses, investing temporarily free financial resources, in other words, obtaining various type of income and financing of various expenditures of the population. Let's consider the economic essence and the main indicators of household expenditures [5-9].

The expenditure part of household budgets is money allocated for consumption, payment of mandatory payments and savings.

The types of household expenses distinguish between current and capital ones.

Household current expenditures should include expenses for the purchase of food products, non-food products used for a relatively short period of time (shoes, clothing, etc.), as well as payment for services periodically consumed by the population throughout their lives (for example, such as services of a hairdresser, laundry, dentist, etc.).

Capital expenditures include the costs of acquiring non-food items used for sufficiently long periods of time (furniture, housing, vehicles, etc.). The same item should also include the costs of services that household members consume quite rarely, and the result of these services, on the contrary, has a significant impact on them and determines their life for quite long periods of time

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(expenditures for education, for a medical operation, for travel voucher, etc.).

By functional purpose, household expenditures could be divided into personal consumer spending, taxes and other payments, and savings.

By the nature of autonomy, the composition of household expenditures is represented by autonomous (non-elastic) and elastic expenditures, which depend on the dynamics of income. Autonomous expenses do not depend on the size of income and formally correspond to the subsistence level. The living wage is a cost estimate of the minimum consumer basket, which includes a set of food, non-food products and services, as well as mandatory payments and fees.

In addition, in terms of frequency of implementation, three groups of household expenditures are distinguished: short-term expenditures, medium-term expenditures, and long-term expenditures.

Household expenditures are the result of their financial relationships with various economic entities [10-12]:

– relations between households and other households and commercial enterprises in the process of purchase of goods, works, services;

– relations between households as landlords and tenants arising from the receipt of rent for the use of property, as well as between households as tenants and landlords – regarding the payment of rent for the use of property;

– relations between households and other households arising from production and purchase of goods, services, and works for personal and family consumption;

– relations between households and budgets of different levels and state non-budgetary funds regarding the payment of taxes, fees, mandatory payments;

– relations between members of households arising from the distribution of total income (family income);

– relations between households and professional participants of financial market;

– other money relations with enterprises, organizations, households connected with the distribution and use of money funds of households.

Household expenditures are connected with different financial decisions. Households typically have to make four types of financial decisions [13]:

1. Decisions to consume and save money. How much of the family's current wealth can be spent on consumer needs, and how much of current income should be saved for future use and directed to savings? For example, if the head of the family receives an income of 7 million soums, the mother receives a salary of 4 million soums, the grandmother receives a pension of 1.5 million soums, how should this household redistribute the income received among all family members, including children? How much can this family spend, and how much should the household save for the future?

2. Investment decisions. What assets should you invest your savings in? What financial instruments are the most profitable in terms of profitability and the most reliable in terms of financial risk?

3. Financing decisions. When and how should a household use borrowed funds to realize its consumption and investment plans? The family needs to buy a new refrigerator, a new laptop for their son and pay for English courses for their daughter. With what financial resources will the family be able to finance these expenses?

4. Decisions related to risk management. How and under what conditions should households try to reduce financial uncertainty, and when should risk tolerance be increased? The head of the family takes a taxi to work every day and spends a large amount of money every month. How can these expenditures be reduced?

Next, we will consider the types of household expenditures in accordance with the Methodological Regulations on Household Surveys [14]:

– in the Republic of Uzbekistan, household expenditures are divided into consumption and non-consumption expenditures;

– consumption expenditures of households are diverse and include such expenses as the purchase of food, non-alcoholic beverages, tobacco products, non-food items for personal consumption, payment for different services;

– non-consumption expenditures of households cover expenses for the purchase of real estate, livestock, poultry, bees, rent for land, an apartment, a house and other premises, expenses for maintaining a subsidiary farm, expenses for production services, taxes, contributions and other payments, material assistance to relatives and other persons, the purchase of goods for commercial purposes, deposits in banking institutions, the purchase of shares and other securities, the repayment of a loan, debt and other non-consumer expenses.

Let us analyze the dynamics of the structure of household expenditures in the Republic of Uzbekistan in 2018-2020 based on the data of a sample household survey conducted by the State Committee of the Republic of Uzbekistan on Statistics (Table 1).

Table 1. Structure of Household Expenditures in the Republic of Uzbekistan
(according to the results of a sample survey of households; in percents)

No.	Name of expenditures	2018	2019	2020
1.	Expenditures, total	100,0	100,0	100,0
	including:			
2.	consumption expenditures	84,6	84,6	87,0
	of which to:			
2.1.	food	40,7	38,8	40,3
2.2.	non-food goods	26,9	28,0	28,9
2.3.	services	17,0	17,8	17,8
3.	non-consumption expenditures	15,4	15,4	13,0

Source: data of the State Committee of the Republic of Uzbekistan on Statistics

Based on the analysis of indicators of the dynamics of the structure of household expenditures of the Republic of Uzbekistan in 2018-2020, the following conclusions could be made:

– the most of the household spending goes to finance the consumption expenditures. The share of these expenditures in 2018 and 2019 amounted to 84.6%, in 2020 – 87.0% of the total volume of household expenses;

– the share of household expenditures on food financing varies in the range of 38.8-40.7%;

– the share of expenses for the purchase of non-food goods is gradually increasing from 26.9% to 28.9%;

– the share of non-consumer household expenditures decreases from 15.4% in 2018-2019 to 13.0% in 2020.

Based on the results of studying the economic essence and the main directions and structure of household expenditures in the Republic of Uzbekistan, the following conclusions can be made:

– household expenditures are the result of the functioning of households and the organization of their financial relations with state authorities and administration, commercial enterprises, budgetary organizations, public and charitable organizations, and other individuals;

– household expenditures are related to the distribution and use of the family budget, personal budgets of household members, reserve or investment funds and other money funds of household funds;

– the composition and structure of household expenditures can be influenced by various factors, for example, the goals and current tasks of the household, macroeconomic factors, the level of education and financial literacy of household members, economic and financial decisions;

– in the composition of household expenditures, about 85% is occupied by consumption expenditures for the purchase of food, non-food products and services, while non-consumption expenditures account for about 15% of all expenditures;

– the study of the composition and structure of household expenditures is necessary for the development and implementation of public financial policy directions, the improvement of mechanisms for providing financial assistance to the population, the creation and widespread use of various financial instruments and the provision of households with a wide range of various financial services.

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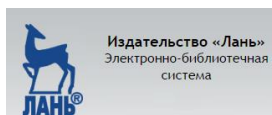
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