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MODEL OF SIMULATION OF OPERATION OF THE DETERMINISTIC PROTOCOL OF SAFE COMMUNICATION IN THE QUANTUM CHANNEL WITH NOISE

Abstract. Technologies of quantum cryptography do not depend on the computational capabilities of the intruder, because they use the unique properties of quantum particles, and are based on the principles of inviolability of the laws of quantum physics. There are many methods and approaches used to solve the tasks of securing the privacy of message transmission without the use of encryption. The most advanced technology of quantum cryptography is quantum direct safe communication, which allows information to be transmitted by an open channel without prior encryption. For this purpose, experimental studies of a deterministic protocol model in a channel with noise using a couple of qutrites in the eavesdropping control mode were carried out.

Key words: information protection, quantum cryptography, deterministic protocol, quantum key distribution, quantum direct secure communication, qubit, qutrit.

Introduction. Quantum cryptography, based on the theory of quantum mechanics, allows to develop new methods for ensuring the stability and security of information transfer, to solve the problems of classical cryptography related to the distribution of keys. In addition, it makes it possible to provide resistance to various kinds of quantum key search algorithms [1]. The use of quantum protocols of direct safe communication allows to solve the problem of message transmission secrecy without the use of encryption. This secrecy is guaranteed by the laws of quantum physics [2-4].

With the help of quantum states of quantum systems groups (two- or multilevel, photons are often used) is coded the source text of the secret message, then they are transmitted by a quantum communication channel. The laws of quantum physics also guarantee the detection of eavesdropping in the channel. Therefore, during a communication session legitimate users (A and B) can immediately detect the intruder (E) and interrupt the communication session.

Objects and methods of research. There are many different types of quantum secure communication protocols. For example, ping-pong protocol [2], for practical implementation of which there is enough a small amount of quantum memory, and it can be realized on the basis of already used technical equipment [5]. This type of the protocol uses two Bell states of an entangled pair of qubits, which allows to transmit one bit of classical information for one protocol cycle [2]. If we use all four states of Bell's qubits pair, that is, quantum super dense coding, then it is possible to increase the number of bits per cycle twice, that is, there will be two bits [3]. In order to increase the information capacity instead of the

entangled pairs of qubits there can be used their triples, quarks, etc. In particular, the work [4] investigates the protocol with the entangled states of the Greenberger-Horn-Zeilinger (GHZ) triples and quadruples of qubits. These states provide an information capacity equal to *n* bits per cycle, that is, the number of qubits in the used states of the GHZ.

Also, in order to increase the information capacity of the protocol it is possible to use entangled states of multilevel quantum systems. For example, in works [6, 7] there was studied a protocol using Bell states of a three-level systems pair (qutrits) and quantum super dense coding for qutrits. Its information capacity is a bit per cycle, not two bits per cycle, as for the Bell protocol with qubit states.

In works [8-13] there are considered various types of attacks, analyzed a general incoherent attack on various variants of the protocol, including a protocol with qutritpairs [8]. During the attack, the intruder E can take some information off before this attack will be detected [8, 11-13]. In work [13] there was investigated the method of reverse message hashing, based on multiplication by random inverse matrices. Then, the resulting multiply message is transmitted by a quantum channel, at the same time, legitimate users have the opportunity to analyze the error level by applying the protocol eavesdroppingcontrol mode. So, for example, if the permissible level is not exceeded, then the matrices transmit by the classical (non-quantum) channel, as a result this allows the other side to obtain the source text by multiplying the received message on the corresponding inverse matrices. The model of the protocol makes it possible to compare the error levels with a certain average noise level emitted by the quantum channel and according to the result of this comparison makes it possible to confirmthe presence or absence of the fact of eavesdropping.

The researches carried out in work [16] confirm the statements that the error levels, caused by the actions of the intruder and natural noise in the channel, are not of a simple nature. In this connection, there is arisen the problem of synchronously fixing the changes that arise in the states of transmitted photons from the combined influence of the actions of the intruder and natural noise in the channel. Further researches will help to create a model that simulates the operation of the protocol in the eavesdropping control mode and to obtain a number of practical recommendations on the use of a quantum protocol in a channel with noise.

The purpose of this article is an experimental research of the simulation model of a deterministic protocol with qutrit pairs in the eavesdropping control mode in a channel with noise.

Results and discussion

1. The eavesdropping control mode for a protocol with pairs of completely entangled qutrits. If we take as a basis the researches carried out in work [7], in particular, the behavior of the deterministic protocol in the noise channel, it can be concluded that in the eavesdroppingcontrol mode of the protocol (figure 1) both users check the initial entangledstates prepared by the second user for their invariability $|\Psi_{00}\rangle = \left(|00\rangle + |11\rangle + |22\rangle\right)/\sqrt{3}$, as the attack of the intruder on the channel will make changes to these states.

Both users measure the state of each qutrite separately from each other, and this measurement is carried out in two different bases, switched randomly. An example are two mutually unshifted basesz and *x*:

$$|z_0\rangle = |0\rangle, \quad |z_1\rangle = |1\rangle, \; |z_2\rangle = |2\rangle;$$

$$|x_0\rangle = \left(|0\rangle + |1\rangle + |2\rangle\right)/\sqrt{3}, \quad |x_1\rangle = \left(|0\rangle + e^{2\pi i/3}|1\rangle + e^{-2\pi i/3}|2\rangle\right)/\sqrt{3}, \qquad (1)$$

With the probability equal to $1/3$ the user A in each of the bases will receive one of three possible results - "0", "1" or "2". On the other side, the user B after receiving the measurement results with the selected basis will also measure the state of his prepared, "home" qutrit (figure 1).

Thus, in work [7] it is proved that the user B can obtain a result with the probability equal to 1, that follows from the state $|\Psi_{00}\rangle$ in the $z-$ and $x-$basises:

$$|\Psi_{00}\rangle = \left(|00\rangle + |11\rangle + |22\rangle\right)/\sqrt{3} = \left(|x_0x_0\rangle + |x_1x_2\rangle + |x_2x_1\rangle\right)/\sqrt{3}. \qquad (2)$$

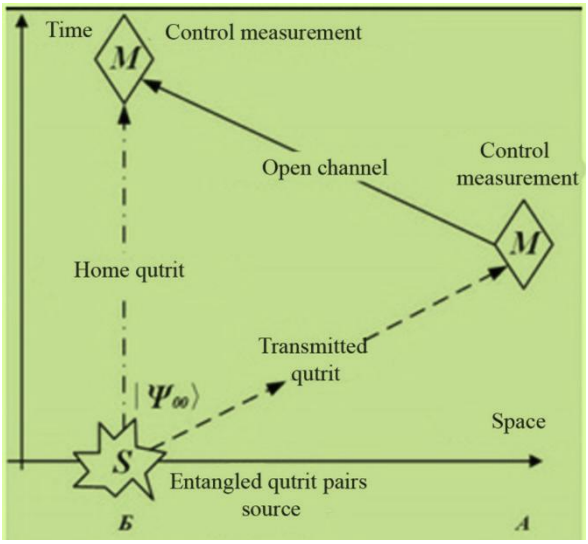

Figure1 – Quantum channel in eavesdropping control mode

However, the user B can obtain accurate results only if there is no natural interference or noise or an intruder's attack in the quantum channel. There is no method of error recognition in the case when there are natural interferences in the channel, and interferences from the actions of intruder E [1]. In this regard, the problem of model construction that allows to investigate a joint attack of the intruder and natural quantum noise in the channel is very actual.

2. Model of the eavesdropping control mode of a deterministic protocol in a quantum channel with noise. The nature of the quantum channel can have many errors associated with phase change or with rotation of the qubit quantum state in the Hilbert space. The main and important property of the quantum code, correcting some discrete set of errors, is the ability to correct automatically a continuous set of errors [14]. This property is explained by measuring the error syndrome or by designing a state with a small error on the state without error, or by designing a false state on some state of most of the discrete set of errors. In other words, there is a discretization of quantum errors, which makes it possible to generate quantum codes in order to correct a certain discrete set of errors, and to correct automatically any error in the state of quantum systems [14].

The operation of the channel is as follows: with the probability p the qubit state becomes completely mixed, i.e. is depolarized, but with the probability $(1-p)$ it remains unchanged. It follows from the work [14]: the operator of the depolarized channel for qubits is described by the equation:

$$\varepsilon(\rho) = (1-p)\rho + p/3 \cdot \left(\sigma_x \rho \sigma_x + \sigma_y \rho \sigma_y + \sigma_z \rho \sigma_z\right), \tag{3}$$

The σ_x operator describes the "classical" qubit overturn error, the σ_z operator describes the phase overturn errors, and the σ_y operator describes combinations of these two errors, phase errors. The depolarized channel influences on the qubit as a superposition of these three large discrete quantum errors.

Although a depolarized channel cannot transmit all potentially possible types of quantum errors, but takes into account the essential types of the majority of discrete quantum errors [14]. Therefore, this channel is widely used in quantum information theory as a model of quantum noise.

In accordance with the work [15] the action of the depolarized channel of an individual qutrit is described by the operator:

$$\varepsilon_{qutrit}(\rho) = (1-p)\rho + p/8 \cdot \left(Y\rho Y^\dagger + Z\rho Z^\dagger + Y^2\rho\left(Y^2\right)^\dagger + YZ\rho(YZ)^\dagger + Y^2Z\rho\left(Y^2Z\right)^\dagger + \right.$$
$$\left. + YZ^2\rho\left(YZ^2\right)^\dagger + Y^2Z^2\rho\left(Y^2Z^2\right)^\dagger + Z^2\rho\left(Z^2\right)^\dagger\right), \tag{4}$$

where $Y = \begin{pmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 1 & 0 & 0 \end{pmatrix}$, $Z = \begin{pmatrix} 1 & 0 & 0 \\ 0 & e^{2\pi i/3} & 0 \\ 1 & 0 & e^{4\pi i/3} \end{pmatrix}$.

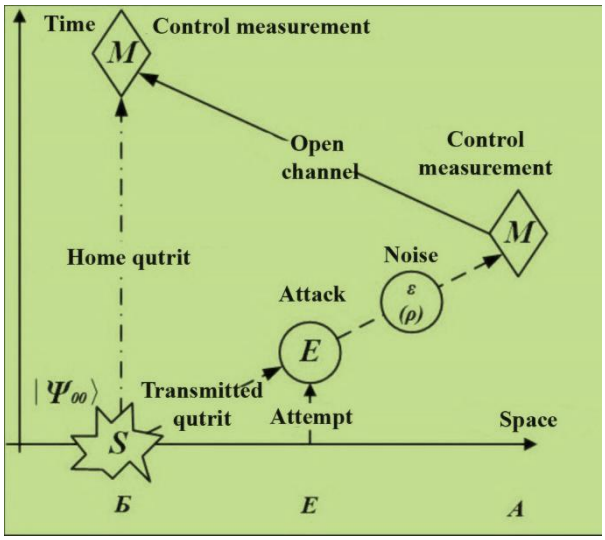

Figure 2 – The eavesdropping control mode in a depolarized channel at incoherent attack

Figure 2 shows the eavesdropping control mode of a deterministic protocol with entangled qutrit pairs for the case when the noise operator (4) influenced on the transmitted qutrit. The transmitted qutrit is initially affected by the attack of the intruder, then the noise operator acts. In accordance with the conducted analysis by the scheme of work [2] and its generalization to the protocol with qutrit pairs, given in work [8], the state of the quantum system "transmitted qutrit – the attempt of the intruder" after the attack of the intruder can be represented as:

$$\begin{aligned}
\left|\psi^{(0)}\right\rangle &= E\left|0,\varphi\right\rangle = \alpha_0\left|0,\varphi_{00}\right\rangle + \beta_0\left|1,\varphi_{01}\right\rangle + \gamma_0\left|2,\varphi_{02}\right\rangle,\\
\left|\psi^{(1)}\right\rangle &= E\left|1,\varphi\right\rangle = \alpha_1\left|0,\varphi_{10}\right\rangle + \beta_1\left|1,\varphi_{11}\right\rangle + \gamma_1\left|2,\varphi_{12}\right\rangle,\\
\left|\psi^{(2)}\right\rangle &= E\left|2,\varphi\right\rangle = \alpha_2\left|0,\varphi_{20}\right\rangle + \beta_2\left|1,\varphi_{21}\right\rangle + \gamma_2\left|2,\varphi_{22}\right\rangle,
\end{aligned} \tag{5}$$

As a result of the combined state of the transmitted qutrit it can be conditionally assumed that the user B sends the qutrit in the state either $\left|0\right\rangle$, or $\left|1\right\rangle$, or $\left|2\right\rangle$ with the probability equal to 1/3. In the equations (5) $(i,j=0)\{\left|\varphi_{ij}\right\rangle\}(i,j=0\ldots2)$ there is presented the set of qutrit states - the attempts of the intruder E.

The attack of the intruder E can be represented in the form of a matrix:

$$E = \begin{pmatrix} \alpha_0 & \alpha_1 & \alpha_2 \\ \beta_0 & \beta_1 & \beta_2 \\ \gamma_0 & \gamma_1 & \gamma_2 \end{pmatrix}. \tag{6}$$

In the case when the user B sends $\left|0\right\rangle$, then the state of the transmitted qutrit after the combined operation of the intruder E is presented in the following form:

$$\left|\psi\right\rangle = \alpha_0\left|0\right\rangle + \beta_0\left|1\right\rangle + \gamma_0\left|2\right\rangle, \tag{7}$$

Andits density matrix in the basis $\left|0\right\rangle$, $\left|1\right\rangle$, $\left|2\right\rangle$:

$$\rho = \left|\psi\right\rangle\left\langle\psi\right| = \begin{pmatrix} \left|\alpha_0\right|^2 & \alpha_0\beta_0^* & \alpha_0\gamma_0^* \\ \beta_0\alpha_0^* & \left|\beta_0\right|^2 & \beta_0\gamma_0^* \\ \gamma_0\alpha_0^* & \gamma_0\beta_0^* & \left|\gamma_0\right|^2 \end{pmatrix}. \tag{8}$$

After the transformation of the formula (4) with substitution of the formula (8), we obtain:

$$\rho_{out}=\frac{1}{8}\begin{pmatrix}\left(3p\left(|\beta|^2+|\gamma|^2\right)+(8-6p)|\alpha|^2\right) & (8-9p)\alpha\beta^* & (8-9p)\alpha\gamma^* \\ (8-9p)\beta\alpha^* & \left(3p\left(|\alpha|^2+|\gamma|^2\right)+(8-6p)|\beta|^2\right) & (8-9p)\beta\gamma^* \\ (8-9p)\gamma\alpha^* & (8-9p)\gamma\beta^* & \left(3p\left(|\alpha|^2+|\beta|^2\right)+(8-6p)|\gamma|^2\right)\end{pmatrix}. \quad (9)$$

The indices «0» α, β, and γ for the reduction of the record are not considered further.

The probability of an erroneous result R_z is equal to the sum of two other diagonal elements (or to the difference between the unit and the upper left element of the matrix ρ_{out}):

$$R_z=1-1/8\cdot\left(3p\left(|\beta|^2+|\gamma|^2\right)+(8-6p)|\alpha|^2\right). \quad (10)$$

R_z indicates a change in the state of the transmitted qutrit, measuring in the $z-$ basis of the user B.

The probability of detecting the attack of the intruder E during the implementation of the protocol in an ideal quantum channel according to work [8] is:

$$d_z=|\beta|^2+|\gamma|^2=1-|\alpha|^2. \quad (11)$$

Transforming the expression (11) with the help of (12), we obtain:

$$R_z=d_z+\frac{3}{4}p\left(1-\frac{3}{2}d_z\right). \quad (12)$$

The result (12) will not change even if the transmitted qutrit will be affected by the noise and then the attack of the intruder E. The calculations show that the diagonal elements of the density matrix (9) do not depend on who made the interferences, was it the attack of the intruder E or the interferences of the depolarized channel itself.

In cases where the user B sends $|1\rangle$ or $|2\rangle$ this corresponds to the wave functions $|\psi^{(1)}\rangle$ and $|\psi^{(2)}\rangle$ in (5), then because of the relationship between the parameters according to work [8]:

$$|\alpha_0|^2=|\beta_1|^2=|\gamma_2|^2;\quad |\alpha_1|^2=|\beta_2|^2=|\gamma_0|^2;\quad |\alpha_2|^2=|\beta_0|^2=|\gamma_1|^2 \quad (13)$$

These cases will also have the result of expression (12). Therefore, the total probability of the error at the measurement of the user B in the basis *z*will be:

$$R_{полна-z}=\frac{1}{3}\cdot 3R_z=R_z=d_z+\frac{3}{4}\cdot p\left(1-\frac{3}{2}d_z\right). \quad (14)$$

Similarly, it is possible to make the same calculations for the control measurement of the user B in the basis*x*, then we will obtain the identical structure of the expression for the probability of the error $R_{полна-x}$:

$$R_{полна-x}=d_x+\frac{3}{4}p\left(1-\frac{3}{2}d_x\right), \quad (15)$$

where d_x – probability of the error at the measurement of the user B in the basis *x*at the implementation of a deterministic protocol in an ideal quantum channel.

According to the work [8] the maximum value corresponding to the complete information of the intruder E is equal to 2/3. Figure 3a shows the dependence of $R_{полна-z}$ from d_z and ρ. From Figure 3a we can see that the superposition of the operation of the intruder E and of the noise in the depolarized channel leads to the fact that at $d_z=2/3$ $R_{полна-z}$ does not depend on $\rho$and is also equal to 2/3. From the obtained results it follows that at the incoherent attack the maximum value of the error probability at the protocol execution in the eavesdropping control mode in the depolarized channel will be the same with or without noise.

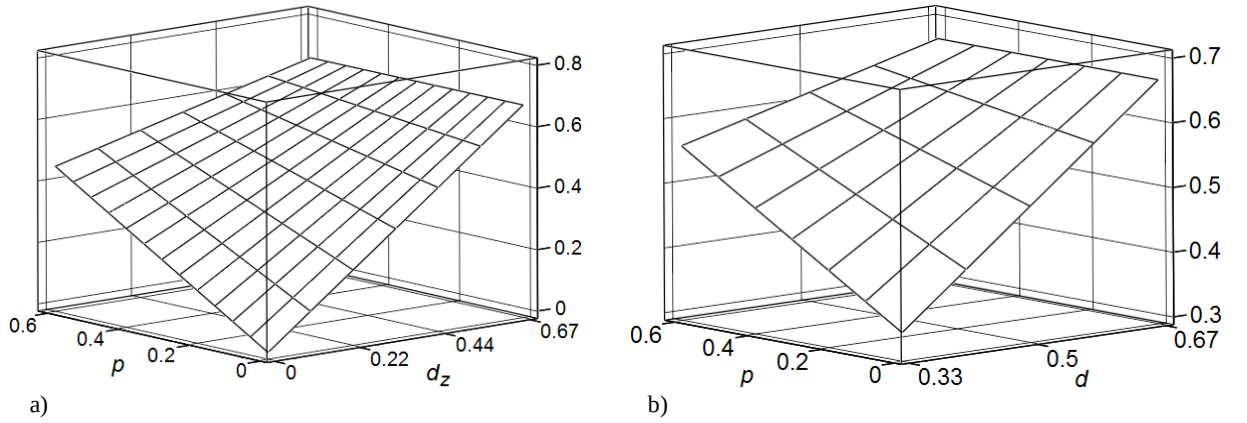

Figure 3 – Dependences of the total error probability
at the measurement of the user B in one of the bases (a) and at the middle error probability in two bases (b) for the DPC

In the basis x the attack of the intruder creates the maximum level $d_x = 2/3$, regardless of the level of errors d_z created by it in the basis z, and vice versa [8]. Figure 3b shows the dependence:

$$R_{полна} = 1/2 \cdot \left(2/3 + R_{полна-z}\right) \quad (16)$$

from ρ and middle error level created by the attack, according to the both bases: $d = 1/2 \cdot \left(2/3 + d_z\right)$, under the condition that legitimate users switch between the bases $z-$ and $x-$ with equal probability 1/2, that is the most reasonable eavesdropping control strategy for them [8].

3. Experimental research of the simulation model of a deterministic protocol with qutrit pairs in a quantum channel with noise in the eavesdropping control mode. The model simulates the operation of a deterministic protocol with qutrit pairs in a depolarized channel at the presence of an intruder E. During the research and modeling process of the deterministic protocol in the eavesdropping control mode there were obtained statistical data on error levels in $x-$, $z-$basises and their middle values. The obtained statistical data make it possible to obtain practical recommendations on the possibilities of using a deterministic protocol in a quantum channel with noise.

In addition, this model used a non-quantum method of enhancing the security of the ping-pong protocol, which is described in detail in work [14].

In order to start the message transfer process the user A converts his ternary message $a (a = (a_1, \dots, a_l), i = 1, \dots, l)$ of some fixed length $r\cdot$, then for each block a random ternary sequence G $(G = (G_1, \dots, G_l), i = 1, \dots, l$ with the length $r \cdot l$ is separately generated, each block of which G_i is summed bit by bit according to the module 3 with the corresponding message blocks a_i:

$$b_i = a_i + G_i \quad (17)$$

Further, using the quantum protocol according to the quantum channel the resulting message $b, (b = (b_1, \dots, b_l), i = 1, \dots, l)$ is transmitted to the user B. If the intruder E intercepts the message, he will not be able to use it, because without randomly generated sequences G_i he cannot restore the initial message.

After the transmission on the quantum channel, only if both sides are sure that the transmission session has not been overheard by the intruder E, the randomly generated sequences G_i are transmitted to the user B by the classical open channel. In order to restore the initial message, the user B should use the received random sequences by combining them with the corresponding blocks of the message:

$$a_i = b_i - G_i. \quad (18)$$

The length of the block r was chosen in order to reach a high level of stability, and also that the probability $s(s(I, q, d) = \left(\frac{1-q}{1-q\cdot(1-d)}\right)^{I/I_0}$ of a successful attack of the intruder E after the transmitting of one block was insignificant. The length of the block should be determined by the formula:

$$r = -kI_0 / \lg((1-q)/(1-q\cdot(1-d))), \quad (19)$$

where k – the value for calculating the probability of the not detected attack of the intruder E, I_0 – the amount of information that the intruder E can receive by one cycle of the message transmission mode, q – the probability of switching to the eaves dropping control mode, d – the level of error sarising from the actions of the intruder E [13].

For the modeling of the operation of a deterministic protocol with qutrit pairs the following parameters were used:

1) the length of the transmitted ternary data is $length = 100\ 000$ trits;

2) an value of the degree of ten for calculating the probability of an unidentified attack of the intruder E -$k = 4$, that is$s(I, q, d,)$=10^{-k};

3) the probability of switching the protocol to the eavesdropping control mode and $q$message transmission can take values from 0.1 to 0.9;

4) in order to calculate the values r (19) we choose:

$I_0 = 2$ - the possible amount of information that can be removeв by the intruder E by one round of transmission, $d = 1/3$- the level of errors that may arise from the actions of the intruder E in accordance with the work [13];

5) the probability of detecting an attack measured in the basis$x$ – $d_x = 0 \ldots 2/3$;

6) the probability of detecting an attack measured in the basis$z$ – $d_z = 2/3$;

7) the probability of depolarization of the qubit state - $\rho = 0 \ldots 0.5$ and the probability of the unchanged qubit state $(1-\rho)$;

8) the probability of switching of the users A and B between the bases $x-$ and $q_x = q_z = 0{,}5$.

Before the modeling the following values should be specified: $length$, q , d_x andρ, and then the following operations should be performed:

1. Determination of the average probability of detecting an attack according to two bases in an ideal channel, that is, the value d_{Eva} by the expression $d_{Eva} = q_z d_z + q_x d_x$

This parameter determines the average level of errors recorded in the eavesdropping control mode in an ideal channel and is needed for comparison with the corresponding value in a channel with noise $R_{полна}$ (17), taking into account the simultaneous change in the states of the transmitted photons as a result of the actions of the intruder E and of the natural noise.

2. Determination of the length of the data block r(19) and the amount of these blocks$l$, into which the transmitted data is divided, l is determined by the expression $l = length/r$.

3. Determination of the error probabilities at the measurements in bases x, zandthe average value for two bases, i.e. parameters Err_x, Err_z, Err_{mean} by the expressions:

$$Err_x = d_x + 3/4\cdot p\cdot(1-3/2\cdot d_x),$$
$$Err_z = d_z + 3/4\cdot p\cdot(1-3/2\cdot d_z),$$
$$Err_{mean} = q_x\cdot Err_x + q_z\cdot Err_z. \quad (20)$$

4. Generating a pseudo-random ternary sequence a with size $length$ (the probability of generating "0", "1", "2" was taken equal to $1/3$).

5. Separation of the obtained in the previous paragraph ternary sequence a, $(a = (a_1, \ldots, a_l)$, $i = 1, \ldots, l)$ with the size $r\cdot$on$l$ blocks of smaller volume, the last block, if necessary, is supplemented with random trits in order to obtain the required length r, then perform following operations:

- generating a random sequence in a GF (3) field $G(G = (G_1, \ldots, G_l), i = 1, \ldots, l)$ with the size $r\cdot l$.

- addition $a_i + G_i$ in the Galois GF field (3), as a result we obtained b_i (18).

- transmission of b_i by means of a deterministic protocol in a quantum channel with noise.

Switching between the eavesdropping control modes and message transmission occurs with probabilities $q$and $(1-q)$. In the message transmission mode on the quantum channel the user B receives a couple of qutrits, the errors occur due to the attack of the intruder E and to the natural noise of the channel, the errors were not modeled. With equal probabilities $q_x = q_z = 1/2$ in the eavesdropping control mode there is selected a certain basis and calculated the total number of transitions to a certain basis (Kp_x, Kp_z). Then, an error is modeled for the basis x with the probability Err_xor for a basis $z$with the probability Err_z, then the amount of errors $Co_{D_x}$and $Co_{Dz}$is counted. The process of switching between the modes is repeated until the block $b_i$is fully transmitted.

Then, after all the blocks $b_i$are received the user A transmits to the user B by the open channel G $(G_1, \dots, G_l), i = 1, \dots, l)$, after which we will obtain a_i:$a_i = b_i - g_i$.

- calculation of the average level of errors in the bases $x, z$and the average error level for the two bases according to each transferred block b_i: $b_i\_Errlvl_x$, $b_i\_Errlvl_z$ and $b_i\_Errlvl_{mean}$ and by the expressions:

$$b_i\_Errlvl_x = Co_{Dx}/Kp_x; \quad b_i\_Errlvl_z = Co_{Dz}/Kp_z;$$
$$b_i\_Errlvl_{mean} = (Co_{Dx} + Co_{Dz})/(Kp_x + Kp_z). \qquad (21)$$

6. According to the obtained values there were calculated the minimum ($MinErrlvl_x, MinErrlvl_z$, $MinErrlvl$) and maximum ($MaxErrlvl_x, MaxErrlvl_z, MaxErrlvl$) values of the error levels, the average values ($MeanErrlvl_x, MeanErrlvl_z, MeanErrlvl$) for all the transferred blocks l.

Figures 4, 5 presents the results of the probabilities of the qutrit states depolarization during the modeling of the protocol at different values $q, Dx, Dz, Deva$.

Table summarizes all modeling results.

1. According to the results we see that within the statistical error the average values of the error level for all transmitted blocks $MeanErrlvl$are equal to the corresponding theoretical values $Errmean$, obtained by the formula (21). However, it is possible only in the case of transmission of a sufficiently large volume of transmitted data blocks. But at the same time, the minimum error levels for both bases ($MinErrlvl$) are small enough and in most cases less than the level of natural noiseρ, especially at large ρ (table).) All this is a consequence of the random nature of quantum measurements. Therefore, transmitting one block and checking the error level in the eavesdropping control mode theusers A and B can make the

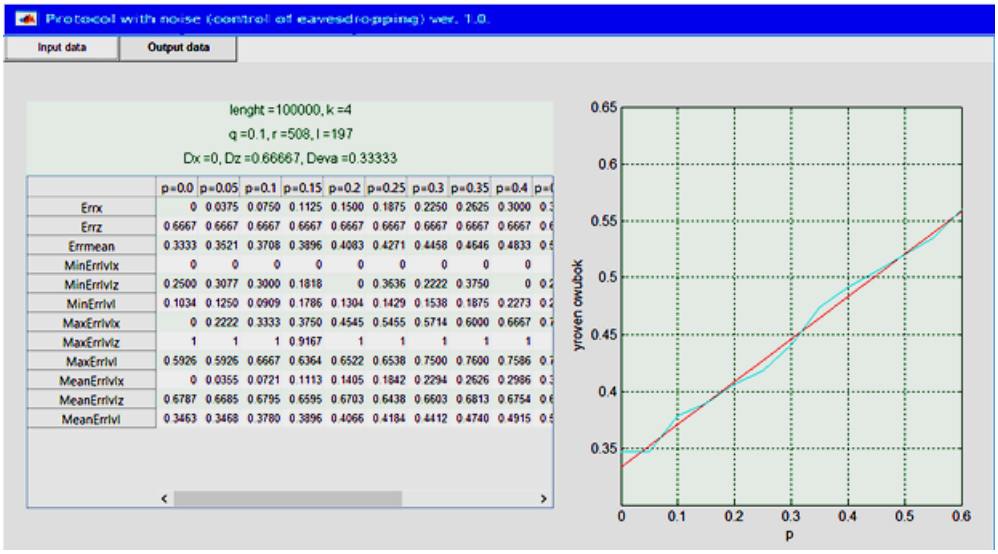

Figure 4 –The error levels values at modeling from$q = 0.1, Dx = 0, Dz = 0.6667, Deva = 0.3333$ and the probability of the qutrit states depolarization from$\rho = 0.0$ till $\rho = 0.4$

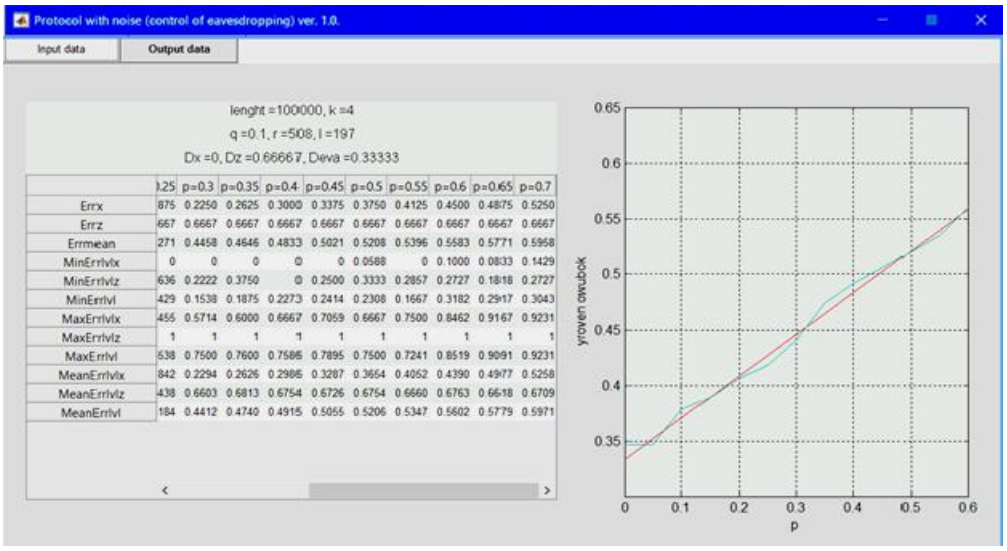

Figure 5 – The error levels values at modeling from$q = 0.1, Dx = 0, Dz = 0.6667, Deva = 0.3333$ and the probability of the qutrit states depolarization from$\rho = 0.3$till$\rho = 0.7$

Modeling results

d			d_x=0;d_z=0,667; d_{Eva}=0,333				d_x=0,333;d_z=0,667; d_{Eva}=0,5				d_x=0,667;d_z=0,667 ;d_{Eva}=0,667			
p			**p=0,1**	**p=0,3**	**p=0,5**	**p=0,7**	**p=0,1**	**p=0,3**	**p=0,5**	**p=0,7**	**p=0,1**	**p=0,3**	**p=0,5**	**p=0,7**
Errx			0,075	0,225	0,375	0,525	0,371	0,446	0,521	0,596	0,667	0,667	0,667	0,667
Errz			0,667	0,667	0,667	0,667	0,667	0,667	0,667	0,667	0,667	0,667	0,667	0,667
Errmean			0,371	0,446	0,521	0,596	0,519	0,556	0,594	0,631	0,667	0,667	0,667	0,667
k=4;length=100000	q=0,5;r=66;l=1516	MinErrlvlx	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,143	0,286	0,143	0,250	0,200
		MinErrlvlz	0,167	0,143	0,300	0,200	0,167	0,143	0,200	0,286	0,000	0,167	0,273	0,154
		MinErrlvl	**0,080**	**0,154**	**0,240**	**0,296**	**0,120**	**0,267**	**0,280**	**0,273**	**0,381**	**0,370**	**0,353**	**0,320**
		MaxErrlvlx	0,375	0,600	0,875	1	1	0,909	1	1	1	1	1	1
		MaxErrlvlz	1	1	1	1	1	1	1	1	1	1	1	1
		MaxErrlvl	0,655	0,809	0,794	1	0,857	0,920	0,833	0,875	0,960	0,929	0,952	0,949
		MeanErrlvlx	0,075	0,224	0,378	0,521	0,372	0,444	0,519	0,594	0,668	0,666	0,664	0,667
		MeanErrlvlz	0,663	0,666	0,665	0,670	0,661	0,666	0,663	0,665	0,665	0,667	0,673	0,666
		MeanErrlvl	**0,369**	**0,445**	**0,522**	**0,596**	**0,517**	**0,554**	**0,591**	**0,630**	**0,666**	**0,666**	**0,668**	**0,667**
	q=0,25;r=176;l=569	MinErrlvlx	0,000	0,000	0,000	0,100	0,000	0,000	0,143	0,125	0,120	0,333	0,200	0,273
		MinErrlvlz	0,308	0,333	0,200	0,200	0,286	0,200	0,273	0,200	0,200	0,273	0,231	0,111
		MinErrlvl	**0,115**	**0,167**	**0,200**	**0,360**	**0,263**	**0,290**	**0,320**	**0,343**	**0,385**	**0,333**	**0,381**	**0,375**
		MaxErrlvlx	0,375	0,667	0,800	0,933	0,875	0,846	0,857	0,929	1	1	1	1
		MaxErrlvlz	1	1	1	1	1	1	1	1	1	1	1	1
		MaxErrlvl	0,654	0,711	0,793	0,936	0,905	0,813	0,852	0,905	0,917	0,909	0,931	0,931
		MeanErrlvlx	0,076	0,225	0,376	0,536	0,363	0,451	0,535	0,598	0,667	0,664	0,669	0,667
		MeanErrlvlz	0,677	0,660	0,664	0,665	0,665	0,657	0,666	0,666	0,663	0,663	0,666	0,668
		MeanErrlvl	**0,374**	**0,441**	**0,518**	**0,599**	**0,516**	**0,556**	**0,601**	**0,632**	**0,666**	**0,663**	**0,667**	**0,668**
	q=0,1;r=508;l=197 q=0,1;r=508;l=197	MinErrlvlx	0,000	0,000	0,059	0,143	0,083	0,000	0,000	0,250	0,333	0,211	0,300	0,273
		MinErrlvlz	0,300	0,222	0,333	0,273	0,200	0,273	0,333	0,286	0,200	0,308	0,375	0,333
		MinErrlvl	**0,091**	**0,154**	**0,231**	**0,304**	**0,226**	**0,227**	**0,318**	**0,353**	**0,382**	**0,367**	**0,423**	**0,419**
		MaxErrlvlx	0,333	0,571	0,667	0,923	0,779	1	0,917	0,889	1	1	1	1
		MaxErrlvlz	1	1	1	1	0,933	1	1	1	1	0,947	1	1
		MaxErrlvl	0,667	0,750	0,750	0,923	0,800	0,828	0,833	0,900	0,944	0,929	0,947	0,909
		MeanErrlvlx	0,072	0,229	0,365	0,526	0,375	0,454	0,508	0,589	0,673	0,653	0,672	0,662
		MeanErrlvlz	0,679	0,660	0,675	0,671	0,651	0,657	0,677	0,669	0,677	0,653	0,679	0,664
		MeanErrlvl	**0,378**	**0,441**	**0,521**	**0,597**	**0,514**	**0,556**	**0,593**	**0,629**	**0,671**	**0,655**	**0,675**	**0,662**

wrong conclusion that there is no eavesdropping.Thus, in a noisy channel, in particular at a sufficiently high level of natural noises, the legitimate users must transmit sufficiently large amount of blocks, at least a few dozen, and only then make a conclusion whether or not there is the attack of the intruder E (and on the need to interrupt the operation of the protocol, or to transmit a pseudo-random sequence $G$from user A to user B). All this is the basis for developing recommendations for the practical implementation of a deterministic protocol with entangled qutrit pairs in a depolarized channel.

2. The average error levels are almost independent from the probability of switching to the control eavesdropping mode of (table).

But the probability significantly affects the speed of data transmission by a deterministic protocol: the smaller q is, the more often the data is transmitted and the higher the speed is. But the length of the block $r$also depends on q, with decreasing of $q$according to the exponential law it increases [16].

3. At $\rho = 0{,}7$and at the attack of the intruder E with zero error level in one of the basises (for example, d_x=0,d_{Eva} = 0,333), the average level of errors *MeanErrlvl* almost does not exceed *p*, therefore the legitimate users can make the wrong decision about the absence of attack. Therefore, it is necessary to check the average errors level in each of the bases x and $z$separately, in one of these basises the error level will be close to the value 2/3. In addition, we can conclude that for reliable detection of an attack the legitimate users should use a quantum channel with a natural noise level, on practice this means using a channel of a limited length.

Conclusions. In this work there was developed a model of the deterministic protocol in the eavesdropping control mode with qutrit pairs in a channel with noise and there is modeled its work in a channel with noise. Obtained a formula for the total probability of an erroneous result at measuring in the eavesdropping control mode. The equality of the values of the maximum error probability in the eavesdropping control mode is substantiated at the implementation of the protocol in an ideal and noisy depolarized channels. There is established that in a depolarized channel, especially at a sufficiently high level of noise, the legitimate users must transmit a sufficiently large amount of blocks of information (at least several dozen) and only then decide whether or not an attack exists. It was also been established that the legitimate users need to use a limited-length quantum channel with a natural noise level $\rho \leq 0{,}5$ for reliable detection of an attack on practice.

This model can be further improved by taking into account errors in the message transmission mode and using noise-immune coding for the qutrits.

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ШУЫ БАР КВАНТТЫҚ АРНАДА ҚАУІПСІЗ БАЙЛАНЫСТЫҢ ДЕТЕРМИНИСТИКАЛЫҚ ХАТТАМАНЫҢ ЖҰМЫСЫНЫҢ ИМИТАЦИЯЛЫҚ ҮЛГІСІ

Аннотация. Кванттық криптографияның технологиялары бұзушының есептеу мүмкіндіктеріне тәуелді емес, себебі кванттық демеуліктердің айрықша бірегей қасиеттерін қолданады, кванттық физика заңдарының беріктілік қағидаларында негізделген. Хабарларды шифрлауды қолданбай құпия жіберуді қамтамасыз ету есебін шешу үшін қолданатын көптеген әдістер мен тәсілдемелер белгілі. Кванттық криптографияның ең дамыған технологиясы – алдын ала шифрлаусыз ашық арнамен ақпаратты жіберуге мүмкіндік беретін кванттық түзу қауіпсіз байланыс. Осы мақсатпен жұмыста жасырын тыңдауды бақылау режимінде кутриттер жұбын қолданумен шуы бар арнада кванттық хаттама үлгісінің эксперименттік зерттеулері жүргізілген.

Түйін сөздер: ақпаратты қорғау, кванттық криптография,детерминистикалық хаттама, кванттық кілттерді тарату, кванттық түзу, қауіпсіз байланыс, кубит, кутрит.

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ИМИТАЦИОННАЯ МОДЕЛЬ РАБОТЫ ДЕТЕРМИНИСТИЧЕСКОГО ПРОТОКОЛА БЕЗОПАСНОЙ СВЯЗИ В КВАНТОВОМ КАНАЛЕ С ШУМОМ

Аннотация. Технологии квантовой криптографии не зависят от вычислительных возможностей нарушителя, так как используют специфические уникальные свойства квантовых частиц, основываются на принципах нерушимости законов квантовой физики. Известно много методов и подходов, используемых для решения задач обеспечения секретности передачи сообщений без применения шифрования. Самая развитая технология квантовой криптографии – квантовая прямая безопасная связь, позволяющая передавать информацию открытым каналом без предварительного шифрования.С этой цельюв работе дано описание проведеных экспериментальных исследованиймодели детерминистического протокола в канале с шумом с использованием пары кутритов в режиме контроля подслушивания.

Ключевые слова: защита информации, квантовая криптография,детерминистический протокол, квантовое распределение ключей, квантовая прямая безопасная связь, кубит, кутрит.

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STUDY OF SAFETY AND ANTIMICROBIAL, ANTI-INFLAMMATORY AND ANTI-INFLAMMATORY PROPERTIES OINTMENT FROM THE SAFFLOWER EXTRACT

Abstract. The objects of study were samples of CO_2-extract, obtained from the flowers of safflower (*Carthamus tinctorius L.*), collected in the flowering stage. Dried plant material (safflower flowers) collected in the summer, subjected to treatment and disposal of mechanical impurities, drying and then grinding to hyperfine state. Harvesting plants was made on the the territory of Almaty region. We have developed an antimicrobial, anti-inflammatory and wound-healing ointment from the flowers of safflower of the Kazakh species "Ak May". Pre-clinical studies were conducted to determine safety and study the pharmacodynamics of ointments.

Key words: flowers safflower, CO_2-extract, *Carthamus tinctorius L.*, preclinical studies.

The genus *Carthamus* from the Asteraceae family comprises 16 recognized species [10]. *C. tinctorius* is the only cultivated species of this genus, but the others are either wild or weeds. *Carthamus tinctorius L* as one of the wild species is widespread in Turkey, subtropical regions of western Iraq, Iran, Northwest India, throughout Kazakhstan, Turkmenistan, and Uzbekistan. It contains a high amount of polyunsaturated fatty acid linoleic acid (70%) and monounsaturated oleic acid (10%) with small amounts of stearic acid. The flowers of *C. tinctorius* are an important medicinal material in prescriptions used for cardiovascular, cerebrovascular and gynecological diseases. Pharmacopoeia raw materials abroad are flowers and seeds of safflower (European famakopeya, British Herbal Pharmacopoeia, Chinese Pharmacopoeia) (Turgumbayeva A.A., Ustenova G.O., Samir A. Ross, 2014) [5].

Safflower oil normalizes cellular functions, improves blood circulation, has anti-inflammatory action, high moisture-retaining and moisture-regulating ability. In addition, safflower oil serves as an active conductor of other components in the deeper layers of the skin and skin of the eyelids.

Oil and extract from safflower normalizes cellular functions, improves blood circulation, has anti-inflammatory action, high moisture-retaining and moisture-controlling ability.

The high content of tocopherol and other flavonoids in the extract from the flowers of safflower grown in Kazakhstan open up prospects of application in the development of medicinal, cosmetic and ophthalmological means.

Objects of the study served as CO_2 samples - the extract obtained from flowers subcritical conditions safflower (Carthamus tinctorius L.), collected in the flowering stage. Dry vegetable raw materials (flowers) collected in summer, processed and removal of mechanical impurities, drying, then grinding in a ball mill (flowers - up to 4-6 mm particles). Harvesting plants was carried out on the territory of Almaty oblast. CO_2-extraction at a pressure of 60 atm. and 22 ° C in carbon dioxide, a brown extract was obtained.

An ointment of essential oil the from safflower flowers grown Kazakhstan: for creating ointment of flowers safflower (*Carthamus tinctorius L.*) optimum composition of the excipients. So several models were created ointment bases - emulsion, a slurry, combined with application of various the excipients - sunflower oil, glycerol, paraffin oil, lanolin, etc., Emulsifiers - Tween-80, T-2 and others. The most effi-

cient composition of the technological parameters was ointment base with the following composition: essential oil obtained from the flowers of safflower, sunflower oil, T-2, Purified Water and peppermint oil.

Obtained an experimental industrial series of ointment based medicinal vegetative raw materials (*Carthamus tinctorius L*). Development of an optimal composition and rational technology medicinal products based on essential oil obtained from the flowers of safflower, - sunflower oil, emulsifiers T-2 and others. has antimicrobial, anti-inflammatory, regenerative, curative effect (Turgumbayeva A. A., Ustenova G.O., Rakhimov Kh.D.) [6].

The study of safety, local irritating and allergic action of the ointment was carried out using methods, described in the Manual on experimental study of new pharmacological substances Khabrieva RU [7].

Acute toxicity was assessed on non-native white mice (weight 18-25 g), which fasting once orally administered into the stomach using a special probe extract concentrate in an amount of 500 mg / kg. Before the introduction of the required amount of the test agents dissolved in DMSO (1:10). All animals remained alive, so the dose was increased (500, 1000, 2000 ... ..) according to the mass of mice. The study was performed on 30 mice at a time. Each dose was tested in acute experiments for 6 animals. Within 2 hours after the administration of the drug, the clinic of intoxication was constantly monitored, then the observation was carried out at the end of the working day, daily. The follow-up period was 14 days. During this time, the state of the animals was evaluated (frequency and depth of breathing, drowsiness, inhibition of reactions, coordination of movements, cyanosis of ears and tail, convulsions, water and feed intake, change in body weight, frequency of urination, amount, reaction to tactile , pain, sound and light stimuli, etc.).

Table 1 – Effect doses of concentrate on experimental animals in the determination of "acute" toxicity

Name of substance	Doses of substances, mg											
	500		1000		2000		3000		4000		5000	
	d	l	d	l	d	l	d	l	d	l	d	l
1	2		3		4		5		6		7	
Extract of safflower	0	6	0	6	0	6	0	6	0	6	0	6
Note. d – dead animals, l – live animals.												

As seen from the table, when administered various doses of the concentrate of 500 to 5000 mg/kg all animals survived.

The study of acute toxicity showed the absence of a pathological character of the changes in general indicators throughout the study period. Animals in all groups remained active, there were no cases of death or intoxication, no change in the respiratory, cardiovascular, central nervous systems. The condition of the hair, mucous membranes is unchanged. Consumption of food and water in the previous regime. There were no cases of animals among the animals, so the definition of LD50 was not possible.

Thus, the substances under study, when administered orally, did not exert a toxic effect on the animal organism. For the organism of experimental animals safflower extract concentrate according to the conventional combined tab toxicity classes Holden and Sterner - is harmless.

The study acute toxicity study ointment

Acute toxicity study ointment is studied in experimental animals for their skin-resorptive effect. Experiments were put on 24 rats weighing 200-260 g (6 animals in each group - separate males and females). They used the method of application of the tail. For the one half of the animals used ointment anticipated therapeutic dose (1.36 g to 100.0 drug concentrate), and for the other - agents containing concentrate 2-fold greater (2.72 g 100.0 concentrate preparation),

lubricants daily once, for 2 weeks. Pay attention to the presence of local reactions at the application site means (in the form of redness, swelling) of the outer cover of the tail of rats.

Results of the experiments showed the absence of pathological changes in the nature of general and specific indicators over the entire study period. Animals in all groups remained active, there was no case of death or poisoning.

So topical application of an effective and maximum doses of means did not have toxic effect, both common and local character. For the organism of experimental animals developed ointment is harmless.

Before the experiment, the animals were two-week quarantine on a standard ration the vivarium. To study the local irritating action used the method of skin applications. Experiments were used the guinea pigs weighing 300-400 g (15 animals, 3 groups).On clipped and depilate area of skin side surface of the trunk of guinea pigs, closer to the middle of the trunk was applied 500 mg. The ointment was applied for 2 weeks to 5 times a week. We take into account the reaction of the skin on a daily basis on the scale of evaluation of the skin tests. The reaction was observed on the outer surface of the skin or by means line calorimeter. Suvorov after 24 hours and evaluation in points on the following scale:

- 0 – no visible reaction;
- 1 – pale pink erythema around the area or its periphery;
- 2 – bright pink erythema around the portion or its periphery;
- 3 – red erythema throughout the site;
- 4 – infiltration and skin edema (thickening of the skin folds) in the presence or absence of erythema.

During the whole experience of research on local irritating effect showed that the application of ointments on the clipped and depilate area of skin of guinea pigs does not irritate the skin and does not affect the general condition of the animals (body temperature, the dynamics of body weight). The study allergenic effect The study allergenic effect ointment carried out by the conjunctival samples of 6 rabbits (weight 3.0-4.0 kg). For this using a syringe in the transition zone mucosal century and globe eye rabbits were injected with 1000 mg of ointment into the other eye (control) were administered placebo ointment. The reactions take account after 15 minutes (fast reactions) and 24-48 hours (hypersensitivity) and delayed type evaluated on the following scale (in points):

1 – slight reddening tear duct;

2 – redness and sclera tear duct in a direction towards the cornea;

3 – redness of the conjunctiva and sclera whole.

No signs of allergenic effect (hyperemia, swelling, and others.) From the skin and mucous membranes showed no sensitization to components of ointment.

Results of the experiments showed the absence of pathological changes in the nature of general and specific indicators over the entire study period. Animals in all groups remained active, there was no case of death or poisoning. So topical application of an effective and maximum doses of means did not have toxic effect, both common and local character. For the organism of experimental animals developed ointment is harmless.

Conclusions. From the result of the study, it could be concluded that the safflower collected from the Southern region of Kazakhstan is one of the best genotype available. *Carthamus tinctorius* is regarded as a valuable plant in Kazakh system of medicine, Chinese medicine and modern drug development areas for its versatile medicinal uses. The aim was designed to study the biological activity and chemical composition of volatile oil of *Carthamus tinctorius L*.

Applying the method of CO_2-extraction on a laboratory extractor for 45-60 minutes at a pressure of 60 atm. and 22 ^{0} C in carbon dioxide gas produced a brown extract of safflowers flowers.

Theoretically and experimentally, the composition and technology of the ointment was developed to meet the requirements of Pharmacopoeia of the Republic of Kazakhstan. The composition of the ointments is represented by the ingredients: sunflower oil, T-2 and mint oil, purified water.

Studies on animals (rabbits, guinea pigs, white rats) showed harmlessness, good tolerability.

In comparison with other studies in this area, since the flowers of safflower grown in Kazakhstan, with a large stock of raw materials in Kazakhstan are used as ornamental plants, have not previously been studied in the territory Republic of Kazakhstan.

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ИЗУЧЕНИЕ БЕЗОПАСНОСТИ И АНТИМИКРОБНЫХ, ПРОТИВОВОСПАЛИТЕЛЬНЫХ, РАНОЗАЖИВЛЯЮЩИХ СВОЙСТВ МАЗИ ИЗ ЭКСТРАКТА САФЛОРА

Аннотация. Объектами исследования послужили образцы CO_2-экстракта, полученные из цветков сафлора (*Carthamus tinctorius L.*), собранных в фазу цветения. Сухое растительное сырье (цветки сафлоры) собрано летом, подвергнуто обработке и удалению механических примесей, сушке, затем измельчению до сверхтонкого состояния. Заготовка растения производилась на территории Алматинской области. Нами был разработан антимикробный, противовоспалительный и ранозаживляющйх мазь из цветков сафлора казах-

станского вида «Ак Май». Провели доклинические исследования для определение безопасности и изучение фармакодинамику мазей.

Ключевые слова: цветки сафлор, CO_2-экстракта, *Carthamus tinctorius L.,* доклинические исследования.

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САФЛОРА СЫҒЫНДЫСЫНАН ЖАСАЛҒАН ЖАҚПАМАЙДЫҢ МИКРОБҚА ҚАРСЫ, ҚАБЫНУҒА ҚАРСЫ, ЖАРАНЫ ЖАЗАТЫН ӘСЕРЛЕРІН ЖӘНЕ ҚАУІПСІЗДІГІН ЗЕРТТЕУ

Аннотация. Зерттеу объектісі ретінде гүлдеу уақытында алынған сафлора гүлдерінің (*Carthamus tinctorius L.*) CO_2-сығындысы үлгілері қарастырылды. Жазда жиналған құрғақ өсімдік шикізаты (сафлора гүлдері), өңделді және механикалық қоспалардан тазартылды, кептіріліп, ұнтақталды. Өсімдік Алматы облысында дайындалды. Біз сафлора гүлдерінің қазақстандық «Ак Май» түрінен микробқа қарсы, қабынуға қарсы және жараны жазатын жақпамайын жасадық. Жақпамайдың қауіпсіздігін және фармакодинамикалық қасиеттерін анықтау үшін клиникаға дейінгі зерттеу жүргіздік.

Түйін сөздер: сафлора гүлдері, CO_2-сығындысы, *Carthamus tinctorius L.,* клиникаға дейінгі зерттеулер.

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GROWTH, DEVELOPMENT AND MEAT QUALITIES OF BULL-CALVES AGAINST THE BACKGROUND OF APPLICATIONS WITH BIOLOGICAL PREPARATIONS OF THE PREVENTION SERIES

Abstract. For the first time on the basis of complex studies the zootechnical expediency of the developed biological preparations Prevention-N-A and Prevention-N-E in beef production technology for the realization of bioresource potential of meat qualities of Black Motley bull-calves was scientifically and experimentally proved. Activation of the growth and development of bull-calves in the periods of growth, rearing and fattening was established against the background of biopreparations, which resulted in higher slaughter and meat qualities of the carcasses and, as a consequence, in a higher yield of valuable cuts: brisket and sirloin by 6.1 and 4.0 kg (P < 0,01-0,001), rump by 2,6 and 1,7 kg (P < 0,05-0,01) and thick flank by 8,6 and 7,1 kg (P < 0,001) (compared with the control group).

The largest content of highest-quality meat came from the carcasses of the bull calves of the 1st (27.8±0.72 kg) and the 2nd (26.7±0.58 kg) test groups: 3.5 and 2.4 kg more, respectively, as compared with the control group (24,3±0,73 kg), and also from their cuts: brisket and sirloin - 0,9 and 0,7 kg more, respectively, rump - 0,5 and 0,3 kg, and thick flank – 2,3 and 1, 5 kg (P < 0.05-0.001).

The high quality of meat carcasses by organoleptic, biochemical and spectrometric indicators and, consequently, the safety of the tested preparations was proved. It was found that biological preparations lead to the realization of bioresource potential of the organism due to activation of haemopoiesis, cellular and humoral factors of non-specific resistance (with a more pronounced Prevention-N-A effect). The novelty of the data obtained is confirmed by the patents of the Russian Federation for invention No. 2602687 and No. 2622765 registered in the Public Register of Inventions of the Russian Federation on October 26, 2016, and June 19, 2017, respectively.

Keywords: bull-calves, growth, rearing, fattening, biopreparations Prevention-N-A and Prevention-N-E, meat qualities.

Introduction. Russian cattle breeding is one of the main life-supporting sectors of domestic agrarian production, which has a decisive influence on the level of the country's food supply and determines the health of the nation.

The industry development strategy is aimed at increasing the share of domestic production, forming dairy and meat resources in accordance with scientifically based consumption standards, increasing its competitiveness and investment attractiveness, and finding solution to the most important socio-economic task of providing the population with biologically wholesome products [2, 4, 11, 17, 21].

In terms of production volumes, the domestic cattle-breeding industry lags behind the targets by 25%, with more than 95% of beef produced by slaughtering replacements and the rejected adult livestock of dairy and combined productivity, the slaughter contingent of which and the level of productivity do not

provide the necessary production volumes [1, 5, 9, 15, 20, 29, 30]. In most regions of Russia, Chuvashia included, the predominant dairy cattle breed remains Black Motley (55.7%), as the most highly productive with good feed payment. As a result of the selection, the cattle acquired features inherent in the dairy type, but with good meat qualities, and therefore has a great potential for productivity, overtopping many other breeds by zootechnical and economic indicators. Thus, for beef production young Black Motley calves are most commonly used, being more adapted and maximally realizing the bioresource potential under optimal feeding and maintenance conditions [6, 22, 24].

In order to prevent immunodeficiency, to stimulate the level of non-specific resistance of the organism a wide range of feed and bioactive additives, immunocorrectors, antioxidants and biopreparations are used to fight environmental and technological stress factors and to realize the bioresource potential of the meat qualities of bull-calves; however, many of them do not exhibit the desired bioeffect [3, 7, 13, 14, 16, 18, 19, 26, 34, 35].

In this context, the development and introduction of complex biologics into the beef production technology to activate the protective-adaptive functions of the organism to the habitat conditions and to realize the bioresource potential of the meat qualities of bull-calves is an actual problem of modern zootechnical science and practice [19].

The aim of the present study is to realize the bioresource potential of meat qualities of Black Motley bull-calves by using biopreparations Prevention-N-A and Prevention-N-E.

Materials and methods. The experimental research was carried out on the dairy farm (an agricultural production cooperative) 'Novyi Put' of the Alikovsky District of the Chuvash Republic in accordance with the plan of scientific research of Chuvash State Agricultural Academy, and the processing of materials was carried out in the Chuvash Republican Veterinary Laboratory of the State Veterinary Service of the Chuvash Republic; in the laboratory of bio- and nanotechnologies and in the laboratory of the Department of morphology, obstetrics and therapy of Chuvash State Agricultural Academy in the period from 2013 to 2017.

The objects of the research were three groups of Black Motley bull-calves (15 animals each), from birth to 540 days of age. Newborn bull-calves of all the groups were kept with their mother in the maternity ward for 1 day, then in the dispensary up to 21 days, then in the standard conditions for growth up to 180 days, then in the premises for rearing up to 360 days, and then in the premises for fattening up to 540 days of age.

To realize the bioresource potential of the meat qualities of the bull-calves in the technology of their growth and rearing, complex biopreparations were used developed from natural raw materials by the scientists of Chuvash State Agricultural Academy: Prevention-N-A (V.G. Semenov, F.P. Petryankin, V.A. Vasiliev and others) and Prevention-N-E (V.G. Semenov, D.A. Nikitin, V.A. Vasiliev and others). The animals of Test Group 1 were injected intramuscularly with Prevention-N-A at a dose of 3 ml on 2-3 and 7-9 days of life; the animals of Test Group 2 were injected intramuscularly with Prevention-N-E at the indicated dose and at the same time. To the control group no biopreparations were administered.

Prevention-N-A is a complex preparation to activate non-specific resistance of the organism and to realize the production potential of young animals. It an aqueous suspension containing a polysaccharide complex of yeast cells of Saccharomyces cerevisiae immobilized in agar gel with the addition of a benzimidazole derivative and bactericidal preparation of aminoglycoside group.

Prevention-N-E is a complex preparation to stimulate non-specific resistance of the organism and to prevent diseases of farm animals. It is an aqueous suspension containing a polysaccharide complex of yeast cells Saccharomyces cerevisiae immobilized in agar gel with the addition of a benzimidazole derivative and an antibiotic group of macrolides.

Results. It is established that the microclimate in the premises for growth, rearing and fattening of bull-calves corresponded to zoo-hygienic norms.

The average daily rations for bull-calves in periods of growth up to 90 and 180 days, rearing up to 360 days and fattening up to 540 days provided the body's needs for energy and nutrients, mineral elements and vitamins in accordance with detailed feeding standards.

The use of Prevention-N-A and Prevention-N-E in the technology of bull-calves breeding stimulates their growth and development. Thus, by the end of the fattening period, the bull-calves of Test Groups 1 and 2 exceeded the control peers:

- by 20.8 and 16.8 kg in live weight,
- by 5.2 and 3.8 cm in the withers height,
- by 3.3 and 2.0 cm in the chest width behind the blades,
- by 2.3 and 1.9 cm in the depth of the chest;
- by 4.8 and 4.2 cm in the girth of the chest behind the blades,
- by 6.8 and 4.6 cm in the oblique length of the trunk;
- by 2.2 and 1.8 cm in the width of the hips;
- by 0.8 and 0.7 cm in the metacarpus, respectively (P <0.05-0.01).

The average daily growth rate of the animals of the test groups also turned out to be higher than in the control during all the periods of postnatal ontogenesis.

The index of leg length in the test groups decreased as they grew; the indices of being well-set and chest and pelvic indices, on the contrary, increased, while the bone index practically did not change.

The live weight in Test Group 1 and 2 (466.4 ± 3.03 kg and 462.4 ± 3.53 kg, respectively) was higher after fattening compared to the control group (445.6 ± 2.79 kg): by 20.8 kg (4.7%, P <0.001) and 16.8 kg (3.8%, P <0.01). The bull-calves of Test Group 1 (454.0 ± 3.51 kg) and 2 (449.6 ± 3.39 kg) had bigger pre-slaughter weight than the control group (430.7 ± 2.71 kg) by 23.3 kg (5.4%, P <0.001) and 18.9 kg (4.4%, P <0.01), respectively. The carcass weight of the bull-calves receiving intramuscular injections of Prevention-N-A was 16.5 kg (7.2%, P <0.001) bigger than in the control group, and with the use of Prevention-N- E it was 12.9 kg (5.6%, P <0.01) bigger. The slaughter weight of Test Group 1 was 18.0 kg (7.4%, P <0.001) bigger, of Test Group 2 it was 13.9 kg (5.7%, P <0.01) than in the control group. According to the slaughter outcome, Test Groups 1 and 2 also had an advantage in comparison with the control group by 1.1 and 0.8%, respectively.

Thus, against the background of immunoprophylaxis, biopreparations have been found to improve the slaughter qualities of bull-calves.

The data presented in Table. 1 shows that the bulls of Test Groups 1 and 2 exceeded their control peers by:

weight of the chilled carcass - 16.1 and 11.9 kg (P <0.01);
total meat outcome - 13.5 and 9.7 kg (P <0.05-0.01);
total fat outcome - 1.5 and 1.0 kg (P <0.05-0.01);
cartilage and tendons - 0.5 and 0.3 kg (P> 0.05);
bones - 2.1 and 1.9 kg (P> 0.05), respectively.

The relative outcome of the tendons and bones in the experimental groups was, on the contrary, lower by 0.04 and 0.06%, respectively, and by 0.35 and 0.11% (P > 0.05) than in the control group.

Table 1 – Morphological composition of bull-calves carcasses

Parameter	Group		
	Control	Test 1	Test 2
Chilled carcass weight, kg	220.6±2.37	236.7±2.47**	232.5±2.55**
Meat weight, kg	172.1±2.22	185.6±2.31**	181.8±2.36*
Meat outcome, %	78.01	78.41	78.19
Fat weight, kg	12.0±0.32	13.5±0.22**	13.0±0.16*
Fat outcome, %	2.8	3.0	2.9
Cartilage and tendons weight, kg	8.3±0.12	8.8±0.25	8.6±0.19
Cartilage and tendons outcome, %	3.76	3.72	3.70
Bone weight, kg	40.2±0.75	42.3±0.66	42.1±0.71
Bone outcome, %	18.22	17.87	18.11
Meat outcome per 100 kg of pre-slaughter live weight	39.96±0.17	40.89±0.25*	40.45±0.23
Meat index	4.29±0.12	4.39±0.06	4.32±0.09

Legend: *P ≤ 0.05, **P ≤ 0.01.

The meat outcome per 100 kg of the pre-slaughter weight in Group 1 was 40.89 ± 0.25 kg (an increase by 0.93 kg or 2.3% (P <0.05)), while in Group 2 it was 40.45 ± 0.23 kg (an increase by 0.49 kg or 1.2% (P> 0.01)) than in the control group – 39.96 ± 0.17 kg. According to the meat index characterizing

the ratio of meat and bones, the bull-calves of Test Group 1 differed favorably – the aforementioned index was 4,39 – more than in the control group and Test Group 2 (0,10 and 0,07, accordingly).

Assessing the meat productivity, it is important to take into account not only the ratio of carcass tissues but also of the anatomical parts from which different types of meat are obtained. The analysis of the data received (table 2) indicates that the large carcass mass of test groups also determined high outcome of the most valuable cuts: brisket and sirloin – 6.1 and 4.0 kg (P <0.01-0.001), rump – 2.6 and 1,7 kg (P <0,05-0,01) and thick flank – 8,6 and 7,1 kg (P <0,001), compared with the control group. In this case, the outcome of these cuts relative to the carcass mass of the bull-calves from Test Group 1 and 2 was higher by 0.7 and 0.3%, by 0.4 and 0.2%, by 1.4 and 1, 4% respectively, compared with the control group.

Table 2 – Weight and outcome of cuts from bull-calves carcasses

Parameter	Group		
	Control	Test 1	Test 2
Carcass weight, kg	220.6±2.37	236.7±2.47**	232.5±3.55**
cuts:			
neck, kg	23.8±0.12	23.4±0.24	23.5±0.22
%	10.8	9.9	10.1
chuck and blade, kg	41.0±0.22	40.2±0.20	40.4±0.19
%	18.6	17.0	17.4
brisket and sirloin, kg	61.8±0.66	67.9±0.51***	65.8±0.45**
%	28.0	28.7	28.3
rump, kg	23.2±0.40	25.8±0.48**	24.9±0.45*
%	10.5	10.9	10.7
thick flank, kg	70.8±0.85	79.4±0.80***	77.9±0.82***
%	32.1	33.5	33.5
Legend: *P ≤ 0.05, **P ≤ 0.01, ***P ≤ 0.001.			

The carcasses of Test Groups 1 (27.8 kg) and 2 (26.7 kg), respectively, were characterized by the largest outcome of highest quality meat (table 3) - by 3.5 and 2.4 kg compared with the control group (24.3 kg, P <0.05-0.001). At the same time, the relative outcome of highest quality beef in relation to the total meat weight was higher in the animals of the test groups – by 0.9 and 0.6% compared with the control group.

Table 3 – Meat quality composition of bull-calves carcasses

Parameter	Group		
	Control	Test 1	Test 2
Meat weight, kg	172.1±2.22	185.6±2.31**	181.8±2.36*
Highest quality meat weight, kg	24.3±0.73	27.8±0.72**	26.7±0.58*
Highest quality meat outcome, %	14.1	15.0	14.7
First-grade meat weight, kg	99.1±1.23	108.6±1.35***	105.6±1.29**
First-grade meat outcome, %	57.6	58.5	58.1
Second-grade meat weight, kg	48.7±0.62	49.2±0.60	49.5±0.59
Second-grade meat outcome, %	28.3	26.5	27.2
Legend: *P ≤ 0.05, **P ≤ 0.01, ***P ≤ 0.001.			

From the culinary point of view, the meat quality composition of the individual anatomical parts of carcasses is of some interest (table 4).

The analysis of the data obtained indicates that the neck cut up to the seventh vertebra mainly consists of first- and second-grade meat. At the same time, the bull-calves of the test groups were inferior to the control group by the weight of the highest quality meat (0.1 kg) and first-grade meat (0.8 kg), yet the difference was unreliable. In case of chuck and blade cuts, the difference between all the three groups was insignificant (P > 0.05). In brisket and sirloin cuts, the largest highest quality meat outcome was in the test groups, the total outcome being 0.9 and 0.7 kg more, and the relative being 0.4 and 0.2% more.

Table 4 – Meat quality of cuts from bull-calves carcasses

Parameter	Group		
	Control	Test 1	Test 2
Neck			
Meat weight, kg	20,3±0,37	18,7±0,44	18,9±0,48
Highest quality meat weight, kg	1,9±0,13	1,8±0,14	1,8±0,17
Highest quality meat outcome, %	9,3	9,5	9,5
First-grade meat weight, kg	12,2±0,37	11,4±0,29	11,4±0,51
First-grade meat outcome, %	60,2	61,2	60,6
Second-grade meat weight, kg	6,2±0,25	5,5±0,32	5,7±0,25
Second-grade meat outcome, %	30,5	29,3	29,9
Chuck and blade			
Meat weight, kg	30,6±0,29	28,8±0,34	30,0±0,35
Highest quality meat weight, kg	4,1±0,19	4,0±0,16	4,1±0,10
Highest quality meat outcome, %	13,4	13,9	13,6
First-grade meat weight, kg	19,0±0,35	18,0±0,22	18,7±0,30
First-grade meat outcome, %	62,0	62,6	62,4
Second-grade meat weight, kg	7,5±0,22	6,8±0,20	7,2±0,25
Second-grade meat outcome, %	24,6	23,5	24,0
Brisket and sirloin			
Meat weight, kg	45,7±0,89	52,1±1,05**	51,0±0,84**
Highest quality meat weight, kg	4,6±0,19	5,5±0,16**	5,3±0,12*
Highest quality meat outcome, %	10,1	10,5	10,3
First-grade meat weight, kg	21,4±0,37	24,6±0,51***	24,0±0,42**
First-grade meat outcome, %	46,9	47,3	47,1
Second-grade meat weight, kg	19,7±0,34	22,0±0,47**	21,7±0,44**
Second-grade meat outcome, %	43,0	42,2	42,6
Rump			
Meat weight, kg	19,4±0,31	21,7±0,37**	20,5±0,32*
Highest quality meat weight, kg	3,0±0,11	3,5±0,17*	3,3±0,15
Highest quality meat outcome, %	15,7	16,1	15,9
First-grade meat weight, kg	11,8±0,24	13,2±0,25**	12,5±0,14*
First-grade meat outcome, %	60,8	61,0	60,9
Second-grade meat weight, kg	4,6±0,21	5,0±0,27	4,7±0,22
Second-grade meat outcome, %	23,5	22,9	23,2
Thick flank			
Meat weight, kg	56,1±0,97	64,3±0,94***	61,4±0,81**
Highest quality meat weight, kg	10,7±0,18	13,0±0,22***	12,2±0,25**
Highest quality meat outcome, %	19,1	20,2	19,9
First-grade meat weight, kg	34,7±0,68	41,4±0,75***	39,0±0,71**
First-grade meat outcome, %	61,8	64,4	63,5
Second-grade meat weight, kg	10,7±0,12	9,9±0,17	10,2±0,19
Second-grade meat outcome, %	19,1	15,4	16,6

The amount of highest grade meat in the rump cuts in Test Group 1 was 0.5 and 0.2 kg more than in the control and Test Group 2, respectively; the relative outcome was also 0.4 and 0.2% more, respectively. The largest and most valuable cut of the carcass is the thick flank, as it gives the highest outcome of highest quality meat; in Test Groups 1 and 2 this amount was 2.3 and 1.5 kg more ($P < 0.01$-0.001) than in the control group. At the same time, the relative outcome of the highest quality meat was 19.1% in the control group, 20.2% in Test Group 1 and 19.9% in Test Group 2.

Thus, brisket and sirloin, rump and thick flank cuts in the test groups were characterized by the highest outcome of highest quality meat in comparison with the control group.

The results of beef quality assessment by organoleptic, biochemical and spectrometric indicators are presented in table 5.

Table 5 – Assessment of beef quality

Parameter	Group		
	Control	Test 1	Test 2
Organoleptic:			
surface appearance and color	the meat samples are covered with a dried-up crust of pale pink color		
muscles on the cut	slightly moist, do not leave a wet spot on the filter paper; light red in color		
consistency	meat is dense, elastic on the cut; the dimple formed with a finger is quickly aligned		
smell	specific, typical of fresh beef		
surface fat	has a yellowish color; the consistency is hard, crumbles when pressed		
tendons condition	elastic, dense; joints surface is smooth and shiny		
broth transparency and smell	transparent, fragrant, large drops of fat on the surface		
Biochemical:			
pH (5,6 – 6,2)	5,96±0,03	5,98±0,01	5,94±0,02
amino-ammonium nitrogen, mg (not more than 1.26in 10 ml extracts from fresh meat)	1,20±0,01	1,17±0,01	1,18±0,01
formalin test	negative		
peroxidase test	positive		
copper sulphate test	negative		
Spectrometric, mg/kg			
lead (not more than 0,5)	0,08±0,01	0,08±0,01	0,07±0,01
cadmium (not more than 0,05)	not found	same as control	same as control
arsenic (not more than 0,1)	not found	same as control	same as control
copper (not more than 5,0)	0,81±0,04	0,84±0,02	0,83±0,03
zinc (not more than 70)	27,5±0,24	27,8±0,16	28,2±0,21
mercury (not more than 0,03)	not found	same as control	same as control

The beef had a dry crust and a pale pink color. The cut was uneven, soaked with blood more intensively than in other parts of the carcass; there was no blood in the muscles and blood vessels. Small vessels under the pleura and peritoneum were not visible. The lymph node cuts were light gray in color. Meat was dense, elastic; when pressing a finger on its surface a dimple was formed which quickly disappeared. The muscles on the incision were slightly moistened and did not leave a moist spot on the filter paper, had a light red color. The broth prepared from the meat was transparent, fragrant, with a small accumulation of large drops of fat on its surface.

It was found that the beef pH in the test experimental groups varied within a narrow range and amounted to 5.96 ± 0.03, 5.98 ± 0.01 and 5.94 ± 0.02 in the control, Test Group 1 and 2, respectively. The content of amino-ammonium nitrogen in the beef samples was 1.20 ± 0.01 mg (control group), 1.17 ± 0.01 (Test Group 1) and 1.18 ± 0.01 mg (Test Group 2) – in other words, within the norm. In the studied samples the reaction with formalin turned out to be negative, with peroxidase - positive, and with copper sulphate - negative.

In lead concentration, the samples were practically indistinguishable – it averaged 0.08 ± 0.01 mg/kg in the control group, 0.08 ± 0.01 in Test Group 1 and 07 ± 0.01 mg/kg in Test Group 2. Such toxic elements as cadmium, arsenic and mercury in beef samples were not detected. The level of copper and zinc in the meat samples was within the permissible limits: 0.81 ± 0.04 and 27.5 ± 0.24 mg/kg in the control group, 0.84 ± 0.02 and 27.8 ± 0.16 mg/kg in Test Group 1 and 0.83 ± 0.03 and 28.2 ± 0.21 mg/kg in Test Group 2. Consequently, by spectrometric parameters the meat of the bull-calves of the experimental groups practically did not differ from the control data.

Thus, the veterinary and sanitary examination found that organoleptic, biochemical and spectrometric indicators of meat of bull-calves grown on the background of intramuscular injection of Prevention-N-A and Prevention-N-E did not differ from those in the control group and met the requirements of the

Technical Regulations of the Customs Union 'On Food Safety' TR CU 021/2011 and the Technical Regulations of the Customs Union 'On the Safety of Meat and Meat Products' TR CU 034/2013, which indicates the safety of the test preparations and good quality of meat carcasses.

Based on the analysis of the age-related dynamics of the clinical and physiological state, it was established that body temperature, pulse rate and respiratory movements in the calves of the compared groups during the periods of growth, rearing and fattening were within the physiological norms, and the difference in them was insignificant (P> 0, 05).

Prevention-N-A and Prevention-N-E tested in experiments on Black Motley breed activate the production of red blood cells and increase the concentration of hemoglobin in the blood, that is, improve haemopoiesis, but do not affect leucopoiesis.

Against the background of immunoprophylaxis of experimental bull-calves, cellular and humoral factors of non-specific protection are activated, which is especially important in the early period of postnatal ontogeny. On the 30th day of the growth period, the bulls of Test Groups 1 and 2 exceeded the control peers by 4.8 and 4.2% in phagocytic activity of the leukocytes, in phagocytic index by 1.1 and 0.8, in lysozyme activity in plasma by 2.1 and 1.5%, in bactericidal activity in serum by 6.3 and 5.5%, and in the concentration of immunoglobulins in blood serum by 3.1 and 2.1 mg/ml.

The phagocytic activity of neutrophilis segmented leukocytes towards Staphylococcus aureus in the bull-calves in the three groups gradually increased as they grew and developed - from 31.0 ± 1.26 to 64.6 ± 1.44%, from 30.6 ± 1.21 to 71.6 ± 1.47% and from 30.8 ± 1.02 to 70.0 ± 1.41%, respectively (control, Test Group 1, Test Group 2). The most pronounced activity of this cellular factor of non-specific resistance of the organism was observed in 30, 90, 18, 360 and 540-day-old animals of Test Group 1 (intramuscular injections of Prevention-N-A) in comparison with the control data for 4.8, 6.8, 7.0, 6.9, and 7.0% (P <0.05-0.01). This activity of leukocytes in the animals of Test Group 2 (intramuscular injections of Prevention-N-E) was also significantly higher than in the control group, starting from their 30-day-old age and till the fattening period: in 30-day-old bull-calves by 4,2%, 90-day – 5.6%, 180-day – 5.6%, 360-day – 5.4% and 540-day-old – 5.4% (P <0,05).

The phagocytic index in the animals of the three groups increased from the 1st to the 5th day of studies from 2.3 ± 0.12 to 9.2 ± 0.37, from 2.1 ± 0.10 to 10.2 ± 0.41 and from 2.5 ± 0.22 to 9.4 ± 0.40, respectively. It should be noted that the average number of bacteria in one phagocyte in the animals of Test Group 1 was significantly higher than in the control group on the 30th, 90th and 180th days of the growth period (by 16.6%, 16.7 and 13.7%, respectively) and on the 360th day of the rearing period by 17.5% (P <0.05). The phagocytic index in the bulls of Test Group 2 was also higher in comparison with the control group, yet the difference proved to be reliable only on the 30th and 90th day – by 12.2 and 12.5% (P <0.05).

The lysozyme activity in the blood plasma in the control group and in Test Group 2 increased consecutively during the period of growth – from the 1st to the 90th day, respectively by 7.1 ± 0.36 to 20.3 ± 0.55%, and from 7.3 ± 0.35 to 22.6 ± 0.42%. However, on the 180th day of the indicated period it decreased to 20.0 ± 0.41 and 22.2 ± 0.58%, and subsequently during the periods of rearing and fattening it steadily increased, reaching the peak at the end of the fattening period - 24.4 ± 0.51 and 26.4 ± 0.40%. The muramidase activity of this enzyme in Test Group 1 was continuously increased during the experiment from 7.1 ± 0.33 to 26.5 ± 0.39%. This indicator of the humoral link of the non-specific resistance of the organism in the animals of Test Groups 1 and 2 was significantly higher than in the control group, starting from the 30-day of age till slaughter: in 30-day-old animals by 2.1 and 1.5%, in 90-day-old by 3.4 and 2.3%, in 180-day-old animals by 3.9 and 2.2%, in 360-day-old by 2.3 and 1.8%, and in 540-day-old by 2.1 and 2.0% (P <0.05-0.001), respectively.

It was found that bactericidal activity of blood serum of tested animals tended to increase as they grew and developed from the 1st to the 540th day: in the control group the increase was from 33.6 ± 1.07 to 60.0 ± 0.85%, in Test Group 1 from 33.3 ± 1.19 to 63.3 ± 0.96%, and in Test Group 2 from 33.4 ± 1.14 to 61.9 ± 1.16%. Here, the bactericidal activity of blood serum in Test Group 1 was higher than the control data for all the periods of research: on the 30th day by 6.3%, on the 90th day – 6.1%, on the 180th day – 4.6%, on the 360th day – 3.8% and on the 540th day by 3.3% (P <0.05-0.01). It should be noted that this activity in Test Group 2 also had a higher rate than that in the control group, especially during the growth period. Thus, the 30-day-old bull-calves of this group exceeded their control peers by this factor of the

humoral link of the non-specific resistance by 5.5%, 90-day-old bull-calves by 5.5% and 180-day-olds by 5.6% (P <0, 05-0.01).

It was established that the concentration of immunoglobulins in the blood serum of the bull-calves of the test groups increased as they grew and developed: in the control group, from 11.6 ± 0.68 to 28.1 ± 0.93 mg/ml, in Test Group 1 from 11.5 ± 0.64 to 32.1 ± 0.76 mg/ml and in Test Group 2 from 11.4 ± 0.70 to 31.8 ± 0.72 mg/ml. The level of indicated immunocompetent factor of blood serum in the test groups was significantly higher – by 3.1 and 2.1 mg/ml, 3.6 and 2.0 mg/ml, 4.1 and 2.9 mg/ml, 3.9 and 3.1 mg/ml and 4.0 and 3.7 mg/ml (i.e., 19.2 and 13.0%, 16.3 and 9.0%, 15.6 and 11.1%, 13.9 and 11.1% and 14.2 and 13.2%) after 30, 90, 180, 360 and 540 days after the experiments, compared with the control group (P < 0.050.01).

Based on the analysis of immunological studies, it was established that bull-calves receiving biopreparations and reared and fattened in standard conditions had higher rates of cellular and humoral non-specific defense of the organism. Moreover, the immunostimulating effect of Prevention-N-A was more pronounced than Prevention-N-E.

Discussion. At the present stage of cattle breeding development to ensure reliable health protection and realization of the bioresource potential and the meat qualities of bull-calves, it becomes necessary to activate the non-specific protective factors of the organism against the technological and environmental factors of the habitat during periods of growth, rearing and fattening by biological preparations which are characterized by high bioavailability and harmlessness to the organism.

The pharmaceutical market offers a wide range of diverse products, many of chemical origin and thus of low bioavailability. In addition, the previously proposed drugs only work on individual factors of non-specific resistance, which does not fully ensure the activation of the immune system. In secondary immune deficiencies, pathogenic microorganisms play an important role in the development of the disease, therefore, in the treatment of animals antibiotics that can have an immunosuppressive effect are used [8, 10, 14, 16, 23, 25, 27, 28, 31, 33].

The authors of the present study believe it is most expedient to use immunostimulants made of natural raw materials with antibacterial drugs. When combined, a double strike is applied to the pathogen: the antibacterial drug suppresses the functional activity of the pathogen, increasing its sensitivity to phagocytosis, and the immunostimulant activates the phagocyte, increasing its ability to neutralize the pathogen.

In view of the foregoing, a scientific study was devoted to the realization of the bioresource potential of meat qualities of Black Motley bull-calves by directed correction of postnatal formation and development of non-specific resistance of the organism with the help of biopreparations Prevention-N-A and Prevention-N-E in connection with hygienic conditions of maintenance and feeding.

The dynamics of the live mass, both absolute and relative, gives an accurate prediction about the development of meat productivity of an animal, both in its lifetime and after slaughter [32]. In conditions of two intramuscular injections of Prevention-N-A and Prevention-N-E on the 2nd-3rd and 7th-9th day in a dose of 3 ml growth and development boost was established. By the end of the growth period, 180-day-old bull-calves of the test groups outperformed the control peers by 7.2 and 4.8 kg of live weight, by 14.6 and 12.0 kg during rearing and by 20.8 and 16.8 kg after fattening, respectively (P <0.05-0.001).

The classics specialist of Russian zootechnics Bogdanov E.A., Kuleshov N.N., Ivanov M.F., Goldobin M.I. and others pointed out that only constitutionally strong animals meet economic and biological requirements. The data obtained and the analysis of the external-constitutional features of the bull-calves in the dynamics show that the animals of the test groups exceeded the control peers both in height and girth. For example, at the end of the fattening period the parameters were as follows: withers height by 5.2 and 3.8 cm, chest width behind the blades by 3.3 and 2.0 cm, chest depth by 2.3 and 1.9 cm, chest girth behind the blades by 4.8 and 4.2 cm, oblique length of the trunk by 6.8 and 4.6 cm, hips width by 2.2 and 1.8 cm, and in metacarpus by 0.8 and 0.7 cm, respectively.

In order to assess the meat productivity and quality, control bull-calves were slaughtered at the age of 18 months (5 animals from each group). It was found that the bull-calves of Test Groups 1 and 2 exceeded the control peers by the weight of the chilled carcass by 16.1 and 11.9 kg (P <0.01), the total meat outcome by 13.5 and 9.7 kg (P <0,05-0,01), fat by 1.5 and 1.0 kg (P <0,05-0,01), cartilage and tendons by 0.5 and 0.3 kg (P> 0.05), bones by 2.1 and 1.9 kg (P> 0.05), respectively. The relative outcome of tendons and

bones in test groups was, on the contrary, lower by 0.04 and 0.06%, respectively, and by 0.35 and 0.11% (P > 0.05) than in the control group. Thus, full-bodied carcasses were obtained from test groups; nevertheless, the bull-calves of Test Group 1 were leading along all the indicators.

Nutritional value, taste and culinary benefits of various natural anatomical parts of the carcass are not the same. In the present experiment, the larger weight of carcasses of the bull-calves of the test groups determined the high outcome of the most valuable cuts: brisket and sirloin by 6.1 and 4.0 kg (P < 0.01-0.001), rump by 2.6 and 1.7 kg (P <0.05-0.01) and thick flank by 8.6 and 7.1 kg (P <0.001) compared with the control group.

The composition of meat largely determines its further use by meat processing plants, and the range of meat products. The largest outcome of highest quality meat was from the carcasses of the test groups (3.5 and 2.4 kg, respectively) in comparison with the control group (P <0.05-0.001). In the carcass, the largest and most valuable cut is the thick flank, as it gives the highest outcome of premium quality meat. The amount of such meat in the test groups was 2.3 and 1.5 kg larger (P <0.01-0.001) than in the control group.

The quality of meat products is determined by its chemical composition and biological wholesomeness, which in turn is determined by the conformity of the product to the needs of the human body and the guaranteed harmlessness of its use in accordance with physiological standards [12]. As a result of the veterinary and sanitary examination, the compliance of beef with the requirements of the Technical Regulations of the Customs Union 'On Food Safety' TR CU 021/2011 and the Technical Regulations of the Customs Union 'On the Safety of Meat and Meat Products' TR CU 034/2013 was established, indicating the good quality of meat carcasses.

Prevention-N-A and Prevention-N-E tested on Black Motley bull-calves increased the number of erythrocytes and the hemoglobin concentration in blood, that is, improved haemopoiesis, and also activated cellular and humoral factors of non-specific resistance.

Conclusions. Under the influence of Prevention-N-A and Prevention-N-E the growth and development of Black Motley bull-calves is accelerated during the periods of growth, rearing and fattening, which causes their higher slaughter and meat qualities and, as a consequence, the outcome of valuable cuts – brisket and sirloin, rump and thick flank, and also of highest quality and first-grade beef. It was experimentally proved that the realization of the bioresource potential is caused by the activation of haemopoiesis, cellular and humoral factors of the non-specific resistance with the help of biological preparations, with a more pronounced corresponding effect of Prevention-N-A.

1. Using Prevention-N-A and Prevention-N-E in the technology of growing bull-calves twice on the 2nd-3rd and 7th-9th day in the dose of 3 ml stimulates their growth and development.

By the end of the fattening period the bull-calves of the test groups exceeded the control peers by 20.8 and 16.8 kg in live weight, by 5.2 and 3.8 cm at the withers, by 3.3 and 2.0 cm in chest width behind the blades, by 2.3 and 1.9 cm in chest depth, by 4.8 and 4.2 cm in chest girth behind the blades, by 6.8 and 4.6 cm in the oblique length of the trunk, by 2.2 and 1.8 cm in hips width and by 0.8 and 0.7 cm in metacarpus, respectively (P <0.05-0.01). The average daily growth of the animals of the test groups also turned out to be higher than in the control during all the periods of postnatal ontogeny.

Leg length index of the animals of the test groups decreased as they grew, the indices of stretch, breach, chest and pelvic, on the contrary, increased, and the bone index practically did not change.

2. Against the background of the application of biological preparations, the fattening and slaughtering qualities of the bull-calves improve.

An increase in the pre-slaughter live weight of animals of the test groups by 23.3 and 18.9 kg was established, the weight of the carcass was increased by 16.5 and 12.9 kg, the slaughter outcome by 1.1 and 0.8%, the total meat outcome by 13.5 and 9.7 kg, internal fat by 1.5 and 1.0 kg and meat index by 0.10 and 0.07, respectively (P <0.05-0.01). The outcome of the most valuable cuts also increased: brisket and sirloin by 6.1 and 4.0 kg (P <0.01-0.001), rump by 2.6 and 1.7 kg (P <0.05-0.01) and thick flank by 8.6 and 7.1 kg (P <0.001) than in the control group.

3. Including Prevention-N-A and Prevention-N-E in the technology of growing bull-calves promotes the improvement of meat qualities.

The largest outcome of highest quality meat was from the carcasses of the bull-calves of Test Group 1 (27.8 ± 0.72 kg) and 2 (26.7 ± 0.58 kg), respectively by 3.5 and 2.4 kg, as compared with the control

group (24.3 ± 0.3 kg), and also of their cuts: brisket and sirloin by 0.9 and 0.7 kg, rump by 0.5 and 0.3 kg, thick flank by 2.3 and 1.5 kg (P <0.05-0.001).

The beef conformed to the requirements of the Technical Regulations of the Customs Union 'On Food Safety' TR CU 021/2011 and the Technical Regulations of the Customs Union 'On the Safety of Meat and Meat Products' TR CU 034/2013.

4. The use of Prevention-N-A and Prevention-N-E in the technology of growing, rearing and fattening bull-calves does not affect the clinical and physiological state of the organism.

5. Prevention-N-A and Prevention-N-E tested on Black Motley bull-calves activate the production of erythrocytes and increase the concentration of hemoglobin in the blood, that is, improve haemopoiesis, but do not affect leucopoiesis.

6. Against the background of immunoprophylaxis of experimental bull-calves, cellular and humoral factors of non-specific resistance are activated, which is especially important in the early period of postnatal ontogeny. On the 30th day of the growth period the animals of the test groups exceeded the control peers by 4.8 and 4.2% in phagocytic activity of the leukocytes, in phagocytic index by 1.1 and 0.8, in lysozyme activity of the plasma by 2.1 and 1.5%, in bactericidal activity of serum by 6.3 and 5.5%, and in the concentration of immunoglobulins in blood serum by 3.1 and 2.1 mg/ml.

Recommendations. To implement the bioresource potential of meat qualities of Black Motley bull-calves the authors recommend the use of complex biopreparations Prevention-N-A and Prevention-N-E, which are immunostimulants based on the polysaccharide complex of yeast cells Saccharomyces cerevisiae in combination with bactericidal preparations of aminoglycoside and natural macrolides:

1) intramuscularly injecting Prevention-N-A twice daily for newborn calves for on the 2nd-3rd and 7th-9th day in the dose of 3 ml;

2) intramuscularly injecting Prevention-N-E twice on the 2nd-3rd and 7th-9th day in the dose of 3 ml.

The proposed biopreparations contribute to the realization of the bioresource potential of the meat qualities of bull-calves due to the activation of the protective-adaptive functions of the organism against environmental and technological factors and the selective mobilization of the hematologic profile and cellular and humoral factors of non-specific resistance, with a more pronounced corresponding effect of Prevention-N-A.

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PREVENTION СЕРИЯЛЫ БИОПРЕПАРАТТАРДЫ ҚОЛДАНУ АЯСЫНДА БҰҚАЛАРДЫҢ ӨСУІ, ДАМУЫ ЖӘНЕ ЕТТІЛІК САПАЛАРЫ

Аннотация. Алғаш рет кешенді зерттеулер негізінде қара-ала тұқымды бұқалардың еттілік сапасының биоресурстық әлеуетін іске асыру үшін ойлап табылған Prevention-N-A және Prevention-N-E биопрепараттарын қолданудың зоотехникалық мақсатқа сәйкестігі ғылыми негізделгендігі және тәжірбие жүзінде дәлелденді. Биопрепараттарды қолдану аясында бұқаларды өсіру, өсіріп жеткізу және бордақылау кезінде өсу белсенділігі мен дамуы орнатылды, бұл өз кезегінде ұшаның сойыстық және еттілік сапаларын ас жоғарылауына алып келді, соның нәтижесінде, құнды кесектер шықты: тексерудегіге қарағанда арқатөстік – 6,1 және 4,0 кг-ға (P<0,01-0,001), белдік – 2,6 және 1,7 кг-ға (P<0,05-0,01) және жамбастық – 8,6 және 7,1 кг-ға (P<0,001) ұлғайды. Жоғары сортты жұмсақ еттер 1-ші (27,8±0,72 кг) және 2-ші (26,7±0,58 кг) тәжірибелік топтардағы бұқа ұшаларында байқалды, 3,5 және 2,4 кг-ға сәйкес тексерудегімен салыстырғанда (24,3±0,73 кг), және де олардың кесектерінде: арқатөстік – 0,9 және 0,7 кг-ға, белдік – 0,5 және 0,3 кг-ға, жамбастық – 2,3 және 1,5 кг-ға (P<0,05-0,001). Ет ұшаларының органолептикалық, биохимиялық және спектрометрикалық көрсеткіштері бойынша өнімнің сапалылығы дәлелденді және де, сәйкесінше, сыналып отырған препараттардың қауіпсіздігі. Бұқалардың организмының биоресурстық әлеуетін іске асыру биопрепараттардың тұрақтылығына тән емес гемопоэзаның, жасушалық және гуморальды факторлардың жандануы, ашық Prevention-N-A сәйкес эффектісін кезінде, орнатылды. Алынған мәліметтердің жаңалығы РФ өнертабыстарының Мемлекеттік реестрінде 26.10.2016 ж. және 19.06.2017 ж. сәйкес тіркелген өнертабыс патенттерімен № 2602687 және № 2622765 РФ расталған.

Түйін сөздер: бұқалар, өсіру, өсіріп жеткізу, бордақылау, Prevention-N-A және Prevention-N-E биопрепараттары, еттілік сапалары.

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РОСТ, РАЗВИТИЕ И МЯСНЫЕ КАЧЕСТВА БЫЧКОВ НА ФОНЕ ПРИМЕНЕНИЯ БИОПРЕПАРАТОВ СЕРИИ PREVENTION

Аннотация. Впервые на основе комплексных исследований научно обоснована и экспериментально доказана зоотехническая целесообразность применения разработанных биопрепаратов Prevention-N-A и Prevention-N-E в технологии производства говядины для реализации биоресурсного потенциала мясных качеств бычков черно-пестрой породы. На фоне применения биопрепаратов установлена активизация роста и развития бычков в периоды выращивания, доращивания и откорма, что обусловило более высокие убойные и мясные качества туш и, как следствие, выход ценных отрубов: спиногрудного – на 6,1 и 4,0 кг (P<0,01-0,001), поясничного – на 2,6 и 1,7 кг (P<0,05-0,01) и тазобедренного – на 8,6 и 7,1 кг (P<0,001), нежели контроле. Наибольшим содержанием мякоти высшего сорта характеризовались туши бычков 1-й (27,8±0,72 кг) и 2-й (26,7±0,58 кг) опытных групп соответственно на 3,5 и 2,4 кг по сравнению с контролем (24,3±0,73 кг), а также их отруба: спиногрудной – на 0,9 и 0,7 кг, поясничный – на 0,5 и 0,3 кг, тазобедренный – на 2,3 и 1,5 кг (P<0,05-0,001). Доказана доброкачественность мясных туш по органолептическим, биохимическим и спектрометрическим показателям и, следовательно, безопасность испытуемых препаратов. Установлено, что реализация биоресурсного потенциала организма бычков была вызвана активизацией гемопоэза, клеточных и гуморальных факторов неспецифической устойчивости биопрепаратами, при более выраженном соответствующем эффекте Prevention-N-A. Новизна полученных данных подтверждена патентами РФ на изобретение № 2602687 и № 2622765, зарегистрированных в Государственном реестре изобретений РФ 26.10.2016 г. и 19.06.2017 г. соответственно.

Ключевые слова: бычки, выращивание, доращивание, откорм, биопрепараты Prevention-N-A и Prevention-N-E, мясные качества.

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ELECTROCHEMICAL PROPERTIES OF THALLIUM IN SOLUTIONS CONTAINING NITRATE IONS

Abstract. The electrochemical behavior of the thallium electrode in solutions of sodium nitrate and nitric acid has been studied by the method of removing potentiodynamic polarization curves and by electrolysis. Preliminary studies have shown that thallium electrode does not dissolve in sodium nitrate solution, but it dissolves well in nitric acid. The laws of electrochemical dissolution of a thallium electrode for polarization with an alternating current at a frequency of 50 Hz in solutions of nitric acid was first studied. The influence of a number of electrochemical parameters on the current yield of the product of electrolysis - thallium nitrate (I) is considered. It is shown that the formation of thallium ions (I) with high current efficiency (95-97%). Electrolysis results show that the concentration and temperature of the electrolyte have a significant effect on the current efficiency of Tl (I) ions. It is shown that as the potential of the electrode is increased, the metal is passivated by the formation of thallium hydroxide, an insoluble protective layer, on the electrode surface. As a result of the studies, an effective method for the synthesis of Tl (I) salts has been developed. Carried out an elemental analyzes of the crystals and microphotographic thallium nitrate Tl (I). Due to the fact that thallium salts have low solubility in aqueous solutions, it has been shown that metallic thallium dissolves only in acid solutions under the action of alternating current.

Key words: thallium, micro photography, electrolysis, electrochemistry, electrode, crystal, alternating current, nitric acid, thallium (I) nitrate.

Though thallium and its compounds are poisonous, they are widely used in technics, medicine and other fields. 75% of thallium is used in electronics, electronics and infrared radiation, 7% in agriculture, 3% in medicine, and 15% in other industries.

The chemical and electrochemical properties of thallium have not yet been studied and are significantly different from those characteristic to metals of Group III (Al, In, Ga). Since thallium is dispersed in the environment, its chemical and electrochemical properties are poorly studied. The detection and separation of thallium from the composition of natural minerals and synthesizing its compounds cause difficulties due to its low concentration. The tendency of metal surface to passivity due to oxide shells formation during the electrochemical deposition determines the specificity of electrochemical properties of thallium. As shown by the results of studies dedicated to investigate electrical oxidation and electrical deoxidation processes of thallium, several authors [1-4] show that the kinetics and mechanisms of these processes depend on a number of factors and have significant features.

The authors of work [5-7] have found that passivation of thallium electrode in the anode polarization of HCL or NaCl solutions are carried out in two stages. According to them, thallium ions are formed in the first phase of passivation and in the second phase they become thallium salts. However, the passivation process in the solution of $HClO_4$ and Na_2SO_4 is carried out in a single phase. In general, the literature review on electrochemical properties of thallium in aqueous solutions indicates that they had been conducted in the field of stationary current and requires replenishment of theoretical data. Moreover, all the known inorganic salts of thallium are obtained by the chemical exchange reaction.

The first study of thallium anode properties began with the release of thallium batteries [6]. Therefore, this work focuses on the oxidation reduction system Tl^{+}/Tl_2O_3. According to the results of the study, the potential of $T1/Tl^{+}$ is that the anode current decreases in the alkaline environment than acids. In [6], it is established that the thallium oxidative ion is in the stationary electrodes with the threshold of tension at the threshold of the polarization hole "b" - 60 mV. It has been pointed out that there is a point of concentration polarization.

In [8], information is given on the electrochemical properties of thallium in the solution of hydrochloric acid and its solubility forming a monovalent compound.

The purpose of this research is to develop effective methods for the synthesis of Tl (I) salts by studying the dependence on various parameters of electrochemical oxidation of thallium electrodes in the presence of alternating current in nitric acid and its salts in solutions of sodium nitrate.

Thallium shows I and III valence in chemical compounds. Its standard electrode potential in aqueous solution has the following value at 25 ^{0}C:

$$Tl - e \rightarrow Tl^{+} \qquad E^{0} = -0{,}336\ V \qquad (1)$$

$$Tl - 3e \rightarrow Tl^{3+} \qquad E^{0} = +0{,}710\ V \qquad (2)$$

$$Tl^{+} - 2e \rightarrow Tl^{3+} \qquad E^{0} = +1{,}25\ V \qquad (3)$$

Further, studies on the electrochemical dissolution laws of the thallium electrode were continued by shooting cathodic, anode and cyclic potentiodynamic curves in neutral nitrate acid solution and electrolyzing in the neutral nitrate ion solution.

Potentiostat "Autolab" was used for shooting potentiodynamic polarization curves. The experiments were carried out in three electrode cells with separated electrode spaces. As a working electrode, the surface part of thallium wire in 2 mm diameter was used. The second additional electrode was platinum wire. All potential values were compared to silver chlorine electrode immersed in the saturated solution of potassium chloride for "an exclusive clean" analysis (+0,203 V).

When the thallium electrode was immersed in the solution of 100 g/l of sodium nitrate, the potential value "minus" was found to be 0.7 V. The metallic oxidation current is detected on the maximum polarogram when the potential value of thallium is shifted to the anode direction (figure 1). The dissolution rate of thallium does not continue to grow when the potential value "minus" is 0.45 V, from which the metal surface is covered by a thallium nitrate film and remains in the passivation state.

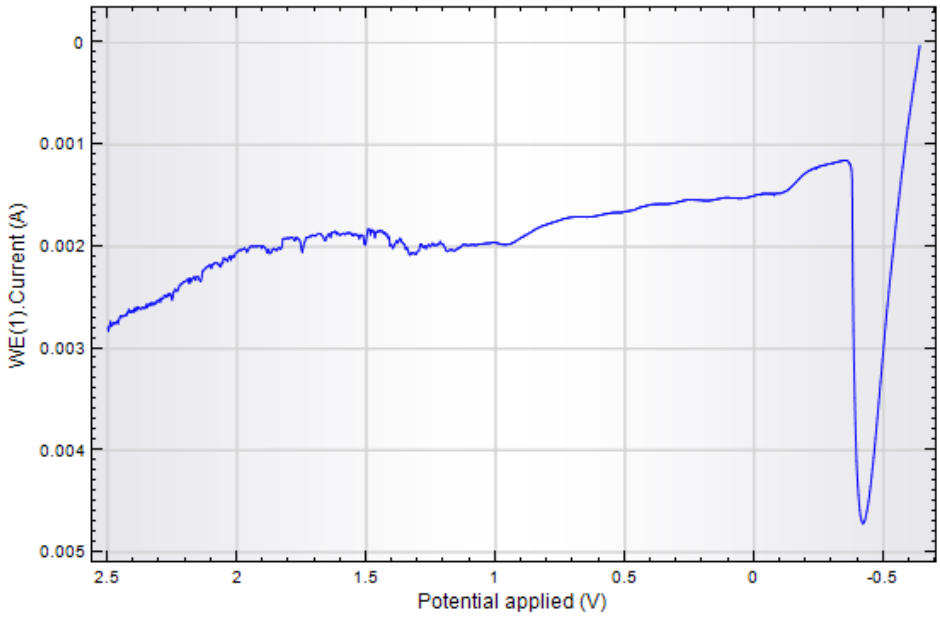


Figure 1 – Anode potentiodynamic polarization curve of the thallium electrode in the sodium nitrate solution: [$NaNO_3$] = 100g/l; v = 50 mB/s; t = 25^{0}C

Figure 2 shows the cathode polarization curves of the thallium electrode in a solution of sodium nitrate. When the potential of the thallium electrode is shifted to the cathode direction and the minus approximates the potential of 0.6-0.50 V, the oxidation current is detected in the polarogram.

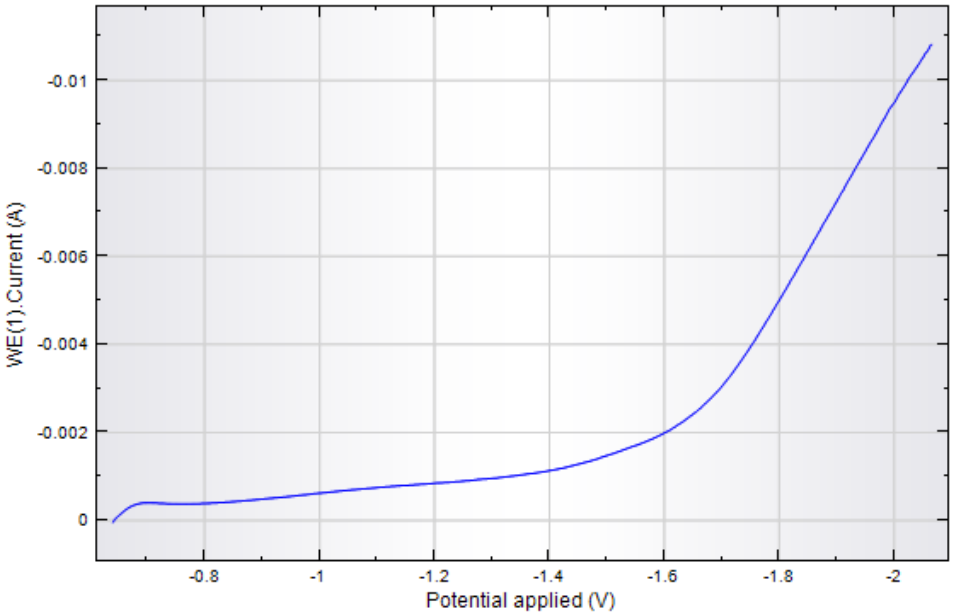


Figure 2 – Cathode potentiodynamic polarization curve of the thallium electrode in the sodium nitrate solution: $[NaNO_3]$ = 100 g/l; v= 50 mV/s; t = 25 ^{0}C

Figure 3 shows the anode-cathode cycle polarization curve of the thallium electrode in the solution of sodium nitrate. When moving the electrode potential towards the positive potential zone, the anode oxidation maximum of the thallium is detected at minus 0.5-0.45 V. It can be argued that the observed maximum occurs due to the oxidation of the thallium (I) nitrate on reaction (1).When the potential of thallium is shifted to the negative values, the maximum oxidation of thallium (I) nitrate formed on its surface is detected and the reduction reaction of the water molecules ions in the potential of "minus" 1,7 V is realized.

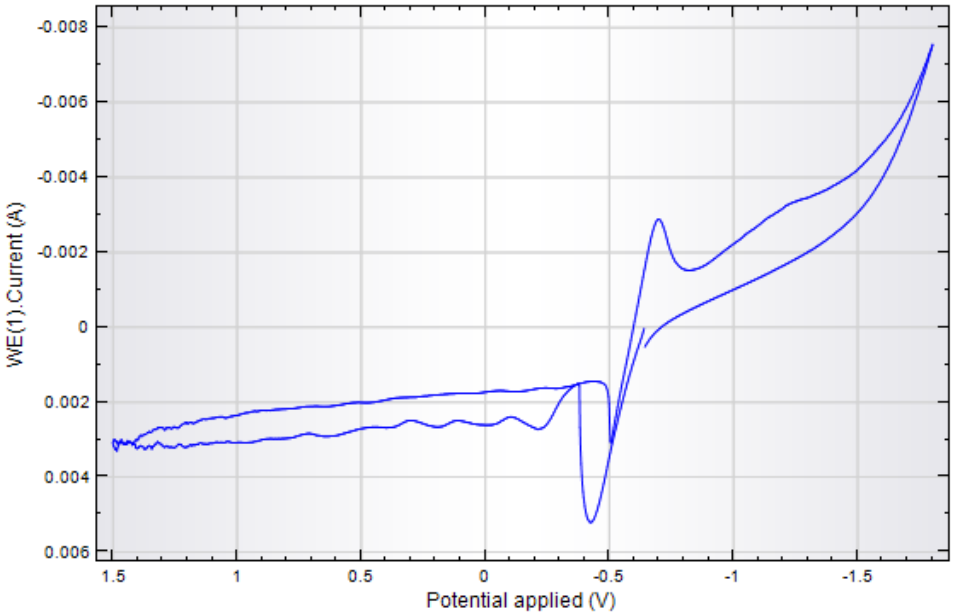
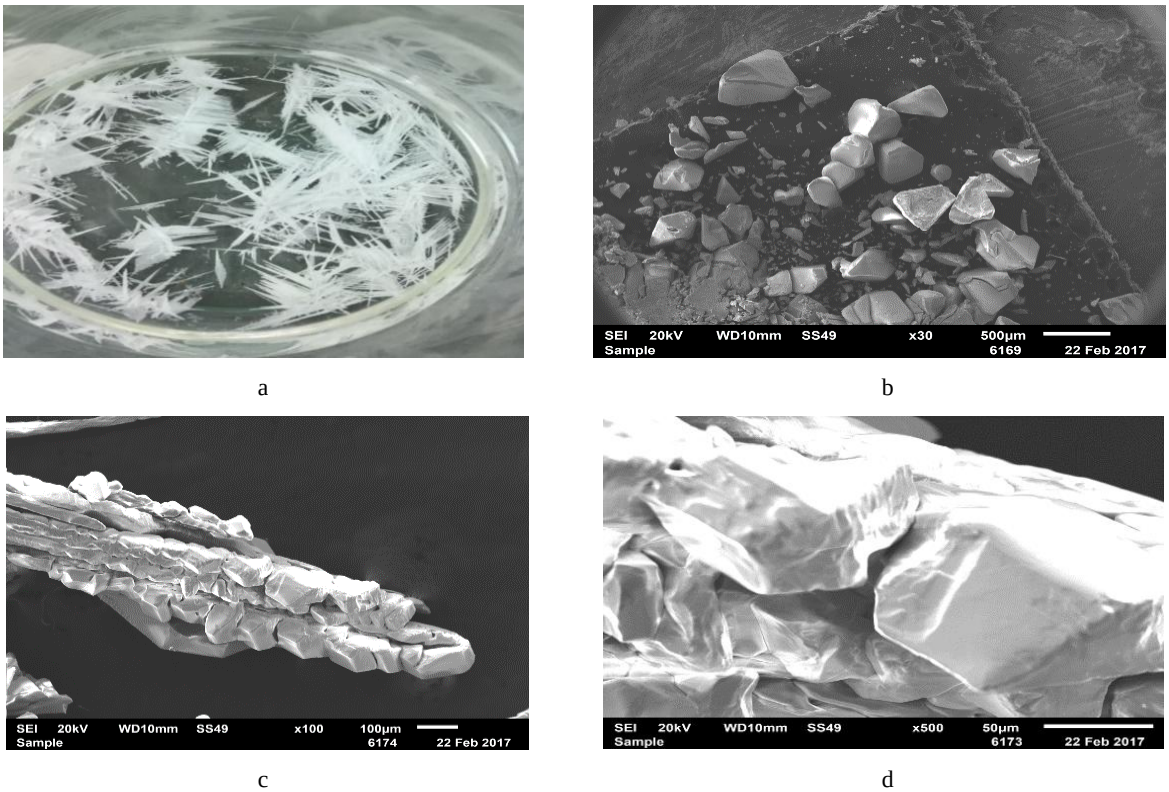


Figure 3 – Cathode-anode potentiodynamic polarization curve of the thallium electrode in the sodium nitrate solution: $[NaNO_3]$ = 100 g/l; v = 50 mV/s; t = 25 ^{0}C

Preliminary studies revealed the insolubility of the thallium electrode in a solution of sodium nitrate. The work on the study of electrochemical melting laws of thallium electrode continued with further electrolysis in the nitrogenic acid solution.

Thallium can simultaneously form compounds that are present in two different oxidation states, although its one valence compounds are more stable in the aqueous solution. The ways to obtain inorganic salts of thallium were determined by polarizing its electrochemical properties in the presence of alternating current with frequency of 50 Hz in the HNO_3 solution for the first time and its dissolution through forming one valence compounds was defined.

Preliminary studies revealed the insolubility of the thallium electrode in a solution of sodium nitrate. In the liquefied HNO_3 solution under the alternating current, T1 (I) nitrates are formed in the form of white sediment (figure 4). The formed $TlNO_3$ salt is poorly soluble in water at room temperature (0.3 g/100g water) and in liquefied acids, and its solubility in hot water increases (100 ^{0}C - 1.97 g/100g). The maximum current efficiency of thallium (I) nitrate is 76% for i=6000A/m^2.



a b

c d

Figure 4 – Photos Crystals of Thallium nitrate:
a – formed $TlNO_3$ crystals; b – 30 times enlarged; c – 100 times enlarged; d – 500 times enlarged

$TlNO_3$ crystals are formed in HNO_3 solution (1.0-4.0 n) by polarizing thallium electrodes with industrial alternating current of 50 Hz frequency (figure 4,a). The maximum current efficiency of thallium (I) nitrate is 91.6% for i=8000 A/m^2. The influence of HNO_3 concentration on the current efficiency of thallium electrodes in the acidic solutions by forming Tl (I) was investigated. At each phase, thallium electrode (1) is able to dissolve in the anodic half period of the alternating current by forming its ions according to the reaction. At the cathodic half period of the alternating current, hydrogen ions are oxidized on the surface of thallium electrodes:

$$2H^+ + 2e \rightarrow H_2. \quad (4)$$

In conclusion, the results of the research show that, in an optimal condition, the reaction of forming one valence ions basically occurs in the anodic half period on the surface of thallium electrodes, while in the cathodic half period, the reaction of hydrogen gas formation takes place [9].

The effect of the concentration of electrolyte on the current efficiency of thallium (I) ions, which are formed by polarizing thallium (I) electrodes in nitric acid with the help of alternating current is shown in figure 5.

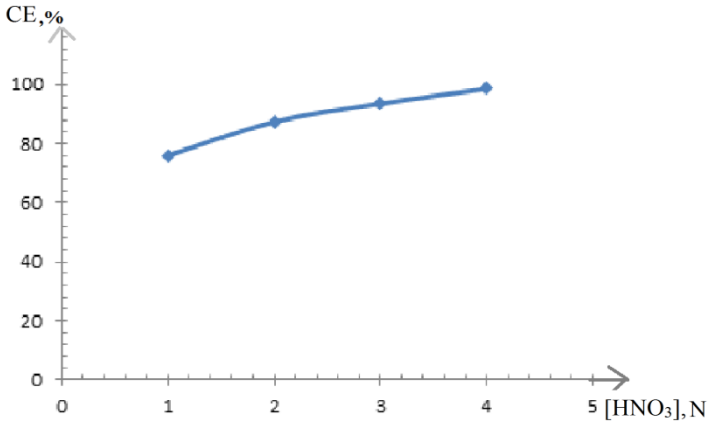


Figure 5 – The electrolyte concentration effect on current formation efficiency of thallium (I) ions:
i = 6000 A/m^2, τ = 0,5 h; t = 20 ^{0}C

The initial concentration of nitric acid has a significant effect on the formation of thallium (I) nitrate during the polarization by alternating current. The concentration of the nitric acid solution is obtained within 1.0-4.0 N. Minimal current efficiency of TI^+ ions is ~ 76% in 1.0 N. HNO_3 solution. The maximum current efficiency is ~ 99% in 4.0 N. HNO_3 solutions. The increase of the current efficiency in high concentrations of the nitric acid can be explained by the electrochemical and chemical dissolution processes of the metal. When the concentration of the solution is increased, the recrystallization process takes place as a result of the over-saturation process. The HNO_3 solution prevents the formation of an oxide layer on the surface of the electrode in the anode half-period of alternating current, which ultimately increases the current efficiency of the thallium nitrate formation.

The electrolyte temperature effect on thallium electrodes dissolution processes was investigated between 20-80°C by providing thallium electrodes with the current density of 6000 A/m^2 when polarizing them with alternating current (figure 6). As the electrolyte temperature increases, the current efficiency increases dramatically from 37% to 100%. The loss of electrolyte temperature has a beneficial effect on the electrode processes that occur on the surface of thallium electrodes. This is due to the solubility of T1 (I) nitrate at high temperature.

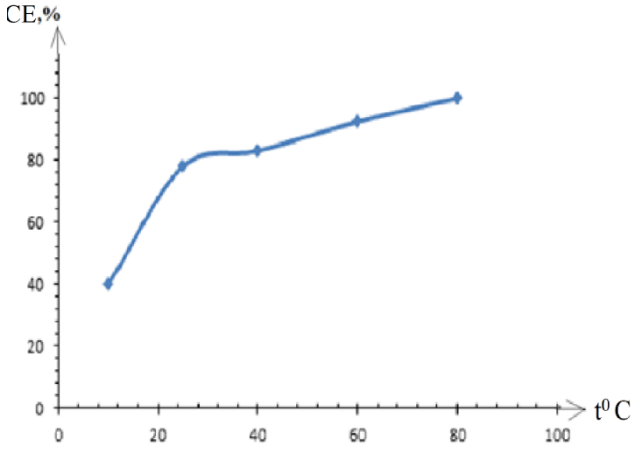


Figure 6 – Influence of temperature on thallium (I) ion current flow rate:
C_{HNO3} = 1n; τ = 0.5 h; i = 6000 A/m^2

The results of the spectral elemental analysis carried on the thallium nitrate composition that has been obtained by the electrochemical way are shown in table.

The result of the analysis on the elemental composition of sediment ($TlNO_3$) obtained after electrolysis

Spectrum	N	O	Tl	Total
1	8,42	16,45	75,13	100,00
2	8,03	16,03	75,94	100,00
3	8,27	16,30	75,43	100,00
Average	8,24	16,26	75,5	100,00

It is worth noting, the electrochemical property of the thallium in the aqueous solution has not been comprehensively studied yet [10, 11]. Currently, electrochemical study of the properties of rare heavy metals is of great importance [12-21]. The acquisition of new data on the electrochemical properties of the thallium polarized by industrial alternating current highlights the theoretical and practical value of the work. The obtained results contribute to the electrosynthesis field that allows obtaining analytically clean metal compounds.

Electrochemical properties of thallium electrode and its salt were comprehensively investigated in the nitric acid and the sodium nitrate solutions by the method of electrolysis and by shooting potentiodynamic polarization curves.

The results of experiments conducted to investigate the nature of electrode processes in electrochemical oxidation of thallium and the analytical properties of the formed compounds will allow to detect thallium compounds in the field of metal waste and raw materials, as well as to create new ways of obtaining its required compounds.

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ТАЛЛИЙДІҢ НИТРАТ ИОНДАРЫ БАР ЕРІТІНДІЛЕРДЕГІ ЭЛЕКТРОХИМИЯЛЫҚ ҚАСИЕТІ

Аннотация. Талий электродының натрий нитраты және азот қышқылы ерітінділеріндегі электрохимиялық қасиеті потенциодинамикалық поляризациялық қисықтар түсіру арқылы және электролиз жүргізу арқылы зерттелді. Алдын ала жүргізілген зерттеулер таллий электродының натрий нитраты ерітіндісінде ерімейтіндігін, ал азот қышқылы ерітіндісінде жақсы еритіндігін көрсетті. Алғаш рет таллий электродының азот қышқылы ерітіндісіндегі электрохимиялық еру заңдылықтары жиілігі 50 Гц өндірістік айнымалы ток қатысында зерттелді. Электролиз өнімі - таллий (I) нитратының түзілуінің ток бойынша шығымына бірқатар электрохимиялық параметрлердің әсері қарастырылды. Азот қышқылы ерітіндісінде таллий (I) иондарының жоғары ток бойынша шығыммен (95-97%) түзілетіндігі көрсетілді. Электролиз нәтижелері Tl (I) иондарының түзілуінің ток бойынша шығымына - электролит концентрациясы мен температурасының елеулі әсері бар екендігін көрсетті. Электрод потенциалының өсуі, электрод бетінде ерімейтін қорғаныштық қабат - таллий қосылысының түзілуіне байланысты металды пассивті күйге түсіретіндігі көрсетілді. Жүргізілген зерттеулердің нәтижесінде Tl (I) тұздарын синтездеудің тиімді әдісі жасалды. Түзілген таллий (I) нитраты кристалдарының құрамына элементтік анализ және микрофотографиялық сараптамалар жасалды. Таллий (I) тұздарының судағы ерігіштігі төмен болғандықтан, таллий тек қышқылды ерітінділерде айнымалы ток әсерімен еритіндігі көрсетілді.

Түйін сөздер: таллий, микрофотография, электролиз, электрохимия, электрод, кристалл, айнымалы ток, азот қышқылы, таллий (I) нитраты.

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ЭЛЕКТРОХИМИЧЕСКОЕ ПОВЕДЕНИЕ ТАЛЛИЯ В РАСТВОРАХ, СОДЕРЖАЩИХ НИТРАТ-ИОНЫ

Аннотация. Методом снятия потенциодинамических поляризационных кривых и методом электролиза изучено электрохимическое поведение таллиевого электрода в растворах нитрата натрия и азотной кислоты. Предварительные исследования показали, что таллиевый электрд не растворяется в растворе нитрата натрия, но хорошо растворяется в азотной килоте. Впервые исследованы закономерности электрохимического растворения таллиевого электрода при поляризации переменным током с частотой 50 Гц в азотнокислых растворах. Рассмотрено влияние ряда электрохимических параметров на выход по току продукта электролиза - нитрата таллия (I). Показано, что происходит образование ионов таллия (I) с высокими выходами по току (95-97%). Результаты электролиза показывают, что концентрация и температура электролита оказывают значительное влияние на выход по току образования ионов Tl (I). Показано, что при увеличении потенциала электрода металл пассивируется вследствие образования на поверхности электрода нерастворимого защитного слоя - соединения таллия. В результате проведенных исследований разработан эффективный способ синтеза солей Tl (I). Проведены элементный и микрофотографический анализы кристаллов нитрата таллия Tl (I). В связи с тем, что соли таллия имеют низкую растворимость в водных растворах, было показано, что металлический таллий растворяется только в растворах кислот под действием переменного тока.

Ключевые слова: таллий, микрофотография, электролиз, электрохимия, кристалл, переменный ток, азотная кислота, нитрат (I) таллия.

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WAYS TO INCREASE THE PRODUCTIVITY OF ICHTHIOFAUNA IN THE LAKES OF THE ARAL-SYR DARYA BASIN SYSTEM

Abstract. The article considers the current status of ichthyofauna in lake systems and suggests ways to increase productivity in the future. One of the key issues for the effective use of lakes is the quality of the planting of fish and it has been established that as a result of breeding activities it is possible to provide lacustrine repair systems to broodstocks and to implant them in the production of quality viable species. The ravines of the channel near the towns of Koszar and Tastak in the Aral region are a favorable place for fish breeding. Therefore, 34 reservoirs on 224 hectares of territory are concentrated here to increase the number of livestock and the number of living organisms in the sea. Fish caught from these reservoirs should be subject to biometric measurements.

Key words: systems of lakes, ichthiofauna, fry, biological diversity, environment, area, flooding.

In the Law of the Republic of Kazakhstan No. 593 of 9 July 2004, "Protection of wildlife, reproduction and use in the field of scientific research" paragraph 22: this law regulates social relations in the field of protection, reproduction and use of wildlife and is aimed at providing conditions for the conservation of wildlife and its biological diversity, sustainable use of wildlife to meet environmental, economic, aesthetic and other human needs, taking into account the interests of the current and The future of generations to come.

Introduction. The total volume of large and small lakes in the Republic of Kazakhstan is more than 7 million hectares. Large and small lakes constitute a system of lakes and are provided with water from one lake or water coming from mountains or sources. Recent studies of river water have shown that in a certain period the water level is stable, and in some period there is no stability, that is, the annual volume of runoff decreases, which adversely affects the lake system. Due to such adverse effects, all living creatures living in lakes (hydrobionts) can reach a dangerous critical situation, decrease in quantity or possibly disappear. In order to prevent these problems, research and monitoring of the state of lakes is necessary. In the spring-and-summer period, the water in the lakes decreases, and in some, the lack of water leads to drying out. Drying of lakes is possible in the event that special amelioration works have not been carried out, this leads to a decrease in the level of the rivers, the water canals dry up or the permeability of water is limited. The main reason for the filling of lakes is the instability of the lower reaches of the Syr Darya, the uneven flow of high waters and irrigation of sown areas. Spring flooding in the lower reaches of the Syr Darya begins at the end of March. In certain years, because of early spring, the flood began before time. (2007-2014). In the Karateren point, compared to the Kazaly hydro-station, high water begins 15 days earlier. In 2010-2011, the onset of spring high water was observed in one period [1-3].

Table 1 – Periods of spring tide inthe water body of the lower reaches of the Syr Darya, according to Kazhydromet

Year	Gaugingstation in Kazalinsk	Gaugingstation in Karateren
2013	23.03	25.03
2014	25.03	26.03
2015	02.01	15.03
2016	06.02	12.03
2017	27.03	28.03

Analysis of the flow of water over the last 6 years from the Syr Darya to the Small Aral Sea, according to the RMK center of the Kyzylorda branch of Kazhydromet. In 2010, the indicators were at the level of 9198 million m^3. In 2011, the annual high water flow was 4636 million m3, this decrease is due to the collection of water in the summer-autumn period. As a result of data analysis for 2012-2014, this figure was 4.106-5134 million m3. In 2015, the indicators of 7 months were 3.473 million m3, and for 8 months in 2016 - 2.6 million m3. This trend is towards an annual decrease, and the indicators of 2017 in comparison with 2010 are approximately at the same level.

The volume of water flow loss from Kazalinsk to Karateren (86 km), the loss varies from 65 to 450 m^3. Such a difference in the water points of Kazalinsk and Karateren is aimed at replenishing coastal rivers [4].

Most unrelated floodplain lakes in the valley are subject to loss processes as a result of evaporation or penetration into the soil. According to the data of the RMK center of the Kyzylorda branch of Kazhydromet, figure 1, 2 shows the average and average annual dynamics of the lower reaches of the Syr Darya River.

Intensive heating of water in rivers begins from March (0,0-4 ° C) to June (23,8-26,5 ° C), the highest temperature of water is in July (28,6 ° C), (figure 3). Over the past three years there has been a deviation in the rate of rise in temperature between March and May, which definitely affects fish that spawn.

The difference in temperatures of river water is an indicator of spring-summer growth, and annual dynamics is an abiotic factor determining the ecological state of aquatic organisms.

The regime of the river's heat, the time and intensity of spawning and relocation of fish, the salvation of young from the spill to the rivers depend on the strength of the volcano, especially in the spring-summer period, so the efficiency of reproduction of production fish in the natural environment is determined by the flow of water and other species of the animal world.

To maintain a stable level of eco-biological development in rivers, an automatically closing dam is needed, protective installations for fish, part of the open canal should operate according to the period, and along with the hydrochemical and hydrobiological state of water, the level of vital activity should be monitored.

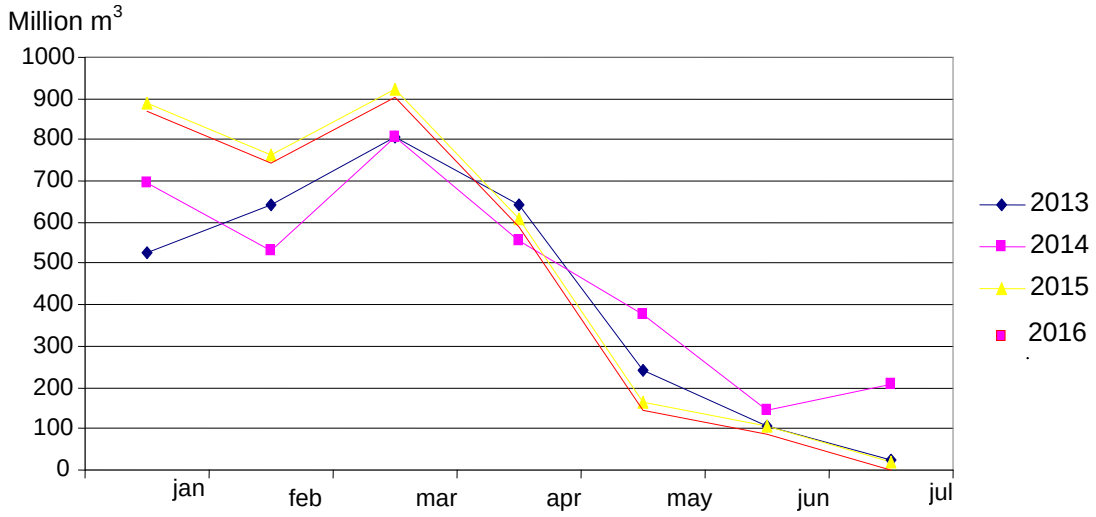

Figure 1 – Average and mid-annual dynamics of the current at the Karateren water post in 2013-2016

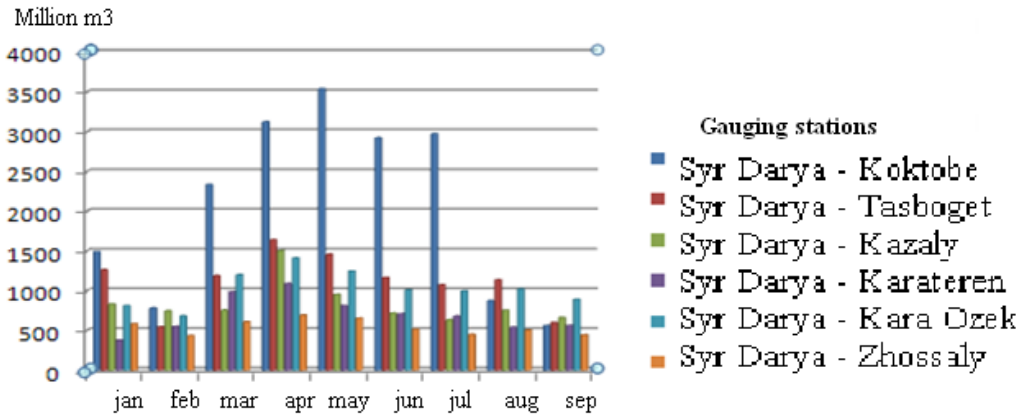

Figure 2 – Average monthly dynamics of the current in the Kyzylorda water station for 2017 (million m^3)

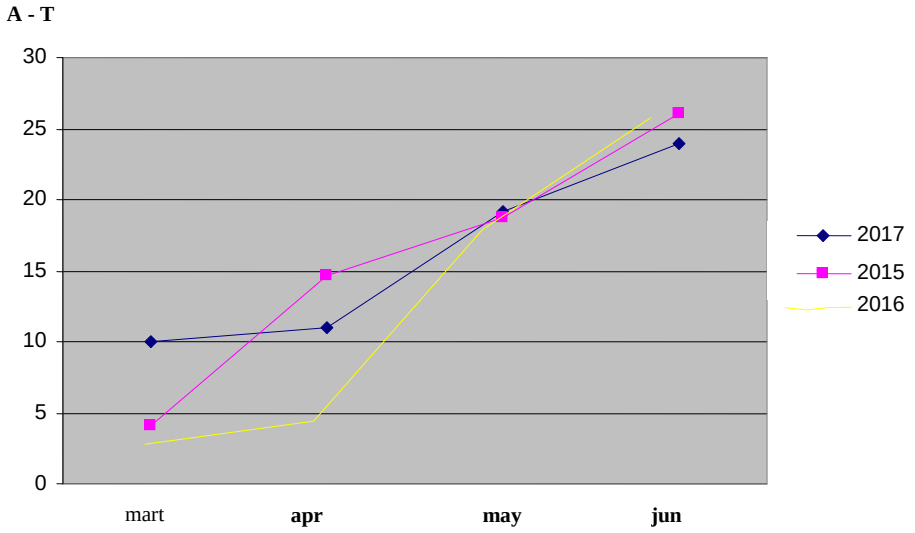

Figure 3 – The average monthly temperature dynamics in the Karateren water station of the Syr Darya in 2015-2016 according to Kazhydromet

Unfortunately, the number of fish decreases every year, this is due primarily to environmental conditions and numerous diseases. Infectious, invasive and non-contagious diseases have become widespread. As a result of human activities (for example, the construction of water facilities, water pollution, etc.) has led to a deterioration in the reproduction of fish in natural reservoirs and even the disappearance of some fish species, so there was a need to ensure the reproduction and augmentation of quality fish species [5].

Most of the biological products are formed in the reservoirs, and the rivers serve to increase the fish stock. Therefore, in an isolated part of the coast, an important problem is the exchange of the gene pool and the connection of biocenoses. For an example, let's look at the state of the ichthyofauna of the Aral-Syrdarya basin, at the level of its development at the present time.

At the tributary of the Syr Darya River, all the pits and hollows along the canals are filled with water, the water reaches hundreds of lakes of the Atyrau plains between the current Zhanakorgan and the Aral Sea. According to the previous data, in the lower reaches of the Syr Darya in the Atyrau plains, the number of lakes was supposedly 2582. These numbers not including the small lakes, the surface of each of its was 45.0-50.0 thousand hectares. Lakes such as Karauzek, Kararyn, Birkazan, Torangylsay, Kandyaral, Aksay-Kuandarya composed the system of lakes. And now there is only half of the lakes remain from this system. Most of them, of course, will not be the same, but with the necessary care, it is certainly possible to use as an economic object for increase in fish production. Until 1960, their total area reached 160 thousand hectares, and the catch rates of fish - up to 10 thousand tons. Due to the limited access of river water

to the dams of Shardar, Kyzylorda and Kazalinsk, the lake dried up, most of them disappeared. Reduction of the volume of water affected primarily the system of small lakes. Lakes Kustankarakol and Ақbay-akirek completely dried up. In comparison with them, the lakes Kamystybas and Akshatau, due to their depth, retained their former state. At present, the mouth of the Syr Darya River is about 1100 thousand hectares. Approximately 350 thousand hectares of land are changes that occurred over 30 years. The structure of the direction of the water in the Syr Darya is divided into 6 lake systems: Aksay, Kuandaria, Kamystybas, Akshatau, the coastal zone and the Right-bank system of lakes. Each system of lakes consists of natural and artificial canals, connected by a complex system of lakes and marshes. According to the geographical situation, the system of lakes has special features: the Syr Darya is located in narrow gorges, in irrigational economic regions (the system of lakes Kuandaria, Aksai, Kamystybas and Akshatau), the lakes of the Primorsky zone are located in the dried, near the sea zones (Pravoberezhnaya and Levoberezhnaya system of lakes) (figure 4).

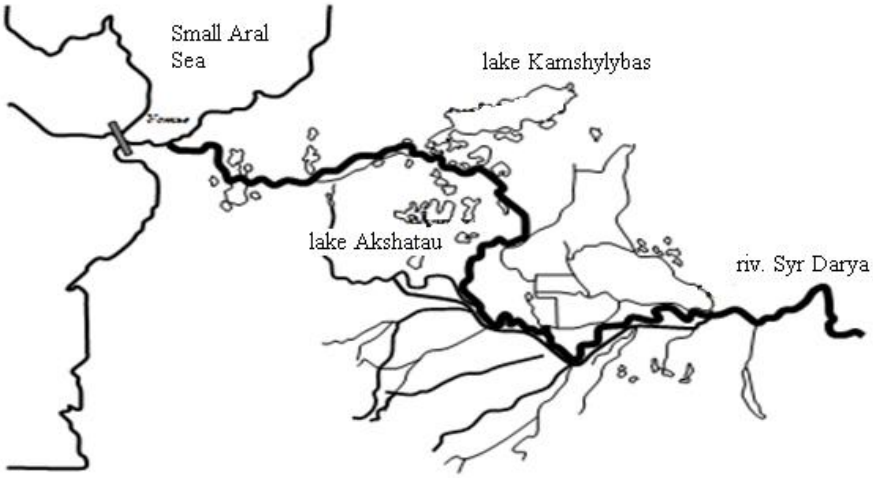

Figure 4 – The hydrogeographic system of the lower reaches of the Syr Darya, together with the reservoirs

At present, the system of lakes Kamystybas and Akshatau, as well as the system of lakes of Aksai-Kuandaria, have remained important for the fishing industry. The above-mentioned lake systems, in addition to the importance in fisheries, influence the development of the fish fund in the basin in the future through the need for places for spawning, temporary storage of fish species. Nevertheless, there is a decrease in the breed of carp and an increase in the breeds of carnivorous fish.

Thus, the hydrogeographic characteristics of the Aral-Syrdarya basin show that the basin covers more than 300 small and medium lakes, reservoirs and controllers. In the plain reservoirs there is a deviation in the amount of water and area in the inter-seasonal and annual periods, this may lead to adverse effects on the activity of the ichthyofauna.

The economic crisis of the RK and the lack of funding for research after 1996 led to the inability to study the lakes of the Syr Darya estuary. After a long break in 2004, the Ministry of Agriculture of the Republic of Kazakhstan commissioned a fish farm and, in accordance with the requirement "Assessment of the state of schools of fish in reservoirs of regional importance, having commercial importance and determining the catch level", work is underway in the Kyzylorda Oblast to investigate reservoirs.

In 1990-2005 there was no fish farm in the republic. In these years, the catch of fish decreased to 210 tons. During the transition to new economic relations, the system for state regulation of the fishing industry did not work. The lack of republican development programs in this direction has not allowed the implementation of full-fledged activities in this field.

Species of fish of commercial significance, not having a high level of reproduction, their fry are grown artificially, then sent to the natural environment. To improve the quality of the ichthyofauna in the waters where the catch of fish is going on, acclimatization of commercial fish species is necessary [6, 7].

After the restoration of hydraulic installations in the system of rivers, their irrigation condition improves, which will allow them to be used for fish farming.

It should be noted that there are all opportunities to increase the pace of traditional fishing from natural lakes, this is due to the increase in fish stocks.

Further, it is necessary to increase the importance of these lakes for fish farming through the breeding of fish, primarily to form the ichthyofauna purposefully, to grow fry of valuable fish species.

The use of lakes for fisheries is carried out using two main technologies: extensive and intensive. An extensive system is based on growing fish through natural food. That is, to launch fry of valuable fish species into the lakes, after growing them, they are caught. Work is underway for additional irrigation, reed mowing, catch of fish that have no production value, and peridic reclamation work. With an intensive system, it is planned to increase the rate of growth of fish through natural food, as well as additional organic and mineral additives, feeding fish, and cultivating water birds.

Effective use of natural fodder reserves of the lake in the system of commodity fisheries is one of the main requirements.

To do this, it is necessary: first, to clear the lake of fish that do not have local value and are slowly growing, which inefficiently use the natural forage reserve, i. If possible, it is necessary to catch them completely. Secondly, in the technology for growing commercial fish, the main direction is polyculture, that is, the need to grow fish that are not competitors to each other in using the natural forage reserve: carp, carp, white cupid, sturgeon, paddlefish and others.

In this regard, in the lakes Kamystybas, Akshatau-Sorgak, the harvesting of valuable fish species is a complex and long process, the use of food additives will lead to expenditures, so that the fattening of fish is costly and unassuming. Therefore, the use of extensive technology is much more effective. An even more effective way of growing fish in lakes with a large area is during the process of stocking, to let two year old fry of valuable fish species in the pond, which will not be food for carnivorous fish: carp, carp, white carp [8].

And in small lakes, depending on the size, useless, invaluable in the given area, and also predatory breeds of fish it will be easy to catch, together with it it is convenient to conduct all works on an intensive method. Therefore it is very beneficial to use these lakes as a pond.

To increase the productivity of fishing in lakes, the following measures can be taken:

– use of reed and cattail as fertilizer;

– introduction in the first place of valuable nutritional components-daphnia and mysids

– let to lift the biogenic mass and microelements that migrate under water, mineralize organic matter and increase the level of natural nutrition. During the winter months, the sections of underwater mud have a high concentration of oxygen.

One of the key issues of effective use of lakes is the quality of valuable small fish. As a result of breeding, it is possible to create a qualitative reproduction of valuable fish and it will be possible to provide a quality lake with viable fish by introducing them into production. Fishing nets "Kamystybas" operate that provide a system of sea and lakes in the Aral-Syrdarya basin.

Currently, the Kamyshibas fish garden increased to five levels up, and the number of frystables on the 15 million per year. In the period from 2010 to 2017, 80079 thousand annual and 2099 thousand biennial carps, carnivores and white cupids were sent to the fish farming fish farm Kamystybas by the end of the Syr Darya.

This is enough not only for this region, but also to ensure the water area of other regions. The ravines of the channel near the towns of Koszar and Tastak in the Aral region are a favorable place for fish breeding. Therefore, 34 reservoirs on 224 hectares of territory are concentrated here to increase the number of livestock and the number of living organisms in the sea. Fish caught from these reservoirs

Table 2 – The number of fry released from the fish farm Kamystybas

Years	Annual age (thousands)				Biennial (thousands)			
	carp	carpenter	grass carp	total	carp	carpenter	grass carp	total
2010	7618	3575	1607	12800	221	127	72	420
2011	8412	5580	810	14802	270	113	36	419
2012	9672	4494	634	14800	284	99	37	420
2013	4598	3069	410	8077	294	89	37	420
2014	8409	5691	700	14800	279	96	45	420
2015	8468	5659	673	14800	298	88	34	420
2016	8402	5720	678	14800	252	134	34	420
2017	8369	5735	696	14800	220	168	32	420

should be subject to biometric measurements. To improve the conditions of the fishery, it is necessary to annually carry out reclamation measures.

The economic benefit of stocking with quality fry is the proof of the acceptability that the quality of stocking productivity will improve, the time of reproduction and increase in the number of livestock will be reduced, and the quality of stocking with the least cost will generally improve.

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АРАЛ-СЫРДАРИЯ БАССЕЙІНДЕГІ КӨЛДЕР ЖҮЙЕСІНДЕ ИХТИОФАУНА ӨНІМДІЛІГІН АРТТЫРУ ЖОЛДАРЫ

Аннотация. Мақалада қазіргі кезеңдегі көлдер жүйесінде ихтиофауна жағдайы зерттеліп, келешекте өнімділін арттыру жолдары қарастырылған. Көлдерді тиімді пайдаланудағы негізгі мәселелердің бірі - отырғызылатын құнды балық шабақтарының сапалылығын анықтап, селекциялық жұмыстар нәтижесінде түрлі құнды балықтардың сапалы аналық-аталықтарын құрып, өндіріске енгізу арқылы көлдерді тиісті көлемде сапалы, өміршең шабақтармен қамтамасыз ету міндетті. Арал ауданындағы Қосжар мен Тастақ ауылдарындағы иірімді арналар балық қорын көбейтуге қолайлы орын. Сондықтан осы жердегі 224 гектарлық аумаққа теңіздегі тіршіліктің түлеуіне тірек болған 34 су тоғаны шоғырланған. Сол тоғандардан сүзілген балықтар саны мен салмағына дейін өлшеуден өткізіледі.

Түйін сөздер: көлдер жүйесі, ихтиофауна, шабақтандыру, биологиялық әртүрлілік, қоршаған орта, ареал, су тасқыны.

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СПОСОБЫ ПОВЫШЕНИЯ ПРОДУКТИВНОСТИ ИХТИОФАУНЫ В ОЗЕРАХ БАССЕЙНА АРАЛЬСКО-СЫРДАРЬИНСКОЙ СИСТЕМЫ

Аннотация. В статье рассматривается современное состояние ихтиофауны в озерных системах и предлагаются способы повышения производительности в будущем. Одним из ключевых вопросов для эффективного использования озер является качество посадки рыбы и было установлено, что в результате селекционных работ можно обеспечить озерные системы ремонтно-маточных стадами и внедряя обязательно в производство качественных жизнестойких видов особей. Овраги канала вблизи городов Кошар и Тастак в Приаралье являются благоприятным местом для разведения рыбы. Поэтому здесь сосредоточено 34 водохранилища на 224 гектарах территории, чтобы увеличить поголовье скота и количество живых организмов в море. Рыба, пойманная из этих водоемов, должна подвергаться биометрическим измерениям.

Ключевые слова: системы озер, ихтиофауна, малькообразование, биологическое разнообразие, окружающая среда, ареал, наводнения.

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SELF-EDUCATION: MODEL, PROCESS AND COMPETENCY

Abstract. The idea of self-development as a main motivation and goal for human being was very popular after Maslow studies. In his hierarchy of human needs self-actualization was the result of life-long process and not everyone was able to reach this stage. Self-education is important part of personal and professional development. But why it doesn't work in formal education. How to apply this model in high education curriculum? This entire question needs answers. Self-education can truly occur only when people are not compelled to learn and others are not obligated to teach them - especially not to teach them a particular subject-matter curriculum. One of the primary targets is the acquisition of permanent self-education skills by young professionals. Besides, self-education must be constant throughout the work activity life. The problem is when one tries to replace self-education for more formal training. Such as trying to give yourself the equivalent to an undergraduate degree in computer science, nutrition or accounting. A true self-education occurs when a person chooses to learn out of intrinsic motivation and interest. Energized by individual initiative its purpose arises from the needs, interests and aspirations of the individual. An institutional education in its current structure is generally inappropriate preparation for a life of self-education. An effective program for such teaching must accomplish three major transitions: from teacher-directed to student-directed learning; from student-directed learning to guided-self-education; and from guided self-education to the independent pursuit of excellence.

Key words: Self-education, Competence-based Approach, Professional Development.

Ability to work with the information technologies, ability to familiarize in the information flows, to adapt to rapidly changing requirements for qualification of a specialist in any field of professional activity became the priority direction in the society development.

Nowadays, the higher school faces the challenges of specialists training, professional competence which will be able to change the scientific-technical, economic and intellectual basis of our society radically through the new technologies introduction.

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Self-education is an "idea". The same is the case with university. But in their background there lies the third idea, which upholds the former two and has a higher degree of generality. This is education, or the "idea" of education; therefore we start with it. Then we present the idea of self-education and finally discuss antinomies of the modern university.

Considering the fact that over the past decades, the competence half-life declined sharply in all areas of cognition, knowledge of the specialist trained at a modern level obsolete. Consequently, the specialist cannot meet the up-to-date requirements without their constant update.

However, the specifics of the education system is that it must be able not only to equip students with knowledge, but also form a need for uninterrupted self-acquirement of such knowledge, ability and skills of self-education, due to the constant and rapid update of knowledge nowadays, as well as independent and creative approach to knowledge throughout the entire active life. For this purpose, it is necessary to diversify the educational programs structure, by enabling everyone to build-up such an educational course that mostly fits their educational and professional abilities. It is important to remember that the cognition process should make people enjoy the finding a new outlook on the meaning of life, their place in it. It appears that the important problem of late XX – early XXI century is the problem of finding an appropriate organizational structure of the educational system and its institutions, which could provide a transition from the principle of "education for the whole life" to the principle of "education through the whole life" [1].

Autodidacticism is sometimes a complement of modern education [2]. As a complement to education, students would be encouraged to do more independent work [3]. The Industrial Revolution created a new situation for self-directed learners.

Before the 20th century, only a small minority of people received an advanced academic education. As stated by Joseph Whitworth in his influential report on industry dated from 1853, literacy rates were higher in the United States. However, even in the US, most children were not completing high school. High school education was necessary to become a teacher. In modern times, a larger percentage of those completing high school also attended college, usually to pursue a professional degree, such as law or medicine, or a divinity degree [4].

For many professions or for personal knowledge, however, formal education is not so necessary today due to the easier availability of free information on the Internet. Whereas in the past, one of the main benefits of going to college was to gain access to their superior libraries, today access to facts and books is available online. Financial analyst and author Peter Schiff, for one, says, "Never before in history has it been so easy to be self-educated" [5].

Collegiate teaching was based on the classics (Latin, philosophy, ancient history, theology) until the early 19th century. There were few if any institutions of higher learning offering studies in engineering or science before 1800. Institutions such as the Royal Society did much to promote scientific learning, including public lectures. In England, there were also itinerant lecturers offering their service, typically for a fee [6].

Prior to the 19th century, there were many important inventors working as millwrights or mechanics who had typically received an elementary education and served an apprenticeship.[4] Mechanics, instrument makers and surveyors had various mathematics training. James Watt was a surveyor and instrument maker and is described as being "largely self-educated" [7]. Watt, like some other autodidacts of the time, became a Fellow of the Royal Society and a member of the Lunar Society. In the 18th century these societies often gave public lectures and were instrumental in teaching chemistry and other sciences with industrial applications which were neglected by traditional universities. Academies also arose to provide scientific and technical training.

Years of schooling in the United States began to increase sharply in the early 20th century. This phenomenon was seemingly related to increasing mechanization displacing child labor. The automated glass bottle-making machine is said to have done more for education than child labor laws because boys were no longer needed to assist [8]. However, the number of boys employed in this particular industry was not that large; it was mechanization in several sectors of industry that displaced child labor toward education. For males in the U.S. born 1886–90, years of school averaged 7.86, while for those born in 1926–30, years of school averaged 11.46 [9].

One of the most recent trends in education is that the classroom environment should cater towards students' individual needs, goals, and interests. This model adopts the idea of inquiry-based learning where students are presented with scenarios to identify their own research, questions and knowledge regarding the area. As a form of discovery learning, students in today's classrooms are being provided with more opportunity to "experience and interact" with knowledge, which has its roots in autodidacticism.

Successful self-teaching requires self-discipline and reflective capability. Some research suggests that being able to regulate one's own learning is something that must be modeled to students, for it is not a natural human tendency in the population at large.[10] To interact with the environment, a framework has

been identified to determine the components of any learning system: a reward function, incremental action value functions and action selection methods [11]. Rewards work best in motivating learning when they are specifically chosen on an individual student basis. New knowledge must be incorporated into previously existing information as its value is to be assessed. Ultimately, these scaffolding techniques, as described by Vygotsky (1978) and problem solving methods are a result of dynamic decision making.

The secular and modern societies gave foundations for a new system of education and a new kind of autodidacts. While the number of schools and students raised from one century to the other, so did the number of autodidacts. The industrial revolution produced new educational tools used in schools, universities and outside academic circles to create a post-modern era that gave birth to the World Wide Web and encyclopaedic data banks such as Wikipedia. As this concept becomes more widespread and popular, web locations like Udacity and Khan Academy are developed as learning centers for many people to actively and freely learn together. The Alliance for Self-Directed Education (ASDE) is also formed to publicize and provide guidance or support for self-directed education.

One of the possible solutions to this problem is to educate students to have a proper attitude to the professional knowledge and skills, form their needs for self-educational activity.

A range of researches is devoted to the problem of youth self-education is. While analyzing this problem, many scientists have concluded that secondary school does not make its graduates enough ready to the systematic education, that in consequence it brings a low skill level of self-education among the students.

Presence of active cognitive needs and interests, effective internal motivation of the personality to their satisfaction, development of substantial willpower for it, high degree of consciousness and organization are specific for self-education. Moreover, this cognitive activity is an additional one to the main occupation of a human being, although it is related and even caused by human being. A man realizes the insufficiency of available skills in order to resolve the arisen cognitive or practical problem, in this case the person resorts to one or another source of knowledge replenishment. We are not discussing the occasional finding an answer to occasionally arisen question, but a systematic cognitive activity.

Thus, self-education is the knowledge acquisition initiated by the individuals themselves in respect of the classes' subject, volume and sources of perception, establishing the classes duration, as well as the choice of form of the cognitive needs and interests satisfaction.

Education/bringing-up process as a system of organizational training and education is destined both to enrich the students' knowledge and train the future professionals about methods of their effective digestion, creative use in practice, finding the non-routine decisions to emerging challenges and tasks.

Educational process organization and performance of the standard classroom and laboratory studies are well reflected in the high school methodology. Instructional techniques to gain the self-education skills are developed much less.

Quality of the professional training result is regarded as a compliance of the professional preparedness of a student to the contemporary "challenges of time", it is studied through the concept of "professional competence". The need to form a new model of teacher's professional training is obvious in the logic above.

Numerous studies of various models of professional labor may be combined into two groups (according to S. L. Rubinstein):

– model of adaptive behavior;

– model of professional development.

Where the model of adaptive behavior is focused on momentary response to external changes, and the model of professional development is focused on accounting and forecast of future changes. If the main purpose of the model of adaptive behavior is to develop the human skills to "fit" into the environment reality, then the model of professional development is focused on formation of skills "to go beyond" of a continuous flow of daily practice, that is to see, to recognize and assess various issues, to consider any difficulty as a motivation to develop.

It is known that until recently, the vocational education was based on the adaptive model logic. The current situation in education supposes the possibility to go along the logic of the professional development model within the competence approach. It means that the competent specialists are able to go beyond the subject of their profession, that they have a certain creative potential for self-education.

The competency approach is based on a culture of self-determination (ability and willingness to self-determination, self-development, self-education). As told by Yu. E. Kalugin [12]. "In our opinion, currently there is situation when need for self-education is growing due to changes in the society". Several studies suggest that success of the "competent employee" is provided by skills and qualities characterizing the independence of personality:

– ability to find and use the information;

– analyze, evaluate the alternatives;

– logically arrange the problem solution way;

– orientate in unexpected situations, find new approaches to non-standard problems solving.

Independence must be combined with an active interaction of the individual in the group. Indeed, readiness to the professional self-education does not come by itself together with a diploma. It requires a diligent purposeful work.

Self-education is based on a various experience of a teacher as a fast growing professional, whose skills formation is continuously progressing from one stage to another. Traditional educational models fail because the experience which is associated to the teacher turns out to be enforced from the outside and therefore it is un-sustained psychologically. This is opposed to the developing experience and going "outside from inside", "productive and creative ongoing" (John Lewie).

Therefore, two types of professional experience can be distinguished: methodological (generalized experience of mankind, individual professionals reflected in the books) and empirical (personal passed subjective experience).

Hence, if the experience of the acquired knowledge level is the result of one or another science or experiences of other people, then the subjective knowledge includes individually experienced and not always conscious moments of a real professional activity.

Due to this reason, in recent years, the need for optimal combination of different methods is emphasized, which allows the students to discover new knowledge as problems and at the same time not to miss the practicing of work techniques and methods to the level of skills. From the psychological viewpoint, a combination of methods is necessary to form the various types of students' motivation as well.

The most important aspect of modern education is the problem of students' motivation formation, which lies at the intersection of education and upbringing. This means that here, field of teacher's attention is focused both on student's studying and student's personality development taking place during the training.

In its turn, the motivation formation is a development of ideals among the students, world outlook values accepted in our society, in combination with the active student's behavior, which means the relationship of perceived and actual operating motives, the unity of word and deed, proactive life philosophy of a student.

Training motivation consists of many sides, changing and entering into new relationships with each other (social ideals, meaning of pupils' studying, their motives, goals, emotions, interests, etc.).

Therefore, the motivation formation of is not a simple increase of the positive or negative attitude to training, it is the complexity of the structure motivational sphere being behind it, impulse of it, establishment of new, "more mature" and sometimes contradictory relations between them. These individual aspects of the motivational sphere (and complex, dialectical relationship between them) must become the subject of teacher's control.

The forms of educational activity listed above excite all kinds of cognitive motives, they cause various kinds of positive emotions from new, more "adult" forms of work, from new types of relationships with the teacher, and create an atmosphere of ease and relaxedness of students, they activate the goal-setting processes, when the students are not afraid of independent goals setting, etc.

The main reserve to form all kinds of educational-cognitive motives and self-education motives is the activation of students' studying activities. Such activation is possible in various forms of students' educational activity. For example, such as:

1. Educational activity under the teacher's guidance, when all components of educational activity (educational objectives, educational activities, self-control and self-education actions) are performed and understood by assistance of a teacher. This is facilitated by numerous exercises and issues for analysis and transformation of educational activity that can be used by teacher in the course of training.

2. Independent activity is implemented when one or more of its components are carried out by the student without teacher's support. Inherently the independent activity is a work carried out without direct involvement of a teacher, but instructed by the teacher within the time specially dedicated for it. Generation of students independent activity is facilitated by the following issues and tasks of the teacher to ensure the transition of students from one component of educational activity to another one.

3. Self-educational activity of students is a cognitive activity directed by the students themselves. Students make it in accordance with their own objectives, motives and goals. Self-educational activity has different levels: it can "accompany" the education, it can be present as single episodic forms of self-education and, finally it can turn into a special deployed activity of a student on self-training and self-education. All these levels need to be guided by the teacher.

Let us enumerate the methods of student's independent work, which formation is preferable to develop a positive motivation of education:

– methods of semantic processing of text, integration of educational material, distinguishing its root ideas, principles, laws, perception of generalized methods to resolve the problems, independent formation of problems system of a certain type by students;

– reading culture techniques (e.g., the so-called "dynamic reading" with large syntagma) and hearing culture, methods of brief and the most rational notes (extracts, plan, thesis, summary, abstract, report, review, common methods of book work);

– basic memorization techniques (structuring of educational material, use of special mnemonics techniques based on imaginative and auditory memory);

– attention concentration/focusing techniques supported by different kinds of self-control used by students, phased activity review, distinguishing of checks "units", checks order, etc.

– general methods of additional information search (work with bibliographies, directories, dictionaries, encyclopedias) and its storage in the home library;

– methods of preparation for examinations, tests, seminars, laboratory work;

– methods of rational time organization, time consumption account, reasonable alternation of work and rest, difficult and easy, oral and written tasks, general health and hygiene rules (schedule, walks, workplace housekeeping and illumination).

All these forms of work contribute to the establishment of mature cognitive motives, which are the educational-cognitive motive and self-education motive, goal-setting (associated with performance of individual educational activities and their self-control) are accompanied by positive emotions. Activation of educational activity of students is the main way to activate the different types of their cognitive activity.

Thus, the problem to form the motives of students' self-education activity seemed to be relevant due to new concept of vocational education. Development of a problem of self-educational activity motivation is particularly important, since the motivational sphere has the crucial role in the development of cognitive power and students' empowering with knowledge.

Hence we can distinguish that needs, motives and goals can be the components of motivation. In its turn, the need is a state of human body, human personality, social groups in the society expressing the dependence on the objective conditions of their existence and development.

Motives are the variety of events and conditions causing activity of a subject. Goal is an ideal outcome to take one or another actions, their ideal internal motive.

Due to this reason, the analysis of scientific literature, questionnaires and inquiry of students allowed to establish the range of motives (education and self-education) as possible elements of self-education motivation structure, and then to systematize them using the existing classifications. In other words it means to systematize considering our perception of self-educational activity subject matter and motivation as materializing the unity of subject (subject-object) and mutual (subject-subject) relations.

We have distinguished five groups of self-education motivation:

1) world outlook;
2) duty, responsibility;
3) cognitive;
4) prestigious;
5) forced.

Each motive of knowledge is characterized in terms of subject orientation and socio- behavioral aspect. Some motives are more represented by relations, thus the leading part is the subject areas (cognitive motives), other motives are represented by the mutual relations, and the leading part is the social-behavioral aspect (motives of duty, responsibility, and prestige). Nevertheless, the motives of duty, responsibility are inconceivable without the subject orientation, as for the cognitive motives, they have social and behavioral characteristics.

Therefore, our analysis showed that while assessing the formation level of various cognitive skills, many students noted that reproductive abilities (ability to memorize quickly and repeat the information without changes, ability to solve the standard tasks, etc.) were developed by them quite good. Meanwhile according to students, the skills required for a productive cognitive activity were formed poorly.

Thus, becoming students, people just out of school are getting involved into completely new forms of studying which require them to think themselves, comprehend the verbal material, make summaries, self-study the primary sources, textbooks, prepare for seminars, practical and laboratory classes, etc.

We developed the methods involving the personality affecting the cognitive activity (dedication, creative activity, initiatives, exactingness, persistence); constructive skills (ability to organize personal activity, ability to improve personal mental abilities); gnostic (ability to discourse logically, to integrate knowledge into the system, to work independently with a book, to generalize, to solve non-standard problems). At the same time, the students evaluated these nature and abilities according to the extent of need to study at the university and degree of personal maturity.

It turned out that false impression about the structure of mental activity and inadequate assessment of individual components significance were specific for the majority of first-year students. For example, such personality habits as initiative, creative activity and skill for productive level of activity sequences received lower grades than ability to memorize and repeat the information without changes, to solve the typical tasks, etc.

Therefore, in order to develop the ability for self-management, it is required to have the educational methods determination to change the goal-setting and motivation of cognitive activity of students, creation of their prospects to improve the mental work culture, correct understanding of the cognition process structure.

It is quite obvious that the formation of motivational part of cognitive independence implies an indispensable organization of the efficient independent activity of students. Formation of the respective motives is impossible without direct involvement of students.

However, considering the significant side of knowledge and skills acquiring process within a certain discipline at the university, it is possible to outline the following groups of the educational material content:

1) basic knowledge – "introduction knowledge", or general information;

2) fundamental, methodological knowledge covering the essence of phenomena, concepts, processes, general laws and ways of life;

3) "specific knowledge", i.e. various demonstration of discipline content related to some system based on fundamental methodological knowledge;

4) "knowledge-skills" defining the professional qualifications and experience[8].

In accordance with this classification, the knowledge acquisition process, i.e. study of the subject and particularly special courses is naturally divided into the stages for each student, as follows:

1) introduction to the goals and objectives wording of the course, introduction to the system of definitions, concepts, phenomena described in the discipline, clarification of the discipline importance in a number of other disciplines constituting the basis of theoretical and practical training of future specialists;

2) studying of the basic theory and methods to resolve the typical problems (typical modes of activity);

3) study of professional activity experience of such profile specialists under certain conditions and tasks;

4) acquisition of professional skill at the repeating level and creative level[9].

In this point, it is important to note that at these stages, the psychological essence of students' cognitive activity process is not the same.

The first stage is dominated by the process of fundamentals perception and awareness of areas of practical use of the discipline, i.e. initial motivation to study the subject, in this case according to the experience, the material acquirement is quite limited even at the level of simple memorization.

The second stage is characterized by independent critical understanding of the basic theoretical arrangements of the discipline, clarification of features, efficiency and effectiveness of the basic theory application (both in the conceptual and the operational, activity plan) to typical problems that can and must be resolved based on knowledge and activity methods constituting the subject of a discipline.

At this stage, the students comprehend the logic and methodology of the activity which should form the basis of their professional qualification. Consideration, rethinking, independent reclassification of basic, fundamental knowledge about the subject and methods to study and use of concepts, phenomena, methods that characterize the discipline and its respective area of science and technology by the student finishes by formation of individual "tool of thoughts" – the system of personal methods and techniques, rules and templates used by the student in order to keeps the general and specific approaches in mind to resolve the set targets in the discipline.

Peculiarity of the third phase, which can continue after completion of the discipline training process arranged by the teacher is a conscious self-evaluation of effectiveness (verification) built in the previous step of "tool of thoughts" while studying of the professional activity of teachers and masters of a certain specialty at the practical area, as well as during solving the individual targets, tasks, problems set by the teacher or educational situation.

During this verification, the student introduces some corrections and changes into personal perception and methods of activity within the discipline; the student clarifies the importance of the obtained knowledge and skills for more qualitative and qualified solution of complex problems defined by the professional characteristics of student's specialty.

The fourth stage is self-training and self-improvement in the educational and professional activity. It is obvious that at three first stages, the training quality will be defined by that a professional and emotional state of students, which can cause either creative enthusiasm and deepest satisfaction in labor activity, or indifferent, passive, and sometimes explicitly negative attitude towards their labor of young specialists. In this point, the training process is closely related and intertwined with the process of active, creative personality development, not formally, but essentially [15].

And it means that student can obtain the fundamental knowledge only in the process of self-study firstly of the basic theory and then based on it – methods of typical problems solving, i.e. studying of standard models of activity. For each student this process is characterized by the tempo specific for them based on previously mastered and colored with individual psychological characteristics of mental techniques ways.

Let us introduce the scale used for this research:

The methodology by A. P. Chernyavskaya [16] was used to determine the degree of readiness for professional self-education. The methodology represents a questionnaire consisting of 99 questions and five scales:

– independence is an understanding of personal strengths and weaknesses, ability to identify them internally and make the their best, ability to make decisions, take responsibility;

– awareness is the knowledge, information awareness (decisions can be made by the informed person only);

– decision making is an ability to analyze the past, predict the future;

– planning is an ability to plan the steps in professional activity, professional growth and development;

– emotional attitude is a joy of the achieved results, "sound excitement". All questions have been tested for the difficulty and discriminatory power and meet the criteria of tasks screening methodology. The methodology has the constructive and criteria validity.

In this article, we are not going to present all the results, but only those that clearly show the difference in terms of groups 5-1 (it was not involved in the training company activity) and 5-10 (year of working for the training company).

Table 1 – Readiness for professional self-education

Group No.	**5-1**	**5-10**
Awareness	10.1	9.4
Independence	6.4	7.2
Decision making	10.6	12.7
Planning	11.3	11.4
Emotional attitude	7.5	7.2

Conclusion: 5-10 group which worked for one year for training company showed higher score in terms of scale of independence, decision making, planning. From our perspective, the willingness to professional self-education was affected as well by the subjective control level, which was based on the understanding that people differ from each other according to the fact where and how they localize the control over events significant for them. J. Rotter identifies two types of localization: external and internal. Subjective control level is associated with a feeling of strength, dignity, responsibility of person for occurred situation with self-respect, social maturity and individual independence. The methodology is a questionnaire consisting of 44 questions and seven scales: scale of overall internality, achievements internality, failures internality, family relations internality, industrial relations internality, interpersonal relationships internality and health and disease internality. Let us present the results obtained in groups 5-1 and 5-10.

Table 2 – Subjective control level

No.	Scale index	5-1	5-10
1	Overall internality	4.7	5.5
2	Achievements internality	6.2	6.7
3	Failure internality	4.7	5.5
4	Family relationships internality	6.0	6.3
5	Industrial relations internality	4.1	5.1
6	Interpersonal relationships internality	6.3	6.1
7	Health and disease internality	4.1	5.6

This study showed that the students in 5-10 group who passed the pedagogical practice using the training company technology, compared to group 5-1 students who were not involved in the training company operation, consider themselves to be more responsible for everything that happens in their lives, in other words, they able to successfully pursue their goals in future, they tend to blame themselves in problems, considering their actions an important factor to organize personal occupational activity, in relations within the team, in their moving forward. Also it can be added, that "selfhood" is prevalent among the students of 5-10 group. We want to believe that a considerable part belongs to training company technology. In summarizing, we can assume that the formation of readiness for professional self-education through the training company is an important step towards a new quality in preparation of future teachers. As told by the Chinese Philosopher, Lao Tzu: "A journey of a thousand miles begins with a single step".

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ӨЗІН-ӨЗІ ЖЕТІЛДІРУ: МОДЕЛІ, ҮДЕРІСІ ЖӘНЕ ҚҰЗЫРЕТТІЛІГІ

Аннотация. Өзін-өзі дамыту идеясы жеке дамудың басты мотивациясы мен мақсаты ретінде Абрах Маслоу зерттеулерінен кейін өте танымал болды. Барлық адамдар қабілетті болмасада міндеттердің иерархиясында өзін-өзі орындау бүкіл өмірдің түпкі нәтижесі болып табылады. Өзін-өзі оқыту - бұл жеке және кәсіби дамудың маңызды бөлігі. Бірақ неге бұл модель жүйелі білім беруде жұмыс істемейді? Бұл модельді мектептің және жоғары оқу орнының оқу жоспарында қалай қолдануға болады? Өзін-өзі танудың негізгі мақсаттарының бірі жас мамандардың тұрақты дағдыландару болып табылады. Сонымен қатар, өзін-өзі жетілдіру жүйесі еңбек жолында үздіксіз болуы керек. Дегенмен кейібір адамдар өзін-өзі жетілдіруді оқытудың қалыптасқан бір сарынды әдістемесімен алмастыру тырысады. Шынайы өзін- өзі жетілдіруі жеке адамның ішкі қызығушылықтары мен мотивациясы тұрақты қалыптасқан жағдайда ғана тұрақты болады. Бұл мақалада түрлері мен негізгі мәселелері қарастырылған.

Түйін сөздер: өзін-өзі жетілдіру, құзыреттілік тәсіл, кәсіби даму.

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САМООБРАЗОВАНИЕ: МОДЕЛЬ, ПРОЦЕСС И КОМПЕТЕНТНОСТЬ

Аннотация. Идея саморазвития как главная мотивация и цель развития личности была очень популярна после исследований Абрахама Маслоу. В его иерархии потребностей самореализация была конечным результатом всей жизни, и не все люди были способны этой стадии. Самообразование - важная часть личного и профессионального развития. Но почему данная модель не работает в систематическом образовании. Как применить эту модель в учебном плане в системе школьного или высшего образования? Одна из основных целей самообразования - это приобретение постоянных навыков молодыми профессионалами. Кроме того, самообразование должно быть постоянным в течение всей трудовой деятельности. Однако очень часто люди пытаются заменить самообразование более формальными методами обучения. Истинное самообразование происходит только в том случае, когда человек принимает решение учиться из внутренней мотивации и личного интереса. В данной статье мы рассмотрим основные проблемы и формы.

Ключевые слова: самообразование, компетентностный подход, профессиональное развитие.

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TEACHING IN A MODERN SCHOOL ON BASE OF COGNITIVE-CONSTRUCTIVE THERORY

Abstract. Sufficient evidence is provided in the modern scientific and pedagogical literature to support the feasibility and success of the developed core principles use in organization and planning of educational work used by many teachers in the world. Among the modern scientific approaches used by different systems of secondary education, the most popular ones all around the world are based on constructivist theories (Hattie, 2009). Peypert S. is the most well-known theorist of cognitive-constructive course. Peypert drew his attention to both two approaches-behaviorist and constructivist. Complex training involves the integration of material and includes interaction with student's personality as well. The analysis of the psychological and pedagogical literature helped to identify existing modern ways in formation of a constructive model of elementary education. Nowadays Kazakhstan's educational community actively accepts constructivist learning system through an understanding of its content, interpretation and application in practice. In this paper we consider two methods of successful teaching put worth into practice in the Republic of Kazakhstan and implementation of constructivist learning ideas. The first method is the effectiveness of the teacher's activity, his in-activity, the nature and frequency of interaction with his students, where teacher activity is aimed at determining compliance with student requirements. The second approach focuses on the process of teaching, which requires considerably more effort than a formal performance of professional duties. In our study we selected 40 participants from Aktobe and Kostanay regions. Selection of participants was made on the following criteria: age range - 30-39 and 40-50 years old with working experience over than 15 years; an elementary school teacher; teachers of the humanities, teachers of natural sciences and exact sciences. To establish the effectiveness of ongoing research pedagogical research methods have been applied such as analysis of school documents (summaries of lessons, pupil's notebooks, and class journal), survey of teachers and pupils, surveillance; interviews, etc.

Keywords: constructivist learning theory, teacher, teaching, technology, training method.

Introduction. Today, the main changes in education system rely on a fact of opposition of two basic theories: the theory of the transformation and the constructivist theory. On the basis of these theories education model is defined. Nevertheless, now, both in western and in eastern pedagogical sciences many teachers still consider that the main way of teaching is a direct transfer of knowledge from a teacher to a student. A starting point of the theory of transformation is the understanding that knowledge of the world is static and fixed and has to be accepted as something self-evident. Thus, a teacher transmits knowledge and concepts, accumulated over the centuries. This model of education is called "transformation model".

Constructivist theory which is widely propagated in western education system is based on the position that knowledge is actively constructed by a human mind. New knowledge is constructed on the basis of existing knowledge and ideas. The main purpose of this theory in terms of education is to develop students' ability to think. Perkins distinguishes two concepts: deep and superficial comprehension [1]. He claims that knowledge which results in superficial studying can be easily forgotten. According to Perkin's theory "the deep understanding is connected with already available knowledge. And we do not only accumulate knowledge, but we are capable to understand and apply it when it is required".

Richardson suggest that definition of constructivist pedagogics is "a creation of conditions in a classroom, the organization of activities and use of methods which are based on the constructivist theory of teaching and also statement of the purposes which are aimed at the development of students, their deep understanding of a subject, and also at development of thinking which is necessary for future studies" [2, p. 1627].

Similar ideas are presented by John Biggs and Catherine Tan in their book "Teaching for quality learning at university: What students do." [3]. Biggs and Tang paid main attention to the role of education. They believed in changes of education which would put a student into the center. The main question that should be asked when considering the education is not that *what does a teacher / lecturerdo?* But in fact *what does a student / learner do?* According to this concept, the authors didn't describe the methods of teaching, rather they concentrated on the joint activities of a teacher and a student (Teaching / Learning Activities). Fedenev and Vogel in their book "Methods of Teaching" compared the two theories, emphasizing the learning process (table 1) [1].

Table 1 – Comparison of traditional and constructivist theories of learning

Traditional behavioral theory	Modern cognitive theory
Education is the accumulation of information and skills.	Education is a holistic process, much more than the accumulation of information.
The teacher can transfer knowledge directly to students.	The student actively constructing their knowledge and comprehension.
Education takes place during the interaction of the teacher and student.	Education is a social process and involves cooperation.
Particular attention is paid to teaching.	Particular attention is paid to training.

Research methods. The pilot study was run on pedagogical staff of Aktobe and Kostanay schools of the Republic of Kazakhstan. These cities are located nearby. At the beginning of the experiment, two working groups of teachers were selected, each group consisted of 20 participants (N=40), see table 2, 3.

Table 2 – Quantitative and qualitative indicators of the teaching staff involved in the pedagogical study (Aktobe)

	Work experience		Pedagogical category			Number of winners (pupils)	Metho-dological manuals	Number of articles	Advanced training courses	Experts
	15-20 years	21-30 years	Highest	I	II					
Primary teachers	3	5	3	3	2	5	8	8	8	2
Teachers natural and exact sciences	2	2	2	2		3	4	4	4	2
Teachers of social and humanitarian disciplines	3	1	2	1	1	2	4	4	4	1

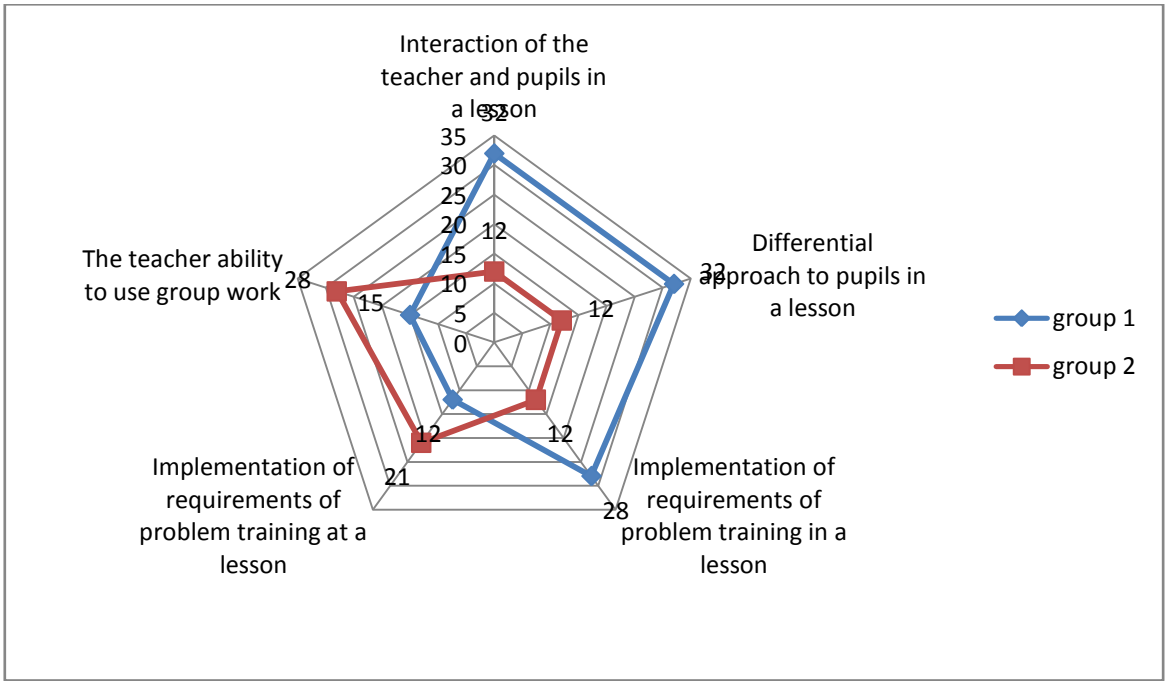
Table 3 – Quantitative and qualitative indicators of the teaching staff involved in the pedagogical study (Kustanay)

	Work experience		Pedagogical category			Number of winners (pupils)	Metho-dological manuals	Number of articles	Advanced training courses	Experts
	15-20 years	21-30 years	highest	I	II					
Primary teachers	4	4	2	2	4	4	8	8	8	1
Teachers natural and exact sciences	1	3	1	1	2	2	4	4	4	2
Teachers of social and humanitarian disciplines	2	2	2	1	1	3	4	4	4	2

Results of study. The data analysis of pedagogical staff show existence of their pedagogical activity, the developed authority both among colleagues and among pupils. Participants according to their age features testify to the sufficient level of pedagogical skills and their positive relation to the conducted pedagogical research.

The pedagogical research took place in 2014-2015 academic year. We used Sadyryn's and Yakovlev's questionnaires "Interaction of a teacher and pupils during a lesson", "The differentiated approach to pupils at a lesson" and "Implementation of requirements of problem teaching in a lesson".

The results of conducted research showed division of all participants into two groups (see figure).



Results of pedagogical diagnostics (web)

- **First:** the effectiveness of the teacher's work, his activness, the nature and frequency of interactions with his students, in which the actions of a teacher are aimed at determining compliance with the requirements of the practice, which includes 4 primary school teachers, three teachers of natural science and exact sciences, and 5 teachers of the socio-humanitarian;

- The **second** approach focuses on the process of teaching, which requires considerably more efforts than a formal conscientious performance of professional duties. This group included 12 primary school teachers, 5 teachers of natural sciences and exact sciences, and 4 teachers of socio-humanitarian subjects.

The methods and type of work was defined according to their age. The students and teachers selected the main qualities of a successful teacher.

Table 4 – Quality of successful teacher

According to first group of teachers	According to second group of teachers
Enthusiasm	Enthusiasm
Knowledge	Knowledge
Accurate purposes	Pedagogical approach
Feedback	Honesty, objectivity
Kindness	Openness for communication with pupils
Availability	Teaching level adapted to students' level of knowledge
A variety in teaching	A variety in teaching
Honesty, objectivity	

Ramsden, P., identified factors towards the success of an educational processin his work names "The Lectures at Uppsaile University". We will consider the following issues [4]:

- socio-psychological climate;

- motivation;
- reflective teaching;
- activation of the students.

Therefore, the teacher's task is to choose the best methods for successful teaching among which are:

- project work;
- case-based learning;
- problem-based learning;
- peer tutoring;
- games-simulation;
- role-playing game;
-distance learning.

It is impossible to claim that some methods are better than others and we have to exclude, for example, all theoretical lessons and replace them with practical and laboratory works. First of all the teacher has to find an optimum set of methods which will answer the course purpose. And the most important here is to remember that active training is more effective than passive one.

Psychologists (Biggs and Tang, 2003) claim that to activate the students it is necessary to use more various methods [3]. According to researchers in the field most of people perceive / remember / understand:

– 10% from this that they read;
– 20% from this that they hear;
– 30% from this that they see;
– 50% from this that they see and hear;
– 70% from this about what they speak with others;
– 80% from this that they use and apply;
– 95% from this to that they teach others.

The assessment plays an important role in educational process. There are two main forms of an assessment defining-forming and total. In pedagogical sources huge attention is paid to the forming assessment - feedback. It is also one of the most effective methods of educational activity which helps in noticing errors in understanding of students and in correcting them. Such assessment doesn't influence on the result at the end of a course and therefore doesn't cause fear or alarm in students.

Lewis Elton defined that the assessment in general has some negative consequences [5]. According to him, pupils generally concentrate on those aspects and questions on which they will be estimated. In other words, they study only that course of material which will be asked at examination. Therefore it is extremely important to agree on requirements of examination with the purposes and the maintenance of a course, i.e. thus to formulate control or examination tasks that they reflect the objects set for a course. The major aspect about which the teacher has to remember is an assessment of various levels of knowledge.

As a result, a norm-sample of the constructive personality we will present the definitions created by teachers of each group:

– A constructive personality is a person vigorous, purposeful, susceptible to teaching and constructive criticism; aimed at positive results in any sphere of professional activity; he is sociable, sustained and capable of taking responsibility for decision-making and their realization; he is stress-resistant and presentable;

– A constructive personality is a person who has knowledge how structurally (almost productively) change laws so that they fix the most rational organization of activity, promot the statements and ensure the rights and freedoms of a person, integrate into the European and world space.

Conclusion. Thus, the constructivist theory of teaching is the most acceptable for Kazakhstani schools, it answers to all criteria of educational policy requirements in Kazakhstan. Results of the conducted pedagogical research testify that teachers of Aktobe and Kostanay schools possesss the most important criterias of successful teaching such as:

– Efficiency teacher's activity, his activness, character and frequency of interaction with pupils.

– Teaching process which demands considerably bigger efforts than formally conscientious execution of professional duties.

At the same time, it should be noted that a consensus of all members of both working groups that there is no unified method which is perfect and approachable in all educational situations. On the contrary, more productive is the choice of suitable methods and variability during educational process. The optimum method has to be picked up for each educational situation. Changing a view of the theory which is the cornerstone of education a teacher has to remember constantly that the training/doctrine (learning) is the main process and a pupil is the central figure in education. And the main function of a teacher consists not in transferring of knowledge, but in creation of conditions for their formation.

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ҚАЗІРГІ ЗАМАНҒЫ МЕКТЕПТЕ ОҚЫТУ: КОГНИТИВТІК-КОНСТУКТИВТІ АҒЫМДЫ ҚОЛДАНУДЫ ТАЛДАУ

Аннотация. Қазіргі заманғы ғылыми-педагогикалық әдебиеттерде әлемнің көптеген мұғалімдері қолданатын оқу жұмысын ұйымдастыру және жоспарлау үшін әзірленген негізгі принциптерін қолдану мүмкіндігі мен сәттілігін дәлелдейтін фактілер жеткілікті берілген. Әртүрлі орта білім беру жүйелерінде қолданылатын заманауи ғылыми көзқарастардың ішінен ең танымал және жоғары әлемдік мақұлдауды алған - конструктивистік теорияларға негізделген тәсілдер болып саналады (Хэтти, 2009). Когнитивтік-конструктивті ағымның танымал теоретигі - С. Пейперт болып табылады. Қазіргі уақытта Қазақстанның педагогикалық қоғамы конструктивтік білім беру жүйесін оның мазмұнын түсіну, интерпретациялау және практикада қолдану арқылы белсенді түрде қолданады. Бұл мақалада біз Қазақстан Республикасында жүзеге асырылып жүрген конструктивтік білім беру идесының сәтті оқытуының екі тәсілін қарастырамыз. Біріншісі мұғалім іс-әрекетінің тиімділігі, оның белсенділігі, мінезі және оқушылармен өзара әрекеттесу жиілігі болып табылады, соның негізінде мұғалімнің әрекеті тәжірибенің талаптарын сақтауға бағытталады. Екінші тәсіл оқыту процесіне баса назар аударады, бұл кәсіби міндеттерін адал атқарудан гөрі біршама күшті талап етеді. Бұл мәселені зерттеуге Ақтөбе және Қостанай облыстарынан 40 педагог қатысты. Қатысушылар келесі критерийлер бойынша таңдалды: жасы 30-39 және 40-50; жұмыс өтілі 15 жылдан асқан; бастауыш сынып мұғалімдері; гуманитарлық пәндердің оқытушылары; жаратылыстану пәндерінің оқытушылары мен нақты пәндер оқытушылары. Жүргізілген зерттеулердің тиімділігін анықтау үшін педагогикалық зерттеу әдістері қолданылды: мектеп құжаттарын талдау (сабақтарды конспектілеу, оқушылардың дәптерлері, сынып журналы), мұғалімдер мен оқушыларға сауалнама жүргізу; бақылау; сұхбат және т.б.

Түйін сөздер: оқытудың конструктивтік теориясы, педагог, оқыту, оқыту технологиясы әдіс.

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ПРЕПОДАВАНИЕ В СОВРЕМЕННОЙ ШКОЛЕ: АНАЛИЗ ПРИМЕНИЯ КОГНИТИВНО-КОНСТРУКТИВНОГО ТЕЧЕНИЯ

Аннотация. В современной научно-педагогической литературе предоставлено достаточное количество фактов, подтверждающих целесообразность и успешность использования разработанных ключевых принципов организации и планирования учебной работы, используемых многими учителями мира. Из числа современных научных подходов, используемых различными системами среднего образования, наиболее популярными и получившими высокое мировое призвание, являются подходы, основанные на конструктивистских теориях (Hattie, 2009). Наиболее известным теоретиком когнитивно-конструктивного течения является С.Пейперт. В настоящее время педагогическое сообщество Казахстана активно принимает систему конструктивистского обучения через понимание его содержания, интерпретацию и применение на практике. В предлагаемой статье рассмотрим два способа успешного преподавания, практикующих в Республике Казахстане и реализующих идеи конструктивистского обучения. Первым является эффективность деятельности учителя, его активность, характер и частота взаимодействия с учениками, при котором действия учителя направлены на определение соответствия требованиям практики. Второй подход акцентирует внимание на процессе преподавания, которое требует значительно больших усилий, нежели формально добросовестное исполнение профессиональных обязанностей. В исследовании данного вопроса принимали участие 40 педагогов из Актюбинской и Кустанайской областей. Выборка участников производилась по следующим критериям: возрастной диапазон – 30-39 и 40-50 лет; стаж работы более 15 лет; учителя начальной школы; преподаватели гуманитарных дисциплин; преподаватели естественнонаучных дисциплин и преподаватели точных дисциплин. Для установления результативности проводимого исследования были применены методы педагогического исследования: анализ школьных документов (конспекты занятий, тетради учеников, классный журнал), анкетирование педагогов и учащихся; наблюдение; интервью и т.д.

Ключевые слова: конструктивистская теория обучения, педагог, преподавание, технология обучение, метод.

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EAEU DIGITAL AGENDA: IMPACT ON ECONOMY

Abstract. Establishing the EAEU was a major achievement for its members after they had repeatedly endured two integration "false starts" in the 1990s and 2000s (namely, the 1995 Customs Union and the 2003 Common Economic Space idea; see below), but they still have many obstacles to clear. Putin elevated Eurasian integration to a top foreign policy priority in 2012, and Moscow has stepped up diplomatic efforts to ensure Russia's position at the heart of a broader economic and trading bloc, which eventually is meant to include all former Soviet states. This bloc – the Eurasian Economic Union (EAEU) – was formally established by treaty in May 2014 and initially included Belarus, Kazakhstan, and Russia. Armenia and Kyrgyzstan joined in 2015. One of the challenges on the way of digital economy development is providing security in cross-border purchases regarding giving guarantees for the protection of personal data of consumers. The EAEU plans to take the most successful experience of the history of the European Union and other integration associations in the formulation and implementation of the digital agenda, and then in building the digital economy. The Eurasian Economic Union (EAEU) is actively discussing the common digital agenda. The next step will be an elaboration of strategic initiatives in establishing the digital economy, so it is essential to understand what neighboring countries gained positive and negative experience.

Keywords: digital agenda, growth, and productivity, EAUE, social risks.

For much of the post – Cold War era, the United States and Europe paid little attention to Russia's efforts to expand its political, economic, and military influence abroad. However, since Vladimir Putin returned to the Russian presidency in 2012 after a four-year stint as prime minister, Russia has engaged in a broad, sophisticated, well-resourced, and – to many observers–surprisingly effective campaign to expand its global reach. To advance its diverse objectives, Moscow has relied on a wide array of diplomatic, military, intelligence, cyber, trade, energy, and financial tools to influence political systems, public attitudes, and elite decision makers in Europe, the Middle East, Africa, Asia, and Latin America.

The Eurasian Economic Union (EAEU) is a newcomer among regional integration organizations. It has been operating as a customs union since 2011, and as an economic union since 2015. In addition to geopolitical objectives, it based on a specific long-term economic agenda. In this context, the EAEU was established to help its member states make the most of intraregional economic ties, modernize their national economies, and forge an environment conducive to improving their global competitiveness. A single market for goods, services, capital, and labor is at the heart of the Eurasian integration process. The EAEU has already reinforced with additional integration infrastructure, including the EAEU Court, the Eurasian Development Bank, and the Eurasian Fund for Stabilization and Development.

The Union is already a functioning entity. This statement does not raise any particular objections unless the bar is set too high, and when compared to the European Union, the regional integration benchmark, expectations are set too high. However, if the bar is set lower, with the EAEU placed alongside other regional integration projects with varying levels of depth and success – NAFTA, MERCOSUR, ASEAN, Cooperation Council for the Arab States of the Gulf (GCC), South African Customs Union (SACU) – then an adequate framework for analyzing the relative standing of the EAEU becomes feasible. In March 2016, the EEC Board issued the decree On Establishment of a Working Group to Develop Proposals Regarding the Creation of EAEU Digital Space. The working group comprising more than 250

experts held fourteen sessions. It designed a draft document on conventional approaches to the creation of EAEU digital space until 2030; draft strategic guidelines for the production and development of the EAEU digital space until 2025, and proposals regarding the creation of the EAEU digital space.

According to the expert, digital transformations based on changes related to the introduction of information and communication technologies. The implementation of the agenda will be divided into four main areas:

– Digital conversion of economic sectors and cross-sectoral transformation in the Union;

– Digital transformation of markets for goods and services, capital and labor;

– Digital transformation of management processes and integration processes in the Union;

– Development of digital infrastructure and ensuring the security of digital operations.

So, the first digital initiative of the Union, which the parties began to discuss, was the digital traceability of the movement of products, goods, services, assets in the EAEU area. Besides, the priority projects are the creation of digital transit corridors, the expansion of the "Single window" system in the territory of the Union, the electronic interaction of business with state bodies. In conclusion, an expert noted that the share of breakthrough digital projects in the GDP of the Eurasian Union should be 11%.

The digital world is not static and continues to experience very rapid development. The widespread changes brought about by today's digital environment have significantly broadened the scale of digital security and privacy challenges, signaling the need for an evolution in how these risks managed. Effective management of digital security and privacy risk is essential if countries are to realize the full economic and social benefits of the digital economy. Establishing higher levels of trust with users and customers may enable digital services to become more widely accepted and used by individuals and organizations. Governments play a key role in supporting conditions to build trust and complement private sector initiatives.

The chairmanship in the EAEU in 2018 passed to Russia from Kyrgyzstan. The presidency includes the Supreme Eurasian Economic Council (president level) the Eurasian Intergovernmental Council (prime minister Level) and the Council of the Eurasian Economic Commission (EEC). Among the main expectations and plans for the year there are:

– New countries admissions.

– Digital economy development.

– National currencies strengthening as a way of de-dollarization.

– Working on the conclusion of the agreement on free trade zone with the Association of Southeast Asian Nations (ASEAN).

Among the highlights of the year there are :

– Approval of the Customs Code by all country-members of the EAEU;

– Coordination of the digital agenda by the member countries of the Union;

– Systematic removal of barriers and restrictions in the EAEU markets and

– Cooperation development with other countries..

The Eurasian Economic Union (EAEU) is actively discussing the common digital agenda. The next step will be an elaboration of strategic initiatives in establishing the digital economy, so it is essential to understand what neighboring countries gained positive and negative experience. At the seminar - presentation “European experience in building a single digital market”, the Member (of the Board - Minister in charge of Domestic Markets, Information Support, Information and Communication Technologies of the EEC, Karine Minasyan, noted the interest of the EAEU in the use of international experience in implementation of the digital agenda, the best practices in this area and digital initiatives.

The European Union identifies three supports for the digital market:

– the best access conditions for consumers and businesses in Europe;

– creation of common legal terms and equal competitive opportunities for digital networks and innovative services;

– Maximize the potential of the digital economy growth.

At the meeting, the Digital Strategy Senior Advisor for Digital Strategy of the European Commission Declan Deasy noted that data is the foundation of the digital future. According to the information of the International Telecommunication Union, in the period from 2000 to 2015, the proportion of Internet users in the world has increased almost sevenfold − from 6.5 up to 43% of the population. According to Internet

World Stats Agency, as of June 2016, the number of Internet users in Armenia reached almost 70%, in Belarus - 59%, in Kazakhstan - 54.3%, in Kyrgyzstan - 36.2%, in Russia - 75.5%.

One of the challenges on the way of digital economy development is providing security in cross-border purchases in terms of providing guarantees for the protection of personal data of consumers.

The EAEU plans to take the most successful experience of the history of the European Union and other integration associations in the formulation and implementation of the digital agenda, and then in building the digital economy. Following the presentation, Karine Minasyan expressed the hope that the meeting held will become the beginning of the next stage of activities in the cycle of seminars - presentations on the EAEU digital agenda.

On the one hand, the Eurasian Economic Union is not a perfect “success story” worthy of being quoted in textbooks. After an initial phase of rapid growth, it may have hit a short-term ceiling by 2016. Much time may be necessary to break through that ceiling. On the other hand, it has achieved much and is quite viable. It is founding treaty and its institutions are working. The same applies to the standard labor market. There is some progress in the development of standard technical regulations (a total of 36 such rules have finalized to date). Integration effects will be maximized by realizing existing plans in these areas and implementing some more specific initiatives for instance, infrastructure, industrial policy, the agricultural and industrial complex, labor market, a single pension space, and research and education cooperation).

The EAEU is best viewed as a functioning customs union with a lavish additional agenda. It features its successes and stumbling blocks. Its structural characteristics are not unique.

The EAEU is a new reality for the investor community, too. A typical market has created in the territory of five states – a market that makes it possible to work from almost anywhere. Despite the existing imperfections in the Union's operating mechanics, it has already become a functioning common market with a relatively defined development roadmap.

The share of electronic commerce in GDP of Kazakhstan by 2025 will make up to 545 billion tenges. Such forecasts had read at the beginning of the forum "The Digital Agenda during a Globalization Era" which took place on 2 February 2018, Almaty.

It will make 5,4% of the sector of wholesale and retail trade (30% in the developed markets). Analysts of a forum have noted that the effect of the development of electronic commerce will be due to the decrease in cross-border trade to 30% and increase in local e-commerce.

"The analysis of the market of electronic commerce in the world has shown that on average 50% of the market of electronic commerce of the country is the share of cross-border trade. Respectively, the share of cross-border trade will become about 50%. At the same time, if Kazakhstan doesn't invest in the development of local electronic trading, the trade will gradually leave on the international online platforms", - is noticed in the expected document.

By 2025 the gain of non-cash payments of 20% expected. Besides, using "intellectual field" technology additional production on the field can make about 3%. 15-20% will reduce the time of recovery of work of the well. The sparing mode of operation of the underground equipment will also decrease from 20 repairs to 15 in a year.

"Introduction of smart technologies in the large, already digitized companies leads to decrease in gross expenses on 1% (50,2% of the sector: TShO, KPO). For the others decrease in gross expenses on 5% is supposed", - have explained in the document.

4% will cut thanks to the digitization of mines expenses. The profit will be 12-26 billion KZT in 2025, and for 2018-2025 – 23-40 billion KZT.

The profit of large players of steel industry will grow by 2,7%, and the prime cost will decrease by 3,2%. Economic effect will reach 43-62 billion in 2025. In manufacturing industry expenses will be cut for 5-8%, and economic impact will be 51-72 billion tenges in 2025.

Total the effect of introduction "the Industries 4.0" is expected of 94-134 billion tenges in 2025, and during 2018-2025 – 140-200 billion tenges.

Within introduction of the project "Optimization of repair activity and reduction of idle times of oil refinery" will increase the growth of the volume of processing by 7% due to the reduction of repair days in a year for 24 days. Shares of large players will make 504 billion tenges, and the effect will be 10-14 billion tenges in 2025 (during 2018-2025 – 15-21 billion tenges).

Meanwhile, introduction 4G will give the gain in 0.22 % of GDP of the country in five years. The calculated animator on GDP from investments in 4G will make 2.9. Effect on GDP of Kazakhstan taking into account the estimated cost of introduction 4G in Kazakhstan 50 billion tenges. Taking into account flowing (43%) and target (90%) coverings 4G are made by 110-120 billion tenges by 2025.

According to foreign experts, the current level of gray economy of Kazakhstan in GDP is 23%. Due to digitalization, this volume will manage to be reduced by 10% by 2025. At the same time, the effect will be 3 billion tenges. If to consider the decrease in a shadow share in all branches of the country, the aggregate impact will reach 120 billion tenges by 2025.

The smart city project will reduce staying in traffic jams to 17%. It will save budgetary funds due to a decrease in calls of the ambulance and the appeal to clinics to 20%, will reduce the number of crimes to 40%, will save means of the cities due to the decrease in losses of the electric power in a year to 25%.

We will remind, today in Almaty there takes place the forum "The Digital Agenda during a Globalization Era" within which prime ministers of the countries of EEU will discuss cooperation and plans till 2025.

Also earlier it was reported that, by estimation, the direct effect of "Digital Kazakhstan" to 2025 would create additional cost for 1.7-2.2 trillion tenges. It will provide the return from investments into 4.8-6,4 times by 2025 to total amounts of investments taking into account private financing.

It's a well-known fact that a side-effect of digitalization of economy and robotization of production and technological processes is massive job cuts in all spheres – in the industry, transport, and logistics, the banks, the trade market, customer care, B2B.

According to McKinsey & K (2017) consulting firm robotization and digitalization, most sectors of the economy will become the trend of the next decade.

As a result, about 375 million people will lose their jobs. In case of modest improvement of technologies by 2030, almost 23 % of total person-hours on various productions can be automated. Development of digital technologies will change the world, from 16 to 22% of the population of the planet have to learn new skills or lose the job.

This changes will take place everywhere from unskilled labor to white-collar workers. Sberbank announced that will cut 3 thousand jobs as a result of the introduction of the robot lawyer issuing statements. Sberbank promised to retrain a part of the laid-off employees, but apart, after all, was left without work. Also, the chairman of the board of bank German Gref has reported about plans to reduce 8% of personnel in connection with the growth of the number of users of remote channels.

In the developed countries of the world, this problem can be partially solved by payment of unconditional basic income which will be gained by citizens regardless of that, work or not. In any case, the attention of researchers and scientists is riveted on the phenomenon of "technological unemployment."

And what will be in Kazakhstan? So far the Kazakhstan officials place emphasis only on advantages of digitalization and the fourth industrial revolution – for example, an increase in productivity of work. However, nobody mentioned that digitalization means the elimination of redundancies in the labor market. It was remarkable that in the Digital Kazakhstan program we couldn't find any information about social risks of digitalization and robotization, there were no forecasts concerning reduction of jobs

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САНДЫҚ ЖОЛДАМАНЫҢ ЕУРАЗИЯЛЫҚ ЭКОНОМИКАЛЫҚ ОДАҒЫНЫҢ ЭКОНОМИКАҒА ӘСЕРІ

Аннотация. ЕЭО-тың пайда болу тарихы қатысушылардың ынтымақтастығы мен ұйымшылдығына байланысты, ең маңыздысы 1990-2000 жылдар аралығында екінші сәтсіз интеграция кезінде болды (Соның ішінде Кедендік одақ 1995 жылы және Бірыңғай экономикалық кеңістік 2003 жылы). РФ президенті Владимир Путин 2012 жылы бірнеше рет атап өткен болатын: яғни ЕЭО саясаттың ең басты басымдығы болып табылады деді. Осылайша Кремль өзінің дипломатиялық күшін қолдана отырып, ЕО-та, Ресейде және бұрынғы Кеңес одағы мемлекеттерінде алдыңғы қатарлы орынға шығу үшін, сөз берді. Евразиялық экономикалық одақтың – ресми келісім бойынша 2014 жылдың мамыр айында Беларусь, Қазақстан және Ресей мемлекеті қабылданды. Ал 2015 жылы Армения және Қырғызстан мүше болды. ЕЭО белсенді түрде осы күнгі жалпы сандық жолдаманы талқылайды. ЕЭО тарихтағы ең ұтымды тәжірибені Еуропалық одақта және тағы басқа қауымдастық тұжырымдамасын және сандық жолдама жүйесін енгізуді жоспарлайды. Келесі қадам стратегиялық бастамаға сандық экономиканы кіріктіре отырып, осылайша өзге мемлекеттерге оның дұрыс бұрыстығын түсіндіру маңызды тәжірибе болды.

Түйін сөздер: сандық жолдама, өсім және өнім, Еуразиялық Экономикалық Одақ, әлеуметтік қауіптер.

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ЦИФРОВАЯ ПОВЕСТКА ЕАЭС: ВЛИЯНИЕ НА ЭКОНОМИКУ

Аннотация. История создания ЕАЭС является несомненным примером успеха и кооперации ее участников, особенно в контексте двух неудачных интеграции в 1990-х и 2000-х (а именно, Таможенный союз 1995 года и идея Единого экономического пространства 2003 года). Президент РФ Владимир Путин неоднократно отмечал, что ЕАЭС является главным приоритетом внешней политики с 2012. Таким образом, Кремль применил все свои дипломатические усилия, чтобы гарантировать лидирующее положение России в рамках нового экономического союза, включающего бывшие советские государства. Евразийский экономический союз (ЕАЭС) – был официально основан соглашением в мае 2014 и первоначально включал Беларусь, Казахстан и Россию. Армения и Кыргызстан присоединились в 2015. Евразийский экономический союз (ЕАЭС) активно обсуждает общую цифровую повестку дня. ЕАЭС планирует взять самый успешный опыт истории Европейского союза и других ассоциаций интеграции в формулировке и внедрении цифровой повестки. Следующий шаг будет разработкой стратегических инициатив в установлении цифровой экономики, таким образом, очень важно понять, какой положительный и отрицательный опыт был получен странами.

Ключевые слова: цифровая повестка, рост и производительность, ЕАЭС, социальные риски.

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MORAL DILLEMMAS IN DIGITAL & FOREIGHN WORLD

Abstract. In the modern changing world the moral component of people, their moral choice has particular relevance. Some research of the last decades mentioned that the solution of a moral dilemma in a foreign language let us be less emotional and allows to make the more rational choice. "The trolley problem" is an example of a philosophical and moral dilemma in which the person has to make a decision and save someone's lives. People it is rather easy to solve this problem when they are not personally involved in it. What will occur if it is necessary to make a choice and to take responsibility for your action? People tend to make emotional decisions in accidents. If you drive a car with four passengers and child will cross a street, who will you save a baby or your passengers? Participants in most of the cases will choose to sacrifice their lives for younger one but will robot make the same decision? The self-driving car will probably make a different choice. Specialists of the Massachusetts Institute of Technology tried to answer this question and created the moral-machine. The moral machine establishes the situation when you have to choose who to save, where to drive, and how to act. The digital transformation of society requires changes in people mind. We hope that Smart City will bring us to the peaceful and human-friendly world.

Keywords: morals, trolley problem, ethics of robots, foreign language, digital transformation.

What makes us human? Why do we have individual differences? Our habits? Our esthetic tastes? Our memory? If I had to answer, I would tell that if I had any basis of the personality, an integral part me, then it was my moral center, my feeling of what was right and what was evil.

Moreover still, as well as other people knowing more than one language I sometimes feel that with each of my speeches I become a little bit another person. More energetic when I speak English; sensitive - on Kazakh, and more friendly with my Russian. I often ask myself can my traits, and moral compass changed cause I use different languages and how it works?

The psychologists studying moral judgments have already become interested in this question. Several types of research study how people estimate ethics, thinking in the non-native language – for example as the group of delegates of the UN uses lingua-franc language for discussion of resolutions. Opening says that in case of moral dilemmas people can behave differently, depending on that, they think in the native language or on another.

"The trolley problem" is a mental, ethical experiment which from 60th years is used by psychologists. Present that on rails the heavy, uncontrollable trolley, and on the way, at it, five people tied to rails rushes. You have an opportunity to press the lever and to throw a switch on another road where the only one person. The question is whether you will do it. The correct and wrong decision at moral dilemmas does not exist. Adherents of utilitarian approach consider right to save as much as possible lives, others speak about the inadmissibility of intervention and commission of murder by the hands [1].

According to some models of moral psychology, moral judgment driven by a complex interaction of at least two forces: intuitive “automatic” processes prompted by the emotional content of a given dilemma,

and rational, effortful, controlled means driven by the conscious evaluation of the potential outcomes. In this dual process account, intuitive processes generally support judgments that favor the essential rights of a person (deontological judgments), while rational, controlled processes seem to support reports favoring the greater good (utilitarian judgments), regardless of whether or not they violate an individual's rights. The relative weight of intuitive and rational processes in moral judgments can vary, and lead to more or less deontological or utilitarian judgments. As such, establishing which conditions favor each of these two mechanisms is fundamental to understanding the psychology of morality (for a review, see). The present study explores whether using a foreign language, as hundreds of millions of individuals do every day, can have a systematic impact on these processes [2].

There are good reasons to expect that using a foreign language would reduce utilitarian resolutions of moral dilemmas. For example, there is evidence that functional choice relies on controlled processes that require cognitive resources, and that an increase of cognitive load or stress, reduces practical choice in moral dilemmas. The added cognitive load and anxiety of using a foreign language could therefore reduce the use of controlled processes and subsequently minimize rational choice. That is, to the extent that functional choice reveals a higher contribution of controlled processes and such processes require the recruitment of cognitive resources, then conditions that increase cognitive load such as the use of a foreign language should decrease utilitarian choice.

Despite this potential impact of cognitive load, we propose that using a foreign language results in the opposite, that it increases practical choice. In general, a foreign language elicits less intense emotional reactions relative to a native language. For example, skin conductance responses, as well as the perceived force of emotional phrases are reduced when presented in a foreign language compared to a native language. Additionally, heuristic biases that are driven by psychological factors, such as loss aversion, are reduced when people make decisions in a foreign language. Such reduced emotionality, we argue, promotes a more reasoned, controlled process that leads to a functional choice.

According to Alberta Costa (2014), "a trolley dilemma" participants make a much easy choice on non-native language. In the classical experiment, you need to change the direction of a trolley and kill a stranger, so the majority of participants agree to switch an arrow. What about pushing someone on the tracks when the train's coming? Moreover what if it is the only way to stop a trolley? This situation cause more stress and anxiety, participants hesitate while making a decision. Costa with colleagues has found out exciting results. If volunteers decide this dilemma in language, non-native for them, then their readiness to push the stranger under a trolley immediately increases: from less than 20% of persons (Native language), to more than 50% of the participants on the same test (Foreign language).

The sample based on Hispanic and English-speaking volunteers. Results were identical to both groups. Costa (2014) proved that changing of language played a major role in decision making [3].

Janet Geipel found out that use of a foreign language could change examines moral decisions. Their volunteers read the description of incidents in which nobody has suffered but at the same time all the same worthy censures. For example, one store described relatives had safe sex by agreement; and in another person killed and ate his dog as a result of pet suffering in a car accident. The reading stories in the foreign language (English or Italian) condemned them less than reading them in the native language [5-7].

Why moral choices differ depending on the use of native or foreign language? One of the explanations says that different process of thinking involved in decision making. One – fast feeling, "intuition," and another – careful weighing good and evil. When we speak on foreign language, we unconsciously pass to the second option as efforts on the processing of non-native language switch us to the mode of profound thinking.

There are proofs that memory binds language with the experience and interactions received during studying. For example, the people knowing two languages will easier remember expertise if you ask about it in the language connected with this event. Our children's words learned to torment our passionate emotions – whose childhood has not passed at an abundance of love, rage, surprise, and punishments? – Are penetrated by deep feelings. To the contrary, the languages acquired at the mature age, mainly by training in the classroom or computer programs included in our memory cleaned from emotions.

Catherine Caldwell-Harris with colleagues (2008) study participant's emotional response to words in a foreign/native language. Using sensors of the skin conductivity for measurement of emotional reactions, they study Turkish people learning English at the mature age. Some of the words were neutral (table),

others – not (shit), the third contained reprimands (are ashamed!). Measurement of the skin reaction had shown that on bad words reaction was stronger, than on usual, especially when words were pronounced on Turkish. However, the difference is the strongest reaction was visible with reprimands. Volunteers reacted to the English phrases quietly, and on Turkish – very strong, at the same time, it seemed that some of the participants tend to hear this phrases-voiced from their relatives. If language is a container for bright memories of our offenses and punishments, it is no wonder that such emotional associations can influence the moral choices made in the native language [8, 9].

The balance moves towards this explanation thanks to the research which was published in the Cognition magazine even more. In this research on the scenario, right intentions resulted in wrong results (somebody gives to the homeless a new jacket because of what others beat the poor creature, decided that he has stolen it), or right results leave ambiguous acts (couple adopts the disabled person and receives compensation from the state). At moral estimates of these stories reading in non-native language led them to the fact that results the examinee seemed more important than intentions. Results of research contradict the theory according to which use of a foreign language forces people to think more deeply as in another study it has shown that careful considering of a situation results in an understanding of advantage of intentions before results [10].

However, these results will be coordinated with the fact that when using a foreign language the muffled emotional reaction – is less than sympathy for those, who had noble intentions, and less hatred to those, who had terrible motives – reduce an influence of plans. This explanation is supported with information that patients with damages of a central part of the prefrontal cortex of a brain which is responsible for emotional reactions showed the similar scheme of reasoning at which importance of results prevailed over the importance of intentions.

What will be a moral core at the person knowing several languages? My good memoirs, consequences of the emotionally charged events which have taught me to the fact that it is "good," or it reasoning which I can apply without the participation of such subconscious restrictions? Alternatively, these researchers just show us the truth about us regardless of the number of languages in which we say: our moral compass works as a combination of the new forces which have created us and our ways to avoid these forces.

Another explanation is that distinctions appear from behind more significant emotional attachment to the language learned in the youth than to what we studied in the more academic situation. As a result moral judgments in the foreign language are not so connected with emotional reactions which appear when using language which we learned in the childhood.

People often believe that moral judgments about “right” and “wrong” are the result of deep, thoughtful principles and should, therefore be consistent and unaffected by irrelevant aspects of a moral dilemma. For instance, as long as one understands a moral dilemma, its resolution should not depend on whether it is presented in a native language or in a foreign language. Here we report evidence that people tend to make systematically different judgments when they face a moral dilemma in a foreign language than in their native language.

"Self-driving car: whom does it have to save?" - Title of the new study on the Massachusetts Institute of Technology website, and it is about the recent research in the Science magazine. Scientists from MIT, have suggested respondents think over the solution of several tens moral dilemmas. In fact, this research - a variation on the well-known "problem of a trolley" which seemed before entirely speculative [11].

"It is easy to present a situation when the programmed algorithms of the safe driving will conflict with each other," – authors from MIT write. Also, suggest making a choice. "At the car brakes have refused. If she continues to move, then will bring down the girl crossing the road on the red light. The car can leave on the next strip where burns green and then will crush the senior. Do you remember, the car does not manage to stop - where has to direct his passionless algorithm? I have honestly passed all test offered by researchers, and it has appeared not comfortable. It is much more difficult than a problem about a trolley, because my response will affect a future choice of self-driving cars.

I found quite exciting results. Participants tend to save more lives. They also prefer to protect females, babies and in case of moral dilemma save pet or human will try to keep a human. However, if you are fat, old and male, your chances in this moral dilemma will be a minimal.

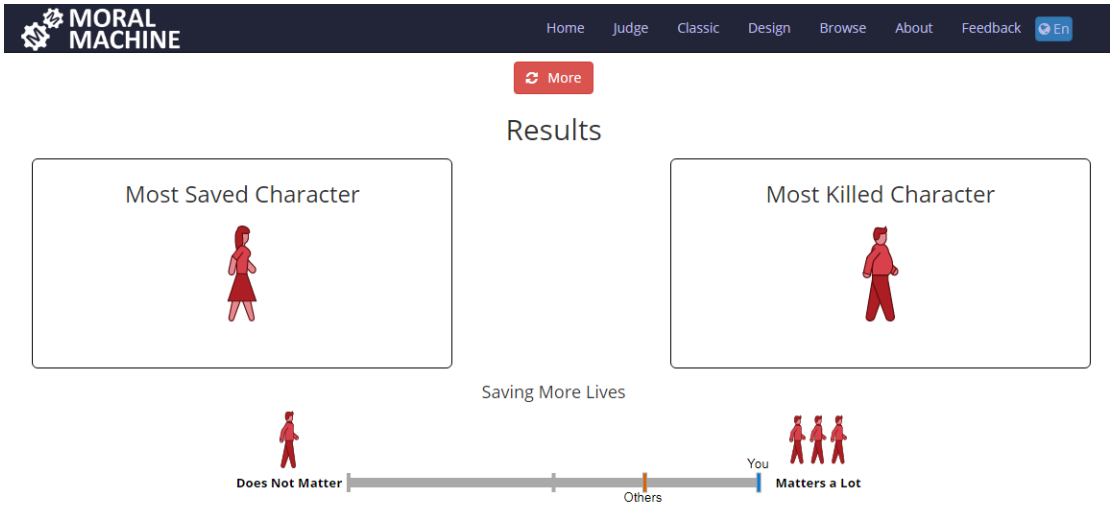

Figure 1 – Moral machine of MIT

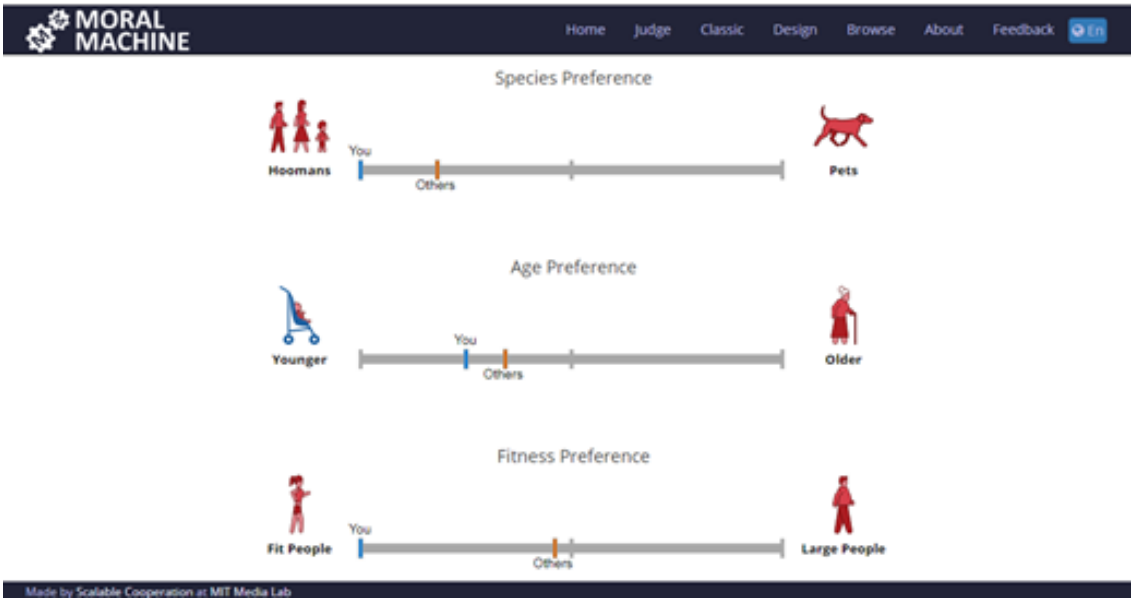

Figure 2 – Gender and age, fitness attitudes in moral choice

One of the expected primary results of the introduction of self-driving cars consists in the reduction of accidents and the victims literally on orders. Now on the roads, tens of thousands of people perish, with the distribution of pilotless transport their number will decrease to hundreds, and then and to units. In this sense, the autonomous car is a priori moral. Pilotless car concentrates on the road, and it has exhaustive information so that a vehicle can obtain data from other cars and elements of road infrastructure. Creation of such vehicles – the prospect of the next decades [12].

People argue not only on the number of the victims but also on the status: for academicians, it seems to be a priority. However, once the person presents himself driving, he loses interest in the solution of dilemmas at once and tries to get away from the answer. There is it: I have bought the car, and it has to protect me. This problem will need to be solved legally too. One of the possible solutions to this problem is a restriction of speed.

Social norms oblige people to treat native and adoptive relatives equally. However, scientists have found out that brain at the same time reacts to them differently: inspection using fMRI has shown that the brain shows the differing reactions to moral dilemmas if the blood or adoptive sister is involved in them. Results are published in the Scientific Reports magazine [13].

In new research, authors have invited 30 women for participation in a series of experiments, including with fMRI, at the same time researchers do not specify whether examinees have in reality blood or adoptive sisters and also don't explain in an explicit form why among volunteers there are only women [14].

Participants solved a trolley problem with the participation of the sister (this time without specification of a degree of relationship), girlfriends, and strangers. Preferences were on sister side, even when the participant chose between rescue of the sister and relief of the girlfriend and four more strangers. In such formulation of the dilemma, participants needed more time for decision-making (for example, in comparison with variations the girlfriend – five strangers, and the girlfriend – the sister and four strangers).

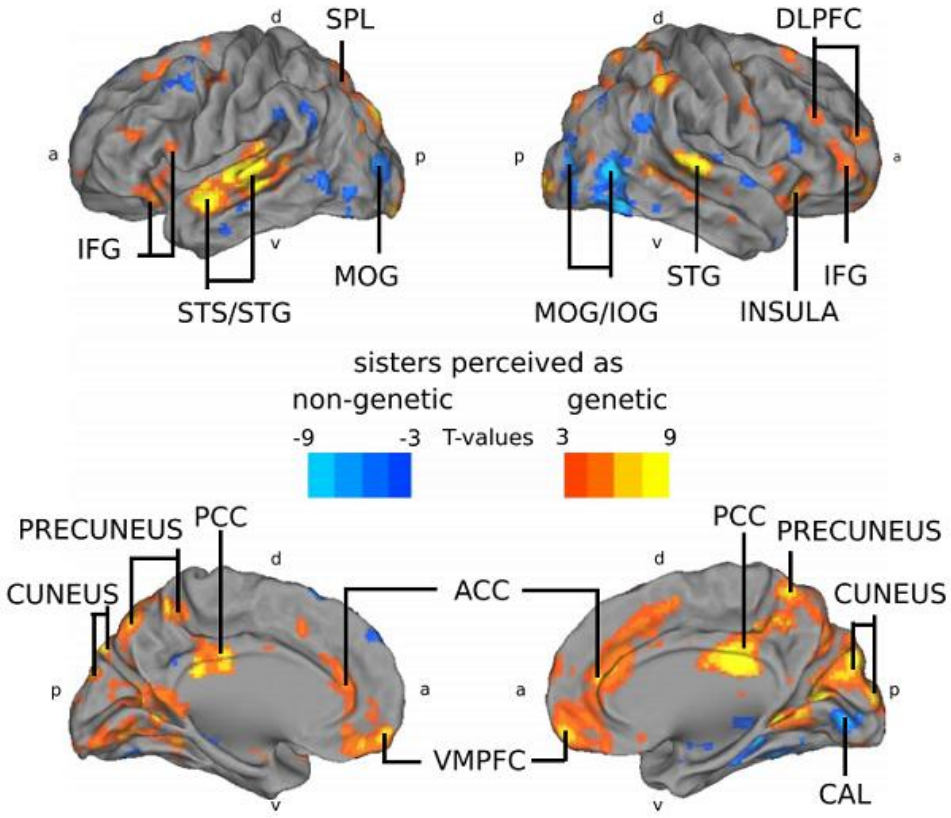

Figure 3 – Results of fMRI study

We have shown that people's moral judgments and decisions depend on the native-ness of the language in which a dilemma is presented, becoming more utilitarian in a foreign language. These results are significant for models of moral decision making because they show that same difficulties may elicit different moral judgments depending on a seemingly irrelevant aspect such as the nativeness of the language. Most likely, a foreign language reduces emotional reactivity, promoting cost-benefit considerations, leading to an increase in utilitarian judgments.

The reduction of the emotionality elicited by a foreign language may promote psychological distance in general. Increasing mental distance leads individuals to construe situations in more abstract terms, which in some circumstances aligns with more utilitarian decision making. For instance, a more general mindset is associated with a higher focus on ends than means, leading to more utilitarian decisions in moral dilemmas like the footbridge problem [15].

For us, as researchers, it's interesting how participants will react to trolley problem (Russian, Kazakh English speaking groups) where they have to choose

1) four strangers or a child;

2) sibling or strangers;

3) woman or men;

4) wealthy person or poor.

The present studies provide strong evidence that the use of a foreign language influences the moral evaluation of complex moral dilemmas. If the emotional attenuation is not a viable explanation for the foreign language effect on moral judgment then what drives this effect? Why was the effect absent from the trolley dilemma but present in the footbridge and lost wallet dilemmas [15]? Perhaps the critical difference is that the trolley dilemma does not involve a "taboo" or prohibited action. Social and moral rules prohibit us from pushing people or keeping lost wallets. However, we have no general rules prohibiting flipping switches (see Cushman's dual-system framework of morality). We propose that foreign language may influence moral judgment by reducing the mental accessibility of social and moral rules.

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ЦИФРЛЫҚ ӘЛЕМ КОНТЕКСІНДЕГІ МОРАЛЬДЫҚ ДИЛЕММА

Аннотация. Қазіргі өзгеретін әлемде адамгершілікті адамның ерекшелігі оның моральдық таңдауы болып табылады. Соңғы жылдары бірқатар зерттеулер шет тіліндегі моральдық дилеммаларды шешу бізді эмоционалды емес және ұтымды таңдау жасауға мүмкіндік береді деп қорытынды жасады. «Вагонетка

мәселесі» адамның таңдау жасауы және қандай да бір адамның өмірін сақтап қалуға тиісті философиялық-адамгершілікті дилемманың үлгісі болып табылады. Адамдар бұл мәселеге жеке түрде араласпаған кезде оларды оңай шешеді. Ал егер өзіңізге таңдау қажет болса және өзіңіз жауапкершілікті алсаңыз не болады және мұның бәрі қалай пилотсыз машинаның негізі болатын еді? Бұл сұраққа Массачусетс технологиялық институтының мамандары өздерінің сайтында тасымалдаудың пилотсыз құралдарының таңдау моделін жасау арқылы жауап беруге тырысты.

Түйін сөздер: мораль, вагонетка мәселесі, роботтар этикасы, шет тілі.

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МОРАЛЬНАЯ ДИЛЕММА В КОНСТЕКСТЕ ЦИФРОВОГО МИРА

Аннотация. В современном меняющемся мире особую актуальность имеет нравственная составляющая человек, его способность сделать моральный выбор. Ряд исследования последних лет позволяет сделать вывод о том, что процесс решение сложной моральной проблемы на иностранном языке существенно отличается. «Проблема вагонетки» является примером философско-нравственной дилеммы, в которой человек должен сделать выбор и спасти чьи-то жизни, порой ценой смерти другого человека. Решение данной моральной дилеммы на иностранном языке позволяет испытуемым быть более рациональными. Однако в ситуации конфликта интересов и ценностей, когда надо спасти жизни четырех пассажиров или ребенка, выбежавшего на дорогу, водители, как правило, пытались спасти ребенка. Данное поведение является социально одобряемым, и подобная авария, рассматривается как несчастный случай. А как в данном случае поступил бы робот? Скорее всего, беспилотный автомобиль попытался сохранить жизни четырех пассажиров и совершить наезд на ребенка. Специалисты MIT смоделировали специальный тест, позволяющий узнать, какой моральный выбор сделали бы люди на месте робота. Данное исследование возможно станет основой для будущей работы беспилотных машин. Цифровая трансформация окружающего гораздо ближе чем нам казалось ранее, и мы искренне надеямся, что SMART – технологии сделают нашу жизнь безопасной.

Ключевые слова: мораль, проблема вагонетки, этика роботов, иностранный язык, цифровая трансформация.

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INNOVATIVE APPROACH IN PROVIDING THE JAPANESE ZONE OF ASTANA

Abstract. In accordance with the Development Strategy of Akmola region until 2020, the main economic frame of the region will be agglomeration zone, adjacent to Astana city. The main transportation and infrastructural axes passing through the territory of the region generally provide its polycentric development. In this regard, perspectives of positioning and development of its corresponding territorial organization and Astana agglomeration population settlement system are related to the development of the centers. Formation of the uniform distribution of the productive forces is an economic necessity, the logical result of all modern development of the production forces. It is not due to the growth "limit" of large cities, but rather a result of their comprehensive development, consciously directed, in accordance with the requirements of market economic laws, in the direction of expansion of agglomeration.

Keywords: institute of development, agro-food complex, suburban area, agglomeration core, technopark, production facilities, food products, production volume, green tourism.

Introduction. For a more intensive development of the metropolitan area, it is planned to strengthen the position of the administrative centers of districts (v.Arshaly, v. Shortandy, v. Akmol), adjacent to agglomeration nucleus villages Kosshy, Koyandy, Talapker, Karaotkel and other with population over 10,000 people.

In these areas creation of an industrial zone, construction of administrative and business center, multifunctioning living complexes and micro districts; development of tourism, construction of large sports facilities is planned.

All the above agglomeration rural regions territorial adjustment projects will lead to an increase in the population of Astana agglomeration with the nucleus, where more than 1.2-1.3 mln. people will live.

Methods of research. Studying and introduction of foreign experience allows to build an effective innovative policy focused on increasing the competitiveness of the national economy. Innovative processes in the republic have not reached the desired pace due to the fact that an effective mechanism for implementing the state's innovation policy has not yet been fully developed.

Results. The population shift is a versatile process in the study of which it is important to take into account its various aspects. Population shift from the village to the city is connected with the development of the cities and towns of Kazakhstan (big and small), increase of specific gravity of urban population of the republic (the so-called process of an urbanization of the population), as well as with the formation of the agglomeration.

According to the statistical data of Akmolinsky oblast and the Department of employment coordination and social programs the rural population of a suburban zone, which includes three regions of Akmolinsky oblast – Arshalynsky, Tselinogradsky and Shortandinsky – as of January 1, 2017 makes 116903 people, the specific gravity of this population in the oblast makes up almost 16%.

The population size of rural areas in the suburban zone of Astana as of January 1, 2017

Indicators	Regions			In 3 regions	All over the Akmolinsky oblast
	Arshalinsky	Tselinogradsky	Shortandinsky		
Population size as of 01.01.2016	27301	59785	29216	116302	731337
Population size as of 01.01.2017	27119	60505	29279	116903	732719
Growth rate, %	99.33	101.20	100.22	100.52	100.19
Specific gravity of population of the regions in the oblast %	3.70	8.26	4.00	15.95	100
It is made by the authors on the basis of statistical data of Akmolinsky oblast.					

The specific gravity of the population in the regions is allocated in the following way:

- Tselinogradsky – 8,3 % or 60505 people;
- Shortandinsky – 4,0 % or 29279 people;
- Arshalinsky – 3,7 % or 27119 people.

The balance of migration in rural territories as of January 1, 2017, has remained negative – 266 people. The positive balance is observed only in the Tselinogradsky region - 184 people. The general process of migration is influenced by migration with the states of the neighboring countries (negative balance -169 people), foreign countries (positive balance - 26 people), interregional (negative balance - 127 people) and regional migration (positive balance - 4 people).

It should be noted that the population of the regions is completely rural as there are no towns there. The age and sexual structure of the population is the basis without which it is impossible to carry out the qualitative analysis of the demographic processes.

The population is a complicated aggregate which is characterized by various structures. One of the major is the age and sexual structure. On the one hand, it has a huge influence on all demographic processes (birth rate, mortality, nuptiality, etc.); on the other hand, it is a derivative of these processes and reflects the previous stages of demographic development.

The structure of migration of the rural population of the capital's suburban zone concerning gender indication is almost identical. For the year 751 women and 1066 men have arrived in the territory of the regions, which makes respectively 13,1% and 13,9% from all number of the arrived people in the Akmola region. The greatest specific gravity of the population shift is the share of migration with the states of foreign countries. It is significant that 24% of women and 21% of men arrived exactly in the explored three regions out of all arrived people in the Akmola region from foreign countries. For the year 853 women and 1227 men have left the regions, which 12.1 and 12.5% respectively from all number of left people. The share of regional population shift is small: 7.1% of women and 6.0% of men that arrived and 6.8% of women and 6.1% of men that left is the share of 3 regions.

Counter-magnet cities will receive development, they are planned to be located under the traffic arteries having high-speed railways and highways with relocation of industrial enterprises from Astana city [1].

These measures will form the Astana agglomeration with a highly urban living environment and multifunctional economy orientation, which will have a multiplier effect on the dynamic development of Akmola region and other nearby regions. Formation of an effective Astana agglomeration directly depends on the development of Astana's suburban zone.

The development of the entire Astana agglomeration will be achieved by attracting domestic and foreign capital, as well as the creation of cooperative ties and industrial companies' chain in the development of the relevant clusters in the city and the region.

Agglomeration population's nutritional needs increase due to population growth. According to the forecasts, the population of Astana in 2030 will increase by more than 1.5 times. Thus, in 2030 in comparison with 2016 demand for paste goods will increase by 90%, for potato by 82%, for vegetables by 82%, for milk by 84%, by 85% for all types of meat and by 90% for flour. The requirements for Astana agglomeration population's minimum nutritional needs will increase for the settlement period increases. For basic foodstuffs, such as milk, meat, eggs, population demand nearly doubles.

Due to the fact that nutritional needs of Astana population are not completely satisfied by means of agglomeration's rural production, it is necessary to significantly increase the production and agricultural products processing levels. Thus, the production of rural agglomeration provides the population with 1 sort flour and bread by 100%. Significantly agglomeration population, taking the nucleus into account, is supplied with potatoes (the current supply level is equal to 96%), milk (58%), eggs (88%). However, together with population growth in the future, it is necessary to not only maintain but also increase the rate of production. Many products are not produced in a rural area of agglomeration, such as sunflower oil, fish, sugar, buckwheat. But the cultivation and processing of greens, tomatoes, cucumbers and other vegetables are possible and necessary. Conceptually agglomeration territory must meet their needs for perishable products completely (milk, eggs, vegetables, greens, etc.).

In turn, the growth of agricultural products processing levels can be achieved by:

– ensuring maximum loading of existing production capacities;

– improving the technology on the basis of their modernization;

– improving the quality control system;

– creation of new processing enterprises, with the closest proximity to the sources of raw materials.

To ensure full production load of milk utilization enterprises it is necessary to arrange procurement of milk from the population. Currently, the arrangement of milk procurement from the population is held back due to the lack of mobile laboratories to control the quality of purchased milk. In this regard, it is viable to organize milk purchasing points in the settlements where the number of cows in all categories of cultures is around 1000–1800 heads. Considering that milk processing enterprises are mainly concentrated in Astana, district centers and more than 90% of cows are concentrated in households, actuality of milk purchasing from the population increases.

Growth in product processing can be suppressed such factors as:

– underutilized processing capacity;

– deficiencies in forage production;

– low genetic potential of livestock;

– underdeveloped system of stocking, transportation and storage of raw materials.

According to leading international analysts, the prospect of global food markets requires the creation of a clear framework allowing in any situation to ensure the stability of domestic food market.

Systemic measures include:

– Participation in a positively approved budget programs that allow supporting ongoing activities of agricultural goods producers and processors of agglomeration rural districts;

– Measures to consolidate small agricultural producers through their co-operation and integration with processing enterprises;

– Participation in a lending system of subjects of agroindustrial complex, including through second-tier banks, financial institutions of the National Holding "KazAgro", National Welfare Fund "Samruk-Kazyna".

Thus, the calculation of gross products production in the rural areas of Astana agglomeration considers the future needs of the capital, in close proximity to where they are located - on the one hand, and, on the other hand, - the potential for agricultural production revealed by the method of elimination (factor analysis).

To meet the population demands it is necessary to increase food production volumes by several times by 2030 - especially such as meat, milk, cucumbers, tomatoes, potatoes, greens, etc.

Favorable situation has been formed in rural farms in the grain production, which is characterized by the ability to fully meet the needs of their own. In addition, the production of grain, based on actual data, significantly exceeds the need of the capital in the products of grain processing equal to 27-30% of the gross production. On the prospect of even minor increase in yield productivity and saving area available, production volumes meet the needs of the growing population of the capital.

The perspective need of the capital in such vegetables as carrots, beets, cabbage can be satisfied with a few large agricultural enterprises, having organized their production based on modern technologies of production and storage of vegetables. To supply the city it is enough to dedicate 35 th. Ha of vegetable crops, provided yields not less than 200 centners per hectare. Rural agglomerations have good natural conditions both for the production of vegetables and the development of the canning industry. Potatoes

production may become an important sector of the agrarian economy of the rural areas agglomeration, here it has the best natural and economic conditions. Good yields and high quality of the most valuable crops can be obtained at low cost. The process of diversification in the potato farming is seen in the ways of development of seed, the introduction of modern technologies of cultivation, storage and processing of these products. Farming areas have the capacity to produce many potato products that are in high demand from industry and population - mashed potato and chips. A major basis of production diversification in agroindustrial complex of rural areas of Astana agglomeration is the presence of favorable conditions, significant capacity for sugar beet processing. This is the basis for the development of sugar production, candy and confectionery production.

Dairy cattle breeding is characterized by high water-intensity, labor-intensity, capital-intensity, so it is viable to develop it in the areas with the most favorable terms and conditions, as well as close proximity to industrial centers. In areas where appropriate natural and economic conditions are not available, it is feasible to reduce the production of these products. Where there is no labor, difficult transport situation, weak food base households with no cows are more acceptable. In this case, the cows can be passed to farms, private households farmers on the compensation terms of the cows cost by means of products supply, including for diversified farms.

In agglomeration areas' agriculture there are objective prerequisites for activation of diversification processes, as it is promoted by climatic, technological and socio-economic conditions. In the agricultural sector of Astana agglomeration rural areas there has always existed the possibility of production of various types of agricultural production and its processing. This, in turn, provides an objective basis for related and unrelated types of diversification. For more sustainable rural development and improving the competitiveness of agricultural enterprises, it is necessary to develop new types of activities.

A common form of development of the largest settlements of agglomeration rural areas is the creation counter-magnet cities, that is specialized and at the same time to a certain extent self-sufficient functional units in the agglomeration system. Counter-magnet cities are usually considered as a means of restricting the growth of large cities, not as a means of rationalizing the process what they really are. The idea of their specialization, a clear division of the territory of the industrial and transport and residential areas also did not receive sufficient development. In place of the city as a point of concentration of production and population comes agglomeration - a vast area of intensive development, which combines traditional urban functions with agricultural production and recreation. The role of the peripheral part of the agglomeration is growing steadily, as opposed to the role of the central city, as more and more parts of the industry and transportation, trade and housing are outside the traditional city limits. Practice has shown that the nucleus, especially large one, cannot function normally without counter-magnet cities [2].

Agglomeration development changes correlation between the area of intensive development and peripheral agrarian and raw material zone inside economic territory as a whole. Attracting intensive agriculture, mining ubiquitous raw materials and the organization of public resort, counter-magnet cities rapidly expand in all directions from the central nucleus of the agglomeration.

The whole process of the formation of extensive areas of intensive development is related to the earth as a function of the spatial basis of social production. Growth of the general scale of the production process at a relatively faster progress of transport and communication is accompanied by an even more rapid increase in its spatial scale. The structure of the economic activity of the society is changing in favor of the industry, which requires a relatively large area. This includes a social recreation and other fields. All existing economic assets at the present level of development of the productive forces are allocated with a high capability for territorial expansion of the zones of their concentration. The whole systems of the agglomeration, the entire system of productive forces need constant development, in coverage of more and more areas.

The concept of agglomeration development as an adequate form of distribution of social productive forces has two fundamental advantages to confront her concept of development of "optimum" size cities. Firstly, only by means of agglomeration it is possible to territorially compound the industry and agriculture, which is always a necessary condition for the elimination of significant differences between cities and villages. Secondly, only the creation of agglomeration solves the problem of rational use of inter-urban lands that can only count on extensive agricultural development in case of the ban on the spatial expansion of cities. By itself, the agglomeration consists of the same elements as the modern city: from

the industrial, transportation, residential and commercial areas with the addition of areas of intensive agriculture and recreation. The quantity here is transformed into quality. Growth of the city leads at a certain point to a qualitative leap, to the emergence of a new spatial form of social life.

The development of green tourism could contribute to the emergence of rural areas from the crisis by increasing material wealth and contribute to the partial solution of the issues of rural employment. Thus, since the village needs fundamental changes, green tourism can facilitate the employment of the rural population.

Green tourism is a specific form of recreation in private farms in rural areas with the use of property and labor resources of personal, subsidiary or farming, natural and recreational features of the locality and cultural, historical and ethnographic heritage of the region [3, p. 138-143]. This type of tourism involves the stay of tourists in their own dwelling house of a farmer, in a separate (guest house) or on the territory of a personal farm.

Green tourism as an object of research is considered, first of all, in the context of solving the problems of rural development, rural communities, rural employment. This is due to the need to develop additional types of entrepreneurial activities in rural areas, creating a full-fledged environment for health and recreation residents of cities and megacities.

Interest in rural green tourism is high and stable in all countries of the world. However, each country seeks to create its own national development model, inherent only in it. Green tourism can actively develop only in environmentally friendly regions. Foreign statistics show that 35% of urban residents of EU countries prefer annual leave in the village [1, p.84]. In Kazakhstan, this percentage is much lower, but has a stable positive dynamics.

Conclusions. Against the backdrop of the rapid development of green tourism, the question naturally arises of the role of the Akmola region in the market of these tourist services. It should be noted that the region has all the prerequisites for the intensive development of internal and external green tourism, namely:

- Features of geographical position and relief, water resources. So, on the territory of the Akmola region, there are large rivers - Chaglinka and Ishim, and there are healing lakes Balpashor and Maybalyk;
- favorable climate, low population;
- active development of agriculture in the region. So, Akmola region is one of the main agrarian and industrial regions, producing more than 23% of grain, 7% of milk and 6% of meat produced in the country [4]. The average annual grain production in the region over the last 3 years was 4.7 million tons, and the average annual grain export for this period was 1.6 million tons [4];
- wealth of natural, historical and cultural and recreational potentials - 15 specially protected natural areas are located on the territory of the region, the total area of which is more than 828 thousand hectares [3]. In the region there are many mountain pine forests that make up the real wealth of the Akmola region.

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АСТАНА ЖАПОНИЯ АЙМАҒЫНДАҒЫ ИННОВАЦИЯЛЫҚ БАҒАЛАУ

Аннотация. Ақмола облысының 2020 жылға дейінгі даму стратегиясына сәйкес облыстың негізгі экономикалық құрылымы Астанаға жақын агломерация аймағы болады. Облыс аумағынан өтетін негізгі көлік және инфрақұрылымдық осьтер, тұтастай алғанда, оның полисантильді дамуын қамтамасыз етеді. Осыған байланысты, Астана қаласының тұрғындарын тиісті аумақтық ұйымдастыру мен агломерациялау жүйесін дамыту және дамыту перспективалары орталықтардың дамуымен байланысты. Өндіруші күштердің біркелкі бөлінуі – бұл экономикалық қажеттілік, өндіруші күштердің қазіргі заманғы дамуының логикалық нәтижесі. Бұл үлкен қалалардың «лимитінің» өсуіне байланысты емес, бірақ олардың жан-жақты дамуы нәтижесінде агломерацияны кеңейту бағытында саналы экономикалық заңдардың талаптарына саналы бағытталған.

Түйін сөздер: агроөнеркәсіп кешені, қала маңы аймағы, агломерация негізі, технопарк, өндірістік нысандар, азық-түлік өнімдері, өндіріс көлемі, жасыл туризм.

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ИННОВАЦИОННЫЙ ПОДХОД В ПРЕДОСТАВЛЕНИИ ЯПОНСКОЙ ЗОНЫ АСТАНЫ

Аннотация. В соответствии с Стратегией развития Акмолинской области до 2020 года основной экономической структурой региона будет зона агломерации, прилегающая к Астане. Основные транспортные и инфраструктурные оси, проходящие через территорию региона, в целом обеспечивают его полицентрическое развитие. В этой связи перспективы развития и развития соответствующей территориальной организации и системы агломерации населения Астаны связаны с развитием центров. Формирование равномерного распределения производительных сил является экономической необходимостью, логическим результатом всего современного развития производственных сил. Это происходит не из-за роста «предела» крупных городов, а в результате их всестороннего развития, сознательно направленного в соответствии с требованиями рыночных экономических законов в направлении расширения агломерации.

Ключевые слова: институт развития, агропродовольственный комплекс, пригородная зона, ядро агломерации, технопарк, производственные объекты, продукты питания, объем производства, зеленый туризм.

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ABOUT METHODOLOGICAL BASES OF STUDYING OF THE MODERN GLOBALIZATION

Abstract. The Republic of Kazakhstan, as well as all countries of the world, today actively participates in the interstate and global relations. Consequences of such involvement into the processes of globalization are shown in the most different spheres of public and state life, causing corresponding changes in the legal system, in an institutional structure of the state and the maintenance of the public relations. The entity of the globalization relations expresses in enlargement and consolidation of the public relations through certain objects of integration and step-by-step incorporation of all mankind in uniform community with the system of the harmonious relations. Driving force of the process of globalization lays in the system of society and the public relations in global scale. It expresses that the public relations represent self-regulating system, i.e. all public relations as a pattern are the part of one rather wide, single system, which has the appropriate functions of self-regulation. Self-regulation carries to improving of correlations between structural parts of the system and to increase the efficiency of such correlations. Thus, people, groups, communities and societies in the foreign states all over the world are in process of mutually integration all the time.

Keywords: integration, legal integration, law development, globalization, international law, legal families, legal system, unification, self-control, public relations.

The driving force of self-control system of the public relations causes development of the society in the course of globalization, directed on preservation and survival society through the formation of the global society with the global legal system and legislation on the basis of justice (order, efficiency and compromise of interests). The global legal system and legislation is the social form and manifestation of self-control of the public relations, which have been expressed in a certain system of regulation and management the public relations.

The term "globalization" is the main term, used for designation of the specified processes in the modern research works; there do exist also other concepts, such as "internationalization", "universalization", and many others [1]. In our research used the term "globalization". This term was appeared last century and in modern meaning defines the events of the global character in the XX century [2]. We guess that it is quite necessary to apply the term "globalization" in order to research the history of the mankind and the answers to the global questions and problems, such as world wars, environmental problems, problems of exhaustion of natural resources, terrorism, development of the nuclear weapon, etc. This point of view on the development of globalization in XX and XXI centuries is noted by many scientists. However, there are many different theories in the society, which explain the peculiarities and advantages of such process as "globalization". In the present period of history rates and development of globalization are really visible, but it is only one of the periods of developments/stages of globalization, which was preceded to other stages of the development of humanity on the way of the creation of so-called "global society".

The question of evolutionary development of the law is inseparably linked with the general process of globalization, the process of globalization of the public relations. As it is already noted, this process of the general globalization began with the moment of formation of the first public relations, and many scientists determine this moment by the beginning of origin of mankind more than 10-12 million years ago.

It is necessary to take up a question of globalization history. A. Filippov believes, that "the history of the global relations" began with interaction of the neighbors (tribes and ethnos), proceeding in various forms of war and peace, an exchange and resettlement of the people [3].

Some foreign authors also note, that globalization processes as social and economic phenomenon, began long ago, when all mankind was still nomadic, before agriculture emergence [4]. For example, Verlag Dr. Mullerdoesn't consider globalization as a phenomenon of the present and notes that "the aspiration to more close social, economic and political relations between individuals, groups and the countries is same old, as well as modern [4].

The following expression is indicative: "We endure consciousness of global society of such scale, which wasn't necessary to mankind yet. We really observe emergence of mankind as collective operating. "Globalization" is all those processes, when the people all over the world are incorporated in uniform world society, "global society" [3].

Thus, globalization is considered as historical process of integration, which began with the moment of formation of the first public relations. The essence of the integration relations is expressed in integration and consolidation of the public relations through certain objects of integration and gradual incorporation of all mankind in uniform community.

"The global history is a manifestation of coherence, interference, synchronization and coherence of processes and events in the most different points of the world (at all their divergence and inclusiveness in various historical, sociocultural contexts)" [4].

Scholar's opinions that globalization, as the process, was connected with rise of international trade and stream of investments. Also we can't forget about the beginning of globalization in this period, considerable events of global character: systems of division of the world into time zones and estimates of dates, the appearance of Gregorian calendar, the international system of cable communication, etc.

Today all points of view explain three basic provisions:

– globalization began at "history dawn";

– globalization arose along with origin of the capitalist relations (the beginning of the XVI century) or from the moment of expansion capitalist the world system (the XVIII century);

– globalization is the unique phenomenon of the contemporary history, connected with formation of information society.

Scholars, lawyers and philosophers' defined essence and content of will of the person as interest, expression, content of wills. Thus, this interest is expressed the peculiarities of justice in the different countries. In this regard justice is expressed in the accounting of all interests and achievement of a compromise of interests for general welfare. It is criterion of the internal content of the concept "justice" is the compromise of interests in the society, protected by the public order. It is very important to talk about the moral aspect, emotions, love and hate, and their role in law. Love and hate are emotions that are universally embedded in the psychosocial experience of humanity. The theme of this conference dealing with the perils and possibilities in the XXI-st century of the "anthropocene crisis" may well be challenged by the affirmation of positive sentiment (affection) or its depreciation (negative sentiment), hate. Law and culture ubiquitously prescribe the boundaries of these emotions in human interaction in ways that are often unacknowledged and surprising. The importance of emotion of love or hate is its salience for the person and for the survival and success of social organization.

A social process, which succeeds in reproducing and sustaining the idea of love in the biography of each individual, may perhaps be more successful in the satisfaction of human needs and aspirations. Here we broaden the idea of love and suggest that it reflects the critical importance of affect or affection. Perhaps a less controversial way to express this is to see affect as included in the still broader idea of positive sentiment. The idea of positive sentiment includes such important values as compassion, empathy and affection.

It is widely accepted that newborn children may not survive the experience of the ubiquitous deprivation of affection. If they survive, they may develop pathologies, which may therefore reproduce

personality types that are possibly lethal and destructive. Such personality types may in effect displace the deprivations that they have experienced in innocuous processes of childcare, in ways that make the relationship between personality, culture and politics important for morality, law and culture. Society may reproduce personality types not socialized or acculturated to the values of affection, empathy and compassion, but to a predisposition or orientation that enhances the capacity for negative sentiment and its displacement on others. In worse case scenarios, it is possible that society reproduces the psychopathological personality which finds gratification in the ruthless exercise of domination and extermination of those it imagines as threats - non-self others.

In confirmation of validity and importance of provision on "a compromise of interests" in the context of the concept "justice" let us remember Hegel and Nietzsche's opinions. In Hegel's definition "justice concerns respect the rights of other people...", and in F. Nietzsche's definition "justice is, therefore, requital and an exchange on condition of approximate equality of forces". This approach just allows us to speak about a compromise of interests in the context of the concept "justice".

Economic relations as globalization engine are the most widespread, and many scientists consider economic relations (economic interdependence) as the engine and the basis of globalization. Globalization is often considered as the social and economic phenomenon, which is inseparably linked with a question of formation of the public relations at the supranational level, so-called "supra-national level of governance".

Many foreign and domestic researchers insisted on the links of the development of the globalization with information and communication technologies. For example, mobile phones, computers, and the Internet express (reflect) the main symbols of globalization: cellular phones, computers, and the Internet reflect the symbols of globalization. The impact of globalization in the concept of state sovereignty in international law can combine the computerization process and the development of telecommunication network, which cause the information revolution, which leads to the interdependence of participants in international relations.

Globalizationis necessary processes, in which nation-states and their sovereignty are intertwined by the transnational authors and their capabilities, orientation and identity.

We realize that in the war on terror there are sufficiently credible threats to security that may be used for purposes of acquiring political power by the exploitation of the dynamic of insecurity. In fact, in the war on terror in the different countries, a key statute has the short title of "The Patriot Act." The title has carried an implication that those who are disquieted by the great allocations of power to the executive may well be suspect in terms of their commitment and loyalty to patriotism in this context. There is also interest in the psychology and the function of sentiment in the terrorist, suicide bomber, torturer and mass murderer.

So, globalization is understood as a historical process of integration, which began with the founding of the first public relations. Under this approach, various scholars give different definitions of globalization. For the purposes of the study as a starting can be used definition proposed Ph. Allott: "Globalization means all the processes, through which the people of the world are incorporated into a single world society, global society" [5].

Thus, the essence of integration relations expressed in the enlargement and consolidation of social relations through specific objects and the gradual integration of the incorporation of the whole of humanity into a single community or a global society.

All societies have some rules about the creation of ties of intimacy, how they endure, and how they are terminated. These rules in a sense seek to control and regulate the legitimate targets of affect within which the exchange of positive sentiment is anticipated. The family often seen as morally preferred in part because of the experience of the most important and defining components of human feeling and expression: love.

The doctrine can meet different names used to refer to the society of the future, which should emerge in the process of globalization of development: a global society, global community, global society, integral society, mixed society, super civilization, holistic civilization (or unified civilization), a world state (or world government), etc. In this study, does not plan to analyze the content of these signs, and as a general definition of the notion of "global society".

We would like to stress again, that research on the problems of the globalization and its peculiarities is investigated by various scientists representing the most different areas of scientific knowledge. In most cases, globalization is associated with participation and inclusion of the majority of the states and societies in the mutual relations that causes complication of the public relations in financial and economic, political, social and legal aspects that is also closely connected with expansion of information space and development of modern technologies.

For the purposes of this study are used and researched positions lead to a broader approach to the definition of the essence of globalization. In this case, the question of determining the causes of falls, catalysts, and short-term goals of globalization, as it is more important to understand the overall direction, the form and content of globalization, but the reasons have caused them (as noted, the determination of this issue was the subject of hundreds of serious research, but and resulted in a single consistent version and position). In this regard, for the purposes of the present study is the use of a valuable broad approach to the understanding of globalization.

So, it is possible to state the position that globalization – the process of progress and evolution of humanity towards a global society. This position has not been the subject of serious and multilateral research, but on the whole doctrine, many opinions dealing with similar, or at least does not contradict this position. In this case, what is the driving force behind the "irreversible and objective" process of globalization towards the creation of a global society? Do I need to consider this process as progress and evolution, or, on the contrary, it carries negative consequences? This driving force of globalization is inside the system, society and social relations on a global scale. This is reflected in the fact that public relations are a self-regulating system, that means, all the groups, communities and peoples of all countries in the world and all social relations in the world are part of a single system, wide enough, but still a single system, which has the appropriate functions of self-regulation.

Improving the effectiveness and efficiency of the coexistence of the different units of the system (society) – it's the conditions for survival and preservation of the entire system in principle. Such a way we can speak of self-regulation of society as a process of self-preservation through the construction of a global society that operates on certain principles and guidelines. The doctrine can be found certain provisions that say about the process and function of self-preservation and societies.

Thus, the process of self-regulation of society began with the appearance of humanity even in primitive society, and this process has always been the aim of self-preservation system (society) and its survival. Creation and the occurrence of any form of expression is a manifestation of social regulators of self-regulation and self-organization forces of society as a system aimed at the preservation of society and its survival. This was expressed in the fact that primitive society, as well as any historical phenomenon was not static, and goes through various stages of development. Its general historical, archaeological and anthropological stages. He also notes that the self-organization as a whole is characterized by the interaction of man and nature in assigning the economy for thousands of years and even later "in societies emerge and become widespread regulatory beginning which shaped in the course of this self-organization of mankind. This regulation ensures the existence and reproduction of specific communities, clans, groups". So we are talking about the creation of a global society with a certain rule of law not only as to the purpose and result of globalization and self-regulation, as well as an objective need for self-preservation and the development of society as a whole system.

In this regard, it is necessary to consider certain matters which relating to the process of globalization in the creation of a global society, namely the following: whether the global society more advanced form of the relationship between the parts of the system? On what basis and principles should be building a new system of relations between the constituent units of the society? What is the role of law in regulation of social relations in a global society? These and other issues require attention and study.

As it was already noted, it is possible to consider history of the public relations as the process directed on self-preservation that is the supreme value of any organism and system, and in our case as this organism and system all mankind acts (as society). Within this approach the history of mankind and globalization in general act as creation process of "global society" on the basis of efficiency for fair and reasonable coexistence. These two approaches don't contradict each other as creation of a fair order is

pledge of self-preservation of Megasociety or “global society”. An important role in this process is played by the law and its development. This question of the importance of the right for society should be considered in more detail.

In the conclusion we would like to make an accent, that the provision on justice of the law and order as bases of regulation of the relations of global society that is expressed in the concepts “orderliness”, “efficiency” and “compromise of interests”, leads logically to a question of a role and a place of law in construction and functioning of global society.

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ЗАМАНАУИ ЖАҺАНДАНУДЫ ЗЕРТТЕУДІҢ ӘДІСНАМАЛЫҚ НЕГІЗДЕРІ ЖАЙЛЫ

Аннотация. Қазақстан Республикасы әлемнің басқада елдері сияқты мемлекет аралық және жаһандық қатынастарға белсенді араласуда, бұл араласу процессі белгілі бір заңдылықтарда көрініс табады, елдер мен халықтар арасында белгілі жағдайда қатынастар қалыптастырады. Осындай қарым-қатынастардың әсері әрқашанда белгілі бір қалыптасқан, әрі жетілуі үстіндегі қоғамның әртүрлі өмір сүру қырларында көрініс тауып, құқықтық жүйеде де өзгеріс жасауды талап етеді, мемлекеттік құрылыста да қоғамдық қатынастардың мазмұнына да өзгеріс әкеледі, сөйтіп интеграциялық процесстердің заңнамалық негіздерін жаңартуды талап етеді. Ал енді осы жаһанданудың мәніне келсек, ол қоғамдық қатынастардағы көптеген құндылықтарды әлемдік шаруашылық пен барлық адамзат баласына бірігу қажеттілік құндылықтары мен байланыстырады. Жаһанданудың процессінің қозғаушы кіші қоғам жүйесімен қоғамдық қатынастардың әлемдік біріктіруші күшінде жатыр. Оның мәніне үңілсек, қоғамдық қатынастар өзін-өзі реттеуші жүйе екендігінен көрініс табады, оның түпкі мазмұнында өзін-өзі реттеу функциясы бар. Өзін-өзі реттеу әлемдік байланыста құрамдас бөліктермен жүйелерді бір-бірімен біріктіреді, тиімділігін арттырады. Сөйтіп, адамдар, топтар, қоғамдық құрылымдар мен қоғам әлем мемлекеттерінде әрқашанда интеграциялану қалпында белгілі бір объективтік заң негізінде болады.

Түйін сөздер: интеграция, құқықтық интеграция, құқықтың дамуы, жаһандану, халықаралық құқық, құқықтық жанұялар, құқық жүйесі, унификация, өзін-өзі реттеу, қоғамдық қатынастар.

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О МЕТОДОЛОГИЧЕСКИХ ОСНОВАХ ИЗУЧЕНИЯ СОВРЕМЕННОЙ ГЛОБАЛИЗАЦИИ

Аннотация. Республика Казахстан, как и все страны мира, сегодня активно участвует в межгосударственных и глобальных отношениях. Последствия такой вовлеченности в процессы глобализации проявляются в самых разных сферах общественной и государственной жизни, вызывая соответствующие изменения в правовой системе, в институциональном строении государства и содержании общественных отно-

шений. Сущность глобализационных отношений выражается в укрупнении и консолидации общественных отношений через определенные объекты интеграции и постепенное инкорпорирование всего человечества в единое сообщество с системой слаженных отношений. Движущая сила процесса глобализации находится внутри самой системы общества и общественных отношений в мировом масштабе. Это выражается в том, что общественные отношения представляют собой саморегулирующуюся систему, т.е. все общественные отношения в мире являются частью одной достаточно широкой, но все же единой системы, которая обладает соответствующими функциями саморегуляции. Саморегуляция ведет к улучшению взаимосвязей между структурными частями системы и к повышению эффективности таких взаимосвязей. Таким образом, люди, группы, общности и общества в государствах всего мира все время находятся в процессе взаимоинтеграции.

Ключевые слова: интеграция, правовая интеграция, развитие права, глобализация, международное право, правовые семьи, правовая система, унификация, саморегуляция, общественные отношения.

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ROLE CONFLICT "WIFE VS MOTHER": EXPECTATIONS OF STUDENTS

Abstract. The problem of the family, its preservation and strengthening occupy an essential place among social issues. The social changes affect family, unstable economic situation cause conflicts, and divorces. Marriage and family in the minds of many young people become more means of satisfying the needs for intimacy and informal contact. In the family environment, in communication, in the dialogue of different generations, the child grows. The family is considered today as a system of relationships in which the interaction of parents and children predominates, i. child-parent relations. Parenting is a cultural and historical phenomenon, a historically changeable phenomenon that is influenced by social norms and values. The purpose of our study was an investigation of modern student's ideas about the female role in a family. In the framework of the study, we provided respondents with a Linkert scale describing the "ideal" and "real" mothers.

Keywords: family, family relations, Linkert scale, mother image.

The modern family in Kazakhstan is undergoing significant transformation, due to socio-economic and political changes in society and the value system.

Studying the family today, we can identify some socio-psychological metamorphoses that allow us to determine its problem areas, such as deformation of the structure; change of socio-economic and socio-psychological functions; internal stiffness and blurring of external borders; growth of divorces.

According to the research of scholars (Dzhakupov, Kabakova, Zhanazarova, Elyubayeva, etc.), with the acquisition of sovereignty in the Republic of Kazakhstan, national differences have become more pronounced at the institutional and household levels [1]. National traditions and characteristics became a criterion of behavior; family relation reflects external and internal motivation. In our study, we pay attention to two aspects of family relations: the national mentality that determines child-parent ties and the multicultural process in CIS countries. We speak about the cultural study it's essential to specify ethnic differences.

This study will reveal the social and psychological characteristics of the role of the wife and mother in the context of family representations of modern students.

Nemov believes that marital satisfaction is determined by the interaction of the following five factors:

- the individual characteristics of each member of the family, in particular, the representations of each of them about themselves; relations between husband and wife, especially those that arise in the system of distribution of homework between them;

- the relationship between each parent and child; ties existing honey with a new family and two initial ones: parents and relatives of husband and wife;

- material and professional circumstances of the family life.

Spousal, contentment or dissatisfaction can be caused by any of these factors alone or by any combination of them [2]. Satisfaction with marriage reflects the relationship of a person to their marriage

and is an indicator of the needs of the family system. Satisfaction with marriage as a qualitative indicator of the functioning of the family is of great importance in the diagnosis of the family system. Together with the structural and functional signs, it allows you to build an adequate picture of family relations in objective and subjective plans, create hypotheses about different spheres of family life, and also develop optimal strategies for the family psychotherapy.

According to Torokhtiy, the main criteria of the psychological health of the family is the similarity of family values, functional-role consistency, social role relevance in the family, emotional satisfaction, adaptability in microsocial relations, aspiration for family longevity. Let us consider the features of their manifestation [3].

The similarity of family values reflects the coincidence, orientational unity of views, relations of family members to universal norms, rules, principles of formation, development, and functioning of the family as a small social group. We can observe two trends. The first is the polarization of value orientations among family members like parents Vs. children. The second is deformation, family values and the appearance of ideas, interests, and beliefs of family members that are different from the traditionally established goals.

The role structure, the family determines socio-role adequacy. It reflects the level of realization of interpersonal, intrafamily expectations. From each member of the family, as already noted above, a particular role is expected to perform. However, with the assimilation of social experience, every member of the family as a person today increasingly finds a contradiction between her internal position about the assigned role and the normatively approved pattern of behavior in her [4].

Emotional satisfaction shows the nature of each other loves acceptance and respect in the family. It is the highest degree of emotional intimacy - "biased attitude" to each other - that makes up a unique quality of a healthy family. It is clear that their relationships mediate psychological ties between family members.

With the social context for the activities of modern women are significant transformational changes occurring in all spheres of society (in the economy - the transition from the administrative-command system to market relations, in the political area - the movement from totalitarianism to democratic forms of life, etc.). Naturally, the transformations also affect the sphere of family relations, which were not so tragic for the family, how destructive they were for the national economy, for the foundations of state life [5].

Role conflict occurs when one person performs several social roles and when tension arises between them. The individual faces a tense relationship (role conflict) in an attempt to adhere to incompatible functions, for example, the employee and the mother. Among the possible role conflicts of a woman, the contradiction between her social and family roles became particularly acute.

The fact that cultural-historical and ethnocultural factors condition the social relationships of the sexes makes it necessary to analyze not only the status of "women in general," but also the specific type of women (in this case, the Kazakh woman). The woman in modern life has to face a conflict between social expectation and her wishes. Motherhood in Kazakh traditions is the essential part and main female duty but how it works with child-free groups.

The social construction of motherhood has had a tumultuous history and it is fair to assume a tumultuous future will continue to follow at least in the near-term. The role definition of motherhood has passed from patriarchal systems for much of history through to the rise of feminism where attempts are being made to reduce and eliminate ideas of ownership and imbalances of power, as well as of hierarchical and dualistic thinking which have previously dominated the definition of motherhood.

The practice of mothering furthers identity changes, particularly because women are faced by the realities of motherhood in juxtaposition with their ideals of motherhood. Identifying as a mother and developing a motherhood identity involves integrating internalized ideals about how women believe they ought to mother with the lived reality of motherhood. When women who are mothers do not reach this ideal, they often feel guilty or blame themselves for their shortcomings as mothers. Complicating this further, women are often expected to experience only positive feelings about motherhood and to be the ideal mother that is portrayed by society. As an example of this, new mothers in Miller’s (2007) study expressed some initial confusion about mothering and spent significant energy learning to be attuned to their children’s needs [5]. Their maternal confidence grew gradually, but the women persisted in comparing themselves to the culturally endorsed ideals of motherhood and continuously felt tension over their own

shortcomings. Thus, women must modify their internalized ideals about parenthood when they become mothers (Steinberg, 2005) and, consequently, face identity changes. Therefore, women incorporate motherhood into their identities, but not without the tumult of facing the actuals and ideals of who they are as mothers. In light of the multifarious changes women face when becoming mothers, motherhood has been conceptualized from multiple angles. Steinberg (2005) stated that mothering may serve as a reenactment or reparation for women's relationships with their mothers [6]. Because of the changes and challenges that parenting requires, Benedek (1959) posited that parenthood is a developmental phase for parents. Oberman and Josselson (1996) viewed motherhood as a matrix of tensions that women must negotiate within motherhood. Baraitser (2006), from a different perspective, conceptualized motherhood as a transformation of women [7-9].

In our study, we used Linkert scale. Participants had to estimate each trait in context of "ideal - real mother," "ideal - real wife." According to Osgood, the Linkert scale is intended to reveal, first of all, an emotional assessment of the qualities of the object and, to a lesser extent, cognitive and behavioral settings of recipients about the object or after its presentation [10].

This test evaluates the stimulus using a set of high-frequency adjectives and their antonyms (bipolar scales) based on the factors EPA (Evaluation - Potency - Activity) - evaluation, strength, activity [11]. Together, the three types of scales allow us to describe the sensory-emotional image of an object for a specific individual, and also, when summarizing the indicators, to identify the group's assessments of this object and it's "value" (i.e., the aggregate sign of positive qualities).

The study involved 42 people, 22 men and 20 women, the average age of the subjects 20 years. Of these, five women were married, in the sample of men; the number of married men was four people.

Let's analyze data in the category of beauty in the ideal image of the mother. For representatives of both sexes mother, the concept "beauty" is of special importance. More than 50% of respondents in the description of characteristics of "ideal mother" have delivered to 100% the importance of appearance.

The following characteristics of the subjects did not reveal a significant discrepancy in the estimates; almost all 85% indicated high scores for them:

– sincerity;
– honesty;
– courage;
– strong personality;
– has her own opinion.

Men and women differently perceive the image of the mother. The concept of "mother" has a different degree of severity in men and women, which is reflected in table.

Results of attitude to the concept of "ideal mother" in men and women according to the method of semantic differential

Measured parameters		Men's	Women
LED	Evaluation	10.65169	7,786,885
	Force	7,685,393	5,918033
	Activity	4,05618	2.196721

As can be seen from Table 1, for men, the image of the mother means more. Their high results indicate that they accept the mother as a person, are inclined to realize it as a carrier of positive, socially desirable characteristics. The findings suggest that men are more sympathetic to their mothers than women. The results of women indicate an increased critical attitude towards their mothers, more significant dissatisfaction with their behavior, level of achievements, personality characteristics, and inadequate level of their acceptance.

Thus, in the objective-evaluation plan, the attachment of married men to their mother is much higher than that of married women.

Findings could be explained by the fact that the image of the mother in male psychology is entirely different from the female one. For a woman, the mother personifies her own conscious life, conditioned by sex. But for a man, the mother represents something alien. For this reason, the image of the mother in a man differs significantly from the woman's picture of the mother. For a man, the mother of the very

beginning has an apparent symbolic meaning, which probably explains the strong tendency towards it to idealize it. While for a man the mother has a symbolic meaning, for a woman she becomes a symbol only in the course of her psychological development.

Thus, as a result of factor analysis, we identified 3 main factors in describing the image of the ideal mother in the respondents.

Factor 1:

– honest (0.955)
– clever (0.933)
– causes confidence (0.928)
– beautiful (0.915)
– happy (0.915)
– loves children (0,896)
– strong (0.869)
– reliable (0.862)

As can be seen from the load of the components, the main significance for the subjects is variable honesty. Honesty is avoiding deception, and in particular fraud, in dealing with other people. Compared with truthfulness, the concept of honesty emphasizes the lack of selfish motives for misinformation and at the same time condescendingly refers to unintentional misleading, that is, a person can remain honest if he tells another untruth to which he believes. In short, honesty can be defined as behavior in which a person tries to convey to others his picture of the world without distortion [12].

The second most important in describing the image of the mother was the variable - the mind. For the respondents, the ideal mother should be honest, and then smart. Given the fact that the image of the mother is a projection of the image of her mother, I have a question: Do the mothers not have enough honesty with the children? Unfortunately, the interpretation of this factor should include further research.

"Causes trust", this component has a high semantic load and correlates with the notion of honesty. Because trust is an attitude of the person, representing an absolute faith, and sometimes replacing it. It manifests itself in a specific view of the subject to individual objects associated with the situational, actual significance and a priori reliability (security) of the object for the subject. Trust is an independent form of faith, the essence of which was first identified as the primary attitude of the individual to the world, formed at the early stages of ontogenesis, E. Erickson [13, 14].

For us, it was a striking fact that the category "loves children" is the seventh most important component. Thus, caring and love of children is not expected behavior, even for "ideal materials," what then to talk about reality. However, a full description is impossible without an explanation of the following factor.

Factor 2:

– active (0.977)
– earns well (0.943)
– open (0.942)
– dress well (0.937)

Activity, as an activity directed outward, is considered from the standpoint of S.Bem, a specific characteristic of male behavior, as well as "earns well." In describing this factor, we see an "ideal mother," as an active woman, earning money, open and well-dressed and everything. Perhaps the interpretation of this factor is possible from the standpoint of sociology. Indeed, the divorce statistics show that every five marriages in Kazakhstan end in divorce, in Aktyubinsk Oblast such a fate awaits every third marriage. Consequently, the mother takes on the traditional behavior of the father, the "breadwinner," which distorts the child's view and grows he/she requires similar behavior.

We considered the respondents' attitude to the image of the "ideal mother" Let's consider their relation to the concept of "real mother." The majority of respondents rated the image of the mother as real, very high, evaluating both indicators of physical attractiveness, and strength, intelligence, and openness. However, the high scores of respondents on the scale of "jealousy" became a great shock for us. 30% of the subjects evaluate their mother as jealous enough. 65% note manifestations of jealousy in the behavior of mothers.

Consider the results of factor analysis of the semantic differential "real mother."

As a result of factor analysis, the data were grouped into five factors.

Factor 1:

– honest (0.951);

– clever (0.888);

– reliable (0,878);

– he loves children (0,827);

– careful (0.798);

– open (0.783).

As can be seen from the table above, there is a particular difference in perception of the image of the ideal and "real mother." So subjects underline the category of honesty again. However, we see a shift in the component "Loves Children" from 7th to 3rd place. In the description, there are also unique and open characteristics.

Factor 2:

– he dresses well (0.891);

– active (0.878);

– beautiful (0,8);

– open (0.503).

This factor can be referred to as the external image of the mother, the components of which are the ability to dress well, activity, beauty and again openness.

Factor 3:

– thinks of other people (0,858);

– the immediate (0.759);

– trusting (0.686);

– happy (.618);

In general, this factor describes the relationship of the mother to others, which emphasizes thoughts about others, spontaneity, trustfulness, and happiness.

Factor 4

– has his own opinion;

– strong;

– bold;

This group of qualities can be described as independence, strength and courage, the presence of one's personal opinion.

Factor 5

– causes trust (.708);

– happy (.623);

– jealous (-0.671).

The image of the mother appears to us as a woman that generates trust, happy and not prone to jealousy. Jealousy is one of the most influential human emotions, comparable with love, and with hatred. And like all other emotions is inherent only to man. Suspicion is an unpleasant, painful feeling associated with the fear of losing an object of love. Jealousy - in many ways a simple sense and always associated with the rivalry. As a rule, people who are not self-sufficient, not self-confident, or conversely too self-assured and consider a person their "property" tend to be very jealous [15].

The results of the semantic differential of the attitude of the respondents to the images of the mother showed that there are differences in the perception of the ideal and real pictures of the mother.

24% of the subjects find it difficult to assess the openness of the image of the real mother. At the same time, 42% of the participants believe that the mothers are completely frank with them.

The performed research does not pretend to be exhaustive. Perspective directions of further scientific research can be the study of social stereotypes regarding the role of husband and father, the study of the dynamics of family relations inegalitarian and conservative families.

Mother teaches children good and love, gives the first lessons of humanity, experiences of mental attitude to people because the mother has an extraordinary emotional influence, warmth, and warmth, spiritual softness and sensitivity. A mother is a mirror in which a child looks. In addition to raising children, the mother is also the mistress of the house. Sociologists estimate that the average woman's average

workload is twice the average household load of a man, and her total workload is more by 15-20% of the whole workload of a man. A woman mother has a second working day - at work and home. The professional and family functions of the mother are combined with high tension. Hence fatigue and nervousness, which, negatively affect the relationship in the family. The consequences of this attitude toward children are primarily manifested in the form of absolute behavioral deviations. This problem has recently become more urgent for society.

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«ӘЙЕЛ-АНА» ОТБАСЫНДАҒЫ РӨЛЬДІК ҚАЙШЫЛЫҒЫ

Аннотация. Қазіргі таңда әлеуметтік мәселелердің арасында отбасын сақтау және оны беріктігін нығайту маңызды болып табылады. Отбасы мүшелерінің әлеуметтік жағдайларға бейімделу және бос уақыттарын дұрыс ұйымдастыра алмауының салдарынан өз позицияларын жоғалтуда. Отбасында әрбір мүшелерінің қалыптасқан дәстүрлі рөльдерінің өзгеруі жағымды және жағымсыз тұстарын көрсетуде. Отбасын сақтау және некенің беріктігі қазіргі таңда әлеуметтік мәселелердің ішіндегі ең маңыздысы болып табюылады. Көптеген жастарымыз некеге тұрыпта немесе некесіз бейресми қарым-қатынастық негіздеде отбасын құру қажеттіліктерін қанағаттандыруға мүмкіндік беруді. Мұндай отбасылық ортадағы қарым-қатынас әртүрлі ұрпақтардың байланысында баланың психикасының дамуын және ата-ананың психикалық өмірінде едәуір өзгертеді. Ата-анасының қарым-қатынасы бұл мәдени тарихи феномен, қоғамдық нормалар мен құндылықтардың әсерінде болатын тарихи өзгермелі құбылыс. Болып жатқан әлеуметтік және экономикалық өзгерістер неке – отбасылық қатынас саласын тікелей қамтиды. Біздің зерттеуіміздің басты мақсаты қазіргі заманғы студенттерге ананың рөлі туралы түсініктерді қалыптастыру болып табылады. Зерттеу шеңберінде біз "идеалды" және "шынайы" ана бейнесін суреттейтін семантикалық дефференциалды респонденттерді ұсындық.

Түйін сөздер: отбасы, отбасылық қарым-қатынас, семантикалық дефференциал, ана бейнесі.

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ЛИЧНОСТНЫЙ РОЛЕВОЙ КОНФЛИКТ «СУПРУГА-МАМА»

Аннотация. Современная семья, в силу социально-экономических потрясений в стране, испытывает огромные трудности. Семья утрачивает свои позиции в социализации индивидов, в организации досуга и других функциях. Изменения традиционных ролей повлияло на характер функционирования семьи и повлекло за собой позитивные и негативные последствия. Проблема семьи, ее сохранение и укрепление, в настоящее время занимает важное место среди социальных проблем. Брак и семья, в уме многих молодых людей, становятся больше средствами удовлетворения потребностей в близости и неформальном контакте. В семейном окружении, в общении, в диалоге разных поколений осуществляется формирование и развитие психики ребенка, существенно изменяющее психическую жизнь родителей. Семья, на сегодняшний день, рассматривается как система отношений, в которой преобладающая роль принадлежит взаимодействию родителей и детей, т.е. детско-родительским отношениям. В рамках исследования мы предоставили респондентам семантический дифференциал, описывающие образы как «идеальной», так и «реальной» матери и жены. В проведенном исследовании участвовало 42 испытуемых.

Ключевые слова: семья, семейные отношения, семантический дифференциал, образ матери.

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DEVELOPMENT OF THE LABOR MARKET OF THE REPUBLIC OF KAZAKHSTAN IN THE CONDITIONS OF INNOVATIVE ECONOMY

Abstract. A key condition for accelerated progress in social and economic development is an effective innovation policy aimed at the introduction of high, "breakthrough" technologies, new forms of organization of labor and management, advanced inventions and the achievements of scientific and technological progress. Within the framework of the adopted State Program on Forced Industrial and Innovative Development of the Republic of Kazakhstan, the main instruments of innovation policy should be aimed at consolidating the efforts of business and the state to develop priority sectors of the economy, as well as the formation of effective institutions and mechanisms for their interaction. The main methods of research are a method of deduction and induction, as well as a comprehensive approach and method of scientific abstraction. The variety of goals, objectives and areas of activity. An assessment of the state and prospects of the Kazakh economy allows us to state that a consistent, unified system of innovative development of Kazakhstani society is not being applied, the basis of which should be an innovative economy. At the same time, the source should be a scientific and technical factor, and the result is new enterprises that produce new products and services that will ensure the growth of well-being and sustainable social and economic development.

Keywords: innovations, competition, efficiency of innovative activity, managerial decisions.

Introduction. In modern conditions, only an innovative economy based on borrowing, adapting to local conditions and developing new technologies, can raise the country's competitiveness, and hence the living standard of the population of the country at a sufficiently high level. The transition of Kazakhstan's economy to an innovative way of development, stimulating the development of science and technology, the formation of institutional conditions, and the construction of interaction in the innovation sphere are becoming increasingly important.

To formulate a scientific and technical policy that meets the main goals of the country's social and economic development is capable only of the state. Of course, China's experience is an example of the most successful transition from a backward to a modern economy with a wider use of innovation. It should be noted that it is based on the unity of political and economic management of economic processes in the interests of not individual clans, but society as a whole.

Methods of research. The main methods of research are a method of deduction and induction, as well as a comprehensive approach and a method of scientific abstraction. The variety of goals, objectives and areas of activity in agriculture predetermines various criteria for assessing the effectiveness of economic entities.

Studying and introduction of foreign experience allows building an effective innovative policy focused on increasing the competitiveness of the national economy. Innovative processes in the republic have not reached the desired pace due to the fact that an effective mechanism for implementing the state's innovation policy has not yet been fully developed.

Results. Innovation potential and innovation activity is not high enough, Kazakhstan is on the 83rd place in the world countries rating on the innovation index. In the Kazakhstani innovation system, the share of higher education institutions that perform research and development remains low. Private universities practically do not conduct scientific research, and public universities pay more attention to the educational function, rather than the scientific one.

One of the main directions of the innovation policy is the creation of new science intensive and high-tech industries in place of existing old and inefficient ones. However, so far no results have been achieved in this direction. Despite available scientific developments and projects, modern science of Kazakhstan is characterized by insufficiently qualified scientific personnel, backward scientific and technical base, and bureaucratization of licensing and patenting processes. The result of the state's innovative policy should be the production of competitive and export-oriented goods, works and services. State funds should be invested in narrowly focused research, for the development and implementation of which there is sufficient scientific and production backlog [3].

Today Kazakhstan faced the need to take a global innovative challenge. For Kazakhstan, which has entered a new stage of building a modernized and diversified economy aimed at providing breakthroughs for accelerated economic development and the introduction of modern social policy, the task in the medium term is to enter the circle of industrially developed countries and become an active part of the postindustrial world.

Obsolete production and management technologies have a negative impact on the productivity of social labor, whose level in Kazakhstan is one and a half times lower than in Russia, and four to five times less than in Western Europe and the United States. This is due, in particular, to insufficient financing of innovation activities. Currently, R & D funding is 0.32 percent of the country's GDP, while in Russia it is 1.18 percent, in the top 15 countries of the European Union it is 1.96 percent.

In order to develop an innovative economy to begin with, it is necessary to identify the causes and factors that are barriers and restrain the innovative activity of enterprises. As the main factors that prevent the increase of innovative activity of enterprises, we can distinguish the following:

– unacceptable conditions for investment and lending;
– insufficient solvency of customers;
– high cost of innovation;
– limited property and financial resources;
– low financial support from the state.
– insufficient awareness
– insufficient qualification of staff.

The maximum informing of entrepreneurs about the opportunities provided should become the foundation in the implementation of the main task - to enter the number of innovative economies of the world by 2020.

In general, it is proposed to eliminate the unfavorable factors and solve the main problems of innovative development:

– create an effective national scientific and innovation system on the basis of a legislative framework that will streamline all relationships between subjects of scientific and innovative activity and stimulate demand for innovation;

– to develop an effective mechanism for the functioning of a technological corridor for the transformation of scientific knowledge into a commercial product: an idea - an innovative proposal - R & D - a prototype - a production - a market;

– provide enterprises that direct their own funds for scientific and technical activities, preferential terms for taxes;

– develop a strategic plan for scientific projects to ensure the link between fundamental, applied research and the processes of commercialization of their results;

– improve the quality of training of scientific and innovative personnel and create favorable conditions for their activities and development;

– create specialized high-tech zones;

– conduct systematic collection and processing of information that can be used to improve the decision-making process of scientific and innovation activities.

Thus, we see that due to the lack of effective and developed tools in the field of law, technology and scientific personnel, the overall state of socio-economic development is difficult to characterize as modernized, despite the opportunities and innovative achievements that Kazakhstan possesses.

Today it becomes evident that the service sector, understood in a broad sense – production services and services to the population, primarily high-tech services, can provide a significant increase in employment, both now and in the future. In France and the UK, it employs two-thirds of all employed, and in the United States, even more. Other developed countries in this indicator are also beginning to approach them. The production of services can become a "locomotive" of economic growth in the sense that they no longer play an additional, auxiliary role in relation to industry. ITT allows increasing the "exchange potential" of services, which in the past has been very limited and, thus, to expand the services market, which in its time occurred with the production of manufacturing industry. Consequently, the service sector (for example, software manufacturing enterprises) today is characterized by indicators similar to those found in traditional industrial production. True, they are more difficult to perceive, because they are associated with the production of intangible products. The service sector is increasingly enriched by new network solutions. Infrastructure is gradually emerging, methods are being developed for the application of new high-speed telecommunications systems capable of transmitting not only numbers and texts, but image and sound (multimedia). This discloses the content of a possible scenario for the next economic development cycle, when consumers will be offered new services, supplier companies will have access to global markets, and additional jobs will be created in the sphere of new activities. The economic development potential of information networks is extremely high, as they cover and change various spheres of human life: entertainment and commerce, finance and the media, education and medicine, postal communication, etc.

It should be noted that not all types of services are equally affected by ITT. It is great in the field of providing new financial and insurance services and services to companies where the "exchange potential" of services has increased substantially and their supply has expanded, and, consequently, employment. In the area of intermediate services (trade, transport and communications), the impact of ITT was more conducive to higher labor productivity than market expansion, and did not increase employment. Finally, in the field of social and personal services, which to a large extent determine the creation of new jobs in the tertiary sector, the possibilities of using ITT have so far been limited. In the future, they are likely to increase, especially in education, culture, science, vocational training and health care.

New jobs and network services. Today, ITT can make a decisive contribution to strengthening the relationship between productivity growth, output, investment and employment. New types of services, spreading through networks, are able to create a lot of jobs, which is confirmed by the practice of recent years.

According to expert estimates, in the US, the contribution of the information sector (information systems and telecommunications, mass media) to GDP will double in the next decade, which will lead to the creation of 3-5 million new jobs mainly in small and medium-sized innovative firms. Only around the Internet there are already about 400 thousand jobs. Japan, in turn, hopes to create 2.5 million jobs in the multimedia sector in the next 15 years, and 6 million to the EU countries.

The US experience refutes the widely held view that innovative processes reduce quality and worsen the content of labor, dividing labor into a "working aristocracy" - "those who know" - and the bulk of low-skilled workers. In fact, in the past decade a significant part of new jobs has been created in the tertiary sector of the economy, where workers perform the functions of managers, specialists, consultants and small entrepreneurs, often working part-time. For example, in enterprises producing software, with a high proportion of specialists in the number of employed in five years, 250 thousand new jobs were created, while in the manufacturing industry their number decreased by 116 thousand. In the financial services sector over the last ten years 80 thousand workplaces connected with rendering of traditional services have been liquidated, but 500 thousand workplaces have appeared in such new areas as management of securities and actives, service of credit cards. In the ITT sector, labor productivity "is not much different from the one that exists in Europe or the US", in the retail sector - 75-80% of the US. Therefore, much depends on the industry. The specificity of the Russian economy is that even within a single sector the productivity of different firms can differ at times. "We already have a lot of companies that work according to international standards, including, unfortunately, there are not so many of them. But we still have many inefficient firms that do not die and pull the rest of the economy down. "

It is necessary to assess the degree of modernization in terms of the depth of institutional transformations. Unemployment may well remain at the current level, but institutionally it will be another economy, with another banking system, with other antimonopoly regulation, and so on.

Therefore, we believe that modernization of the economic institutions of the labor market, increasing their effectiveness, should be one of the directions for modernizing the Russian economy. This applies, among other things, to the work of labor exchanges, bureau and employment services, and so on.

So, the modernization of the labor market is, first of all, the modernization of its main economic institutions, as well as infrastructure:

1. Modernization of workers' wages;
2. Modernization of workplaces of enterprises and firms;
3. Modernization of labor exchanges;
4. Modernization of state institutions of mediation in employment;
5. Modernization of the labor market infrastructure.

Modernization of the labor market includes the need to modernize the labor market infrastructure, which involves the creation of a developed housing market, necessary for migrations of labor, a developed market for educational services, which make it possible to migrate abroad with Russian diplomas, etc. For example, there is still no so-called "Russian" system in Russia. Continuous education, which has long been functioning in developed countries. As a result of this, workers who have reached retirement age can successfully compete with university graduates for their jobs in the event that they preserve their health and readiness to work at such a mature age (60 years or more).

In the modern economy of Russia, various "ancient" ways of adapting to the labor market have spread; they have become a kind of "visiting" card of the Russian labor market. It is part-time work and forced administrative leave, secondary employment and employment in the informal sector, wage delays and shadow wages, in-kind wages and the production of goods and services in the households of the population.

Conclusions. Untimely and hidden wages, incomplete and secondary employment have led to the personalization of labor relations between employees and employers, so that explicit labor contracts can give way to implicit contracts that distinguish informal labor relations.

At present, the process of reproduction of labor resources in the Republic of Kazakhstan has been violated. And this is expressed not only in the reduction of the number of population in the country, low birth rate, but in extremely low wages, which does not give an adequate return for work. But in order to grow healthy literate workers, an age-old tradition is needed. The inability to eat properly, dress, rest, develops, along with technological backwardness, which leads to a drop in productivity, intensity and quality of labor.

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ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ЕҢБЕК НАРЫҒЫНЫҢ ИННОВАЦИЯЛЫҚ ЭКОНОМИКА ШАРТТАРЫН ДАМЫТУ

Аннотация. Әлеуметтік-экономикалық дамудағы жедел прогрестің басты шарты жоғары, «серпінді» технологиялар, еңбек және басқаруды ұйымдастырудың жаңа формалары, алдыңғы қатарлы өнертабыстар мен ғылыми-техникалық прогрестің жетістіктеріне бағытталған тиімді инновациялық саясат болып табылады.

Түйін сөздер: инновация, бәсекелестік, инновациялық қызметтің тиімділігі, басқару шешімдері.

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РАЗВИТИЕ РЫНКА ТРУДА РЕСПУБЛИКИ КАЗАХСТАН В УСЛОВИЯХ ИННОВАЦИОННОЙ ЭКОНОМИКИ

Аннотация. Ключевым условием ускоренного прогресса в социально-экономическом развитии является эффективная инновационная политика, направленная на внедрение высоких, «прорывных» технологий, новых форм организации труда и управления, передовых изобретений и достижений научно-технического прогресса.

Ключевые слова: инновации, конкуренция, эффективность инновационная деятельность, управленческие решения.

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SOCIO-ECONOMIC INDICATORS OF LIVING STANDARDS IN THE REPUBLIC OF KAZAKHSTAN

Abstract. The article analyzes the main components of the population's living standards in the Republic of Kazakhstan in terms of such indicators as the income level of the population and their purchasing ability, the average monthly wage, the average size of the accrued pensions, and the subsistence minimum. The analysis included separate regions of the country and Kazakhstan as a whole.Indicators that reduce the quality of life of Kazakhstanis are revealed.

Based on the conducted studies, it was concluded that the quality of life of the population is an integral characteristic that gives an idea of the life activity of a person and society, therefore the improvement of the quality of life is the main task and criteria of the activity of the authorities.

Keywords: standard of living, quality of life, quality of life components.

Introduction. Economy of Kazakhstan is at the important stage of development, including the formation of a socio-economic model aimed at overcoming the consequences of the financial crisis and capable of adapting to the realities of modern processes occurring in the entire global economy, which is characterized by the intensification of globalization and convergence.

In modern conditions in the RK, one of the priority areas of socio-economic policy is to improve the living standard of the population.

Living standard and comprehensive human development - these categories constitute a meaningful characteristic of modern approaches to the problems of economic growth and development of society.

In the practice of analyzing the standard of living and its statistical accounting, the cost integral indicator of living is used. The term "cost of living" is used to refer to the value of consumer goods corresponding to a certain level of satisfaction of needs. According to this interpretation, changes in the cost of living are determined by the dynamics of consumer prices, structural changes in consumption associated with the growth of income and needs, the state of the market situation (the ratio of effective demand and supply of goods), as well as other factors.

With this understanding, the cost of living is most consistent with the content of the category of living standards, takes into account the conditions of life and work [1]. "Cost of living" is considered in the form of consumer budgets of the population (actual, normative and forecast) and is proposed as a cost tool for the study of the standard of living system. The definition of the standard of living is a rather complex process, on the one hand, depending on the evaluation of the composition and magnitude of the needs of society, and on the other hand -capacity of the country's economy is limited to meet them. In international comparisons, the living standard can be characterized by a number of summary and partial indicators: gross national income; real incomes of the population; average and minimum wages of employees and the level of pensions, their ratio to the subsistence minimum; the level of consumption of basic material goods by the population; housing per capita; differentiation of income and consumption; length of life; level of education, etc [2].

Results of the research. In the world practice, the value of gross national income (GNI) per capita, calculated at the purchasing power parity of currencies. It is used as the integral indicator of the resource supply of the living standard. In February 2016, an average of 70.1 thousand tenge of income was accounted per resident of the country. Itis 14% more than a year earlier [3].

The Constitution of the Republic of Kazakhstan declares that the state is democratic, secular, legal, social and the highest values of which are a person, his life, rights and freedoms. On the basis of this, the main task of the state's social policy and the main criterion of its effectiveness is a steady improvement in the people's quality of life. In the Strategy "Kazakhstan-2050": a new political course of the state "and in all messages of the President of the Republic of Kazakhstan to the people, from 1997 to 2017, it was noted that the issues of social well-being, prosperity, welfare improvement remain on the foreground of the state policy and issues of social support of the population [4]. The welfare of a society largely depends on the properly chosen social policy of the state, which in turn depends on whether it has enough information and how the information fully shows the problems in modern society. From solving the problems of the level and quality of life largely depends the direction and speed of further changes in the country and, ultimately, political, and, consequently, economic stability in society, The solution of these problems requires a certain policy worked out by the state, the central point of which would be a person, his well-being, physical and social health. That is why all the transformations, which, some way or another can lead to a change in the standard of living, arouse great of interest to a wide variety of people [5]. The Kazakhstan policy on forced industrial-innovative development also imposes new high demands on the model of social development. There is an even greater shift in the state strategy towards social priorities. Kazakhstan positions itself as a socially-oriented state, which still has a significant burden on the state budget for social welfare spending. The share of spending on social welfare is 1/5 of the cost of the state budget, while the sector together with health creates less than 2% of GDP. The main priorities of the state policy of our republic, in accordance with the President's instructions, were and continue to be the development of human capital and the improvement of the living standard. The Government's programs for this purpose are aimed primarily at maintaining employment and raising incomes, and social protection for the most vulnerable groups of the population. Even in the conditions of the outbreak of the global financial crisis, the state has not refused to provide social support to its citizens. Thanks to the financial "cushion" in the form of the National Fund, the state managed to keep all social programs intact, and even increase funding for some of them. According to the report of the Global Competitiveness Index of the World Economic Forum (GCI WEF) for 2015-2016, Kazakhstan ranked 42nd in the ranking among 140 countries, rising to 8 places in comparison with the rating results of the previous year.

Discussion of the results. According to the Human Development Index in 2016, the republic was included in the group of countries with a high level of development, ranking 56 out of 188 countries. According to the International Labor Organization, in the rating of average wages, Kazakhstanis wage wasat € 339 per person and held a modest 61 place out of 71 countries in which studies were conducted. Consolation is that oil-rich Argentina and Azerbaijan were even lower, at 62 and 63 places correspondingly [6].

The urban population of Kazakhstan is 54%, it lives in 87 cities, the largest of which are:

– Almaty (1,705 thousand people);

– Shymkent (886 thousand people);

– Astana (873 thousand people);

– Karaganda (498 thousand people).

If you take the convenience of life and prospects for development, then the leader can be Astana – a unique city, a former Tselinograd, and as the capital, built almost from scratch.

If we take business opportunities, Almaty is beyond competition. On other parameters, the Kazakhstanis argue among themselves and enthusiastically create various ratings.

The positive trend is related to the state's actions in the investment area. Roads, schools, kindergartens are being actively constructed, with the support of the authorities, new production enterprises and job places are created.In the country, the average duration of life has reached 69 years, the welfare of the population has increased, which have spent more to purchase durable goods. Other indicators of the quality of life and demographic indicators have improved on which depends on the country's sustainable development and its competitiveness on the external arena. At the same time, the main causes of death are

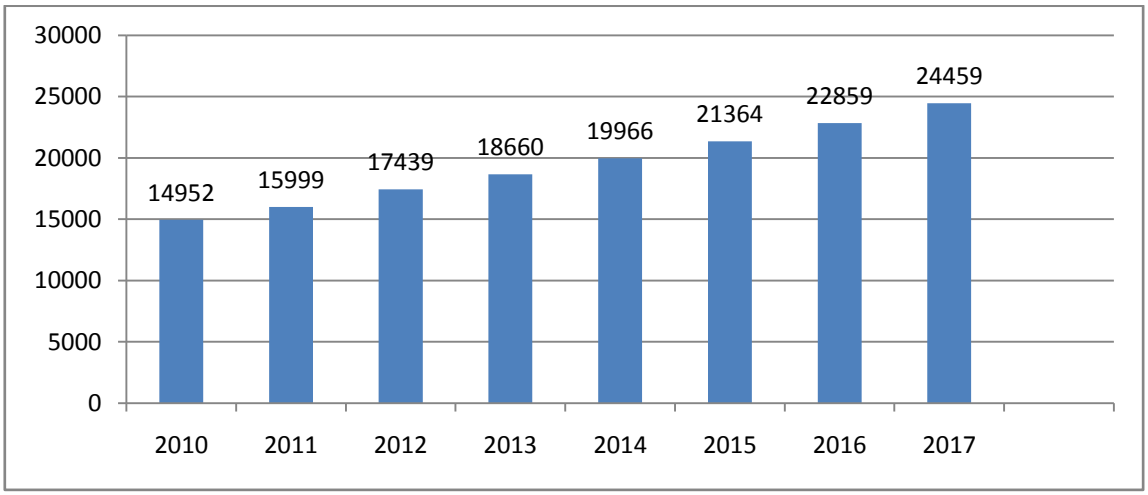

Figure 1 – Dynamics of minimum wage growth in the RKfor 2010-2017

cardiovascular diseases, accidents, injuries, murders, neoplasm. At the same time, Kazakhstan has a lot of problems, the solution of which will increase the qualitative indicators of the population's existence. For example, one of the significant reasons for the lag in the quality of life in villages from the city is the lack of quality drinking water. In terms of water availability per capita, Kazakhstan ranks last in the CIS.

Another important indicator of the formation of a new quality of human potential is the education level. In this direction of development, Kazakhstan has reached a high level of development. At present, the educational level of Kazakhstanis is 99.7%. These achievements are largely due to the fact that the state budget expenditures on education are quite high. At present, the main task of the education system is to raise the quality of education. One of the methods for solving this problem is the transition to world standards, including 12-class training system.

The entire residential stock of the country at the beginning of 2017 amounted to 283.9 million square meters. 167.3 million square meters, or 58.9% of it settled in cities and other urban settlements, and 116.6 million square meters (41.1%) – in rural settlements. Almost the entire (96.3%) housing stock is now privately owned by the country's population and only 3.7% (10.3 million square meters remained in the state.

Despite the significant growth in the volume of construction of new residential buildings over the past 6-7 years, the provision of housing for the country's population continues to be a rather acute problem.

In 2016 real incomes of the population of the Republic of Kazakhstan decreased by 4.5%, this is the most significant drop in the standard of living over the last 16 years. The previous anti-record was recorded in 2009, when the level of real income for the year decreased by 3.1%. The decrease in the purchasing power of wages of Kazakhstanis continued for almost the whole year, only in December the level of real incomes grew by 2.4%, however, this temporary increase did not affect the final annual indicator [7].

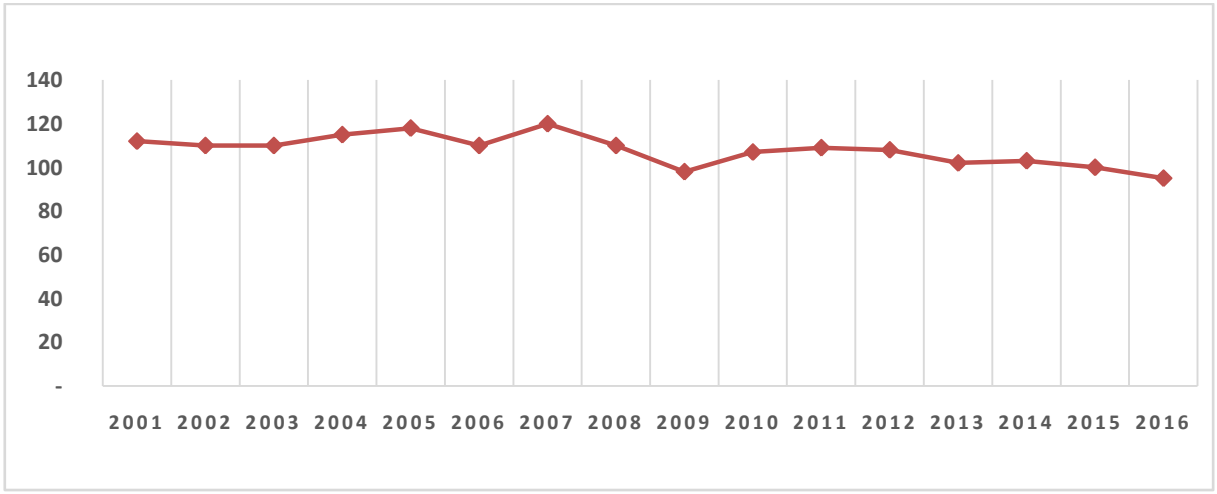

Figure 2 – The index of real money income (% of the year) [9]

The cost of living rise in the country is first felt by the most unprotected group of the population.

During 2011–2015, the number of people with incomes below the subsistence level fell sharply in Kazakhstan – during this period the number decreased more than 2 times. However, in 2016 this process hasn't only stopped, but there was a reverse trend - according to the results of the 3rd quarter the number of such Kazakhstanis was 452 thousand people or 6 thousand more than it was a year ago.

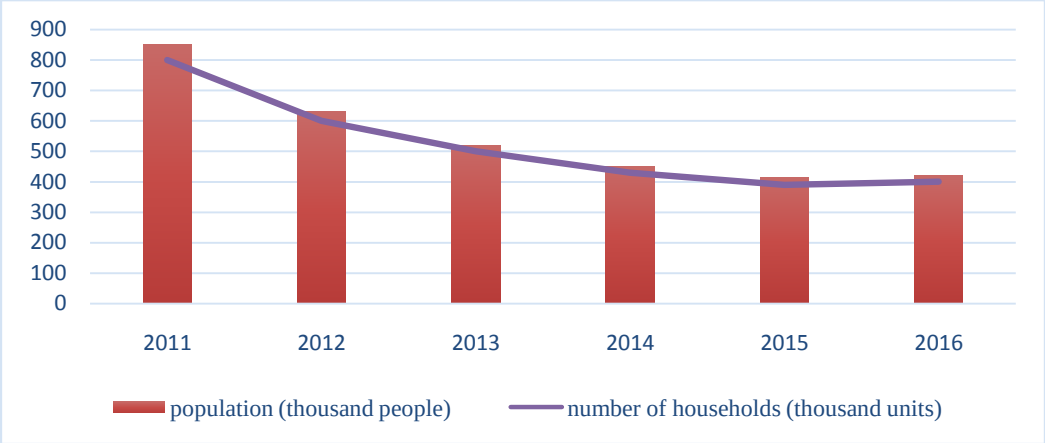

Figure 3 – Population with incomes below subsistence level [8]

The number of 10% of the poorest people in the year grew faster than the 10% of the best-off. Compared with the level at the end of the 3rd quarter of 2015, the number of low-income people in Kazakhstan increased by almost 27 thousand people, while the number of wealthy citizens of Kazakhstan increased by 18.3 thousand people.

It is a reminder that a year earlier, the growth of the number of wealthy Kazakhstanis was 31 thousand people against the growth of 24 thousand people, the number of 10% of the poorest residents of the country.

10% of the most well-offcitizens of the Republic of Kazakhstan have 23.6% of all income of the population. At the same time, the level of inequality in the Republic of Kazakhstan is still low (0.281), although compared to 2013, its rate has increased. Below are the data on the share of the population of the Republic of Kazakhstan, which has incomes below the value of the food basket.

According to the Statistics Agency of the Republic of Kazakhstan in 2001, the share of citizens with incomes below the subsistence minimum was 16.1%.This figure was already 0.1% in 2016. In Kazakhstan, the real level of food security of the population is not calculated, and the most important socio-economic indicator is unknown. There is only such indicator, as the share of the population, having incomes below thecost of a food basket. But it has absolutely no practical value, since the value of the food basket is artificially understated.

So, at present 0.2% of the population has incomes below the food basket, which is 12 thousand 442 tenge. And this indicator creates a picture of well-being, not reflecting the true situation. An order of magnitude more people who cannot afford high-quality foods.

One of the main factors affecting the quality of life is the opportunity to engage in adequately paid work. Therefore, it is not surprising the attention is paid by the country's leadership to the present issue. Economic growth and government measures have led to the fact that the level of employment in the Republic has a long-term and stable growth trend, so this indicator increased from 89.6% in 2001 to 94.6% in 2011. In November 2017, the inflation rate in Kazakhstan was 0.90%, which is 0.30 less than in October 2017 and 0.30 less than in November 2016. At the same time, inflation was 6.48% since early 2017 and in annual terms - 7.43%.

Meanwhile, the Employment Program at the first stage of its implementation for this indicator set the bar at the level of 5.5%, i.e. it can be argued that this "weight is taken".

Today in Kazakhstan, those who work are forced to tighten their belts more and tighter as utilities costs, food prices have significantly increased, and wages have also reduced, due to uncontrolled and unbeatable inflation. Almost half of their monthly income of Kazakhstanis spends on food. For compa-

rison: in 2009 during a downturn, it took less - 36% of the salary. Since 2015, based on the data of the study, 23% of Kazakhstanis spend two-thirds of the earned income to buy food, 20% - slightly less than half and 10% - all the income. The fact that most of the salary goes to food products is indicative of low incomes of the poorest layers of the population. In fact, the share of expenditures in the family budget for food is a measure of poverty. This indicator, unlike official statistics, cannot be deceived: it is the most universal and final indicator of the poverty level. Here, at once, inflation, and prices for products, and the level of wages. Therefore, it is not surprising that this share has increased due to the crisis. If citizens who spend half their earnings on food in the country more than 50%, we can say that the country is poor. Meanwhile, in developed countries, families spend about 20-25% of their monthly income on food. In some countries, the figures are even better: in England, for example, for food is spent 11% of the income of the population, in France - 14%.

The increase in wages, as reported in 2016, did not compensate inflation, which led to a decrease in real disposable incomes of the population. Debts to wages remain, and the main reason of it - the lack of enterprises' own funds - is connected with the crisis phenomena in the economy and cannot be eliminated without serious state interference. In addition, the increase in wages, firstly, is unequal distributed across the regions of Kazakhstan, which leads to a deepening of the socio-economic differentiation of the regions. Secondly, the increase in wages is carried out on the basis of its current level, without reviewing the principles of calculating wages, for example, in budget sectors. Thirdly, there are no well-founded calculations of a good level of wages, taking into account the social significance of activities, the vocational qualifications of workers and the level of socially-conditioned needs.

All this significantly reduces the effect of government measures to raise wages.

The present level of the lowest real wage in the country and the critically high level of its differentiation have caused numerous problems. The share of the population having the income less than the subsistence minimum is 25% [8].

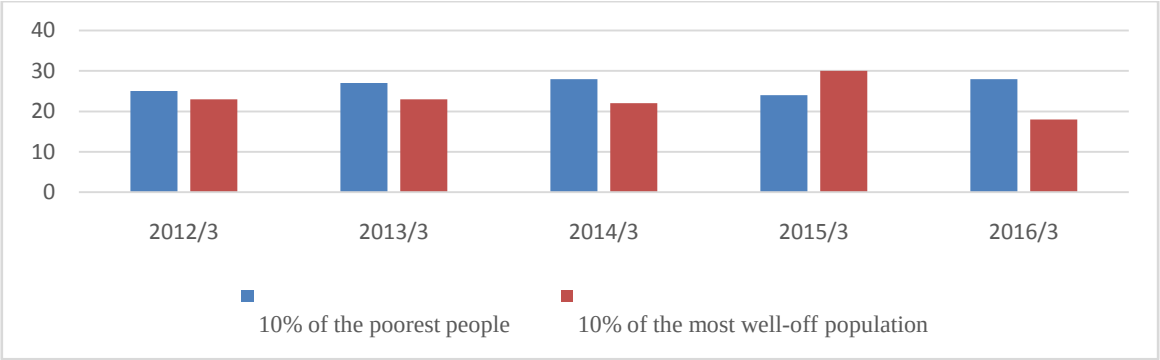

Figure 4 – Annual increase in the number of the least well-off population (thousand people) [9]

The largest number of poor people lives in the south of Kazakhstan: the South Kazakhstan Oblast (289.6 thousand people at the end of the third quarter of 2016), the Almaty region (201 thousand people) and Almaty (175 thousand people).

During the year, the number of thelow-income population grew most intensively in Almaty (+4.7 thousand people), Astana (+4.3 thousand people) and South Kazakhstan oblast (+3 thousand people). On average, in European countries, the middle class is about 60% of the total population. In Kazakhstan, this number, according to the Expert Consult, is about 10%.

As a result of 2017, the subsistence minimum in the Republic of Kazakhstan was 23.8 thousand tenge - for 10% more than a year earlier. For comparison, the inflation rate for the relevant period is only 7.4%.

The highest indicators are in the capital and the oil regions (there are often the highest wages in the RK, and, often, the highest level of prices for goods and services).

Mangistau region is leading - 28.7 thousand tenge, + 8.8% against the previous year, then Astana - 27.5 thousand tenge, + 9.7% per year, followed by Almaty - 26.5 thousand tenge, +9 , 6% for the year, and Atyrau region - 24.5 thousand tenge, + 9.9% per year.

The health status of the population as an indicator of the social well-being of society depends not only on the level and resources of the health care system and social security in the country, but also on a number of other factors - maintaining a healthy lifestyle, protecting the environment and living people, etc. Incidence level of the population with active tuberculosis has decreased from 95.3 to 86.6 per 100 000 population in 2016.

In 2017, Kazakhstan ranks 16th place in terms of inflation in the world. Inflation in Kazakhstan, as in many countries, is calculated on the basis of the consumer price index for goods and services. At the same time, consumer prices refer to the final price paid by the buyer of goods or services and which includes taxes and fees.

For seven months of this year prices for food products (July 2017 by December 2016) increased by 4.6%, non-food - by 3.5%, paid services - by 3.3%.

The level of prices in Kazakhstan on basic goods and services for 2016-2017

In %, increase +, decrease -

	July 2017. by				January-July 2017 by January-July 2016
	June 2017	December 2016	July 2016	December 2015	
Goods and services	0,1	3,8	7,1	12,6	7,6
Foodproducts	-0,5	4,6	8,6	14,7	9,4
Nonfoodproducts	0,4	3,5	7,7	13,2	8,2
Paid services for the population	0,5	3,3	4,7	9,6	4,8

From the beginning of this year (July 2017 to December 2017), the increase in prices was noted for potatoes by 47.4%, lamb -by 11.5%, beef - by 10%, fresh vegetables - by 9.1%, fresh fruits, milk canned - by 7%, horse meat - by 6.2%, butter - by 5.8%, cheese rennet - by 5.3%, confectionery products - by 4.9%. The decrease in prices was fixed for cucumbers by 69.3%, tomatoes by 45%, eggs by 29.2%, buckwheat by 16.4%, sunflower oil by 9.7%, sweet pepper by 6.3%.

The increase in prices for cars, glass and ceramic products amounted to 5.3%, textiles - 3.8%, newspapers, books and stationery - 3.6%, household appliances - 3.2%, personal goods - 3, 1%, pharmaceutical products, construction materials - 3% each. Bottled gas went up by 7.7%, diesel fuel - by 7.4%, gasoline - by 5.1%.

The level of prices for sanatorium services rose up by 9.4%, legal services by 7%, personal transport insurance - by 6.8%, health services, trips for excursions and rest - 4.9%, recreation, entertainment and culture - by 2.8%, nutrition - by 2.6%. Payment in city bus increased by 4.2%, intercity bus - by 4.4%, air passenger transport - by 16.9%, and railway services - by 0.3%.

In the sphere of housing and communal public services, tariffs for sewerage increased by 9.6%, central heating by 7.3%, cold water by 5.7%, gas transported through distribution networks by 4.8%, hot water, electricity - by 3.8%, housing maintenance - by 3.5% [10].

Conclusions. Thus, an analysis of the main components of the living standard in the Republic of Kazakhstan made it possible to conclude that the most urgent task in the area of optimizing the population's living standard of the Republic of Kazakhstan is to struggle with poverty.

Under decreasing in the part of the population with incomes below the subsistence level, the number of "rich" is increasing. The problem is expressed in the low purchasing power of wages and pensions, the growth of money income of the population of the region mainly due to social payments, a high level of social and economic inequality.

On the basis of the conducted researches, it is possible to draw a conclusion that the quality of life of the population is an integral characteristic that gives an idea of the life activity of a person and society, therefore improving the quality of life is the main task and criterion of the activity of government bodies.

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ҚАЗАҚСТАН РЕСПУБЛИКАСЫ ХАЛЫҚТЫҢ ӨМІР САПАСЫНЫҢ ӘЛЕУМЕТТІК-ЭКОНОМИКАЛЫҚ КӨРСЕТКІШТЕРІ

Аннотация. Мақалада ҚР халқының өмір суру сапасының негізгі құраушы компоненттері, сатып алу қабілеттілігі, орташа еңбекақы, зейнетақының орташа мөлшері мен өмір сүру минимумының мөлшері талданған. Талдауда елдің жекелеген аумақтары да, тұтас Қазақстан көлемі де қамтылған. Қазақстандықтардың өмір сапасын төмендететін көрсеткіштер анықталған.

Жүргізілген зерттеулер негізінде Қазақстан халқының өмір сапасы адам мен қоғамның өмір сүру іс-әрекетін көрсететін интегралды сипатқа ие екендігін, сондықтан, өмір сүру сапасын арттыру билік органдарының қызмет етуінің негігзі критерийлері мен негізгі мақсаты болып табылатындығы туралы қорытынды жасауға болады.

Түйін сөздер: өмір деңгейі, өмір сапасы, өмір сапасының компоненттері.

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СОЦИАЛЬНО-ЭКОНОМИЧЕСКИЕ ПОКАЗАТЕЛИ КАЧЕСТВА ЖИЗНИ НАСЕЛЕНИЯ РЕСПУБЛИКИ КАЗАХСТАНА

Аннотация. В статье анализируются основные компоненты качества жизни населения РК по таким показателям, как уровень доходов населения и их покупательная способность, среднемесячная заработная плата, средний размер начисленных пенсий, величина прожиточного минимума. В анализ были включены отдельные регионы страны и Казахстан в целом. Выявлены показатели, снижающие качество жизни казахстанцев.

На основании проведенных исследований был сделан вывод о том, что качество жизни населения выступает интегральной характеристикой, дающей представление о жизнедеятельности человека и общества, поэтому повышение качества жизни является главной задачей и критерием деятельности органов власти.

Ключевые слова: уровень жизни, качество жизни, компоненты качества жизни.

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ECONOMIC AND LEGAL BASIS OF INNOVATION AND ENTREPRENEURSHIP: EXPERIENCE OF KAZAKHSTAN

Abstract. Republic of Kazakhstan solves wide range tasks, connected with increase the competitiveness of the national economy, in general, and business development, in particular. Problems of restructuring of economy, overcoming imperfection of branch and technological structure, internal integration and also insufficient viability of productive forces, development of infrastructure and institutes of the market were researched. In these conditions development of business in the Republic of Kazakhstan is one of the priority directions of economic policy of the state. In spite of the fact, that indicators of development of business in the Republic of Kazakhstan and the civilized countries of the world are quite differ, small and medium business have occupied their own place in the economy of Kazakhstan. The big growth of subjects of small and medium business with the big capitals, equipment and cooperation of great number of workers doesn't need expenses. Foreign experience confirms that business can become the real sector of stabilization and growth of economy of Kazakhstan. For ensuring economic stability in the market environment, which is characterized by financial stability, competitiveness of production and technology, efficiency and realization, the large enterprises carry out the strategic innovations, caused by reaction to transformations of competitors and change of the external environment.

Keywords: innovation, market economy, entrepreneurship, economic crisis, national legislation, competitive advantages, economic impact, national income, labor market efficiency, innovation potential.

A comparative analysis of economic and legal bases of innovation and entrepreneurship of the Republic of Kazakhstan has been carried out for the five-year period 2013-2017, since the moment of the economic crisis until now. On the basis of the conducted analysis, competitive advantages and disadvantages of the innovation and entrepreneurship and dynamics of its development are revealed in the context of international competitiveness.

Moreover, it is proved that innovation and entrepreneurship has a national economic impact depending on the level of the country's competitiveness. In particular, it is considered that the country's competitiveness and basic factors that form entrepreneurship include the level of national income, life expectancy, primary and higher education, labor market efficiency and innovation potential.

Theoretical background of the research includes research by domestic and foreign scientists in the field of innovation and entrepreneurship and its assessment, human resource management, national legislation, knowledge economy and jurisprudence, and international competitiveness.

Information basis of the research includes the most relevant international sources such as annual Human Development Reports by UNDP, Global Competitiveness Reports, published annually by the World Economic Forum in Switzerland, Davos, and researches by the INSEAD French Research Center.

As a result of the research it is proved that competitive innovation and entrepreneurship plays a significant role in the system of modern economic relations. It has revealed key factors for developing essential innovation and entrepreneurship in Kazakhstan in terms of global competitiveness, the role of People's Assembly of the country in support of the innovation and entrepreneurship, and determination of the national economic impact in varying degrees.

Economic transformations and the reform on property relations in Kazakhstan significantly affected on the implementation of the State's economic functions and naturally led to reform of the tax system. In a market economy, taxes are the most effective instrument on regulation the new economic relations. One of the first compulsory payments introduced into the practice of taxation were indirect taxes: excise tax and value added tax. Over the years, they become stronger in the tax system of Kazakhstan. Currently, indirect taxes are one of the most important state taxes.

Table 1 – The ratio of direct and indirect tax system around the world

The country / region	Corporate income tax	Taxes to incomes of physical persons	The tax to a wage fund	The VAT / GST / sales
USA	15 %-39 %	0 %-10,3 %	15,3 %-2,9 %	0 %-10 %, 25 %
China	25 %	55-45 %		17 %
Canada	19,5 %	0 %-29 %-federal 0-24 %-provincial	4,95 %	5 %(GST) 0-10%From sales
Germany	29,9 %	0 %-45 %		19 %-7 %
France	33,33 %	21 % social 0-50 % income	45 %	19,6 %
Russia	13 %-20 %	13 %	10 %-26 %	0 %-18 %
Kazakhstan	20 %	10 %	11 %	0 % - 12 %

On the way to improve the system of indirect taxation is proposed maintaining the system of excise taxes and the gradual introduction of higher excise payments for import of goods, whose production in the country more appropriate from an economic and strategic point of view. These products include high-tech industrial products and equipment. The introduction of higher excise tax rates, however, may be replaced with the specification of import customs duties. Creating a system of effective state control over production and turnover of excisable products, will significantly increase in budget revenues of excise tax. As part of this goal I would like to propose the following measures:

– implementation of automated accounting of production and sales of alcohol products;

– improvement of the account of movement of excisable products;

– introduction a new model of excise stamps for alcohol products and tobacco;

– establishment of the rates of excise duties for alcohol products, depending on the volume of ethyl alcohol in content.

The legislative framework in the field of excise duties is not yet sufficiently developed. In particular, it relates to a large volume of documents that are not systematized and difficult to understand. To mymind, presented conclusions and proposals can contribute to more efficient conversion of the tax system, improvement of indirect taxation in Kazakhstan.

Studying of indirect taxation issues in this work, as well as analysis of the current tax system allows drawing conclusions and making proposals.

– The construction of the tax system should be borne in mind that indirect taxes, despite the apparent equal stress influences are almost regressive taxes; the most difficult part is reflected by the low-income taxpayers. Especially strictly this rule applies to essential commodities, the whole burden of raising taxes which falls on consumers.

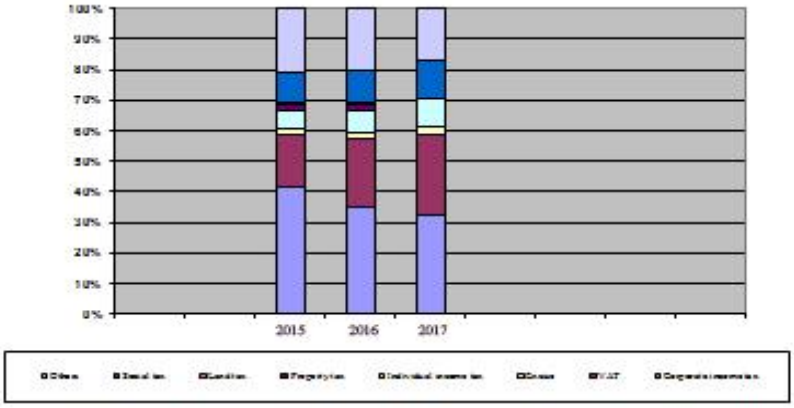
– The most predictable in terms of the size of tax revenues at the moment is the value added tax. VAT is one of the main elements of the fiscal policy of the state and most frequent in term of payment. However, this tax is complicated in terms of methods of calculation.

Many foreign and domestic researchers to some extent associated with the development of the globalization of information and communications technologies [1]. For example, K. Zhoyner writes: "Mobile phones, computers, and the Internet express / reflect the main symbols of globalization" [2]. A.V. Seidov

Table 2 – Dynamics of tax revenues to the state budget during the period of 2015-2017 years

Type of tax	2015 year		2016 year		2017 year	
	million tenge	% of total	million tenge	% of total	million tenge	% of total
Corporate income tax	487 174.5	34.57%	834 332.3	39.76%	776608	33.2%
VAT	242 955.3	17.24%	343 924.9	16.39%	489572	20.9%
Excise taxes on domestically produced goods	21 893.6	1.55%	23 835.2	1.14%	47433	2.0%
Individual income tax	98 534.7	6.99%	122 998.8	5.86%	165033	7.0%
Social tax	167 995.2	11.92%	197 300.3	9.40%	236569	10.1%
Property tax	315 79	2.24%	372 71.9	1.78%	65248	2.8%
Special taxes and payments of subsurface users	153 337.2	10.88%	298 875.6	14.24%	301037	12.9%
ALL public revenues	198 912 2.7	100%	209 827.3	100%	277 173 3	100%

Table 3 – Structure of tax revenues to the state budget of the Republic of Kazakhstan



has insisted: "The impact of globalization on the concept of state sovereignty in international law and the concept of globalization can combine all places at the moment of the computerization process and the development of telecommunication network, which cause the information revolution, and that leads to the interdependence of participants in international relations [3].

Reliability of the domestic regional market in CIS by the means of formation of the internal sources of the development as the main condition of stability of the Eurasian economic space.

The main role in the modern conditions belongs to the Eurasian Economic Union. The model of the Eurasian integration is presented today by Belarus, Kazakhstan, Kyrgyzstan, Armenia and Russia in the Eurasian Economic Union format - the Common Economic Space. Feature of the present stage is that creation of EAEU is carried out in parallel with the processes of the formation of the common regional market, including the countries of the Custom's Union into the World Trade Organization- WTO, expansions of the structure of participants of the regional economic integration.

Officially Eurasian Economic Union of Belarus, Kazakhstan, Kyrgyzstan, Armenia and Russia started to function since January 1, 2010. The Customs Codes of the Eurasian Economic Union have marked the beginning of the cooperation in a new format. Since July 1, 2011 customs control was postponed for an external contour of borders of customs space of five states. According to the basic principles of functioning of the Eurasian Economic Union in its framework domestic market functions; use of import and export duties.

Evolution of the legal system as the natural-historical, natural, continuously lasting high-quality and quantitative change of legal means at which there is "expansion", change of all legal system from the lowest to the highest, from the simple to the complex, to more advanced and perfect state promoting more effective regulation of the public relations.

Thus, it is possible to declare, that the system of the relations in the self-control society is directed on continuous increase of the efficiency, where the interests of all sides and connection of interests and requirements, in general, is based on justice and rationality. As an example, it is possible to consider the modern system of the international integration processes and the change of the world order in the connection with the system of the international relations [4].

In the conclusion I would like to make an accent, that the provision of justice and order as the bases of regulation of the relations in the global society is expressed in the concepts "orderliness", "efficiency" and "compromise of interests", and leads logically to the question of the role and place of law in the construction and functioning of the global society.

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КӘСІПКЕРЛІКТЕГІ ИИНОВАЦИЯЛАРДЫҢ ЭКОНОМИКАЛЫҚ ЖӘНЕ ҚҰҚЫҚТЫҚ НЕГІЗДЕРІ: ҚАЗАҚСТАН ТӘЖІРИБЕСІ

Аннотация. Қазақстан Республикасы мемлекетіжалпы алғанда ұлттық экономиканың бәсекеге қабілеттілігін арттыру бағытындағы, нақты алғанда кәсіпкерлікті дамытуда көптеген мәселелер шешу үстінде. Олар экономиканы құрылымдық өзгерістер жүргізу, әртүрлі экономикалық салалардағы технологиялық құрылымдық кемшіліктерді жою, ішкі интеграцияны жетілдіру, сонымен қатар өндіргіш күштердің бәсең дамуын жою, инфраструктураны дамыту және нарық институттарын жетілдіру болып табылады. Осы жағдайлар Қазақстан Республикасында кәсіпкерлікті дамыту мемлекеттің экономикалық саясат бағытындағы басымдыққа ие болып саналады. Қазақстан Республикасында кәсіпкерлікті дамыту әлемнің дамыған елдеріндегіден әлде қайда ерекше болса да, қазіргі Қазақстан экономикасында шағын және орта бизнес белгілі дәрежедегі өзіне тиісті орынға ие болды. Соңғы кездерде шағын және орта бизнес субъектілерінің кәсіпкерлік ортада өсуі байқалса да, ол орта аса көп қаржы құюды қажет етпейді, жабдықтар мен көптеген қызметкерлерінің кооперациясы жоқ бағыттар болып табылады. Шет елдердің тәжірибесіне жүгінсек, кәсіпкерлік Қазақстан экономикасын тұрақтандырудың және дамытудын реалды секторына айналуы мүмкін. Нарықтық ортаға, тиімділігін сипаттайтын экономиканың тұрақтылығын қамтамасыз ету үшін өндіру мен өткізудің, өнімдер мен технологиялар, инновациялар ірі кәсіпорындар қаржылық тұрақтылығын, бәсекелестікке негізделген сыртқы ортаның бәсекелестер жасаған қадамын реактивті жүзеге асырады және стратегиялық түрлендіреді.

Түйін сөздер: инновациялар, нарықтық экономика, кәсіпкерлік, экономикалық дағдарыс, ұлттық заңнама, бәсекеге қабілеттілік, экономикаға ықпалы, ұлттық табыс, еңбек нарығының тиімділігі, бәсекелестік потенциал.

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ЭКОНОМИЧЕСКАЯ И ПРАВОВАЯ ОСНОВА ИННОВАЦИЙ И ПРЕДПРИНИМАТЕЛЬСТВА: ОПЫТ КАЗАХСТАНА

Аннотация. Республика Казахстан решает широкий круг задач, связанных с повышением конкурентоспособности национальной экономики в целом, и развитием предпринимательства, в частности. К ним относятся проблемы реструктуризации экономики, преодоления несовершенства отраслевой и технологической структуры, внутренней интегрированности, а также недостаточной жизнеспособности производительных сил, развития инфраструктуры и институтов рынка. В этих условиях развитие предпринимательства в Республике Казахстан является одним из приоритетных направлений экономической политики государства. Несмотря на то, что показатели развития предпринимательства в Республике Казахстан и развитых странах мира существенно отличаются, малый и средний бизнес сумел занять определенную нишу в экономике Казахстана. В последнее время наблюдается большой рост субъектов малого и среднего предпринимательства в сферах, где пока не требуется больших капиталов, оборудования и кооперации множества работников. Зарубежный опыт подтверждает, что предпринимательство может стать реальным сектором стабилизации и роста экономики Казахстана. Для обеспечения экономической устойчивости в рыночной среде, характеризующейся финансовой устойчивостью, конкурентоспособностью продукции и технологии, эффективностью производства и реализации, крупные предприятия осуществляют стратегические инновации, обусловленные реакцией на преобразования конкурентов и изменения внешней среды.

Ключевые слова: инновации, рыночная экономика, предпринимательство, экономический кризис, национальное законодательство, конкурентоспособность, воздействие на экономику, национальный доход, эффективность рынка труда, инновационный потенциал.

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THE EFFECT OF BAIKONUR COSMODROME ON ENVIRONMENT COMPONENTS

Abstract. The development of modern society is directly related to the use of the surrounding environment, that is, all that is needed for the survival of human beings are taken from nature. In this sense, nature is an amazing phenomenon that provides our natural needs. The development of science and technology, the rapid development of industry, the widespread use of underground resources and the increase in the number of transportation vehicles are polluting the environment with various chemical compounds. Many of these chemical compounds have toxic and carcinogenic properties affecting biosphere equilibrium, climate change, reduced agricultural productivity and health deterioration of population.

Key words: toxins, carcinogens, dimethylhydrazine, humus, pollution, air, soil, water.

One of the sites polluting the environment with hazardous substances is the operation of military-industrial complexes that launch rockets into space. Toxic and carcinogenic compounds penetrate into the cell, affect the DNA molecule, break down the chromosomes and eventually reduce the vitality of the organism. Certainly, these compounds are known to have a certain effect on the human body by means of atmospheric air, soil, water and vegetation. According to the main environmental issues list of the Ministry of Defense, pollution of nature by space rockets takes the third place after the destruction of military equipment and weapons and radioactive contamination [1-3].

The study purpose is to analyze the mechanical composition of soil layer of Baikonur Cosmodrome and its humus content and make comparative conclusion according to the general analysis data.

"Baikonur" is one of the cosmodromes that launch spacecrafts. In accordance to many studies, air humidities and a sudden change in temperature over the course of a year are due to the spacecraft work.

It is well-known that in the areas closest to the cosmodrome "Baikonur", where powerful space flight is launched, the weather is sharply changed and a massive sandstorm is slammed for 3-4 days and the temperature decrease up to 0-60 ° C is often observed.

Despite experts working in this field over the past 30 years have proved that there is no significant adverse effect on the atmospheric emissions from the waste of the rocket engines running with chemical fuels, their harmful effects can be clearly seen in the data collected over the last 40 years.

Therefore, we will consider the fuel used for the engines of the rocket carriers, which is launched from the cosmodrome, more specifically:

Unsymmetrical dimethylhydrazine (UDMH) with nitrogen tetroxide (NT) and nitric acid (NA) oxidizers [4-7].

Carbon fuel (RT-1, RG, T-1) with hydrogen peroxide and liquid oxygen oxidizers; this compound is converted into the oxygen and hydrogen by evaporating during the collapse of the particles that have been completed the work. RT-1 and other compounds of this kind impact on the environment as kerosene and benzene, and unsymmetrical dimethylhydrazine (heptyl) is a chemical toxic compound which belongs to the first class hazards.

More specifically, the "heptyl" is a nitrogen organic compound included in the component of the liquid rocket fuel component belongs to hydrazine derivatives. Unsymmetrical dimethylhydrazine is an

active oxidizer which is easily oxidized in various oxidizing agents and is converted into tetramethyl tetrazene (TMT), nitrosodimethylamine (NDMA), dimethylmethylenhydrazine (DMMG), dimethylamine (DMA) and formaldehyde (FA), water, nitrogen, ammonia and other products.

The rapid oxidation of unsymmetrical dimethylhydrazine and its alkylgromics depends on the type and concentration of oxidizers. These oxidants (water, air, soil, temperature) include active metals as Cu, Fe, Cr, Mn and their oxides, passive metals as Al, Ni, Mg. It is important to note that the soil of this region is rich in these metals.

Objects and methods of the research

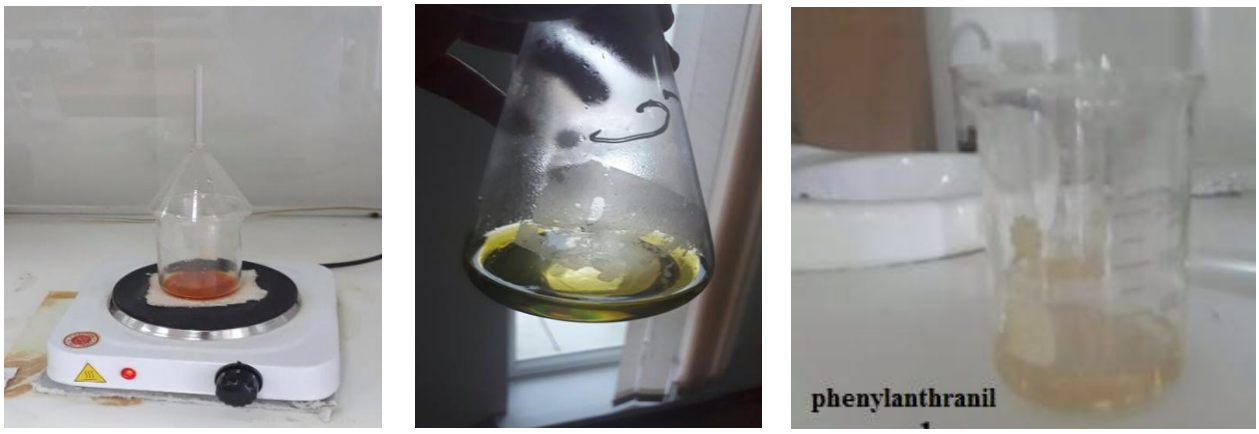
Objects. Soil samples taken from 5-10 km distance from "Baikonur Cosmodrome" were obtained as objects of research.

Methods: The mechanical composition of the soil layer was determined by the wet method, while the amount of humus by I.V. Tyurin's method [8-12].

The humus of the soil samples tested by airborne soil conversion method (figure 1-3) is based on the oxidation in the solution of potassium bicarbonate in sulfuric acid.

Figure 1 – Preparing the soil sample

Figure 2 – Solution of potassium bicarbonate conversion method in sulfuric acid



a b c

Figure 3 – Determination of soil germination

Results and their analysis

Humus is the main determinant of soil fertility. Humus is influenced by climate change, soil biodiversity and anthropogenic factors.

Humus in the soil varies depending on soil diversity. For example, the humus in the desert zone is 0.5-1.0%, while in meadow steppe soils its size reaches up to 10%.

Soil humus is important in the nutritional chain. It consists mainly of carbon, hydrogen, protein, fat and proteins. It contains nitrogen (N), phosphorus (F), sulfur (S) and other essentials for plant life. The humus content of Baikonur Cosmodrome is very low (0.4%) (table 1).

Table 1 – Soil classification according to humus size

Provision level	Humus size, %
Very low	<2,0
Low	2,1-4,0
Medium	4,1-6,0
Higher	6,1-8,1
High	8,1-10,0
The highest	>10

This is due to the saturation of the soil layer with oil products, including dimethylhydrazine and the consequence of changes in its chemical composition, properties and structure. First of all, it has a direct destructive effect on the soil humus: carbon in the soil layer increases immediately, which leads to the deterioration of soil properties that are a nutrient substrate for plants. Hydrophobic particles of dimethylhydrazine hinder the transfer of moisture to the roots of the plant and lead to their physiological changes. Transformation products of dimethylhydrazine change soil humus content. At the initial stages, these changes are due to the fatty and acidic components, and then it leads to the increase of the humus that is soluble on the account of the dimethylhydrazine carbonate. As a result, the oxidation and reduction conditions in the soil profile change.

Mechanical composition of the soil of Baikonur cosmodrome. Mechanical composition is an important agronomic characteristic of soil. Mechanical composition also reflects the level of its fertility. The mechanical properties of the soil depend on all the physical properties of the soil (density, displacement, water capacity, water permeability, water lifting, air and heat regimes, etc.).

Though an instrument is not used in the wet method, the result is very reliable.

A conclusion about the mechanical composition of the soil is made based on the shape of the threads and rings (figure 4).

Figure 4 – Soil sample necessary to detect mechanical composition by the wet method

The thread diameter is 1 mm. On the basis of the thread diameter and the ring shape, the mechanical composition of the soil is concluded (table 2).

The essence of the mechanical composition of soils increases, especially in technogenic contaminated soils. That is, the indicator of the ratio of large sand to medium sand is an indication of the soil's technogenic pollution.

Table 2 – Classification of soil types by the wet method

The name of the mechanical element	Particle diameter, mm	
Stone	> 3	Physical Sand
Crushed stone	3-1	
Large sand	1-0,5	
Medium sand	0,5-0,25	
Small sand	0,25-0,05	
large dust	0,05-0,01	
Medium dust	0,01-0,005	Physical mud
Small dust	0,005-0,001	
Sediment	< 0,001	
Colloids	< 0,0001	

Conclusion.

1. The saturation of the soil layer with dimethylhydrazine causes the changes in chemical composition, properties and structure, which primarily results in an increase in carbon dioxide in soil so that it degrades the soil properties which are a nutritional substrate for plants. Hydrophobic particles of dimethylhydrazine prevent the transfer of moisture to the plant roots and cause physiological changes. Transformation products of dimethylhydrazine change soil humus content.

2. The mechanical composition of technogenically contaminated soil studied by the wet method is 1 mm thread diameter, respectively, which indicates the priority of large sand particles in the physical sand fraction, and is the reason for the decline in the ratio of large sand and medium sand, which is an indicator of the change in the soil surface due to technogenesis.

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ҚОРШАҒАН ОРТА КОМПОНЕНТТЕРІНЕ БАЙҚОҢЫР ҒАРЫШ АЙЛАҒЫНЫҢ ӘСЕРІ

Аннтотация. Қазіргі кездегі қоғамның дамуы айналадағы қоршаған ортаны пайдаланумен тікелей байланысты, яғни адамзат тіршілігіне қажетінің барлығын табиғаттан алады. Бұл жағынан алғанда табиғат – табиғи қажеттілікті қамтамасыз ететін таңғажайып құбылыс. Ғылым мен техниканың жетілуі, өндірістің қарқындап дамуы, жерасты қазба байлықтарын кеңінен пайдалану, транспорт түрлерінің көбеюі қоршаған ортаны түрлі химиялық қосылыстармен ластауда. Мұндай химиялық қосылыстардың көбінің токсиндік және канцерогендік қасиеттері биосфералық тепе-теңдіктің бұзылуына, климаттың өзгеруіне, ауылшаруашылық өнімдер өнімділігінің төмендеуіне және халықтың денсаулығының нашарлауына әсерін тигізеді.

Түйін сөздер: токсиндер, канцерогендер, диметилгидразин, қарашірік, ластану, ауа, топырақ, су.

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ВЛИЯНИЕ КОСМОДРОМА БАЙКОНУР НА КОМПОНЕНТЫ ОКРУЖАЮЩЕЙ СРЕДЫ

Аннотация. Развитие современного общества напрямую связано с использованием окружающей среды, то есть всего того, что необходимо для выживания людей берется от природы. В этом определении природа – это удивительное явление, которое обеспечивает наши естественные потребности. Развитие науки и техники, быстрое развитие промышленности, широкое использование подземных ресурсов и увеличение количества транспортных средств загрязняют окружающую среду различными химическими соединениями. Многие из этих химических соединений обладают токсическими и канцерогенными свойствами, влияющими на биосферное равновесие, изменение климата, снижение производительности сельского хозяйства и ухудшение здоровья населения.

Ключевые слова: токсины, канцерогены, диметилгидразин, гумус, загрязнение, воздух, почва, вода.

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HISTORICAL MANUSCRIPT OF THE KAZAKH KHAN ALIAKBAR

Abstract. The family of B.T. Amre (Shymkent City, Kazakhstan) has kept some metal flag pommel. The comparison with the known data about the eastern flags allows us to consider that this flag pommel is the end part of shaft from bunchuk (standard) owned by the Kazakh khan Aliakbar. Other descendants of Aliakbar kept the ancient manuscript, consisting of 86 pages. This handwritten book is titled as "Kissa Dastan Genghis Khan". It was written by Abd Rakhim Uzkandi in Turkestan in 1228/1813 by order of Aliakbar, the son of Karabash Muhammad sultan. “Kissa Dastan Genghis Khan" is a new source on the history of the Kazakh Khanate; the information about the genealogy, burial place of the Kazakh khans, and relationship between Khan Tauke and Isfahan governor is of particular interest.

Key words: banner pommel, horsetail, standard, manuscript, genealogy, burial place, Kazakh khans.

The family of B.T. Amre (Bekaidar Tolzhanuly Amre, who lives in Shymkent, Kazakhstan) are the descendants of Khan Aliakbar, whose father was Kazakh sultan Karabash (Karabas). They kept the metal pommel of the flag. It consists of sphero-conical top fixed to the bush that widens at the lower part (base). The total height is 22.5 cm. At the lower part of the bush there is a thickened ring 5.2-5.3 cm in diameter. In the lower part of the bush there are holes from nails that served to strengthen the pommel at the shaft. The pommel is deformed in some places. The domed top has a number of cavities, part of the bush is bent at the base, small fragments of the product are lost in the places adjacent to the holes for nails. There are no traces of any ornamentation (picture 1).

The shape of the pommel of Khan Aliakbar’s banner resembles the endings of the bunchuk/tughs of rulers and commanders of the Ottoman Empire of the XVI-XIX centuries, which were preserved in the museums of Europe. They served as a sign of power, usually it was a shaft with a tied tail horse. Most

Picture 1 – The banner pommel of the Kazakh ruler Aliakbar. The photo made by M. Kozha. 2013

often at the upper end of bunchuk shaft the metal ball (sometimes crescent) was placed,. In eastern Europe, this symbol of power became widespread after the Mongol-Tatar invasion. Among the Ottomans bunchuk served instead of the standard. Bunchuk with seven tails was carried in front of Ottoman pasha who who performed the duties of Vizier. The habit of wearing a bunchuk was among the Cossacks in Ukraine, where they were carried it in front of the hetman, and among the Zaporozhye Cossacks. Bunchuk was also exhibited in front of the hetman's tent [4].

There are a number of references in the Eastern sources on the banners and bunchuks of the Kazakh khans. In the anonymous Persian language composition Alam-ara-yi Shah Ismail, there is a mention of the Kazakh banner [3, p. 5-13]. The work Bahr al-asrar Mahmud ibn Wali reports about nine Kazakh banners and the custom of raising bunchuk (tugh) [10, p. 331]. In the historical work of Shah-Mahmud Churas, it is reported that the Kazakh troops, led by Khakk-Nazar Khan, were defeated, at that "seven bunchuks and banners of tore from the Djuchi clan were captured. They are in fact seven bunchuks and banners"[10, p. 380]. In addition to these data, we want to draw attention to the reference to the Khan's banner of the ruler of the Middle Horde, as described in the application of the head of the Orenburg expedition, I. Kirillov, dated May 1, 1734 [8, p.108].

Thus, Kazakh khans, like the rulers of several Asian and European countries, had bunchuks and banners that served as symbols of power. Therefore, most likely, the pommel which is kept by the descendants of the khan is the end part of the shaft of the bunchuk / standard (tug) of the Kazakh ruler Aliakbar.

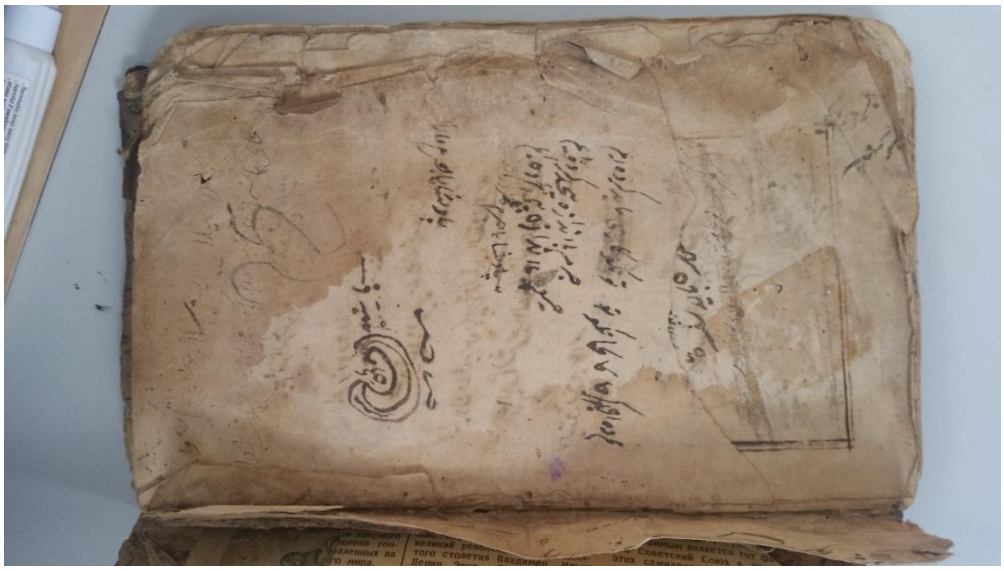
Aliakbar is mentioned in the work of the famous Kazakh poet Mailykozha (1835-1898) as Aliakbar, Alibek, who reportedly was elected khan during the confrontation with Kokand; he is the younger brother of the last Kazakh ruler of Turkistan, Togay-khan [12, 203]. The descendants of Togay Khan live in the village of Torearyk in the Ordabasy district of the South Kazakhstan region. They believe that the khan is buried in the Sheiban-Togay district near the village of Karakonyr of the Otrar district.

Aliakbar's father, "the Konyrat Volost's Sultan Karabash" is mentioned in the journal of the campaign of Ataman Telyatnikov on June 15, 1797 [7, p. 172]. In Russian sources he is known as Aliken, Aliakbar, Jakelen [5, p. 95,142-143]. Aliakbar, according to the research of I.V. Erofeyeva, was the last Kazakh khan. In 1858, he was proclaimed khan by the influential sergeants of the tribes Konyrat, Kipshak of the Middle zhuz, and by some subdivisions of the Sary-Uysin tribe of the Senior zhuz in the course of the people's liberation movement of the Southern Kazakhs against the Kokand military and administrative domination in the region. He died in 1860.

In the family of Zh. O. Fayzullaev (Zhanysbek Orazkhanuly Fayzullaev, another descendant of the Kazakh Khan Aliakbar, who lives in Shymkent, Kazakhstan), an ancient manuscript consisting of 86 pages is kept (picture 2). The handwritten book is entitled "Kissa Dastan Chingiz Khan". It was written by Abd Rakhim Uzkandi in the city of Turkestan in 1228/1813, by order of Ali Akbar Sultan, the son of Karabash Muhammad Sultan. Judging by its nisbe, the author of the manuscript is a native of Uzgent, which corresponds to the ancient settlement of Kyr-Uzgent (Zhanakorgan district of Kyzylorda region), the upper layers of which belong to the XVIII century [2, p. 162-163].

The work of Abd Rakhim Uzkandi mentions the legendary rulers of the East, contains information about the Shaibanids and other khans of Central Asia. The narrative begins with Genghis Khan: "Fasyl. Genghis Khan nabarasy Zhuchi khannyn uly Sayin Khan. Anin ugly Toqay Temur Khan". The following genealogy abounds in large and small gaps, erroneous substitutions of personal names, confusion in the chronological sequence in the alternation of named distant ancestors, which, apparently, is characteristic of the genealogical records of the new time [6, p. 40].

The genealogy of Kazakh khans is noteworthy. Lineage from one of the founders of the Kazakh Khanate Zhanibek to Aliakbar is presented as follows: "Anyn ugly - Aziz Zhanibek Khan. Anyn ugly – Zhadik Khan. Anyn ugly – Shyghay Khan. Anyn ugly – Ishim Khan. Anyn ugly – Zhangir Khan. Anyn ugly – Tauakkal Muhammad Bahadur Khan. Anyn ugly – Ali Shakh. Anyn ugly – Shakh Mukhammad Bahadur Khan. Anyn ugly – Shakh Sayyid Bahadur Khan. Anyn ugly Karabash Muhammad sultan. Anyn ugly – Ali Akbar sultan", which in general corresponds to modern historical data. The peculiarity of this genealogy is that one of the founders of the Kazakh Khanate Janibek is called here as "Aziz Zhanibek Khan. His son Zhadik (who is usually called sultan in oriental studies) in this manuscript is designated as a khan. The famous Kazakh Khan Tauke (1672-1715) is mentioned in the manuscript as "Tauakkal Muhammad Bahadur Khan", which is his full name [11, p. 226, 252. Table. 4].



Picture 2 – Page from the manuscript “Kissa Dastan Chingiz Khan”. The photo made by M. Kozha

According to E.I. Erofeyeva, of Tauke’s children two sons are known, Bolat and Sameke (1731-1738) [5, p.103]. In the manuscript there mentioned Ali Shakh and Shakh Muhammad Bahadur Khan (the full name of Khan Sameke). According to E.I. Erofeyeva, the eldest son of Sameke was Seit (Shaseit) (1741-1745), who called Shah Sayyid Bahadur Khan in the manuscript of Abd Rahim Uzkandi. The author of "Kissa Dastan Chingiz Khan" considered it necessary to note that this name was given taking into account the origin of his mother, who belonged to the estate of Seyyids of Tashkent. Aliakbar was the grandson of Shah Sayyid Bahadur Khan. According to E.I. Erofeyeva, he was "the grandson of Sultan Sangkay (Sankhay), the great-grandson of Khan Kushyk" [5, p. 95].

The handwritten book contains new information about the burial place of Yessim, the Khan of the XVII century. It was believed that he was buried in the city of Turkestan [9, p. 8]. Most likely, another Yessim was buried in Turkestan. According to B.T. Tuyakbayeva, Yessim Khan, that buried in Turkestan near the khanaka of Ahmed Yassawi Khanaka, was noted as deceased in 1797 [13, p. 16]. Unfortunately, the author does not give any arguments in favor of his statement.

According to E.I. Erofeyeva, Yessim, who died on March 27, 1797, was the son of Khan Nuraly, grandson of Khan Abulkhair and was buried in the steppe near the Ural river, opposite Kalmykovskaya Fortress [5, p. 127]. Therefore Yessim, who was a khan of the majority of Bayuly tribes from the Junior zhuz in 1795-1797, can not be buried in Turkestan.

Most likely, the younger son of Khan Sameke, the grandson of Khan Tauke Yessym (Yessim, Ishim) is buried in a small mausoleum near the khanak of Ahmed Yassawi. The period of reigning of this khan is 50s of the XVIII century – 1798. He owned the city of Turkestan and some nearby towns jointly with Khan Abulmambet [5, p. 81].

According to “Kissa Dastan Chingiz Khan”, the grave of the famous Yessim Khan (who died in 1628) is located in Tashkent, at the famous Shaykhantaur cemetery. The Chinese source, whose compilation was completed in 1851, reports: "Kazakh aimak considers Tashigan (Tashkent) their capital, however their princes and khans have nomadic places in winter and summer. When they die, their remains are returned to Tashigan for burial"[1, p. 326]. As it is known, the famous Kazakh biologist Tole is also buried at the cemetery of Shaikhantaur.

The manuscript for the first time indicates that Zhakhangir (Jakhangir) -khan, Taukkal Muhammad Bahadur Khan (Tauke), Shakh Muhammad Bahadur Khan are buried in Turkestan. The last khan is known in Russian sources as Shemakha, Shemyaka, Semeke"[5, p. 77].

The information about the international relations of Khan Tauke is quite interesting. The manuscript mentions that Tauke-khan received eighty rifles, eighty sabers, two nines of thoroughbred horses: "Isfahan padshahi Shakh Sulaiman Tauakkal Muhammad Bahadur khanga tuhfa uchun saksan myltyk", saksan kylych, yeki tokuz arghymak kilgan. Tamam ilgaru yukali altundin".

The banner pommel and the manuscript "Kissa Dastan Chingiz Khan" represent unique monuments of the Khan period in the history of Kazakhstan. For the first time, there was found a manuscript that was written, by order of the Kazakh sultan. It contains a number of unknown data on the genealogy, burial places of Kazakh khans, their contacts with the ruler of Isfahan, and a number of legends about khans and emirs of Central Asia.

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ҚАЗАҚ ХАНЫ АЛИАКБАРДЫҢ ТАРИХИ ҚОЛЖАЗБАСЫ

Аннотация. Б. Т. Амренің (Шымкент, Қазақстан) отбасында металдың жоғарғы жағы сақтаулы тұр. Тудың басы туралы тарихи деректермен сәйкестендіру арқылы, садақ білігі бунчуктың (штандарт) қазақ ханы Али Акбардың қорытынды бөлігі болып табылады деп болжайды. Алиакбардың басқа ұрпақтары 86 беттен тұратын ежелгі қолжазбаға ие. Қолжазба кітабы «Шыңғыс ханның қисса дастаны» деп аталады. Ол 1228/1813 жылы Түркістан қаласында Абдрахим Узканди Қарабаш Мұхаммед Султанның ұлы Әли Акбар Сұлтанның тапсырмасы бойынша жазылған. «Шыңғыс ханның қисса дастаны» қазақ хандары жөніндегі жаңа дерек болып табылады. Әсіресе, қазақ хандарының генеалогиясы, жерлеу орындары, Тәуке ханның Исфахан басшылығымен қарым-қатынасы туралы тың мәліметтер келтірілген., Сақталған қолжазба кітабы қазақ билеушісінің бұйрығымен жазылған тұңғыш белгілі еңбек болып табылады.

Түйін сөздер: тудың басы, банчук, штандарт, қолжазба, генеология, қазақ хандары, жерлеу орындары.

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ИСТОРИЧЕСКАЯ РУКОПИСЬ КАЗАХСКОГО ХАНА АЛИАКБАРА

Аннотация. В семье Б. Т. Амре (г. Шымкент. Казахстан) храниться металлическое навершие знамени. Сопоставление с известными данными о восточных знаменах позволяет считать что данное навершие является завершающей частью древка бунчука (штандарта) казахского хана Алиакбара. У других потомков Алиакбара хранится старинная рукопись, состоящая из 86 страниц. Рукописная книга обозначена как «Кисса дастан Чингиз хан». Она была написана Абд Рахим Узканди в городе Туркестане в 1228/1813 г. по заказу ʻАли Акбар султана сына Карабаш Мухаммад султана. «Кисса дастан Чингиз хан» представляет новый источник по истории казахских ханств, особенно интересны сведения о генеалогии, о месте погребения казахских ханов, о связи хана Тауке с исфаганским правителем. Хранящаяся рукописная книга является первой из известных нам сочинений написанных по заказу казахского правителя.

Ключевые слова: навершие знамени, бунчук, штандарт, рукопись, генеалогия, казахские ханы, места захоронения.

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THE APPLIANCE OF Natural Language Processing TOOLS FOR IMPLEMENTATION OF STATISTICAL ANALYZER FOR PAGES WITHIN SECURE web SEARCHING

Abstract. The complex of program based on Natural Language Processing (NLP) tools and statistical algorithms for text analysis are described. Implemented web analyzer for pages can be easily embedded on server side of Internet Server Provider (ISP) for processing query of users, so that in consequence to limit access on inappropriate web-sites. The large number of remote custom parameters allows to increase, or decrease sensitivity of searching process. Security of web space is provision of parental control tools, and web analyzer for secure searching. In order to solve powerful statistical tools was implemented, substring searching algorithms, and NLP toolkit for analysis of input texts.

Key words: Natural Language Processing, Fourier distribution, Dirichlet distribution, Back-off smoothing, Knuth Morris Pratt O(nm)/O(n+m) algorithms (KMP), searching.

Introduction. Information security is not only complex of cryptographic problems solutions for providing confidentiality, integrity of data for their protection from third non-authorized parties, but it also security of Internet space including development of parental control tools, web analyzer for secure search of pages in the network. For solution of that problems it is required implementation of powerful statistical tools, substring searching algorithms, toolkit of Natural Language Processing (NLP) for analysis of input texts. Before implementation of program's complex there are studied the materials on theory of probability were studied, in particular probabilistic models, methodology of constructing probability of word occurrences in the text, Fourier probability (Fourier distribution), Dirichlet distribution, Back-off smoothing, Bernoulli distribution and also substring searching algorithms.

Formulation of problem. The purpose of project is programmatically implement high speed Natural Language Processing toolkit for the analysis of input text (for example, from web-pages) on malicious information contents upon using follows: Fourier Probability (Fourier Distribution), Dirichlet Distribution, Back-off smoothing, Frequency (count of each n-gram occurrences into input text), POS Tagging (Knuth Morris Pratt O(nm)/O(n+m) prefix-function algorithms), Levenshtein Distance for text correction, PorterStemmer (for processing plural forms of words in single form, base of words (with/without prefixes) with using prefix function of Knuth Morris Pratt O(nm)/O(n+m) algorithms). Program complex would allow using as statistical methods and toolkit of Natural Language Processing to reach high quality text analysis on presence of words set from restricted category, additionally following complex of programs would let to achieve high quality implementation of web analyzers (web filters) and function of parental control. Most of antivirus product solutions using in their analyzers information about site with the helps of polls, complaints from users. Such approach does not guarantees filtering of all unwanted for viewing web-pages and even more so could block legitimate resources. Developed program complex with Natural Language Processing toolkit would allow to achieve precise analysis of text and to make work of web-pages analyzer more qualify. Research work in following area is important for information security as high-performance tool of web-pages processing and tools of parental control.

Constructing mathematical model for research object. Fourier probability (Fourier distribution). Fourier probability is used to calculate probability of occurrence n-gram (often two grams, one gram) at predetermined text. Statistical appliance of Fourier probability could be used to measure frequency of n-grams (higher the probability of n-gram than more words occurring or repeated in the text). Fourier probability can be obtained for each n-grams in text or for the defined n-gram [1].

Fourier probability calculating by following formula:

$$P(w_i|w_i-1) = c(w_{i-1}w_i)/Ew_i c(w_i - 1w_i)\,,$$

let the $P(w_i|w_i-1)$ be probability of two-gram occurrence than $P(w_i)$ would be probability of appearing cut one gram and $P(w_{i-1})$ probability of appearing wrote in reverse order two gram.

Example: Matt Jarvis headed the Hammers in front as they threatened to extend Arsenal's winless league run to five games. But Podolski leveled with a shot on the turn two minutes later for the impressive FA Cup finalists. Olivier Giroud's classy finish and Podolski's driven second sealed the win as Arsenal moved up to fourth. Impressive goal have been made on the ending of a second time. However the Cup finalists where not, yet determined, but of course the main competitor for Cup semi-final is still be determined in few weeks.

$$P(w_i|w_i-1) = c(w_{i-1}w_i)/Ew_i c(w_i - 1w_i)$$
$$P(Cup\ finalists) = p(Cup|.)\ p(finalists\ Cup)\ p(.|finalists) =$$
$$c(.Cup)/Ew_c(.w)c(Cup\ Finalists)/Ew_c(Cup\ w)\ c(finalists\ .)/Ew_c(finalists\ w),$$

where $c(.Cup)$ - count of how many times word ‘Cup’ meets in the text. $Ew_c(.w)$ - total amount of sentences. $c(Cup\ Finalists)$ - count of how many times strict context ‘Cup finalists’ occurs in text. ‘Cup’, ’finalists’, ’finalists Cup’ are not considered. $Ew_c(Cup\ w)$ - count of how many n-bigrams meets (bigrams, trigrams and so on). In other words, count how many times structure ‘Cup’ + any word occurs. $c(finalists.)$ - Count how many times meets only the ‘finalists’. $Ew_c(finalists\ w)$ - count of amount n-grams finalists + any word occurs. $P(Cup\ finalists)$=1/5*2/3*2/1=0.2*0.67*2=0.268.

It should be noted that in Fourier probability probability of n-gram could be higher than 1 (not as in base probability theory where it must be not higher than 1 or where it must be not negative). High value of Fourier probability for n-gram means that distribution (amount of occurrences in the text) for that particular n gram is high [2].

Dirichlet distribution. In comparison with Fourier distributions which is precise for calculation of n-gram occurrence (two grams or higher) [3]. Dirichlet distribution more applicable for one-grams and requires less computational operations and not requires reverse $P(w_i|w_i-1)$ operations. For example, $c(.Cup)$ - count of how many times word ‘Cup’ meets in text, $Ew_c(Cup\ w)$ - count of how many times n-bigrams are meet (bigrams, trigrams and so on). By other words it is required to compute how many times structure ‘Cup’ + any word meets. Ew_c – full probability beginning with counting when first coincidence meets, $E\ P\big(k, B(Betta)\big) = B_k$, where E is sum. As with the case of Fourier probability in that occasion Dirichlet distribution differs from common probabilities where probability can be not higher than one. Note that in Dirichlet distribution probability of n-gram can be higher than 1 (not as in common probability theory where probability can be not higher than 1 or can be not negative). More higher complete probability of Dirichlet distribution for n-gram means that distribution - occurrence in the text for following particular n-gram is high [4,5].

Dirichlet distribution allows to store all events and correlate their outputs (probabilities) to k.

$$P\big(k, B(Betta)\big) = B_k,$$

where P is probability and for all k (amount of all events from 1…….. k), B (probability of each event), B_k (probability of all events from B_1…….B_k (for all B_{k0}).

Example: Manchester City’s players are the best paid in world sport according to a survey by Sporting intelligence. The City first team receive an average annual wage of 5.337M GBP a year-equivalent of 102.634 GBP a week. That is slightly more than their counterparts at the New York Yankees

and LA Dodgers baseball teams. slightly there is a possibility that Manchester players will be going to next season.

$$P(Manchester) = p(Manchester|.) = \frac{c(.Manc\ hester\ )}{Ew_c(.w)} = 2/4,$$

where $c(.Manchester)$ – amount of occurrences 'Manchester', $Ew_c(.w)$ - full amount of sentences. In Dirichlet distributions $E\ P\big(k, B(Betta)\big) = E_{p(k,B)} = B_k$, considering E – is sum, $P\big(k, B(Betta)\big)$ – probability of word $B(Betta)$ in k sentence, $E_{p(k,B)} = B_k$ - probability of word $B(Betta)$ in k sentence.

Back-off smoothing. Backoff smoothing is the process of adding artificial probability for defined n-gram. If the frequency for particular n-gram is high in text except others n-grams, than its probability significantly less than that word. Than in following cased it is required to apply Bernoulli distributions or Backoff smoothing.

For all $\frac{Ew_c(w_i|w_i-1)}{P(w_i|w_i-1)}$ и $P\big(k, B(Betta)\big) = B_k$

Dirichlet distributions a +=~0.90 (or at least 0.00001) or higher values must be added in order to artificially increase probability, but this is conduction in case if probability of word aims to almost 0, for example 0.00001.

Example: Mat Jarvis headed the arsenals cup hammers in front as they threatened finalists to extend Arsenals winless cup finalists cup finalists finalists cup league run to five games. but Podlski.

As it was seen from other examples probability of word 'cup' and 'cup finalists' very high as the frequency of 'cup', 'cup finalists' higher than others n-gram words have. It means occurs more often - appears twice as others n-grams.

$$P(Cup\ )P(Cup\ ) = p(Cup|.)\ p(.|Cup) = \frac{\frac{c(.Cup)}{\frac{Ew_c(.w)c(Cup.)}{Ew_c(.w)}}c(cup\ .)}{Ew_c(cup\ w)} = 0.140625$$

$$P(Finalists\ )P(Finalists\ ) = p(Finalists|.)\ p(.|Finalists) = \frac{\frac{c(.Finalists)}{\frac{Ew_c(.w)c(Finalists.)}{Ew_c(.w)}}c(Finalists\ .)}{Ew_c(Finalists\ w)}$$
$$= 1.30645161290323$$

$$P(Cup\ Finalists\ ) = p(Cup|.)\ p(.|Finalists\ Cup)P(.Finalists) =$$
$$= \frac{\frac{c(.Cup)}{\frac{Ew_c(.w)c(Cup\ Finalists.)}{Ew_c(Cup\ w)}}c(Finalists\ .)}{Ew_c(Finalists\ w)}\ P(Cup\ Finalists)$$
$$= 0.0634920634920635$$

Obviously see probability of $P(Cup\ ), P(Finalists\ ), P(Cup\ Finalists)$ significantly higher than $P(run)$, by her own, $P(run)$ is almost 0, $P(run)$ =0.0714285714285714.

Therefore, Back-off smoothing must be added in order to make its probability on the level of $P(Cup\ ), P(Finalists\ ), P(Cup\ Finalists)$.

Results of Back-off smoothing (results of implemented solution) are follows. As obviously see that after appliance of Back-off smoothing $P(run)$ now appear on the level of $P(Cup\ ), P(Finalists\ ), P(Cup\ Finalists)$.

$P(run)$ result without appliance of Back-off smoothing:

$$P(Run) = p(Run|.)\, p(.|Run) = \frac{\frac{c(.Run)}{Ew_c(.w)c(Run.)}}{\frac{Ew_c(.w)}{Ew_c(Run\, w)}} c(Run\, .) = 0.0714285714285714$$

$P(run)$ result with appliance of Back-off smoothing:

$$P(Run) = p(Run|.)\, p(.|Run) = \frac{\frac{c(.Run)}{Ew_c(.w)c(Run.)}}{\frac{Ew_c(.w)}{Ew_c(Run\, w)}} c(Run\, .) = 0.145161290322581$$

Receiving of theoretical and appliance results with usage of computer technologies.

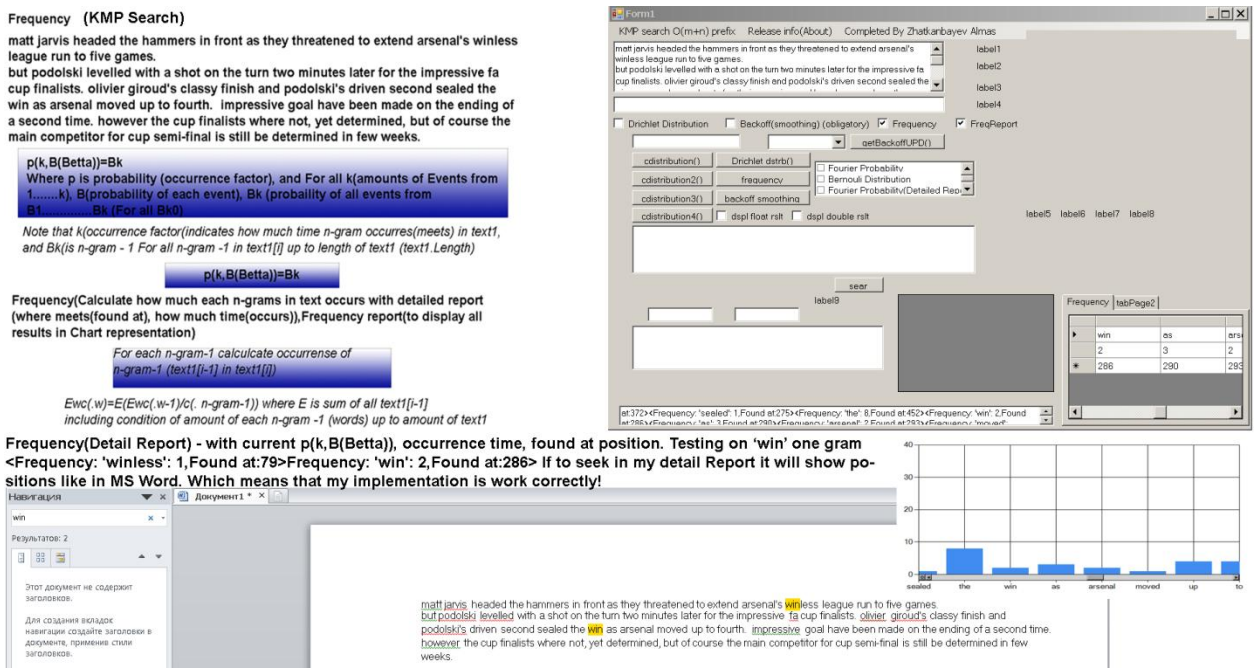

Figure 1 – Statistical program complex for calculation Dirichlet Distribution, Back-off smoothing, frequencies, KMP substring search algorithm

Measurement of time between implementations of KMP O(N+M), KMP O(NM) during prefix-function calculation, KMP substring search algorithm on length of text equals to 192 symbols

№	KMP version	Time processing
1	KMP O(nm)	01M:57C:30MC (~117 c)
2	KMP O(n+m)	0.01MC

Conclusion. Considering that all complex of programs based on native implementation and speed of text processing is sufficiently high, thus following web-analyzer of pages can be easily applied on the server side of Internet service provider for processing requests of users so that to do limit access on inappropriate sites finally. Also, high amount of adjustable parameters would allow to increase, or decrease search threshold sensitivity level. Example of frequencies output of all words in the sentences from all or part of text collected about drugs article is a Wikipedia online encyclopedia. Considering educational context of article, it is seen that frequencies of word drugs not a high.

Example: Pharmaceutical drugs are often classified into drug classes – groups of related drugs that have similar chemical structures, the same mechanism of action (binding to the same biological target), a related mode of action, and that are used to treat the same disease. The Anatomical Therapeutic Chemical Classification System (ATC), the most widely used drug classification system, assigns drugs a unique ATC code, which is an alphanumeric code that assigns it to specific drug classes within the ATC system. Another major classification system is the Bio-pharmaceutical Classification System. This classifies drugs according to their solubility and permeability or absorption properties.

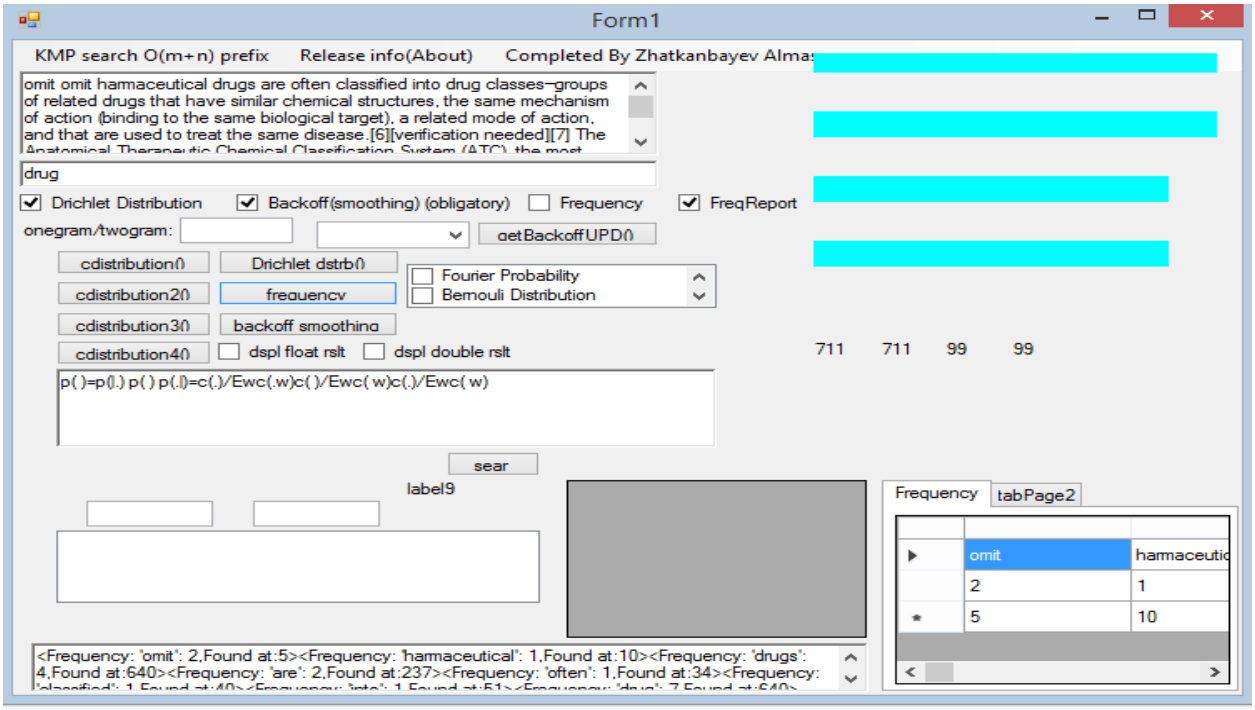

Figure 2 – Form 1 of statistical program complex for calculation Dirichlet Distribution, Back-off smoothing, frequencies, KMP substring search algorithm

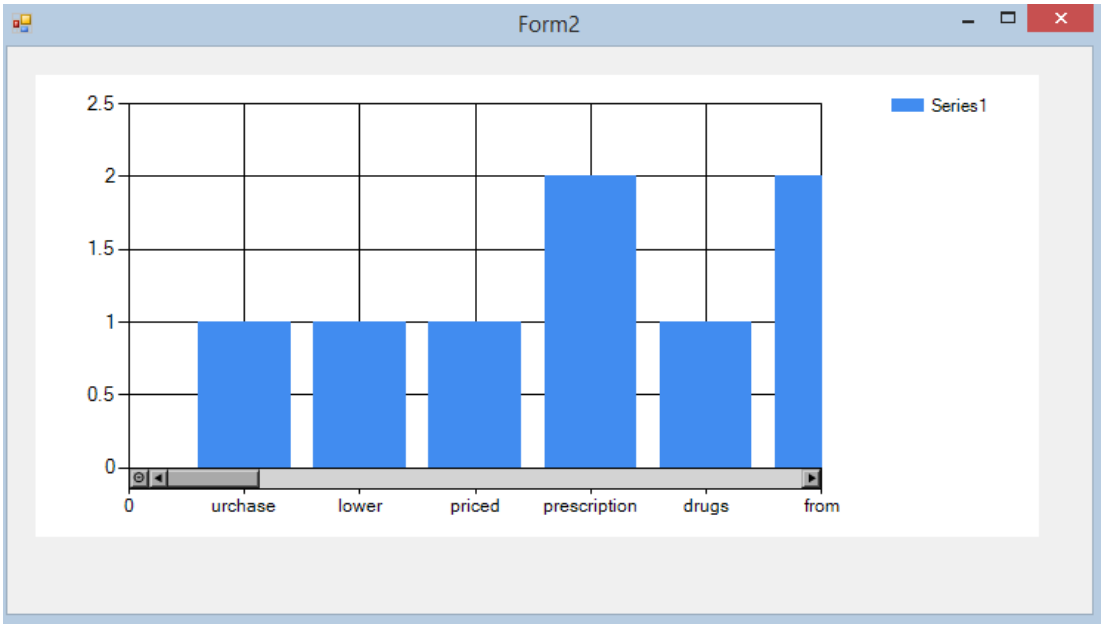

Figure 3 – Form 2 of statistical program complex for calculation Dirichlet Distribution, Back-off smoothing, frequencies, KMP substring search algorithm

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ПРИМЕНЕНИЕ СРЕДСТВ Natural Language Processing ДЛЯ РЕАЛИЗАЦИИ СТАТИСТИЧЕСКОГО АНАЛИЗАТОРА СТРАНИЦ ДЛЯ БЕЗОПАСНОГО веб-ПОИСКА

Аннотация. В статье описывается комплекс программ, основанный на инструментариях Обработки Естественного Языка (Natural Language Processing, NLP) и статистических алгоритмов для анализа текста. Реализованный веб-анализатор страниц можно легко перенести на серверную часть интернет провайдеров для обработки запросов пользователей, чтобы впоследствии ограничивать доступ на неприемлемые сайты. Большое количество настраиваемых параметров позволит увеличивать, снижать чувствительность поиска. Безопасность интернет пространства – это обеспечение средств родительского контроля, веб-анализатора для безопасного поиска. Для решения реализованы мощные статистические средства, алгоритмы поиска под-строк, инструментарии NLP для анализа входных текстов.

Ключевые слова: обработка Естественного Языка (Natural Language Processing, NLP), распределение Фурье, распределение Дирихле, Back-off сглаживание, Back-off smoothing, Knuth Morris Pratt O(nm)/O(n+m) algorithms (KMP), поиск.

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ҚАУІПСІЗ ВЕБ ІЗДЕУ ҮШІН СТАТИСТИКАЛЫҚ БЕТТІ ТАЛДАУ ҚҰРАЛЫН \ІСКЕ АСЫРУ ҮШІН Natural Language Processing ҚҰРАЛДАРЫН ПАЙДАЛАНУ

Аннотация. Мақалада Natural Language Processing (NLP) құралдарына негізделген бағдарламалардың жиынтығы және мәтінді талдау үшін статистикалық алгоритмдер сипатталған. Орындалған веб-парақ анализаторы, кейіннен қолайсыз сайттарға кіруді шектеу үшін пайдаланушы сұрауларын өңдеу үшін интернет-провайдерлердің серверлік бөлігіне оңай ауыса алады. Көптеген банталатын параметрлер көбейтіледі, іздеудің сезімталдығын төмендетеді. Ғаламтор қауіпсіздігі – ата-ана бақылауы, қауіпсіз іздеу үшін веб-анализатор. Шешім үшін күшті статистикалық құралдар, субстраттар үшін іздеу алгоритмдері, кіріс мәтіндерін талдау үшін NLP құралдары іске асырылады.

Түйін сөздер: Natural Language Processing (NLP), Фурье таралымы, Дирихленің үлестірілуі, Back-off жалтырату, Knuth Morris Pratt O(nm)/O(n+m) алгоритмдер (KMP), іздеу.

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THE PROBLEMS AND PROSPECTS OF DEVELOPMENT OF A GRAIN COMPLEX IN THE REPUBLIC OF KAZAKHSTAN

Abstract. The article reviews the modern state of cereal crops production in Kazakhstan, lists problems affecting the development of the grain complex, offers measures on improvement of the activity of grain producing agricultural formations and producing of cereal crops subject to regional peculiarities of the country. The key goals and improvement of the export possibilities of agro formations in the regions will be achieved only with a complex and systematic approach based on the public private partnership, which identifies priorities of the current agrarian policy of the country. And they have more advantages than other forms of farming as they will be established to perform production and sales of the grain products, to provide various services, etc.

Keywords: grain complex, agricultural formations, cereal crops and grain legume crops, oil-bearing crops, cultivated areas, gross collection, crop yield, cost of production, government control, government financial aid, grants, climatic-environmental and weather conditions, grain and cereal products, legal organizational forms of economy management, optimization, main and additional sectors, crop growing, livestock farming, irrigated and dry agriculture, mechanism of economic management.

1. The modern state of cereal crops production in Kazakhstan. Under present conditions of the world market development the problem of provision of food security has a priority meaning for any country, because various political situations strengthen disproportions in development of internal economy in various regions of world society. In Kazakhstan during sovereignty years, a certain work has been done on development of the grain complex of agro-industrial business, whereby we may emphasize strengthening of the government support measures in the sphere of agrarian production. If speaking about the grain complex of the Agrarian Financial Complex of Kazakhstan it should be noted that it commands a large part in the internal production, defining the increase of grain and cereal products export to various parts of the globe as a priority direction. If speaking about the grain complex of Kazakhstan primarily the production of corn, rice and other cereal crops should be mentioned. At this, grains are in high demand at the world market and referred to the first class that determines the growth of country exporting potential.

During the years of sovereignty in Kazakhstan, the agrarian business underwent big changes, aimed at formation of new legal organizational forms of economy management in all spheres of the agrarian business. At the same time breaking of former collective and state farms into various small and middle farm patterns based on private property, absence of corresponding mechanism of economic relations, poor material and technical base and other production problems from their part disclosed difficulties of the country`s grain complex. For solving these issues, the government had to use various tools of economy management mechanism, create conditions for approach of grain and cereal crops processing enterprises and producers of grain themselves.

A certain push for the development of the grain complex of Kazakhstan was given by acceptance of the Law of RoK "About grain" dated January 19, 2001, №143-II as amended and modified later. In accordance with Clause 3 of this Law, the following objectives of the government regulation at the market of grain were defined: ensuring safety in the sphere of technical regulation, expansion of the markets of grain sale, ensuring quality of grain, maintenance of phytosanitary environment at a secure level, optimization of the structure of grain production considering climatic-environmental and weather conditions and market conditions, improvement of the technology of production, storage and sale of grain and others [1].

Thereby this Law on its part sets directions and functions of the government regulation and rendering financial aid to the grain producers, as the cereal crops bear a strategic nature for the Republic and are in a great demand on the foreign world market, from the other part they mean food security of the country. At the same time, in the conditions of the corruption and pricing by public officials and subjects of agrarian market it is required that the Law details mechanisms of the government regulation and financial aid of the grain complex based on corresponding mechanisms of their implementation, defines the strategy of cereal crops production in view of its structure and purpose, as varieties of the grain cultures have their own differential peculiarities of cultivation and regional differences, not mentioning the costs of production in irrigated and dry agricultures.

The practice of economy management in regions of the country shows that even with the implementation of the government regulation and use of various tools of economic mechanism of management, there are still many problems between goods producers and structures of "Gosprodcorporation" that sometimes can`t be solved even through juridical instances. That is why in the long view it is required to improve organizational-economical and organizational-juridical mechanisms, to reinforce the supervisory responsibility of the governmental structures and as well the mechanism of economic relations among all institutional structures of the agrarian market in regards to grain complex. Unfortunately, frequent changes and additions of many legislative acts restrict capabilities of rural goods manufacturers to be aware of such changes, not mentioning difficulties and bureaucracy during the implementation of agricultural policy in the regions.

2. The problems of a grain complex in the Republic of Kazakhstan. For the purposes of development of the grain complex, the "Agro Business-2020" program holds a specific place, one of the priorities of which is the establishment of conditions for enhancement of competitiveness of the enterprises of the sphere of production and processing of grain and grain products. Presently grains are the leading brand of the country, but on the other side it requires optimization of possibilities of this sphere and diversification of the agricultural production in the regions based on applying of investments and as well modernization of production possibilities by the implementation of new achievements of agrarian science and leading world experience.

As per opinion of the researchers of the agrarian sphere of economics, the farming industry is directly connected with biological actives and natural processes, which are highly correlated to climatic factors and natural resources as soil, plants and animals. Taking into account specifics of the agrarian production, many researchers think that the most typical peculiarities of the farming industry influencing on the conduct of agricultural business are land resources as irreplaceable means of the farming industry and requesting annual enhancement of fertility depending on the conduct of farming industry system. Besides, alternatively to other kinds of resources, the land as the main factor of agricultural production gets better if it is used rationally. However, to keep up with the required level of fertility it is necessary to compensate for not only used nutritional chemicals of soil, but as well to restore quality indicators by means of fertilizer treatment. Certainly, all of this requires definite material-technical and financial investments. At this payback of the main volumes of investments elongates in time and space in comparison with other spheres of industrial production.

Secondly, the efficiency of the agricultural business is related not only to climatic and natural conditions, but as well with risk which impacts on the payback of invested capital and receipt of profit. Besides, in the agrarian business, there is a quicker wear of production funds of agricultural designation, not speaking about the fact, that some of them are used just several working days in the production process. This, as a rule, includes combine harvesters, which are used only 20-25 days in the season. Meanwhile, they have a very big purchase cost that implies difficulties to agricultural formations to renew them timely at the low cost of produced agricultural products. That is why the main task of the grain complex of the country is the rational and effective use of agriculturally used areas, optimality of the structure of seeding, timely conduct of agricultural technical measures, implementation of innovative technologies and others.

Business patterns are important for the development of the grain complex defining possibilities in this area, ref. figure 1.

As per information of the Committee on statistics of the Ministry of national economics of RK the cultivated areas of agricultural crops made 21660,1 th. ha in 2016, that is by 455,1thous.ha more than in

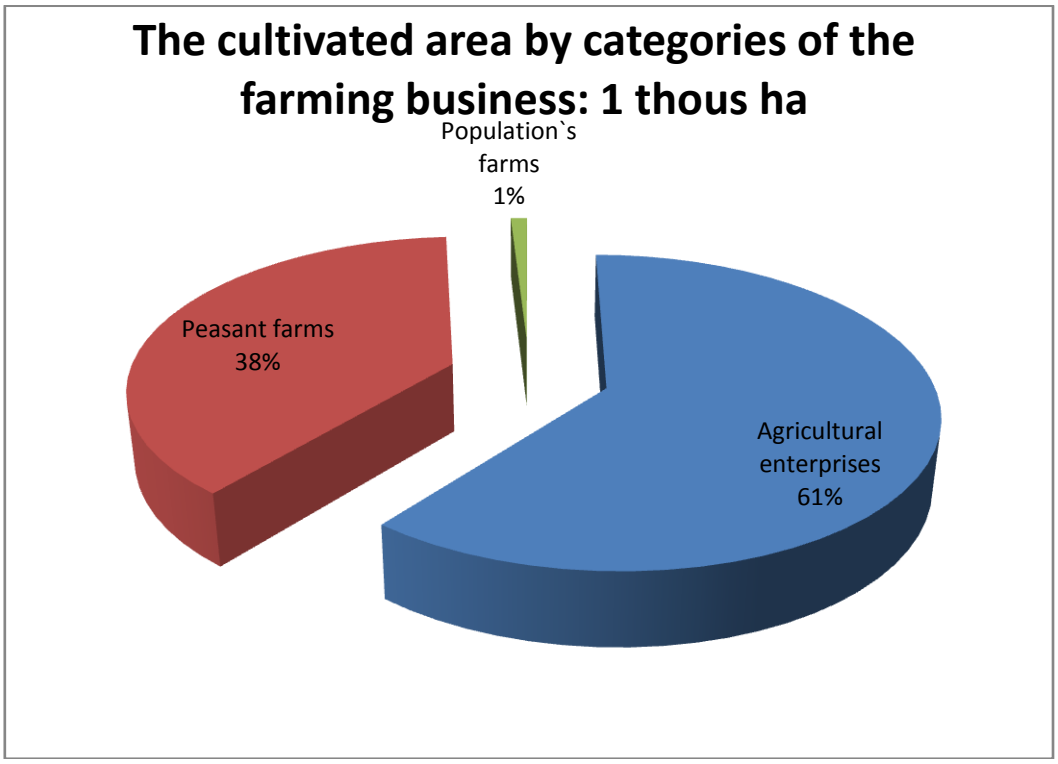

Figure 1 – The cultivated areas of agricultural crops in Kazakhstan
in the view of organizational and legal business patterns. Source: The Committee on statistics of MNE RK

Y2015 or by 2,1%. At this, the major part of the areas are cereal crops that make up 15400,7 th. ha, or 71,1% of cultivated area, feed crops - 3671,3 th. ha, or 16,9% of the cultivated area, oil-bearing crops - 2037,5 th. ha, or 9,4% of cultivated area. Among cereal crops the biggest share is taken by wheat, 12 430 th. ha, or 57%.

In comparison with 2015, in 2016 cultivated areas of legume crops went up by 1,9 times, sugar beet by 37,2%, cotton by 10,5%, vegetables of outdoor planting by 3,8%, oil-bearing crops by1,5%, wheat by 5,9%.

At the same time in 2017, cultivated areas of tobacco decreased by 22,5%, rice by 3,9%, corn by 3,4%, potato by 1,9% and cucurbits crops by 0,7%. The biggest cultivated areas of cereal crops are in Kostanay (24%), Akmola (23%) and North Kazakhstan (20%) Oblasts. It should be mentioned that the specific weight of cultivated areas as per categories of the economies remained unchanged in comparison with the last year. The portion of agricultural enterprises amounts to 13179 th. ha, or 61% of all cultivated area, peasant and farm enterprises 8273 th. ha, or 38% and population`s farms 207 thous.ga, or 1% [2].

Insurance of agricultural crops plays a critical role for decreasing negative influence of various natural and climatic conditions, as well as other negative factors to the cultivation of cereal crops and to cover a part of production expenses in unfavorable years. In view of this, obligatory insurance of agri-cultural crops in plant growing was legally adopted in Kazakhstan. The state of insured cultivated areas of agricultural crops is given in table 1.

As per data of the Committee of statistics of RK in 2016 the area of insured crops was 9 860 th. ha or 46% of the total cultivated area. Majority of cultivated lands, 74% (3 784 th. ha), is insured in Kostanay oblast, and the lowest share of insured lands is in South Kazakhstani oblast, 2 % of total cultivated area, or 17,6 th. ha.

The practice shows that in the conditions of the open market economy from year to year propagation of various kinds of plant and animals decreases, not speaking about worsening of phytosanitary conditions and spreading of blasts as locusts, etc. Taking into account negative effects of such facts for cultivation of cereal and rotating crops of the grain complex it is required to define supervisory responsibility of the local executive bodies of rural regions and heads of all kinds of economies for untimely treatment and concealing of such facts and not taking proper measures on non-spreading of nidus of infection.

Table 1 – The areas of insured cultivated areas of agricultural crops

Oblasts	Insured cultivated areas, th. hectares	Specific weight to total cultivated area, %
Total in Kazakhstan	9859,5	45,5
including:		
Akmola oblast	2210,1	44,0
Aktobe oblast	91,6	16,2
Almaty oblast	111,8	12,0
West Kazakhstani oblast	154,4	34,3
Zhambyl oblast	113,4	19,2
Karaganda oblast	423,7	38,9
Kostanay oblast	3783,9	73,6
Kyzylorda oblast	77,8	46,4
South Kazakhstani oblast	17,6	2,2
Pavlodar oblast	575,4	46,5
North Kazakhstan oblast	1890,5	43,2
East Kazakhstan oblast	409,3	31,5
Source: The Committee on statistics of the Ministry of national economy of RK.		

In the structure of seeding of agricultural crops, in 1990 oil-bearing crops grew on 266,5 th. ha only against 23355,9 th. ha given for cereal crops and grain legume crops. Severe conditions of reforming and privatization in the sphere of agrarian business affected growth of oil-bearing and grain legume crops, but starting from 2003 due to increase of state support to agrarian sphere it went up to 638,9 th. ha. The announcement of diversification of agricultural production by the government allowed increasing of oil-bearing crops cultivated areas to 913,7 th. ha. In 2012 cultivated areas of oil-bearing crops achieved 1853,9 th. ha, and in 2014 - 2299,5 th. ha, but in 2015 oil-bearing crops decreased first time down to 2009,7 th. ha. Overall, for last 5 years seeding of oil-bearing crops has increased to 10,6 th. ha. The necessity to increase production of oil-bearing crops was mainly conditioned by needs of internal market in vegetable oil, as the state was dependent on import of this product. Nowadays Kazakhstan fully covers needs of internal market, but exceeds its import possibilities. Therefore since 2017, China imports Kazakhstani vegetable oil, which indicates to competitiveness of this product at the world market and allows optimization of cultivated areas of this crop.

One of the main indicators of the development of agrarian production is a gross output of cereal crops, as demonstrated in table 2.

At the same time in Kyzylorda, South Kazakhstani, Almaty and East Kazakhstani Oblasts the gross output includes rice, legume and oil-bearing crops due to the structure of cultivated areas of cereal crops. As it is seen from data in the Table the gross output of cereal crops including rice and legume crops in Kazakhstan goes up from year to year and amounted to 20634,4 th. t in 2016, that is by 60,4% more than in Y2012. Among Oblasts the biggest gross output comes to North Kazakhstani Oblast, which collected 5051,2 th. t, or 24,5% of all cereal crops, Akmola Oblast – 5023,8 th. t, or 24,3% of all cereal crops, Kostanay Oblast – 4535,9 th. t, or 22,0% of all cereal crops, Almaty Oblast – 1265,5 th. t, or 6,1% of all cereal crops, Karaganda Oblast – 884,8 th. t, or 4,3% of all cereal crops and East Kazakhstan Oblast – 782,9 th. t, or 3,8% of all cereal crops.

Among cereal crops important place belongs to strong and hard wheat, cultivated in the conditions of dry agriculture, that is widely spread in northern regions of Kazakhstan. The gross output of wheat in the view of administrative oblasts is given in table 3.

As it is seen above the highest yield of wheat was in 2016 amounting to 14985,4 th. tn., or 72,6% of all harvested cereal crops. In 2016 the gross output of wheat increased by 52,3% comparing to 2012, and by 9,0% comparing to 2015. Among administrative oblasts of Kazakhstan, the biggest gross output was collected in Akmola Oblast - 4261,6 th. t, or 28,4% of all produced wheat, Kostanay Oblast – 3991,3 th. t, or 26,6%, North Kazakhstan Oblast – 3654,1 thous.tn, or 24,4%. So the biggest portion of wheat gross output comes to Akmola, Kostanay and North-Kazakhstan Oblasts, which have the biggest seeding than in other oblasts.

Table 2 – Gross output of cereal crops including rice and legume crops

(th. tons)

Indicators	Years				
	2012	2013	2014	2015	2016
Republic of Kazakhstan, total	12 864,8	18 231,1	17 162,2	18 672,8	20 634,4
Akmola oblast	2 822,0	4 411,7	4 502,6	4 434,7	5 023,8
Aktobe oblast	94,7	212,	143,4	164,9	408,2
Almaty oblast	1 021,7	1 103,9	1 046,5	1 172,2	1 265,5
Atyrau oblast	–	0,1	–	0,3	1,6
West Kazakhstani oblast	129,3	198,	223,8	95,4	309,8
Zhambyl oblast	229,5	480,0	288,6	452,6	651,5
Karaganda oblast	403,4	758,9	599,5	591,6	884,8
Kostanay oblast	2449,5	4267,5	3987,5	4541,9	4535,9
Kyzylorda oblast	291,0	295,1	323,8	368,6	404,9
South Kazakhstani oblast	282,6	471,4	421,3	581,1	633,4
Pavlodar oblast	168,5	696,7	364,4	575,5	679,2
North Kazakhstani oblast	4391,3	4544,0	4547,0	5047,1	5051,2
East Kazakhstani oblast	580,9	790,2	713,4	646,7	782,9
Astana	0,5	0,6	0,3	0,1	1,0
Almaty	0,1	–	0,1	0,1	0,7
Source: The Committee on statistics of the Ministry of national economy of RK.					

Table 3 – Gross output of wheat in the view of administrative oblasts of Kazakhstan

(th. Tons)

Indicators	Years				
	2012	2013	2014	2015	2016
Republic of Kazakhstan, total	9841,1	13940,8	12996,9	13747,0	14985,4
Akmola oblast	2552,5	3786,8	3936,6	3872,6	4261,6
Aktobe oblast	72,8	176,5	115,0	129,8	298,9
Almaty oblast	305,7	305,9	237,1	264,0	295,7
Atyrau oblast	–	0,0	–	–	–
West Kazakhstan oblast	101,1	145,6	172,0	85,6	242,2
Zhambyl oblast	84,3	163,5	90,9	158,0	220,3
Karaganda oblast	332,2	593,2	467,7	469,7	688,4
Kostanay oblast	2 246,1	3 844,9	3 616,7	4 061,3	3 991,3
Kyzylorda oblast	2,7	2,5	3,5	2,2	8,3
South Kazakhstan oblast	137,2	308,5	200,7	277,8	369,9
Pavlodar oblast	123,7	470,3	252,5	418,4	466,0
North Kazakhstan oblast	3 505,8	3 635,0	3 445,4	3 595,8	3 654,1
East Kazakhstan oblast	376,6	507,7	458,5	411,6	487,6
Astana	0,4	0,4	0,3	0,1	1,0
Almaty	–	–	0,0	0,1	0,1
Source: The Committee on statistics of the Ministry of national economy of RK.					

One of the main indicators of the effectiveness of wheat producing is an average yield, which characterizes product output from the unit of cultivated area, the level is given in table 4.

Table 4 – Average yield of cereal crops in the view of administrative oblasts of Kazakhstan

(metric centners per hectare)

Indicators	Years				
	2012	2013	2014	2015	2016
Republic of Kazakhstan, total	**8,6**	**11,6**	**11,7**	**12,7**	**13,5**
Akmola oblast	7,0	10,4	11,0	10,8	11,6
Aktobe oblast	2,9	5,0	4,7	5,6	11,9
Almaty oblast	23,4	24,8	23,5	26,1	27,9
Atyrau oblast	2,3	5,4	–	7,6	47,0
West Kazakhstan oblast	5,4	6,6	7,9	6,6	14,5
Zhambyl oblast	11,0	20,2	11,6	17,9	24,6
Karaganda oblast	6,5	11,4	9,2	9,0	12,3
Kostanay oblast	6,1	9,7	9,9	11,4	10,8
Kyzylorda oblast	34,6	37,3	38,2	42,3	46,6
South Kazakhstan oblast	15,4	21,8	17,7	23,2	24,3
Pavlodar oblast	3,7	11,7	5,9	8,7	10,3
North Kazakhstan oblast	11,7	12,8	14,6	15,8	15,7
East Kazakhstan oblast	11,0	14,2	12,6	11,3	13,7
Astana	5,7	7,4	5,0	3,3	7,4
Almaty	4,9	–	13,5	13,2	9,4
Source: The Committee on statistics of the Ministry of national economy of RK.					

Table 5 –The average yield of wheat in administrative oblasts of Kazakhstan

(metric centners per hectare)

Indicators	Years				
	2012	2013	2014	2015	2016
Republic of Kazakhstan, total	**7,9**	**10,8**	**10,9**	**11,9**	**12,1**
Akmola oblast	7,0	10,0	10,9	10,8	11,1
Aktobe oblast	2,8	5,2	4,8	5,8	11,7
Almaty oblast	16,3	18,2	14,7	18,8	20,0
Atyrau oblast	–	2,9	–	–	–
West Kazakhstan oblast	5,8	7,1	8,8	7,8	15,6
Zhambyl oblast	8,6	16,5	8,5	15,6	21,3
Karaganda oblast	6,5	11,5	9,4	9,2	11,9
Kostanay oblast	6,1	9,6	9,9	11,4	10,5
Kyzylorda oblast	4,7	7,1	8,8	11,0	14,9
South Kazakhstan oblast	10,9	19,4	13,2	18,3	21,1
Pavlodar oblast	3,8	12,0	5,8	8,8	10,1
North Kazakhstan oblast	11,5	12,4	13,8	15,5	14,8
East Kazakhstan oblast	10,9	14,2	12,4	11,0	12,7
Astana	6,1	7,4	5,8	3,3	7,4
Almaty	–	–	13,0	17,7	8,0
Source: The Committee on statistics of the Ministry of national economy of RK.					

As it is seen from the table data in 2016 the average yield of the cereal crops overall by Republic amounted to 13,5 metric centners/ha, which is higher than the level of previous years. Among Oblasts the biggest output of grain crops from the unit of seeding areas is in Atyrau – 47 centners/ha, Kyzylorda - 46,6 c/ha, Almaty – 27,9 centners/ha, Zhambyl – 24,3 centners/ha and South-Kazakhstani Oblast – 24,3 centners/ha that is related to the yield of rice, grain-legume, oil bearing and other cereal crops.

Among cereal crops wheat is on a prominent position having yield below other cereal crops as given in table 5.

As it is seen above in 2016 overall yield of wheat in Kazakhstan was 12,1 metric centners/ha, and it has a tendency of dynamical growth comparing to previous analyzed years. Among Oblasts the biggest yield is in Zhambyl Oblast – 21,3 centners/ha, South Kazakhstan – 21,1 centners/ha, Almaty – 20,0 centners/ha, West Kazakhstan – 15,6 centners/ha and Kyzylorda Oblast -14,9 centners/ha, which is related to application of relevant sprinkling systems, as well as irrigation of this culture. In the conditions of dry agriculture, the wheat yield is mainly lower than in irrigated agriculture, but the quality is worse than in north oblasts.

3. Improvement of grain production in Kazakhstan. Researches of grain growing agrarian formations in north oblasts of Kazakhstan show that due to unfavorable weather conditions for recent years a part of the grown yield of grain remained under snow that firstly had an impact on their financing and operating activities. Secondly, it brought to loss of part of the grown harvest. Thirdly, strong and hard salable wheat was used for feeding cattle, as it was unsuitable for production needs. Fourthly, such practice brought to deterioration of agriculturally used areas. Fifthly, reduced efficiency of financial aid rendered by the government, as the state did not help to collect harvest, although the government allocated big amounts of subsidies to compensate for the part of production costs. That is why the government shall conduct a purposeful agricultural policy in regards to grain complex, and grain growing agrarian formations shall implement innovative technologies contributory to the improvement of both the quality of cereal crops and crop areas, as well optimize crop areas of the cereal crops by means of mechanisms of governmental regulation of this sphere.

In recent years in the world community, the climate warming has occurred that is related to a disorder of the natural disbalance and increase of production emissions to the atmosphere. It has a great impact on further development of grain farming of many counties of the world community. So, the Russian climate researcher - Andrey Kisilev, says that as per forecasts in 50 years the average ambient temperature on the planet will increase by 4-5 degrees due to global warming, affecting the precipitation pattern. That is why in many countries rainfalls instead of warm rains are predicted, however, Kazakhstan and Central Asia countries are not in danger. At the same time, the Deputy Director of the scientific-research center of the Hydrometeorological center of Russia thinks that it is most likely that even today many countries of Central Asia, as well as many world countries, are in danger of lack of water that is related to the strengthening of aridity in recent years in the global universe. Moreover, we have to agree with opinions of these famous Russian climate researchers, because in recent years hot weather in summer time gets longer with an increase of some diseases and crop pests [3].

Director of scientific research center Republican state enterprise “Kazgidromet” - Paiyzkhan Kozhakhmetov, has the same opinion saying that in recent years climate became more arid, and in future this may bring to the risk of loss of producing of cereal crops in northern parts of Kazakhstan, which are the main regions of producing strong and hard wheat. Thus, Kazakhstan may lose grain oblasts and the Balkhash Lake. According to the climate researches, in several decades a part of the country may turn into a dreary waterless region [4].

So the risk zone will include northern and western regions, center of Kazakhstan, also the Balkhash Lake. In the result of ice streams melting, the Balkhash Lake may face the same problem as the Aral Sea. Along with this negative moment for Kazakhstan, there is a risk of reduction of throughput capacity of the Irtysh River, which was partially turned into inside part of the Black Irtysh River in China for the needs of this country contradicting to international norms and rules of transbordering rivers.

Another problem of the grain complex development in Kazakhstan is non-usage of organic fertilizers and usage of chemical fertilizers and plants protection. While since the beginning of the XX century, most agronomists, biologists and farmers of the world started moving from treatment of the plants with fertilizers and pesticides. Such approach in land treatment is called as organic and directed first at improving

natural fertility and structure of the soil. And nowadays for the fertilizers, it is required to apply organic remainders, and against vermins – biological means of protection.

Organic planting helps to save temporary and energy resources; however, it doesn't mean that there is no absolute need in human interference. Here it is important to properly prepare the soil and plants for planting, and further only to control their state.

Researches show that in 2007 approximately 30,5 mln. hectares in the world were used in accordance with principles of the organic agriculture. While positive moment is ecological compatibility and self-sufficiency, and negative factors are impossibility to sell large products amounts. However, the experience of previous years shows that organic fertilizers were used in seeding areas by collective and state farms during planned economy era at that each farm was reporting to oblast agricultural departments. Today single side orientation of specialization of the majority of grain cropping agro formations doesn't allow to implement such norms of organic fertilizers, and the reason is absence of additional branches of cattle breeding in those farms and lack of organic fertilizers. Therefore, in the agro formations of the grain complex it is required to develop additional branches of cattle breeding of meat and meat and dairy direction, which will assist in rational and efficient usage of the human resources and agriculturally used areas of those industries.

Considering perspectives of the grain complex development in Kazakhstan in the grain cropping industry, it is required to develop large organizational legal forms of business which will concentrate all production resources and timely provide agro-technical actions in vegetation period, as well as collect grown products. In this aspect, the most efficient options are cooperative unions. And they have more advantages than other forms of farming as they will be established to perform production and sales of the grain products, to provide various services, etc.

Today the state conducts goal seeking and productive works on the development of relevant grain complex infrastructure as inside of country as well as abroad. Kazakhstan works on development of logistics and establishment of transportation logistical centers with an access to the Near East countries, China and other South-East Asia countries and near abroad countries. Positive fact is the completion of construction of grain terminals in Aktau city, also the construction of a terminal in Azerbaijan which will allow to expand export potentials of the country. Construction of the "West China – West Europe" High-road will also expand possibilities of transporting grain by vehicles through the whole country.

Today the state has identified development of the large-scale agricultural production as a top priority, which may successfully resolve many production problems and improve resource productivity of the grain cropping industry of the country. At the same time, presently the other problem lies in lack of qualified personnel for the agrarian production sphere, who may successfully resolve various innovative solutions having modern computer programs, not speaking of the management, accounting and budgeting projects in accordance with present requirements of development of market relations.

In order to these goals in the agrarian sphere, it is required to identify state procedure for preparation of the human resources needed in rural areas, to create a mechanism of motivation of young specialists of agrarian and medical institutions, to improve quality of educational services in the universities, to apply new educational technologies and improve equipping of the educational institutions with new laboratories, agricultural units and technologies with consideration of the future development of the agrarian production.

Considering the strategy of grain complex development and increase of export potentials of the country, the grain producing agro formations must apply not just cooperation, but also horizontal and vertical integration with grain producing, processing, storage, transportation and agricultural products sales enterprises. The key goals and improvement of the export possibilities of agro formations in the regions will be achieved only with a complex and systematic approach based on the public private partnership, which identifies priorities of the current agrarian policy of the country. Along with it the state shall optimize seeding of the grain, conduct diversification of the agricultural production considering sizes of seeds, stimulate implementation of new technologies and stiffen non-observance of agro-technical measures which cause non-usability of the agriculturally used areas.

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ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДА АСТЫҚ ӨНДІРІСІН ДАМУЫ МЕН ПРОБЛЕМАЛАРЫ

Аннотация. Мақалада Қазақстандағы дәнді дақылдарды өндірудің қазіргі жай-күйі, астық кешенінің дамуына әсер ететін проблемалар анықталып, еліміздің аймақтық ерекшеліктерін ескере отырып, астықты агроөнеркәсіптік кешенді дамыту және астық дақылдарын өндіру бойынша іс-шараларды жетілдіру мәселелері қарастырылған. Аймақтардағы агроөнеркәсіптік кәсіпорындардың негізгі мақсаттары мен экспорттық мүмкіндіктерін жетілдіру, егер жүйе қазіргі және агроөнеркәсіптік саясаттың басымдықтарын айқындайтын мемлекеттік-жекеменшік әріптестік негізінде жүйелі және жүйелі болса ғана қол жеткізілетін болады. Олар ауыл шаруашылығының басқа түрлеріне қарағанда артықшылықтары бар, өйткені олар астық өнімдерін өндіру және сату, түрлі қызметтерді ұсыну және т.б. үшін құрылады.

Түйін сөздер: астық және дәнді-бұршақ дақылдары, егістік алаңдары, жалпы өнімділік, егістік өнімділік, өндірістік шығындар, мемлекеттік реттеу, мемлекеттік қаржылық көмек, субсидиялау, табиғи және климаттық және ауа райы жағдайлары, астық және астық өнімдері, ұйымдастырушылық-құқықтық нысандар басқару, оңтайландыру, негізгі және қосымша салалар, өсімдік шаруашылығы, мал шаруашылығы, суармалы және жаңбырлы шаруа қожалықтары, басқарудың экономикалық механизмі.

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ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ РАЗВИТИЯ ЗЕРНОВОГО КОМПЛЕКСА В РЕСПУБЛИКЕ КАЗАХСТАН

Аннотация. В статье рассматриваются современное состояние производства зерновых культур в Казахстане, указываются проблемы, влияющие на развитие зернового комплекса, предлагаются меры по улучшению деятельности зернопроизводящих агроформирований и производства зерновых культур с учетом региональных особенностей страны. Основные цели и улучшение экспортных возможностей агроформирований в регионах будут достигнуты только при комплексном и систематическом подходе, основанном на государ-

ственно-частном партнерстве, определяющем приоритеты текущей аграрной политики страны. И они имеют больше преимуществ, чем другие формы фермерства, поскольку они будут созданы для производства и продажи зерновых продуктов, предоставления различных услуг и т.д.

Ключевые слова: зерновой комплекс, агроформирования, зерновые и зернобобовые культуры, масличные культуры, посевные площади, валовый сбор, урожайность сельскохозяйственных культур, издержки производства, государственное регулирование, финансовая помощь государства, субсидии, природно-климатические и погодные условия, зерно и зернопродукты, организационно-правовые формы хозяйствования, оптимизация, основные и дополнительные отрасли, растениеводство, животноводство, орошаемое и богарное земледелие, экономический механизм хозяйствования.

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ARTISTIC FUNCTION OF DETAIL IN KAZAKH PROSE

Abstract. The article deals with the main characters of the artistic detail and the research problems. The artistic detail plays an important role in the transmission of artistic thought. For this reason, the essence and importance of detail is largely determined on the basis of national knowledge and concepts. All this must be sought in the author's skill and must be considered in the problems of the possibility of ensuring the full transfer of the idea. In the theory of literature, the study of detail, the analysis of details require a certain degree of systemativeness in an artistic composition. Thoughts related to the nature of detail in Kazakh literary study are considered starting with "Literary cognition" by A. Baitursynuly in various studies and theoretical works to the present day. Among them, there is little research of the artistic detail from the point of view of its ethnocultural character, considering it as an object of research. In the framework of the research on this topic, it is important to initially disclose the nature of the detail, to form a full-fledged concept and to consider its development.We would like to dwell on the problems of systematization of studies of the use of artistic details, taking as the basis the works of A. Baitursynuly, E.Ismailov, Z.Kabdolov and other Kazakh scientists. Comparing the works of the scientists E.Dobin, A.Esin with the works of Kazakh literary studies, we apply the principles of analysis of the work. The artistic detail influences the disclosure of the ideological essence of a literary work and the enhancement of its artistic value. Problems about the skill of the author - this is one thing, and the factors that affect the education of the details - are original, special. One of them is the national factor.On the basis of the national factor, the ethnocultural nature of the artistic detail is reflected. These and other problems concerning the ethno-cultural nature of the artistic detail were determined by analyzing the novels "Ai, Duniye-ai!" by B.Nurzhekeuly, "Alasapyran" by M.Magauin, D.Isabekov's story "Tirshilik", "Kui" by A.Kekilbayuly and theoretical works of other scientists. The ways of proof and solution through examples are considered. The analysis of works of artistic composition was conducted by traditional methods and techniques.

Key words: artistic detail, Kazakh prose, ethnocultural character, novel, national factor, literary study, style.

Introduction. In general, in the features peculiar to the art of declamation, the detail occupies a characteristic original place. The nature of detail in Kazakh literature, like in the world, does not tolerate one-sided consideration. The detail has its own peculiarities with respect to its nature. The peculiarities can be attributed to the ethno-cultural character. Speaking about the ethnocultural character, it can not be noted that writers of any nationality works written in their own language reflect the characteristics of a particular nation. It should not be forgotten that through ethnocultural character the place of national culture in the system of universal values is reflected.

The artistic detail is an object, an action, elements of a landscape, a portrait, and etc., which determine the image, thought, idea, which the author wanted to convey.

The notion of detail exists for a long time. You can see them in the "Iliad", "Odyssey" of Homer, in any creations that have reached us. Although there were no special works on details, requirements and conditions for word formation, a word unit in the works on the theory of literature, on aesthetics and poetics show the nature of the detail. We are convinced of this in the course of the study. There can be find data about the details in the writings of Kazakh and Russian literary scholars A. Baitursynuly, K. Zhumadilov, E. Ismailov, Z. Kabdolov, E.Dobin, Likhashev D.S. and A.Esin. However, these data of details do not fully disclose the nature of the detail. It is impossible not to notice that, despite the fact that the

detail is a small unit, it can be the basis of an integral artistic creation. Here, it needs to pay attention to the work and the skill of the writer.

Kazakh literary scholarship originates from ancient times, with inscriptions on stones, from the writings (works) of Al-Farabi, reflected in the historical and literary values that have reached us- this is confirmed by the results of studies. It is important to speak openly and to understand the vast, versatile that the ancient treasure of aesthetic thoughts are valuable data and have a periodic, transitional essence for generations of the world sciences about the beautiful.

All comprehension, opinions about the details from ancient times up to our days are in the field of vision of literary artistic composition. If not all, then the bulk of these reflections reveal the nature of the details, we drew attention to this part of the opinions.

When talking about the details, about its ethno-cultural character, one cannot help to talk about ethnographic details. Here you cannot confuse the detail with its character. In connection with the breadth of the concept of detail, it is also impossible to confuse the framework and the boundary of the topic.

The ethnographic detail will be a separate object of study. Our purpose is to learn the nature of the use of the artistic detail, and through it to know the reflection of the people's features, concepts, and beliefs in literary composition (works). Therefore, not only the ethnographic detail, but also the cultural detail has its part. The main reason for choosing a topic in the framework of the ethnocultural character is herein.

The theme of the detail belongs to the important topic in literary studies. On the details, you can find in the writings of many literary scholars. However, the absence of special studies on the ethnocultural nature of the details prompted our interest in this topic. It is clear about the diversity of the nature of the detail. The multidirectional features and a wide range of properties of the nature of the detail are waiting for their time of becoming the object of the research.

We really and objectively drew attention to the reflection of our national essence, tradition and culture in the literature of the country through artistic details of the ethnocultural nature. Moreover, it is indisputable that all this is transferred, it is determined only through details, through details of the ethno-cultural nature in artistic (composition) works.

Among the researches on the theme of artistic detail in Kazakh literary studies, it can mention the thesis of B.Z. Kabdulov (B. Kabdolov) "Detail in an artistic literary composition (works) (to the problem of writing skills)". In Russian literature in the studies of E. Dobin, A. Esin, the nature of the artistic detail is widely disclosed.

In literary studies, the theme of detail should be expanded; in order to determine the reflection of national characteristics with the use of a detail, the following tasks must be performed:

- to determine the nature of the details by the works of literary scholars;
- to find the connection between detail and interpretation;
- to determine the place of detail in art works with using the nature of the detail;
- the relation of the detail to time and space;
- historical basis for the use of artistic detail;
- ethnographic basis application of the artistic detail

The theme of the artistic detail in literary study requires an expansion of research, an uninterrupted study in new directions and articulate specific opinions.

Of course, the importance of defining and analyzing the reflection of the ethnocultural nature of the artistic detail of the national essence in the system of universal values is growing day by day.

Main part. The artistic detail is a tool that colors and enhances the essence of an artistic literary composition (work). The study and definition of the artistic detail always does not lose its relevance. The detail is part of the whole and uniform, a fraction. Simply put, it is the main particle that creates a meaningful whole.

The detail is like an atom of a literary work of art.

Analysis through the comparison of art works makes it possible to know the nature of the details. Intersubject analysis of the literary work within the scope of subjects: history, ethnography, culture, philosophy, is a kind of method that fully demonstrates the ethnocultural nature of the details.

The scales of knowledge are closely related to the history of the nation. Formed by time, developed today, or forgotten, but carved in stone the branches of knowledge are interwoven with the knowledge of the artist of the pen, the roots that have become the basis of the artist's knowledge. Research in this area is important.

The artistic detail is reflected in all the works of linguistics, beginning with "Literary cognition" until today. The study comparing these works, comparing with the works of foreign scientists, will lead to certainty, usefulness. The purpose and obligations of our studies consist in this.

Theoretical problems. The nature of the artistic detail in literary studies coincides with *alipteu* (cognition) of the work of A. Baitursynuly "Literary cognition" (Adebiet tanytkysh). Rather, not the detail itself, but the identical characteristics that determine the nature and features of the detail. Here *"alipteu"* is one of the "basic kinds that are noticeable in the content of the work". In "Literary cognition" (Adebiet tanytkysh): "There are three main types, noted in the content of the work: 1) *aueze;* 2) *alipteu*; 3) *baiymdau*. Speaking of anything, we do not tell one-sidedly, but versatile. For example, speaking of one person, about his/her deeds and his/her words, we tell as *aueze.* On the appearance, beauty, we tell as *aueze* and about his/her deeds, about its human qualities we speak as "*baiymdau*", i.e. meaningful, and our conversation turns out "*aueze*, or *alipteu, baiymdau"* [1, p.161].

In "Literary cognition" (Adebiet tanytkysh) A. Baitursynuly marking the main types in the content of the work, gives a definition in *aueze, alipteme, and baiymdau*, it can be noted that *alipteme* approaches to the nature of the detail. The word *"alip"* is not only the first letter of the Arabic alphabet, this word in the Kazakh language means a concept as a unity, a pillar, a stronghold. In the phrase *"Alipty tayak dep bilmeu",* the word "*alip"* means important information that everyone should know, or as the smallest particle. Here the words *alip* and *alipteu* are considered as separate words, with separate meanings. "*Alip"* is a detail.

The named main types related to the content are reflected in examples from Kazakh literature. Its author systematizing appoints it as a term. The Abai words *"Zhasymda gylym bar dep eskermedim*" refers to *aueze*. To *alipteme* "*Ayeldi sipattau", "Kuzdi alipteu", "Andi sipattau"* by Abai, *"Tolkyndy sipattau"* by Magzhan can be attributed, and to *baiymdau - Balgozhanin Balasyna jazgan haty*. In works you can often see "*aueze"*, "*alipteme"* and "*baiymdau"*. The above words separately do not have the content of a single species. "*Zhanibek batyr"* is an example of a literary composition, where there are all kinds of interspersed content"[1, p.161].

In the above mentioned examples, you can see that in the Kazakh art of word in the main types of content of the work there is a system of discipline and basis.

"To convey in words the appearance of a person or an object, to describe it in words – "*alipteme"*. You can describe everything in words - objects, people, different phenomena and states. The nature, things described in *alipteme*, are a demonstration"- writes A.Baitursynuly [1,p.250.]. Here, "description *alip"* - applying the detail faithfully conveys the drawing of an object or person to the reader. There are different methods and ways of transferring this information, drawing.

"In order to describe (*alipteu*) an object, you should know about it, examine its noticeable signs. When describing an object or person, not to talk about all the signs, but should describe its distinctive features and characteristics. Do not indistinctly mark all its signs, marks, and describe the signs as a memorable drawing" [1, p.251].

A. Baitursynuly introduces these additions based on examples of not only Kazakh, but also world literature, with which he was well acquainted. When describing an object with signs, marks, images, a complete portrait is drawn up. Here, small elements, particles and nuances are the details.

"In the right place you can talk about the perception, the usefulness of the subject" [1, p.251].

"Plan of alipteme. Firstly, the appearance of the object is described. Then it is told about the inner essence. You can talk about the generality of the subject, then more on particular. Or talk about the private, then move on to the general" [1, p.251].

"Remark. If the description of the object is time-consuming, the description is carried out in time. If the described object is at the same time, but it can be in different space, then the writer chooses the place of description arbitrarily. If the subject is at the same time and space, then the writer decides the order of description at his/her own discretion"[1, p.251].

"It is necessary to distinguish at the contents of the description "*kemdem zheri*" and "*dendem zheri*". "*Dendem zheri"* is the place of description. "*Kemdem zheri*" - is a place which are recalled in a story about the subject and objects associated with it" [1,p.251].

"Types of *alipteme*: *Alipteu* according to the goal is divided into: 1. *Pandi alipteme*. 2. *Sandy alipteme".*

"*Pandi alipteu* is a subject description, in order to correctly characterize the presentation of the correct concept of the subject. There are two kinds of *pandi alipteme:* 1. *Zhalkylai* (own) *alipteme*, 2. *Zhalpylai* (common) *alipteme"* [1, p.251].

When ***zhalkylai (own) alipteme,*** the subject is considered separately, here the descriptor draws attention to the distinctive features of the object from others" [1,p.251].

"When ***zhalpylay* (common) *alipteme*** the class of the object is taken, the characteristic class of the subject is described. Here the speaker pays attention to the common features of the objects of this class, type" [1, p.252].

"With ***sandy alipteme*"** the writer arbitrarily chooses some characteristics or qualities of the subject according to his/her goal.

Zhol aliptemesi. Describing the traveler of places where he/she visited is called *zhol aliptemesi* or *zholai*. When describing there are not few stories, but the story can be a description. One of them is *zhol aliptemesi.* With *zhol alimentemesi,* the story can be not only thematic. In this case, the description goes as the subject meets. Descriptions can be before and after meeting with the subject.

There is another kind - ***kiyali (imaginary) alipteme***. This description is as a result of the imagination of the traveler. Imagination of the writer is conducted by a traveler, talking about an imaginary subject. Such ***zhol alipteme*** is written in order to transmit scientific information. The Kazakhs do not have a fantastic, i.e. imaginary and little ordinary *zhol alipteme* [1, p.252].

All the passages quoted by A. Baitursynuly prove *alipteu*, i.e. the types of the description of the object have long taken their place in the Kazakh literature and were established and formed developing qualitatively. It should be noted here that A. Baitursynuly emphasizing and noting the main view in the content of the work, accurately found the place of *alip* and correctly understood its essence. Also it should be noted that the characteristic signs of *aueze*, *baiymdau* are closer to nature details. The words of E.Dobin: "... details and particularities - not only details and not always only particularities. Both are not only "peripheral", but they can often be "core" and directly refer not only to the environment, but also to the core of the narrative, to the figurative whole" [9, p.252], directly and indirectly are consonant with A.Baitursynuly's words about the *"main types"* in the content of the work. We will examine them in full in the following studies. From these words, the "basic view in the content of the work" is noticeably a detail. According to research, theoretical evidence to this day we are still taking "*alip"*. Since in the future we will consider this problem, we are not going to get stuck in this topic.

In the work "Problems of the theory of literature" by the scientist E.Ismailov, who made a great contribution to the literary theory of Kazakh literary studies, the peculiarities of the nature of the detail are reflected.

E.Ismailov speaking "Theme is the heart of the heart of the work", [2,p.189] intends a theme that can fully disclose the entire content of the work. To find the theme of an literary artistic work, the ability to properly use the detail is the key to achieving the artistic literary work. In the disclosure of the topic, the detail plays an important role. It is impossible not to mention this.The inherent, rich use of historical details, strokes in the historical work reveals the picture of the time being described, and the use of modern details that do not match the breath of that time, will certainly reduce the value of the work (composition). The natural use of the details in accordance with the type of genre, the cognitive nature of the work, is a common phenomenon today.

Since the literary artistic work (work of fiction) is not a historical literature, the narrations used in them, descriptions characteristic of the author, are largely formed between reality and imagination and are harmoniously combined. Here attention is drawn to the disclosure of the image, the essence of the narrative event, the transfer of the concept, inference. Hence, the service of the artistic detail comes to the fore as a fundamental one. It is clear that the basis of this is "the main view in the content of the work" noted by A. Baitursynuly "The variety of the transfer of the portrait, the appearance of the person is directly related to the content, the idea" [2, p.208] - E. Ismailov very eagerly mentioned.As noted above, A. Baitursynuly in his "Literary cognition" (Adebiet tanytkysh) spoke about the signs of content. Then we became convinced of the primacy of the artistic detail. For example, in the novel-epic "The Way of Abai" portraits of Kunanbai, Abai, their way of growth, formation, development are described using convincing details that serve the theme and idea of the work.

Practical problems. In his work "The Art of the Word" Z. Kabdolov gives a definition that gives the possibility of a complete concept of the nature of the detail. He notes: "*The detail is a real stroke for an integral, complete and quick knowledge of the essence of an object across the line of truth*" [3, p.96.]. This means opening the way to concreteness, clarity through particle - small strokes. This can be changed as a

tool for determining the style of the writer. The place of an artistic detail in the author's work in clarity, accuracy, intelligence.

Saying "The main value of the detail – is an exact", [3, p.97], in his work Z. Kabdolov clearly determines the nature of the detail. However, the nature of the detail not only serves to exactness, concreteness, but also through its distinctive features, which color the world of beauty.

The artistic detail often serves as a symbol. Quite a few literary scholars have written about the details - the symbols. It is impossible not to touch this topic by speaking about the nature of the details. The use of character details in Kazakh prose in many cases is based on tradition, knowledge. Here are the features of the people. Hence, the ethnocultural character of the artistic detail is revealed.

The basis for analysys of the role of the artistic detail in literary works is to be systematized relying on the work of the Russian literary scholar A. Esin "Principles and methods of analyzing a literary work". Speaking about the literary form, A. Esin emphasizes: "In artistic form we will distinguish three structural levels: depicted world, artistic speech and composition.Basically, it does not matter which side of the art form to begin the analysis, it is only necessary to take into account that all three sides are interrelated and all together create the aesthetic unity of the artistic form-style" [4, p.49.]. Here the smallest part of the depicted world is a detail.

The detail, in turn, provides a detailed presentation up to the smallest detail of the describig event. There were also scientists who considered this phenomenon separately from the nature of the detail. For example, E.Dobin considers this as "detail and particularity". It could be accepted. However, there is a doubt, consideration of the item fragmentally does not lead to a dead end, does it?

Many people are interested of the theme of details in literary works. On the subject of detail, great attention is paid not only by scholars and critics, but also by writers. The ability to apply details in place is a sign of writer's skill. Therefore, we should pay attention to the techniques of presentation, the use of detail in the work. However, the acceptance of a detail as a part, unit, requires an in-depth study of the techniques of presentation, the depiction of the work. In the Kazakh literature, Gabit Musrepov wrote the foreword to Askar Suleimenov's book beginning with the words: "The title of the book is *"Besin"*, the author is Askar", draws attention to the compactness, logic of every word used by the author, every image and thought.

Details are of different nature. They are formed with the worldview of the artist and exist together with the work. The object of our research is the ethnocultural nature of the use of the artistic detail.

Details in reference to the work are historical, ethnographic, folklore, contemporary and other characters.

Concerning the manner of composition, the characteristics of representatives of different literary trends, have a modern, postmodern, symbolic character.

When reflecting in the artistic work of the era of the past survived by a certain nation, the era of past or modern reality in the writer's language reflects people's attributes, ethnic values. All this should be taken as the contribution of each nation to the system of universal values. Understanding on this basis of the ethnocultural nature of the detail is not only a requirement of time, it is a reality, a truth.

Analysis. Obviously, there is a historical basis for the formation, development, a variety of attributes characteristic of nature of the detail. It can be said that the detail with a historical background can be found in any work, but signs of the ethnocultural nature in huge numbers can be seen in works about everyday life, about the life of the people, about historical events that have been experienced by the people. One of such works is the novel *"Ai, duniye-ai!"* by Beksultan Nurzhekeuly.

The novel *"Ai, duniye-ai!"* tells about 75-year-old historical path of the Kazakhs in the XX century. The novel embraces the tragic events that brought to the Kazakh people a burden, disaster and misfortune. In the novel's line through small stories with details the concept is transmitted, a huge understanding is formed, an awareness of the historical era of unbearable losses, tragedy in the vicissitudes of history. This attracts to itself peculiar features of the writer's work. This novel is full of such features.

When writing a novel, literary overreach, or underrun, will lead to failure. The novel *"Ai, duniye-ai!"* is devoid of such defects. It cannot be noticed the accuracy of the author. This is emphasized by K. Segizbayuly: "The composition, the plot of confrontation, the richness of events, the beauty of the language and other scientific terms as conditions serving one purpose are writen a good thing. In this regard, the author is carefully neat. Each event has a beginning and an end. In the novel there are no forgotten, or superfluous event and movement. This reflects the ability, accuracy of the writer" [5, p.10].

The main hero (character) of the novel is Shayi Tileulikyzy, lived a long life, experienced all the rigours and tragic events with the nation from the events of 1916 to 1991 - the year of declaring indepen-

dence, the year of the dream coming true, and died after living more than 90 years. The novel tells about the grief of losing her contemporaries, peers, their tragic fate.

In Kazakh history, one of the bellicose cultures was the art of plaiting the lash and the whip. One of the main characters – Tazabek owned this art. This art was fitty to his heroic appearance. He had no purpose to show inappropriate and boast of this art. Only a spark, even a fire of honor, made it necessary to use the whip in its intended purpose, some events in the novel show this case.

Escaped from the tragic situation and forced to move to the Chinese lands, yearning for their native land, the Kazakh auls are attacked by Kalmyks, mocked by them. There was a case of violent theft of Shayi by Kalmyk to his wife, Tazabek rescues her. The performed feat of Tazabek on Shayi's return was for a long time in the mouth of people, and they recounted each other admiring the courage of the batyr.

Kalmyk batyr Karga asks Tazabek: "Tazabek, from the fact that you will not kill him, the Kalmyks will not decrease, and the Kazakhs will not increase. Take your whip and calm down!"[6, p.111].

"Tazabek, getting off his horse, looks at his battle whip, as if weighing it, and says: "Brother Karga, if I hit him with a whip to his forehead, he will die without dropping a word. But from this, as you say, the crimes and the number of the Kalmyks will not decrease, and the Kazakhs will not increase. But if, in spite of the kindness of what you have done for us, I will kill your consanguineous, I will leave a stain on your honor. But according to your permission, I will not kill this rascal but leave him crippled. Let him remember his crime all his life, and let it serve as a lesson to others" [6, p.114-115] - these words of Tazabek and Kalmyk, who remained a cripple, reveal the whole nature and essence of the possessor of the mighty power and art.

"Hitting to the forehead" is a combat technique that cripples the enemy and the hero's words show the actions of the batyr - defender of honor and conscience, and these words are a unique example of a full-fledged disclosure of the image.

We will see Tazabek's another feat when he comes to Sekerin to consult about the opening of the school. Kapez, Sekerin and Tazabek, having consulted, make the decision to open a school, and when they sit down on horses to gather the children, suddenly Sergeichuk appears. On the road between Tazabek and Sergeichuk, a cross-talk about the Kazakhs will take place, which passes to a fight. When Tazabek kicks the Sergeichuk's horse and the horse falls on the Sekerin's horse. Sergeichuk and Sekerin can even hardly rest on the saddle of swinging horses from Tazabek's kick. As soon as he takes a whip in his hands, he is stopped by Kapez. Here we see one of the facets of the art of Kamshiger - an artist of weaving lashes and whips. But the author does not elevate Tazabek as Kamshiger and the possessor of power. Through details, the author shows that the person gives birth to an epoch, the bitter reality of time needs the exploits of the batyrs. According to the plot of the novel, the writer hints at the absence of a people's leader, who could speak equally with the Russians. Maybe the Russians do not recognize the leader, or they put away, destroy the future leaders - everything remains a mystery. Historical documents reflecting events remain statistics, but cannot convey a complete picture of the real era. Despite this, fiction serves to bring to the next generation all the misfortunes, rigours, tragedies which were experienced by the nation, to bring to the consciousness of everyone the importance of people's unity through the artistic word is the main purpose of artistic literature.

One of the heroic deeds of Tazabek - protecting the child from a big guy who wanted to punish him for a minor violation, it was on a holiday with the old man Tonyk on the circumcision ritual of his grandson.

"Tazabek jumped violently with a sharp movement and overwhelmed him with a whip; only the groan of the jigit was heard" [6, p.212].

Such a stroke with a lash and a whip would have crippled him. But there is a feast. There are plenty of onlookers around. The people can blame Tazabek for violating the festive mood. But the owner of the holiday old man Tonyk stopped the singer Kapez and batyr Tazabek, who were going to leave, promising rewards, asking both sides to the peace. Nevertheless, later the side of the big man wrote a statement about the incident on Tazabek.

The novel tells the feats of Tazabek, reflecting the breath of that time. All events are narrated, preserving the Kazakh traditions, cultural features through indirect, inconspicuous details. All events that touch the thin strings of the heart show the eternity of the people's way of life, tradition, culture, regardless of departing and coming to the light.

When the Chinese border crossed, the Kazakhs stopped near the Kalmyks and when the latter mocked the former using their advantages. Together with the Kazakhs Kirghiz people suffered. Here, the Kazakhs show piety. The author writes admiringly: "Despite the fact that they were in a dying state, they shared the

remaining with others" [6, p.116]. Kindness and love to the brothers of the Kazakh essence is revealed here.

An example of kindness can be seen from Kobzev's story. "I saw the kindness of Baigabyl, he shared a piece of bread" [6, p.182], these words show the presence of kindness, Islamism in the nature of the Kazakh.

The Kazakhs say *"Oraza, namaz – toktykta",* i.e. only the well-fed recalls the God. But the fact is different, believing Kazakhs in the famine and in the cold, and in peacetime, and at the war made five times namaz, prayed. This is written in the novel not for the sake of additional colors, not for the sake of the plot. There is one fragment in the novel *"Ai, duniye-ai!".* "So it was clear that we will not live. Kariboz was elected as the imam, they performed the evening namaz, read a prayer, dedicated to the spirits of our ancestors" [6, p.70] - Batyr Aubakir says, who miraculously survived from imprisonment of the Russians.

Hearing the good news about the return of the Kazakhs who crossed the Chinese border on the decision of the Russian government: "A good word is the half of wealth, let it come true!" - said Kozhabek and held his hands in the face thanking the God. And they all repeated the ritual"[6, p.125].

From this passage we see the Muslim rituals of *bata zhasau, bet sipau, "thanksgiving of Allah", duga etu* (prayer in the name of Allah) were performed for the sake of life, honor, and the people's purposes.

Tazabek, Shayi, Kapez went on the way to find the bride for Kapez, on the road they stopped at the grave of Shayi's parents and the three of them read a prayer. In memorable times of severe test, the parents of Shaiyi and her brother Agyntai had died. Kapez, aware of these events, says: "I've heard about this, auntie. But I see the place of the event for the first time. Allow me, I'll read the prayer.Kapez sat down on the grass and began to read the prayer" [6, p.19.].

The *duga oku* (prayer) ritual as a detail touches the heart strings gently, awakens tender feelings, transcends the horizons of the human mood, and this makes it possible to accurately convey a certain period of time to the history of the people, raising the universal values by the pen of the artist. The words of Tazabek's mother Kalisha during the marriage of Tabai and Zhuzik reflect the knowledge and concepts of the Kazakhs, to which they remain faithful no matter the odds. "We do not have the opportunity to hold a wedding, but we will hold a marriage in a Muslim way" [6, p.143] - these words of Kalisha sound touching and convey the state of life and manners of the nation at that time.

The knowledge of the nation, despite its multifacetedness and complexity, takes its place in the system of universal human values. Talking about forced famine, the author presents, suitable for the occasion, the Kazakh concept of honor, which they always put above all domestic difficulties, adversity of time. "The Kazakhs thinking about honor and in the dying state were concealing from each other that they were eating mice not to die of hunger. They cooked at night, and ate at night. Occasionally they caught a little rabbit, they spoke about it publicly, as if they were eating a rabbit every day" [6, p.276] This state of society was spoken openly by the author in his novel.

Dying of hunger Shayi says: "... suddenly her eyes stopped on the skin on which the mother of the mug sat. She was delighted. The mind began to recover. There is also a sheepskin coat of Tazabek. There is also her whip. Everything could be eaten" [6,p.277].

At the beginning of the XX century the forced famine in the Kazakh land claimed an enormous amount of life. This tragedy always serves as a theme for writers' works. There are writers who tried to give a full panorama of the forced famine through various details. In his novel B.Nurzhekeuly accurately conveys that atmosphere of survival, the struggle for life, even the cry of the hungry people is heard. Artistically and talentedly. The bitter truth touches the human soul, the work of art reveals the truth, depicting the inner essence of this truth. Lighting the beam in the minds of the reader, it does not leave everyone indifferent to this tragedy of the people.

Discussion. Among Kazakh historical novels, the *"Alasapyran"* historical novel-dilogy of Mukhtar Magauin covers the most cruel and troubled time of Kazakh history. In this novel, the author gives a lot of data about the society, and on the basis of documentary data he was able to bring to the reader the ways of formation and development, growth of many historical personalities. The author, harmonizing realities and artistic solutions, describes the whole life of the main hero of the novel Oraz-Muhamed - from childhood in the Russian amanate, the times of his khanate and events taking place until the end of his life.

Among Kazakh authors writing on historical topics M.Magauin through his novel-dialogue was able to show the identity of personal knowledge and taste.

In the historical source of Kadyrgali Zhalairi, "*Zhylnamalar zhinagy"* about the election of Khan-Kermen Oraz-Muhamed Khan is limited to the story of exaltation on a gilded white felt, a *shashu* of gold

and silver coins. In his novel, M.Magauin finds the right decision to reflect the national holiday-election of the khan, enriching the sign event with ethnographic data, supplementing the ethnocultural elements with a detail [7, p.488].

This shows the application of the ethnocultural detail to the place and in the right volume. The inauguration of the khan in the history of the Kazakh people has the highest status, the most important and significant event. Without this there is no country, there is no value and unity of people, the khan is the head of the people, the leader of the nation, the guarantor of unity. Although modern politics and power in accordance with the times has a characteristic content and essence, but for a writer it is important in a historical novel to feel past time and space.

In the novel-dilogy there is a fragment where Oraz-Muhamed, Seitek, Kadyrgali are undergon by the governor with treating with wine. They have never drunk wine, and there was no tradition for the Kazakhs to drink, to guzzle down. The two of them decide to drink wine for the first time, Oraz-Muhamed tries to refuse, but this does not save him. From an unusual drink one chokes, another squeamishes. The governor did not like this, and said: "Your intentions are not clean". On the words of Oraz - Muhamed: "You can't command me! At the hospitable host the dear visitor decides by himself what to drink" - grinning the governor will say: "You are not clean twice" [7, p.222]. On the one hand, the detail is used to place, but it gives information about the traditional way of life.

For this episode, the reader gets acquainted with life, the history of the nation. The scientist Zh. Dadebaev in his work "The Truth of Life and the Artistic Decision" writes: "It is noted in the "statements" (news) (*zhylnama*) that all three - khan Seitek, bek Kadyrgali, khan Oraz-Muhamed drink wine treated by Danilo Chulkov, and all three will be suppressed. During the feast only khan Saytek answers and conducts the conversation with the governor. Kadyrgali and Oraz-Muhamed remain in the background, and nothing is known about their words, nothing about their appearance.The narrators keep silence about this" [8, p.18] - Zh. Dadebaev writes, referring to historical sources, reveals the reason for the writer's unauthorized use of historical data in the way of purposeful direction and awareness, presentation of ideas. According to the scientist, consideration by the author of the personality of Oraz-Muhamed separating from other characters and comparing it on a par with Dmitry Chulkov on worldview is not supported by historical data.

But it is undeniable that this episode and the details in it enrich the content of the novel, strengthen the artistic power.

The carefree life of the main hero of the novel-dilogy of M.Magauin Oraz - Muhamed ends in the captivity of D. Chulkov. The arrest of his supporters and the captivity in the city of Tobolsk and the death of many, of course, turns the life of the main character into another direction. And this event is important in the knowledge of structure, artistic and aesthetic nature, the nature of the novel. For this reason, the writer pays great attention to the truthful description of this episode.

In addition to the historical events experienced by the hero, the author also describes other characteristic features of Oraz-Muhamed, like hunting, falconry, and etc. Hunting for animals, falconry and other delights in nature bring him unique feelings. The writer describes such happy moments in the life of Oraz-Muhamed as an artist, as a historian.

In the first book of the novel-dilogy there is a detail describing the hunt for the falcon *"Ak zhebe"* ("White arrow"): ... riding on horse Oraz-Muhamed admired the lightning movement of the falcon: coming down from the height as an arrow to his victim, grabbing the victim's neck with his nails, strikes with claws of the free side" [7, p.197].

In this hunt, Oraz-Muhamed is injured. Hunters are rarely injured, so the wounded are especially respected, while telling the writer this shows a facet of fun. The wound heals, there will be many tales about it. People like these stories. In the life of the steppe people there are many features of such holidays, fun. The writer masterfully describes such details. It is noticeable that using this detail, the author shows the hero's preparation for dangerous events. The author, talking about the psychological state of the hero in everyday life, wants to show how he is making a step toward a new period of his life full of events of historical importance.

The author describes the hunting of falcons for game and animals, and through the historical accuracy of the events that occurred, it conveys the true character of the actions, thoughts and feelings of the protagonist. Oraz-Muhamed felt true joy, feelings of happiness from free life and freedom, accidentally encountered the Tobolsk governor, falls into an unenviable dependent position.

Zh. Dadebaev noting the truthfulness of this episode marks a successful artistic decision of the author, combining historical truth and author's fiction: "In these episodes, the role of author's fantasy is

special. In describing the events in two episodes, an essential result of the synthesis of author's fiction and fantasy is evident" [8, p.80.]. Details conveying the mood, the experiences of Oraz-Muhamed on the hunt - in the first case, Oraz-Muhamed in captivity - in the second case, are saturated with folk colors, ethnocultural details and this technique of the artist is effective.Thus, the writer reincarnates historical events, ethnographic data, cultural features, traditions and belief, as details, to the story line of a certain semantic-structural part of the work, through these plot lines describes the inner and outer content of the essence, the interrelation of its various facets and the logical line, primary conventions and ways of development.

The novel describes the return of Oraz-Muhamed from Moscow to khanate in the Khan-Kermen. On the way, Oraz-Muhamed's encirclement - the beks and servants- along the way behaved with dignity. Only on the behavior and conversation of bek Eseney it felt rudeness. In the beginning Eseney behaved tactfully towards Oraz-Muhamed. He responded positively to the comments of the host, within the framework of official etiquette. But his patience did not last long, he gave a horse the bridle, on which he overtook the Oraz-Muhamed's horse Azban-ak. Azban-ak clamped his teeth on the Eseney horse's mane and two horses began to frisk.

Eseney whiped a couple of times to the head of his horse. This behavior of Eseney was not only rude, but it was a demonstration of his discontent, disagreement with something. And this detail in this episode deeply conveys the ethnographic feature of the Kazakhs, the peoples knowledge.

In the traditions of the nation, the junior with the senior, subordinate with his leader should not argue and put himself/herself on a par with him/her. In this episode, the unregistered laws of the steppe were violated. The literary scholar examining this episode draws attention to the details and emphasizes the importance of every detail. "By Eseney, the offender is not he, but his horse. But the true face of Eseney, the envy of the leadership of Oraz-Muhamed, is revealed, he could not keep neither him, nor his horse, but his feelings of envy. He twice violated the laws of the traditional culture of the nation.Firstly, let the horse loose will, thereby catching the khan's horse, secondly - mocked the innocent animal. Both actions of Eseney have a subtext, a hidden meaning". "In both cases, Eseney bek made it clear his disagreement with the high position of Oraz-Muhamed and displeasure with his authority, lower than that of Oraz-Muhamed. The behavior of Eseney in two episodes is without unnecessary words and accurately conveys a certain idea" [8, p.81]. Such priceless traditions as the respect of the elder by youngers, behavioral signs of subordinate to the leader take a well-deserved place in the system of universal values. Respect and abidance are an indicator of the humanity of each individual.

There is no reliable historical data on the conflict between Oraz-Muhamed and Eseney on the road from Moscow. But in letters from relatives and other people to Oraz-Muhamed, they write about the cruelty and violence of Eseney, about the attempt on Oraz-Muhamed [8, p.81-82.]. The conflict between Oraz-Muhamed and Eseney grows into irreversible enmity and bek Eseney dies in a duel between the two of them.The description of the violation of the steppe laws and the misbehavior of Eseney is a true artistic solution, proving the psychology of the open, uncompromising enmity of Eseney to Oraz-Muhammed. As a result of such an artistic decision, the author linking the events that have been completed and completing in the future will comprehend the logical and social continuity. The basis of new stages of development of plot lines of confrontation is building [8,p.83].

One of the works of art with a bright cognitive essence, describing the natural and truthful life of the nation is the story of D.Isabekov *"**Tirshilik**"*. Historical events in accordance with the times left many faces on the Kazakh land. One of them can be seen in the *"Tirshilik"* story by D. Isabekov. Talking about the bitter fate of one family, experiencing the severity of difficult and fateful time, the author conveys the continuity of generations of the whole people, touching the thin strings of feelings of hope.

In the "Tirshilik" story the author, through the fate of the protagonist, conveys the tragedy of Kievan - the passion for the use of opium. Talking about different periods of human destiny, which reveal the secrets of the layers of the human soul, the author, within the framework of the fate of one family, conveys the essence of the hard times that have fallen to the lot of people and their consequences. Characterizing the hero, the features of the people's essence and the state of the people's way of life are transmitted.

Alongside this, the nature of each country differs from another relatively to the geographic location, have different names for natural phenomena in accordance with linguistic features. For example, one of them is *Arystandy-Karabastyn zheli* (the wind of Arystandy-Karabas). This is told on the first page of the story *"Tirshilik".* There may be a connection between people who know all the secrets of this wind and

the incident described in the story. As with unusual natural phenomena and unusual events, human destiny often occurs. Sometimes it repeats itself after many years. In the *"Tirshilik"* story one of such stories is narrated.

"It's the third day that the wind cannot calm down. Arystandy-Karabas, which can stand for a month, if not lucky. Sometimes starting in March, maybe raging in April. It sometimes tortures people who just come out on the field to smell, and to sow. People suddenly remembering the Almighty asked to calm this fierce wind of Arystandy-Karabas" [10, p.322].The excerpt describes the disorder of people because of ordinary natural phenomena. It is worth pondering over the intrusiveness of Kievan, who, despite the wind of Arystandy-Karabas, goes out to look for opium. Dependent from an early age on opium Kievanv is angry with the disappearance of the former luxury. oving from the village to the village, he finds, at last, a fraction and blisses out deeply. Moldarasil from his youth was accustomed to opium, a hero who received the nickname of Kievan.His old woman is Kyzhymkul. "After crossing the doorstep of this house, she never went anywhere, did not meet guests. What she has seen all her life is an old man, blackened by the use of opium, an old samovar and a pouch with the smell of opium" [10, p.341].

Fate brought Kyzhymkul, a spoiled daughter of a rich man, with Moldarasil. They have experienced the severity of fate, witnessed different historical events.

All the features of Kazakh culture, worldview are reflected in her language, enriching the artistic work with the lush language of prose. For example, swallowed the tongue as if he saw Madi" [10, p.335], "Myrza, a man who survived only torment and humiliation, who was dissatisfied with his destiny, could sometimes slander even the Most High" [10, p.349]. The bitter mist of grief dissipates in the soul of Kyzhymkul" [10, p.358]. There are such lines: "Such cruelty as getting rid of a child who is still in the womb of the mother is not from the nature of the Kazakh" [10, 359 p.], "Not having the heart to say: "It's very embarrassing to talk", from pride it's even hard to turn the neck to say: "My bad" [10, p.369]. The word combinations "*Madi korgendey*", "*zaty adam*", «*tilin tigizu"*, "*Menduananyn tutinindey"*, "*Kanyna bitpegen*", "*Til katty, buralmaydy"*, "*Moiyn katty, burylmaydi"* show the richness of the Kazakh language, and there is no equivalent translation. These phrases have an ethnocultural character. You can see artistic, graphic phrases based on centuries-old beliefs, people's faiths.

In the *"Tirshilik»* story the author D.Isabekov makes his characters go through both fire and water, then lighting a spark of hope in their soul suddenly interrupts his work. After so many years of torment not seeing joy, unexpectedly Kyzhymkul leaves to a different world. Kievan stands with tears in his eyes, waiting for his grandson under the surname of Moldarasilov, with the hope of propagation. To leave a the bearer of the family name is a dream, a goal, a meaning of the life of every person. At the end of his life, seeing his dream, the goal, the meaning of life, Moldarasil bursts into tears, warmed by the fire of hope.

One of the leading figures in the history of Kazakh literature, which stood out with original hand-writing, a gallery of artistic images, a unique style - a writer Abish Kekilbayuly. The story *"Kui"* by Abish Kekilbayuly is from a number of works of art in which various psychological conditions and actions in the people's way of life are transmitted with the help of details. Artistic details in the story have the feature of fully revealing the different faces and layers of the inner world of man. The story makes it clear that there are many types of torture that can destroy a person's destiny, turn them into mankurts, zombies, a creature without will, unconscious, without memory.

The emergence of the concept of "mankurt" in fiction, the disclosure of the symbolic implication of this concept is the achievement of the "Kui" story by A. Kekilbayuly. "Six prisoners turned into mankurts who have not remembered their names, their homeland, and their roots. Over time, they have lost the language. Turning to cattle, they lived with camels" [11, p.206] - these lines convey what mankurtism is, and what it will lead to. And this shows the gravity of the ideologically-informative burden that the story carries on itself.

The occupation of mankurts in the story - to collect dung. "The Kazakhs-mankurts throw dung out of bags, what they collected" [11, p.206], "Only captive mankurts stood staring at a pile of dots" [11, p.216] - these episodes from the story depict the existence and so-called way of life of mankurt. With the help of heavy to perceive details, the writer paints a picture of the life of the mankurts, their thinking limited to impossibility, the share of the painful slavish way of life, from which only death can save them. This is an indicator of the artist's dedication to the chosen topic, accuracy, honesty and truthfulness of the work.

In the work there are two heroes - the kyuishi Daulet –the son of Zhonait - and kyuishi prisoner-Kazakh, they are united by art, thinking. "Do you have ears to listen to kyui, is not there a desire to

understand his heart? Understand and cry now, and then you'll probably forget, won't you? I do not know ... You - poor people - have experienced many, bad and heavy things, many mistakes. But did you learn from the lesson? If worry, it means that you are people, you have forgotten and lost your mind, you are cattle" [11, p.228] - the kyui says with the language of dombra, which the kyuishi-prisoner performed.The kyui of the prisoner reminded about his son Daulet to Zhoneit, and it seemed to him that the kyui of the captive and Daulet were consonant. He was surprised at the choice by performers of only dreary, sad, bitter kyui. The choice of the author is his ability to show the power of art to penetrate into the human soul as a detail, it is a high taste of author's skill.

In the story, the author skillfully uses the method of transmitting events without words, silently. Silence, as the detail, colors the work. For example, "Zhoneit did not say a word" [1,p. 232], "All the people of *Ailadyr* wanted to express condolences and calm him, stroking his beard, he was silent" [1, p.220], "Every day, after dinner tea he visited Annadur. Willing to talk, when he saw the dreary face of his brother, he would sit silently. He would rise, shaking his head and leaving him in silence" [1, p.234]. These excerpts from the story convey the psychological state of the batyr, who lost his brothers and son and does not leave the reader indifferent.

The story brings to the reader that the transformation of a healthy person into a mankurt is alien to universal human values, that these acts have consequences. Zhoneit will be Ill, silent, lose interest in talking. And the art of kyuishi is looking for an answer to the question of why a person becomes cruel, where humaneness, valuable qualities of a person are lost.

We see a huge number of advanced patterns of artistic use by the author in a skilful way, the category of folk traditional culture, historical events, ethnographic data in historical novels. In every historical novel, one can find the use of details of the ethnocultural nature in a huge number, the novel *"Ai, duniye-ai!"* by B. Nurzhekeuly and the novel-dilogy "Alasapyran" by M.Magauin are to that evidence.

The story "Tirshilik" by writer D.Isabekov is valuable in revealing in a skilful way the consequences of the act that has become a habit, in everyday life and the shady sides of joyful moments of a person's life. The story "Kyui" by A.Kekilbayuly favorably differs in the ability to convey deep philosophical thoughts and descriptions of deep psychological events with the help of small details. The story is priceless with it.

Conclusion. In Kazakh literary studies, the first introduced terms of literary criticism of A. Baitursynuly occupy a special place. Many alternative names of modern international terms are in *"Literary cognition" (Adebiet tanytkysh)* by A. Baitursynuly. There is a controversial issue among literary critics on the use of alternative names in the Kazakh language. However, the parallel application of different terms, denoting the same concept - it is not very correct. But to understand the history and original features of Kazakh literary studies and to take this step are our responsibility.

The article gives examples, defines and explains each of the "main types in the content of the work" of A. Baitursynuly. This is a great success, a great treasure, a value for today. In the article, comparing the works of A. Baitursynuly and E.Dobin with the equation *"alip –detail"* the identity and similarity were noted. There is also a difference of opinions and statements about this equation, it requires a separate consideration of this topic, so we did not dwell in this article on the details of this question.The novel-dilogy "Alasapyran" by M.Magauin and the novel "Ai, duniye-ai!" by B.Nurzhekeuly, the works of art written on a historical theme are masterpieces and occupy a special place in Kazakh prose. The peculiarity of these novels, as characteristic of historical works, is the richness of the ethnocultural nature of the used details. In analyzing these novels and stories, in order to fully define the role and nature of artistic details, the methods of comparison, contrast and intersubject research are applied.The analysis of the stories of "Tirshilik", "Kyui" shows the possibility to consider the stylistic features of the artists of Kazakh prose who are able to skillfully apply the artistic detail and preserve the ethnocultural nature of the detail.

Within the ethnography the tradition of the Kazakh people, traditional culture, historical originality were analyzed, and in the framework of historical data, the effectiveness of author's decisions, an alternative description of events for the purpose of revealing the psychology of the hero were also investigated. Within the framework of culture and philosophy, historical life and knowledge of the Kazakh people were studied on the basis of the artistic structure of the work.As shown by the results of the research, in folk historical works there are a huge number of artistic details of the ethnocultural nature. The independent and original place of each nation in the system of universal values is determined only by the ethnocultural features inherent in this people. This cognition, mainly in the work of art, is reflected through the ethnocultural nature of the detail.

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ҚАЗАҚ ПРОЗАСЫНДАҒЫ ДЕТАЛЬДЫҢ КӨРКЕМДІК ҚЫЗМЕТІ

Аннотация. Мақалада көркем детальдың негізгі сипаттары, зерттелу мәселелері қарастырылды. Көркем деталь әдеби шығармадағы көркем ойды жеткізу үшін аса маңызды қызмет атқарады. Сол себептен де детальдың мәні мен маңызы көп жағдайда ұлттық таным мен түсінік тұрғысынан айқындалып жатады. Мұны авторлық шеберліктен іздеп, идеяның толық жеткізілуін қамтамасыз ете алу немесе алмауы мәселелері жөнінен қарастырған да жөн. Әдебиет теориясында детальдың зерттелуі, көркем туындыдағы детальдың талдануы біршама жүйелілікті талап етеді. Қазақ әдебиеттануында деталь табиғатына байланысты ойлар «Әдебиет танытқыштан» (А. Байтұрсынұлы) бастап бүгінге дейін әр тарапты зерттеулер мен теориялық еңбектерде қарастырылып келеді. Соның ішінде көркем детальдың этно-мәдени сипаты жағынан зерттелуі толыққанды айқындалып, арнаулы зерттеу нысанына айналғаны аз. Осы тақырып аясында зерттеу жұмысын бастағанда, әуелі деталь табиғатын ашу, толыққанды түсініктің қалыптасып, дамуын қарастыру аса маңызды. А. Байтұрсынұлының, Е. Ысмайыловтың, З. Қабдоловтың және басқа да қазақ ғалымдарының еңбектеріне сүйене отырып бүгінгі көркем деталь қолданысын зерттеуді жүйелеу мәселелеріне тоқталып өтпекпіз. Е. Добин, А. Есин секілді ғалымдардың еңбектері қазақ әдебиеттанушылары еңбектерімен салыстырыла қарастырылып, шығарма талдау принциптері қолданылды.

Көркем деталь әдеби туындының идеялық мәнін ашып, көркемдік құндылығының артуына ықпал етеді. Авторлық шеберлікке келіп тірелетін мәселелер өз алдына, детальдың тууына ықпал ететін де факторлардың орны ерекше. Соның бірі ұлттық фактор. Ұлттық фактор негізінде көркем детальдың этно-мәдени сипаты көрініс табады. Осы және өзге де көркем деталь табиғатына қатысты мәселелер Б. Нұржекеұлының «Әй-дүние-ай», М. Мағауиннің «Аласапыран» романдарын, Д. Исабековтың «Тіршілік», Ә. Кекілбайұлының «Күй» повестерін талдау арқылы, теориялық еңбектерді талқылау арқылы анықталды. Мысалдар арқылы дәлелденіп, шешу жолдары қарастырылды. Көркем шығарманы талдау дәстүрлі әдістер мен тәсілдер арқылы жүзеге асты.

Түйін сөздер: көркем деталь, қазақ прозасы, этно-мәдени сипат, роман, ұлттық фактор, әдебиеттану, стиль.

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ХУДОЖЕСТВЕННАЯ ФУНКЦИЯ ДЕТАЛИ В КАЗАХСКОЙ ПРОЗЕ

Аннотация. В статье рассмотрены основной характер и проблемы исследования художественной детали. Художественная деталь выполняет важную функцию при изложении художественной мысли в литературном произведении. И поэтому сущность и значение детали во многих случаях определяются с точки зрения национального познания и понятия. Это нужно искать в авторском мастерстве, также рассматривать с точки зрения проблем по обеспечению полноценной передачи самой идеи. Разбор детали в художественном произведении, исследование ее в теории литературы требует немного системности. В казахском литературоведении мысли связанные с природой детали начиная с «Адебиет таныткыш» (А.Байтурсынулы) до сегодняшнего дня рассматривались в разных исследованиях и теоретических работах. Среди них мало полноценно выявленного исследования художественной детали этнокультурного характера и ставшего как обьект специального исследования. При исследовательской работе по этой теме очень важно сначала определить природу детали, формировать полное понятие и рассматривать ее развитие. Обосновываясь к трудам А.Байтурсынулы, Е.Исмайлова, З.Кабдолова и других казахских ученых хотим рассмотреть проблемы систематизации исследования использовании сегодняшней художественной детали. Труды ученых как Е.Добин, А.Есин сравнительно рассматривались с работами казахских литературоведов и были использованы принципы разбора произведения.

Художественная деталь определяя сущность идеи литературного произведения, влияет на повышение художественной ценности. Вопросы об авторском мастерстве, это одно, тогда как факторы влияющие на появление детали занимают важное место. Один из них – национальный фактор. На основе национального фактора отражается этнокультурный характер художественной детали. Эти а также другие вопросы, касающиеся природы художественной детали, были определены при разборах романов «Әй-дүние-ай» Б.Нуржекеулы, «Аласапыран» М.Магауина, повестей «Тіршілік» Д. Исабекова, «Күй» А. Кекилбайулы, также при обсуждении теоретических работ. Доказаны примерами, рассмотрены пути решения. Разбор художественного произведения осуществлен традиционными методами и подходами.

Ключевые слова: художественная деталь, казахская проза, этнокультурный характер, роман, национальный фактор, литературоведение, стиль.

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THE POTENTIAL METHODS OF ANALYSING REMOTE SENSING DATA OF WATER SOURCES IN ALMATY PROVINCE

Abstract. The potential factors that have significance for remote sensing of water resources in Almaty province are described in the article. In this work the algorithm that can be used to correct new developed methods to analyze remote sensing data is described.The research target is to find out whether any factors should be considered as significant during the process of remote sensing of water resources.The research methodologyis based upon epistemology and deduction.The practical research significance is defining the atmospheric process correction algorithm for remote sensing of water sources in Almaty province. The research resultsdefine that the source of the light which was collected as data during the process of remote sensing has the significance not only for information collection but also for data analysis.

Keywords: remote sensing of water resources, remote sensing algorithms, radiance, reflectance, atmospheric processes, the total scattering coefficient, water sources in Almaty province.

The presence of water resources plays the significant role in agriculture [1]. Moreover, absence and poor supply of water are becoming more and more serious issues [2]. The figure below shows reasons which may explain why water supply has become an issue in the certain parts of the world.

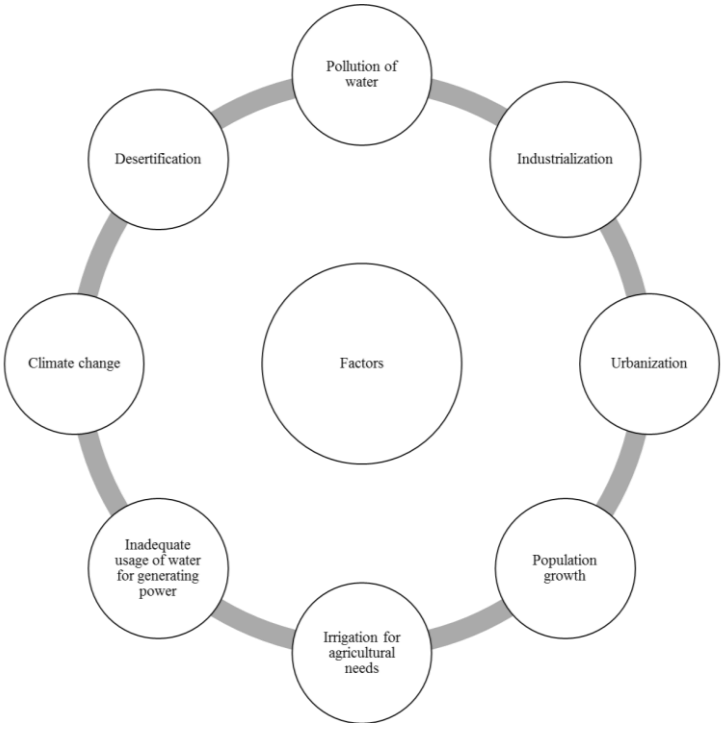

Figure 1 – Factors which impact shortage of water supply in the certain parts of the world.

Note: from the sources 3-7.

The figure above shows that water pollution is one of the reasons which generates less available drinkable water for population and less clean water for agriculture [3, 4]. Moreover, thegrowth of the population in the recent years has created pressure on water supply. In addition, focus on economic development above nature protection interests in developing countries does not help to improve the situation with water supply [5]. Climate change and desertification are among factors which have both natural and anthropogenic origins [6, 7]. As a result, one of the aspects of protecting water resources is maintaining water quality. The table below shows some examples of algorithms for remote sensing to identify water quality.

The algorithms for remote sensing of water resources in Almaty province

Algorithm	*Type*	*Result equation(s)*	*Band ratio (*R*), coefficients (*a*)*
Global processing (GPs)	Power	$C_{13}=10(a0+a1*R1)$ $C_{23}=10(a2+a3*R1)$ $[C+P]=C_{13}$; if C_{13} and $C_{23}>1.5$ μg L^{-1} then $[C+P]=C_{23}$	$R1=\log(L_wn443/L_wn550)$ $R2=\log(L_wn520/L_wn550)$ $a=[0.053, -1.705, 0.522, -2.440]$
Clark three band	Power	$[C+P]=10(a0+a1*R)$	$R=\log((L_wn443+L_wn520)/L_wn550)$ $a=[0.745, -2.252]$
K Algorithm	Multiple regression	$\kappa(490)=a_1+a_2{}^*R^{a_3}$ $\kappa(520)=b_2+b_2{}^*R^{b_3}$	$R=L_w(443)/L_w(555)$ $a=[0.022, 0.0883, -1.491]$ $b=[0.44, 0.0663, -1.398]$
Aiken-C	Hyperbolic + power	$C_{21}=\exp(a0+a1*\ln R)$ $C_{23}=(R+a2)/(a3+a4*R)$ $C=C_{21}$; if $C<2.0$μg L^{-1} then $C=C_{23}$	$R=L_wn490/L_wn555$ $a=[0.464, -1.989, -5.29, 0.719, -4.$
Aiken-P	Hyperbolic + power	$C_{22}=\exp(a0+a1*\ln R)$ $C_{24}=(R+a2)/(a3+a4*R)$ $[C+P]=C_{22}$ if $[C+P]<2.0$μg L^{-1} then $[C+P]=C_{24}$	$R=L_wn490/L_wn555$ $a=[0.696, -2.085, -5.29, 0.592, -3.$
OCTS-C	Power	$C=10^{(a0+a1*R)}$	$R=\log((L_wn520+L_wn565)/L_wn490)$ $a=[-0.55006, 3.497]$
OCTS-P	Multiple regression	$[C+P]=10^{(a0+a1*R1+a2*R2)}$	$R1=\log(L_wn443/L_wn520)$ $R2=\log(L_wn490/L_wn520)$ $a=[0.19535, -2.079, -3.497]$
POLDER	Cubic	$C=10^{(a0+a1*R+a2*R^2+a3*R^3)}$	$R=\log(R_{rs}443/R_{rs}565)$ $a=[0.438, -2.114, 0.916, -0.851]$
CalCOFI 2 band linear	Power	$C=10^{(a0+a1*R)}$	$R=\log(R_{rs}490/R_{rs}555)$ $a=[0.444, -2.431]$
CalCOFI 2 band cubic	Cubic	$C=10^{(a0+a1*R+a2*R^2+a3*R^3)}$	$R=\log(R_{rs}490/R_{rs}555)$ $a=[0.450, -2.860, 0.996, -0.3674]$
CalCOFI 3 band	Multiple regression	$C=\exp(a0+a1*R1+a2*R2)$	$R1=\log(R_{rs}490/R_{rs}555)$ $R2=\log(R_{rs}510/R_{rs}555)$ $a=[1.025, -1.622, -1.238]$
CalCOFI 4 band	Multiple regression	$C=\exp(a0+a1*R1+a2*R2)$	$R1=\log(R_{rs}443/R_{rs}555)$ $R2=\log(R_{rs}412/R_{rs}510)$ $a=[0.753, -2.583, 1.389]$
Morel-1	Power	$C=10(a0+a1*R)$	$R=\log(R_{rs}443/R_{rs}555)$ $a=[0.2492, -1.768]$
Morel-2	Power	$C=\exp^{(a0+a1*R1)}$	$R=\log(R_{rs}490/R_{rs}555)$ $a=[1.077835, -2.542605]$
Morel-3	Cubic	$C=10^{(a0+a1*R+a2*R^2+a3*R^3)}$	$R=\log(R_{rs}443/R_{rs}555)$ $a=[0.20766, -1.82878, 0.75885,$ $-0.73979]$
Morel-4	Cubic	$C=10^{(a0+a1*R+a2*R^2+a3*R^3)}$	$R=\log(R_{rs}490/R_{rs}555)$ $a=[1.03117, -2.40134, 0.3219897,$ $-0.291066]$
OC4	Fourth-order	$\text{Chl}-\text{a}=10^{(a0+a1*R+a2*R^2+a3*R^3+a4*R^4)}$	$R=max(R_{rs}443, R_{rs}490, R_{rs}510)/R_{rs}55$ $[a0, a1, a2, a3, a4]=[0.366, -3.067, 1$ $0.649, -1.532]$
OCI		$OCI=Chl_{CI}$ [for $Chl_{CI}\leq 0.25$ mg m^{-3}] $OCI=Chl_{OC4}$ [for $Chl_{CI}>0.3$ mg m^{-3}] $OCI=\alpha\times Chl_{OC4}+\beta\times Chl_{C}I$ [for $0.25<Chl_{CI}\leq 0.3$ mg m^{-3}]	$Chl_{CI}=10-0.1909+191.6590*CI$ $CI\approx R_{rs}(555)-0.5(R_{rs}(443)+R_{rs}(670))$

Note: from the sources 8-17.

Abbreviations: 1. C – Chlorophyll concentration (mg m^{-3}). 2. a – Absorption coefficient. 4. c – Beam attenuation coefficient. 3. b – Total scattering coefficient. 5. L_{wc} – White Cap signal.

The figure above shows that the empirical algorithms can be used to identify chlorophyll concentration related aspects of water surface which may indicate some aspects of theecological state of water resources [18, 19].

Another aspect to consider is that water reflectance has animpact on assessing techniques that should be used onanalyzing data collected through remote sensing [20]. The formula below shows links between inherent optical properties (IPO) and reflectance from remote sensing:

$$R_{rs} = \frac{L_w(\lambda)}{E_d} \approx \sum_{i=1}^{2} g_i \left(\frac{b_b}{a+b_b}\right)^i \quad (1)$$

Note: from the source 21.

Abbreviations: 1. $R_{rs} - A$bove $-$ surface remote sensing reflectance (Sr^{-1}). 2. $L_w -$ Water $-$ leaving radiance. 3. $E_d -$ Downwelling irradiance just above the water surface $(W\ m^{-2}\ nm^{-1})$. 4. a - The total absorption coefficient. 5. b_b - The backscattering coefficient. 6. a + b_b - The attenuation coefficient. 7. $g_1 \approx 0.0949$I. 8. $g_2 = 0.0794$I.

Around 90% of theinformation for remote sensing of water reflectance properties for many projects often come from scattering the atmospheric layers [21]. Therefore, another factor to consider is the impact of how sunlight may be scattered through different layers of atmosphere [22].

On the other hand, its impact can be ignored if water-leaving radiance is taken into account which formula is shown below:

$$L_u = L_w + p_f \times L_{sky} + L_{wc} + L_g \quad (2)$$

Note: from the source 23.

Abbreviations: 1. $L_u -$ The radiance which was collected by the sensor during remote sensing. 2. $L_w -$ Water $-$ leaving radiance. 3. $p_f \times L_{sky}$ - The sky radiance signal which reflected from the water surface and entered the sensor. 4. $L_{wc} -$ The whitecap signal. 5. $L_g -$ The signal of direct sunlight reflected by the surface waves. 6. $p_f -$ Fresnel reflectance of the water surface.

L_{wc} and L_g are assumed to be random due to not having water signals [24]. Moreover, p_f of thewater surface in the calm state is assumed to be equal to 0.0022 [25].

The figure below illustrates origins of light that can be received during the process of remote sensing of water resources.

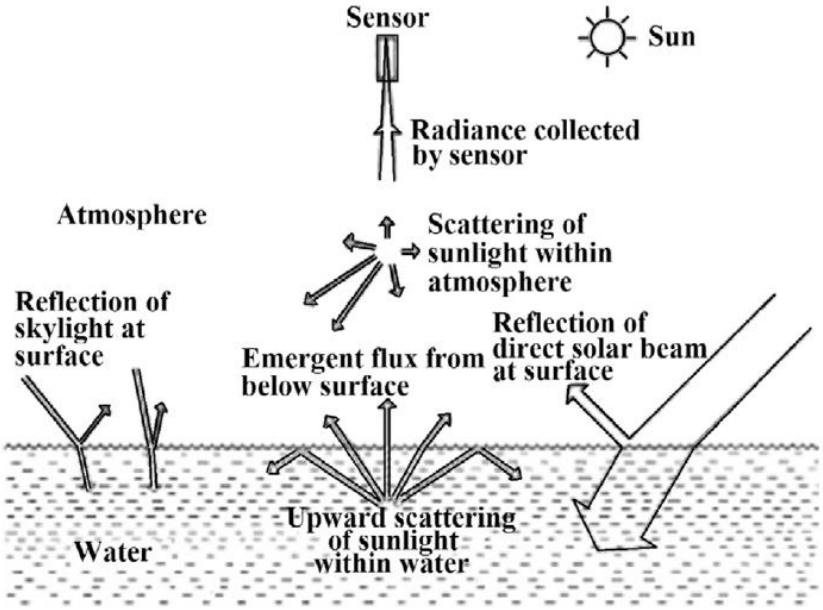

Figure 2 – Different sources of light that can be captured through remote sensing of water sources in Almaty province.

Note: from the source 24.

The figure above tries to model observation geometry for different light origins. However, this raises the question of the total scattering coefficient which formula is shown below:

$$b = c - a \tag{3}$$

Note: from the source 25.

Abbreviations: 1. b – The total scattering coefficient. 2. c – The beam attenuation coefficient. 3. a – The absorption coefficient.

Absorption of different water components plays the significant role in defining the current ecologic state of the water source [26]. However, the figure above also raises the question about remotely sensed radiance which was defined by the formula 1.

On the other hand, downwelling irradiance just above the water surface is defined by the formula below:

$$E_d(0^+) = \pi \frac{L_d(\lambda)}{\rho_\rho} \tag{4}$$

Note: from the source 27.

Abbreviations: 1. E_d – Downwelling irradiance just above the water surface ($W\ m^{-2}\ nm^{-1}$). 2. $L_d(\lambda)$ – The downwelling radiance spectrum. 3. ρ_ρ – The reflectance of reference plaque.

If the spectroradiometer is positioned on a boat or ship, then preferable angle of positioning is between 90 to 135º [28]. Combining remote sensing with collecting date from a ship may give the best combination for data collection [29].

The figure below shows which parameters of water can be accepted as optical properties for remote sensing.

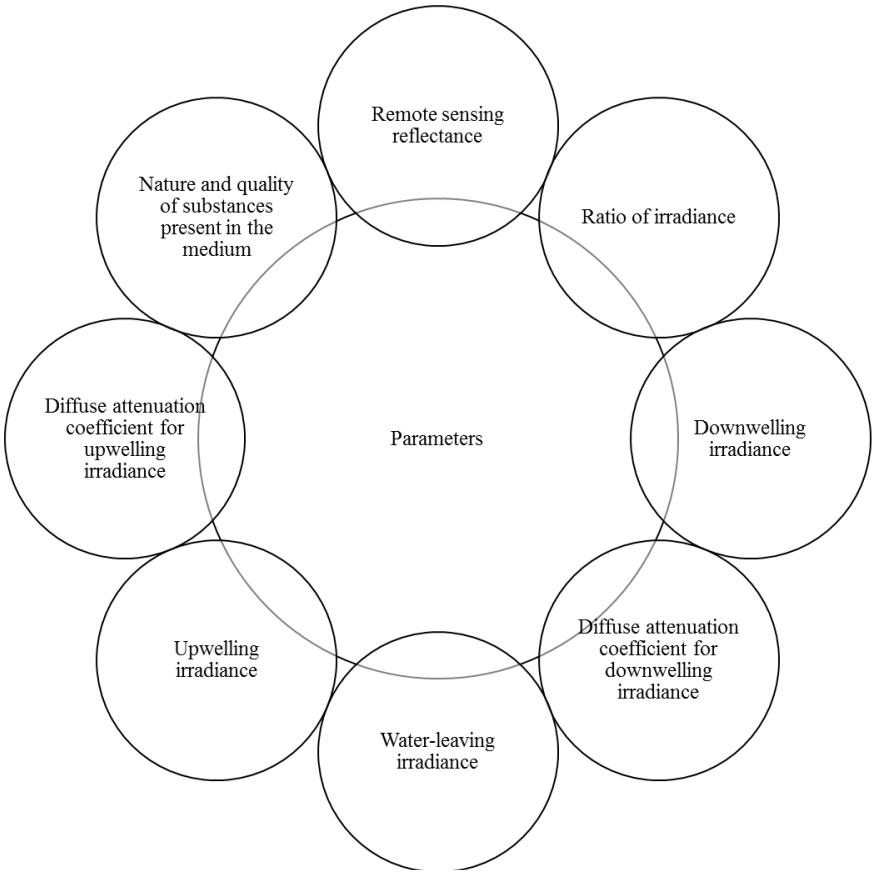

Figure 3 – Parameters that may be considered significant for remote sensing for their optical properties in Almaty province.

Note: from the sources 30-31.

The figure above shows that reflectance plays significant role in analysing data from the remote sensing [32]. However, an atmospheric correction of its formula by taking into account its impact into reflection is more accurate way of measurement which is shown by the formula below:

$$L_t(\lambda) = L_r(\lambda) + L_a(\lambda) + L_{ra}(\lambda) + T(\lambda)L_g(\lambda) + L_b(\lambda) + t(\lambda)L_f(\lambda) + t(\lambda)(1-w)L_w(\lambda) \quad (5)$$

Note: from the source 32.

Abbreviations: 1. $L_t(\lambda)$ – The total radiance received by the sensor during remote sensing. 2. $L_r(\lambda)$ – Rayleigh scattering radiance. 3. $L_{ra}(\lambda)$ – The aerosol scattering radiance. 4. $L_g(\lambda)$ - The contribution arising from specular reflection of direct sunlight from the water surface. 5. $T(\lambda)$ which is standing in front of $L_g(\lambda)$ - The direct transmittance of the atmosphere or beam transmittance. 6. $L_b(\lambda)$ - The radiance from the bottom of the water. 7. $t(\lambda)$ which is standing in front of $L_f(\lambda)$ - The contribution arising from sunlight and skylight reflecting from individual whitecaps on the sea surface. 8. $L_w(\lambda)$ - the reflectance of the water column, or the water-leaving radiance. 9. $t(\lambda)$ which is standing in front of (1-w) - The diffuse transmittance of the atmosphere, which is the attenuation coefficient of the atmospheric transmission between the satellite and the water surface. 10. w - The rate of area covered by whitecaps.

L_r generates nearly 80% of radiance during remote sensing which makes it the most significant component during the process of the atmospheric correction [33].

L_{ra}as a factor has the significance due to aerosol scattering being the second component by size in the atmospheric correction [34].

On the other hand, the direct relationship between reflectance and radiance is shown below:

$$\rho = \frac{\pi L}{F_0 \cos\theta_0} \quad (6)$$

Note: from the source 35.

Abbreviations: 1. ρ - The total reflectance which was received by the sensor. 2. L – Radiance. 3. F_0 - The extraterrestrial solar irradiance. 4. θ_0 - The solar zenith angle.

Rayleigh scattering reflectance is another factor which may need correction shown by the formula below:

$$R_{rc,\lambda} = \pi L_{t,\lambda}{}^{*} / F_0 \cos\theta_0 - R_{r,\lambda} \quad (7)$$

Note: from the source 36.

Abbreviations: 1. $R_{rc,\lambda}$ – The Rayleigh corrected scattering reflectance. 2. λ – The wavelength of the satellite sensor spectral band. 3. L_t* - The calibrated at-sensor radiance after correction for gaseous absorption. 4. F_0 - The extraterrestrial solar irradiance. 5. θ_0 - The solar zenith angle. 6. R_r – The reflectance due to Rayleigh (molecular) scattering estimated using the 6S radiative transfer code.

The flowchart of atmospheric correction process is shown in the figure below (figure 4).

The figure above shows that NIR wavelength plays the significant role in the remote sensing process of water resources because the following chemical components are visible at NIR [38]:

- CO;
- N_2O;
- CH_4;
- CO_2.

The mechanism of remote sensing of the water source in Almaty province is shown in the figure below (figure 5).

The figure above shows that the following sources of lights which leave the water surface are going to be caught during the remote sensing of lakes, rivers or other water reservoirs in Almaty province:

- upward scattering from water molecules, suspended materials that are inorganic, phytoplankton;
- scattering from sunlight which comes from the bottom;
- absorption yellow substance component.

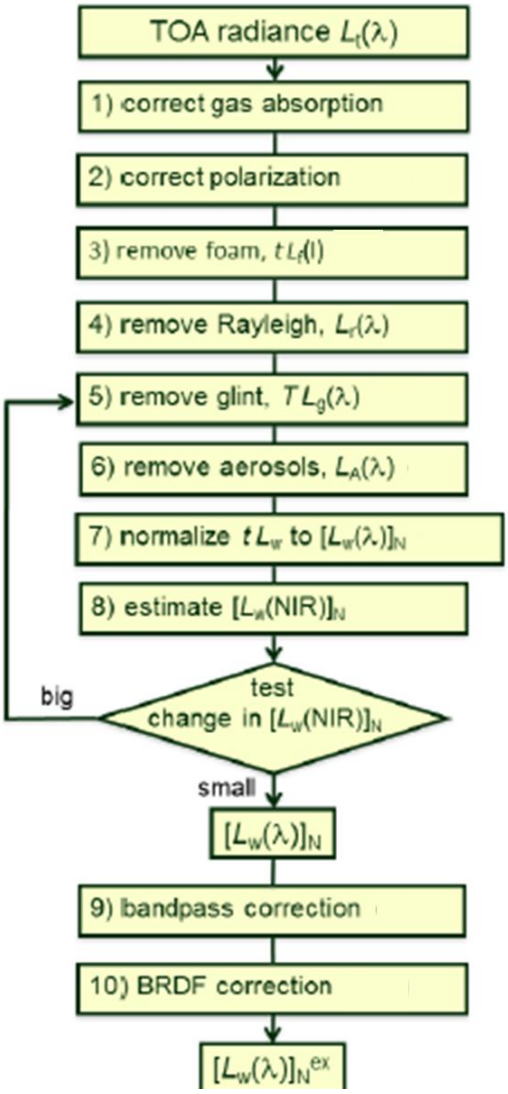

Figure 4 – The atmospheric process correction algorithm for remote sensing of water sources in Almaty province.

Note: from the source 37.

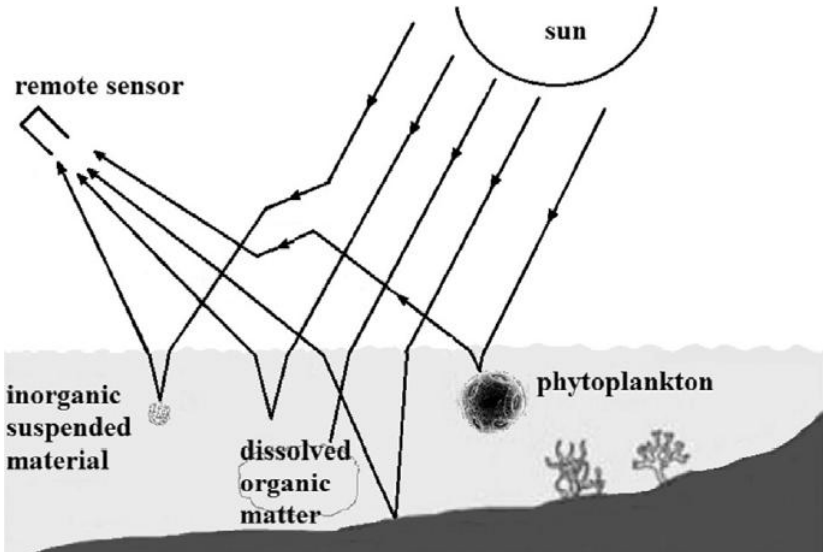

Figure 5 – Factors that have the significant impact on data about light leaving water surface during remote sensing of the water resources in Almaty province.

Note: from the source 39.

The figure above shows that the absorption of yellow substance has the significance upon the amount and quality of light leaving the water surface [40]. The relationship between the absorption component and water-leaving radiance is shown by the formula below.

$$a = a_w + Ca_c^* + Xa_X^* + Ya_Y^* \quad (8)$$

Note: from the source 41.

Abbreviations: 1. a - The water-leaving radiance. 2. a_w – The absorption coefficient of pure water. 3. C - Chl-a concentration (mg m^{-3}). 4. a_c*- The chlorophyll-specific absorption coefficient. 5. X – The suspended sediment concentration. 6. a_X* - The specific absorption coefficients of suspended sediment. 7. Y – The concentration of colored dissolved organic matter (CDOM) (m^{-1}). 8. a_Y* - The specific absorption coefficients of suspended sediment in the form of colored dissolved organic matter (CDOM).

The value of X is often defined at $\lambda = 550$ nm [41].

The figure below shows the factors that have aconsiderable impact on optical properties of water.

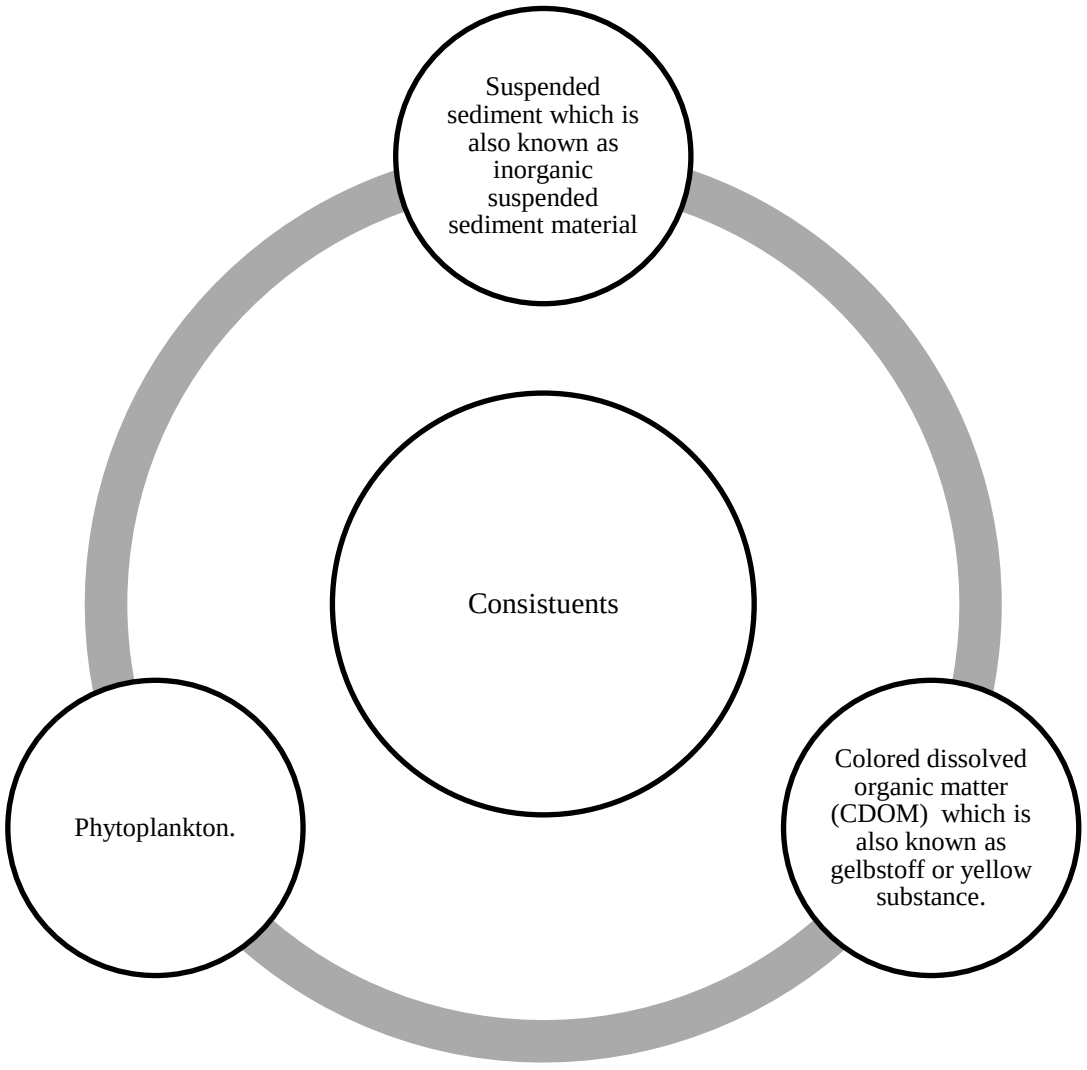

Figure 6 – Constituents which impact on optical properties of water sources in Almaty province.

Note: from the source 42.

The figure above defines that optical properties of water which impact the process of remote sensing for water sources in Almaty province are phytoplankton, CDOM and suspended sediment.

In conclusion, the source of light, water optical properties and atmospheric processes have huge impact on remote sensing of water sources for remote sensing of water reservoirs in Almaty province. Therefore, there is the need for the atmospheric process correction algorithm for remote sensing of water sources in Almaty province which is illustrated by figure 4.

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АЛМАТЫ ОБЛЫСЫНДА СУ КӨЗДЕРІН АРА ҚАШЫҚТЫҚТАН БАҚЫЛАУ МӘЛІМЕТТЕРІН ТАЛДАУ ДӘДІСТЕРІНІҢ МҮМКІНДІКТЕРІ

Аннотоция. Мақалада Алматы облысындағы су көздерін ара қашықтықтан бақылаудағы факторлардың әлеуетінің маңыздылығы жазылған. Бұл жұмыста ара қашықтықтан бақылау мәліметтерін талдаудағы жасалған жаңа әдістерді түзетудің алгоритмі келтірілген. Зерттеудің міндеті – су көздерін ара қашықтықтан бақылау үрдісінде қандай факторлардың маңызды болуының тиістілігін анықтау. Зерттеудің методологиясы эпистомология және дедукцияға негізделген. Зерттеудің тәжірибелік маңызы – Алматы облысындағы су көздерін ара қашықтан бақылаудың алгоритмін сипаттап жазу. Зерттеудің нәтижесі көрсетті, ара қашықтықтан бақылау үрдісінде жиналған мәлімет тек ақпаратты жинауға ғана емес сонымен қатар мәліметтерді талдауға да қажет.

Түйін сөздер: су көздерін ара қашықтықтан бақылау, ара қашықтан бақылаудың алгоритмі, зерттеу, бейне көрінісі, атмосфералық үрдіс, толық жұтылу коэффициенті, Алматы облысының су көздері.

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ПОТЕНЦИАЛЬНЫЕ МЕТОДЫ АНАЛИЗА ДАННЫХ ЗОНДИРОВАНИЯ ВОДНЫХ ИСТОЧНИКОВ В АЛМАТИНСКОЙ ОБЛАСТИ

Аннотация. В статье описаны потенциальные факторы, которые имеет важность для зондирования водных ресурсов в Алматиснкой области. В данной работе описан алгоритм, который может исправлять новые разработанные методы для анализа данных зондирования.Методология исследования основана на эпистемологии и дедукции. Практическая важность исследования – это описание алгоритма коррекции под атмосферные процессы для зондирования водных источников в Алматинской области.Результаты исследования показывают, что источник сведения, который был собран в качестве данных в процессе зондирования имеет важность не только для сбора информации, но и для анализа данных.Цель исследования – это выяснить, какие факторы должны считаться важными в течении процесса зондирования водных ресурсов.

Ключевые слова: зондирование водных ресурсов, алгоритмы зондирования, излучение, отражение, атмосферные процессы, коэффициент полного рассеяния, водные источники в Алматинской области.

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THE ANALYSIS OF A CONDITION OF TRAINING ECOLOGISTS IN THE KAZAKHSTAN AND TURKISH HIGHER EDUCATION SYSTEM

Abstract. Ecological education becomes the subject of interest and actions of foreign organizations on a high level. Higher education gives imagination and knowledge of the laws about the biosocial system "mankind - society - nature". This article deals with the peculiarities of the conditions of training future ecologists in the higher education system of Kazakhstan and Turkey. The search of ways of harmony interrelation of the society and nature leads to an intensive process of the ecologization of the general culture of the population. It is caused by the necessity of increasing of mankind's excitement and the degree of participation in research of the solution of the problem of development and conservation of the environment. From the level of professional competence of the future ecologists depends the state of the environment and the general ecological education of the whole population.

Keywords: ecological education, competence, condition, education system, environment, mankind.

Ecological education becomes a subject of interest and action of the international organizations at the highest level. Higher ecological education gives a representation and knowledge of laws about biosocial system "person- society-nature". The search of harmonious interaction of society and nature leads to an intensive process of ecologization of the general culture of mankind. It is caused by the need for an increase of people's susceptibility and their involvement degree in the solution search of development problems and preservation of the surrounding environment. On the global and universal value, ecological education is specified as the main means of constructive transformation of social and individual ecological consciousness almost at all international forums about the environmental problems. Many of them are actually devoted to ecological education since the condition of the surrounding environment, the general ecological education of all population depends on the level of professional competency of a future ecologist.

In "the declaration of the United Nations Conference on the Human Environment", adopted in Nairobi (1982), it was said about the value of education in strengthening the social awareness about the importance of ecological problems. In 1983 in "Bansko declarations" developed by 60 experts from 15 countries on education and policy in the environment area, it was specified that ecological education should be a public business exclusively from the business of specialists.

"In compliance with the Program of activities for implementation of the ecological education Concept and upbringing of the growing-up generation, approved by the resolution of the Cabinet of Ministers of RK No. 137dated February 3, 1997, the Ministry of Culture and Healthcare of RK and the Ministry of Ecology and the RK natural resources approved the national program of ecological education in which the general principles of ecological policy in the areas of ecological education developed by the UN, UNESCO, UNEP and others are taken into account and specific periods of growth and development of ecological education and upbringing system were defined. Among the numerous problems, the questions of training specialists in ecology and environment protection, who are capable to solve environmental management questions in various fields in the conditions of market economy, deepening and expansion of complex ecological knowledge of students of Higher Education Institution of other specialties occupy a special place. The necessity of developing an inventory of ecological specialties, educational plans and working programs allowing students to get special ecological knowledge necessary for active independent work in this area was specified in the program of ecological education and upbringing in the RK".

In conditions of updating of planetary consciousness, contradiction of development of world education system consists in a deep gap between rates of practical inquiries of promptly changing world and real opportunities of the corresponding transformations in the maintenance of national education systems of different states of the world. Therefore, essential questions are studying of the structure and maintenance of the world educational systems, identification of modern tendencies of their development [1].

The purpose of this subsection is studying, comparison and analysis of a formation process of communicative competence of future ecologists in the Kazakhstan and Turkish higher education systems.

The State policy in the field of education of the Republic of Kazakhstan in compliance with the Constitution [2] of the country is based on the following principles: equality of the rights of all citizens of the Republic of Kazakhstan for education; availability of education at all levels to the population with the account of intellectual development, psycho-physiological and individual characteristics of each person; secular nature of education; stimulation of a personality to the education system and endowment development; continuity of education process ensuring succession of its steps; unity of training and upbringing; variety of education organizations in forms of property, training and upbringing and directions of education; democratic nature of education management, expansion of the academic freedom and power of education organizations; humanistic and developing nature of education; integration of education, science and production; professional orientation of learners; informatization of education systems.

In the legislation of the Republic of Kazakhstan, the concept of "education system" is defined as "a set of interacting beings":

1) the education organizations, regardless of their ownership, types and kinds;

2) successive educational programs and the state obligatory standards of education for various levels of education;

3) bodies of education management and the subordinated organizations, ensuring the implementation of educational programs and development of education system.

Nowadays, in the informatization conditions, the purpose of higher education of the Republic of Kazakhstan is the training of professional specialists possessing communicative and foreign-language competences, creative potential and critical thinking style. The modern higher education should be continuous, qualitative, versatile, based on the information and telecommunication technologies and an emphasis should be made on learners' activity, independence and ability to adapt to changing conditions of modern society. A search for the reserves of professional training improvement of future specialists is displaced in the plane of formation and development of their information, professional and communicative competence.

"The academic mobility" differs from traditional foreign training, primarily in that, firstly, students go abroad albeit on limited but for long terms - from a semester up to an academic year, and, secondly, during such trainings they study fully, they study not only a language, but also separate disciplines and undergo a semestrial or one-year course which is counted by their return to the basic higher education institution. We propose to name the higher education institution, where the student was enrolled and from where he initially wanted to get a diploma as "a basic higher education institution".

Comparability in education allows to achieve the following objectives:

formation of educational programs in which all main elements of the educational process (the educational plan, methods of training and an assessment, the requirement to the maintenance of courses and teachers) are coordinated; automatic recognition of training results at university - the partner with all participants of partnership, that is a guarantee of embedding a mobility element in educational process; creation of a general body of program management; delivery of joint (on behalf of program participants) diploma or diplomas of universities-participants after completion of training. Similar programs pursue, as the rule, long-term interest for all its participants. They can provide students with the possibility to acquire additional academic and cultural experience abroad and higher education institutions with new possibility of cooperation and expansion of its potential jointly.

Owing to the implementation of the program "double diploma education" together with foreign universities in perspective, the problem of convertibility of the Kazakhstan higher education diplomas, their recognition at the international level, the involvement of domestic universities in the international ratings and other educational projects will be solved.

A number of standard documents adopted at the international and state level form the legal basis for education development in the field of the environment. It is the Constitution of the Republic of Kazakhstan (Article 31), the Law of the Republic of Kazakhstan "About education" (Article 3), the Law of the Republic of Kazakhstan "About higher education" (Article 3), the Concept of steady (self-sustaining) developments of civilization (the United Nations Conference on Environment and Development in Rio de Janeiro, 1992), the Concept of training specialists - ecologists in Kazakhstan (1995), National strategy of ecological education and upbringing in the Republic of Kazakhstan (1998), the Program of ecological education (1999), the Concept of ecological education of the Republic of Kazakhstan (No. 697 Order of MES of RK dated September 25, 2002), The Concept of Ecological safety of the Republic of Kazakhstan " 2015 (The decree of the President of RK dated December 3, 2003, No. 1241) and a number of other regulatory documents defining "an ecological orientation" of educations .

Methodological basics of ecological education at modern school are covered in the works of N.S.Sarybekov, A.S.Beysenova, A.B.Bayeshova, Г.К.Dlimbetova, A.Zh.Akbasova, Zh.B.Shildebayeva, A.E. Mankish, Zh.I. Baltagulova, etc.

Ecologization conditions of a number of educational disciplines were presented in the works of M.Yu.Savdenalieva, Zh.N.Bazarbekova, A.K.Eginisova, N.M.Stukalenko, A.S.Ingenbayeva. The investigations of A.S.Beysenova, M.A.Ligai, M.N.Sarybekov, A.G.Sarmurzina, G.K.Dlimbetova, A.K.Satynska, G.M.Smirnova, Zh.K.Tleshova, Sh.Sh.Hamzina and others were devoted to problems of ecological education at higher school.

Nowadays, one of the priority directions in terms of development of ecological preparation in the Republic is introduction and development of continuous ecological education system directed on the formation of scientific and practical knowledge and abilities as well as valuable orientations, behavior and activity in the sphere of environment protection, steady environmental management and consumption, formation of ecological lifestyle [3].

Ecological preparation in the higher school system of Kazakhstan is carried out in two directions:

- the general is for students of all specialties: general education disciplines, for example, "Bases of ecological knowledge", "Environment Protection", "Environmental management economy", etc.;
- profile is (deepened) for ecological, naturally-geographical, chemical and biological faculties where specialist-ecologists are trained for the nature protection sphere ("Ecology", "Ecology and environmental management"). In some higher education institutions at the faculties of "Biology", "Chemistry", "Geography", preparation of specialists for engineering and agronomical profile is conducted ("Agroecology", " Engineering Protection of Environment ", "Applied Ecology").

Generalizing the things told about the modern condition of training of future specialists with ecological education in Kazakhstan, it should be noted that the problem of training of highly qualified ecologists with the knowledge of a foreign language, capable to compete in the international market of work has not been fully decided yet, but the first steps were taken in this direction.

Though Kazakhstan is also seeking to be a competitive country not only in Asia, but also in all over the world, nevertheless, the state policy is not exposed to copy blindly and follow the western sample, as we have deep Turkic roots, historically interconnected with the Turkic people. In conditions of modernization and informatization of education, the Republic of Kazakhstan builds a national model of higher education where the high training quality of young generation is carried out on the basis of synthesis of science, culture and educational process in contexts of world history, history of the Turkic people, nomadic civilizations and the countries of the Central Asia. Therefore, it is possible to give thorough arguments of a choice of the Turkish Republic for studying, comparison and analysis of higher ecological education system in this country.

Firstly, it is connected with a linguistic, cultural and ethnic proximity of the Turkic people.

Secondly, Turkey also is a secular state aimed at comprehensive modernization of society and informatization of education. The Eurasian mentality, aspiration to adapt the best lines of the European culture, keeping the national identity and originality is inherent for both countries.

Thirdly, we are imposed by the developed lines of the Turkish ethno-pedagogical and creative reconsideration of advanced achievements of the world pedagogical thought and practice. Strong traditions of ecological training and upbringing in Turkey deserve to be noted.

Fourthly, in the domestic education system, there is a certain Turkish segment; it is K.A. Yassawi International Kazakh-Turkish University, which first received the status of an international university (Turkestan city), Suleiman Demirel Non-state University (Alma-Ata), Zhambyl Accounting-Credit-Economic College, the Educational Center "Doctyk", primary school "Shachlan" (at where children of Turkey citizens living and working in Kazakhstan are trained). In addition, it should be noted that Turkey is the first country which established close friendly contacts at once with Kazakhstan's independence.

As Tuba Goryumlyu emphasizes, "The environment is an environment or conditions in which there are live beings conducting their vital activities in it. Mankind is a creation of the world in course of time and up to present he has been dependent on the surrounding environment, but at the same time, he has affected the surrounding environment by his various kinds of activity, directly by devastating it" [4]. Nazlyogly considers that, "... from the beginning of the XYII century, mankind conducted searches for gaining domination over the nature and accepted the nature only as a car making only demanded products" [5].

In the Constitution and in other legislative acts of the Turkish Republic there are many provisions where the theme about prevention of forest massifs reduction, protection of cultivated territories, water sources and natural reserves is raised. The new laws adopted in Turkey show an increased attention to the question of ecological education.

For the detailed analysis of the condition of training future ecologists in the higher school system of Turkey, we have studied scientific publications and dissertation researches with a view of identifying the priority of opinions of famous scientists of Turkey about this question, determining problems and tendencies in training specialists with ecological education and availability of personal and professional qualities which they should possess.

The main purpose pursued by the Turkish higher education institutions in the process of training future ecologists is creation of conditions for systematic and consecutive work on studying ecological knowledge by students as well as upbringing of specialists in the sphere of nature protection activity [6].

In the address of Kirizogly presented on the II symposium of sciences about education, it was designated, "...that the science about environment (ecology) is a part of life of any person" [7].

Nazogly emphasizes that the solution of environmental problems is difficult for people, despite these problems arose later in Turkey in the comparison with the West, therefore, the most effective way of their decision is an increase of literacy of population in the questions of nature protection activity [8].

In the thesis of Tosunogly, it was defined that Turkey is the developed country from the viewpoint of the industry and the inverse transformation and the presence of serious ecological problems is not peculiar for it as in the developed countries [9].

Besides, Aynur Gian Enghin, on the basis of the carried-out experiment, claims that the main source of ecological knowledge is a television. Other sources are a family, friends, means of mass information, the public organizations.

According to the data of Ornek "... future specialists show a big interest to studying of ecological disciplines" [10].

We find an explanation for this fact in the works of Arda, Yildyz [11], Dzheritli [12] considering a problem of shortage of teachers of ecological disciplines, for example, "the Environment", "Environment Protection". Furthermore, Dimishki notes a low level of preparation of teachers-ecologists [13].

In compliance with these deeply philosophical definitions, for creation of the society consisting of professionally literate people, realizing the importance of the environment, there is a need to solve the following tasks in the education system in forming a set of key and professional competences of future specialists - ecologists: training of personalities who make thrifty use of the environment and the natural phenomena; training of individuals, able to find the general points of contact with the artificial and natural environment; training of specialists, mastering a set of methods and applying them for environment researches; training of researchers. understanding and realizing a connection between sciences about the environment with other disciplines; training of scientific workers, capable to solve environment problems; training of individuals realizing harmony and unity of a person with the environment; training of researchers, propagandizing a philosophy of environmental protection of the surrounding environment; training of personalities, capable to transform the environment by participating in various kinds of social activity, without destroying internal unity of the natural environment and preserving it.

In Turkey, the discipline "Ecology" was for the first time entered into educational programs together with the foundation of the Institute of Physical Geography and Ecology, created at the forest faculty of Istanbul University in 1943.

At the present time, such subjects as "Ecology", "Environment Problems in Turkey", "Environmental Law", "Philosophy of Environment", "Ecosystems", "The environment and man", "Biology of Environment" are taught for students of the universities, the number of whose promptly grows in Turkey. At these classes, questions of the environment, varieties of ecosystems, problems arising as a result of the functioning of human activity, proposals on their solution are considered. At the profile faculties, such subjects as Rural Economy, the Wood, Biology, Architecture, Environmental Engineering, Biological Pedagogics are taught to students on a mandatory basis.

The features of teaching the above-mentioned subjects are not only an acquaintance with ecological problems, but also the development of students' ability to see, to recognize these problems and solve them with the help of available knowledge as well as the formation of information, communicative and professional competences. It should be noted that within the framework of International Cooperation, beginning from the year 2001, students of higher education institutions of the Mediterranean countries take classes in school "Young ecologist" at will, that allows to expand students' ecological outlook, to create ecological culture, information, communicative and professional competences, to develop creative potential and critical thinking style. Likewise, an emphasis is placed on activity, learners' independence, ability to be mobilized and adapt to the changing conditions of the modern society.

It is generally known that ecological education develops in many countries of the world. The process of training specialists in the area of nature protection activity and the implementation forms of ecological education reflect the features of mentality and specifics of education systems of the certain country. In Turkey, training specialists in the areas of nature protection activity and ecological education are directly connected with tourist business since more than a half of state budget revenues are formed by the account of service for vacationers in sanatoriums and tourists in resort zones.

Summing up, it should be noted that characteristic line of the Turkish system of training of specialists in the area of nature protection activity and formation of ecological education is purposeful and systematic work on formation of responsible relation to the environment at all levels of professional education which finds reflection both in important standard documents of the country and in scientific researches.

Having studied and analyzed the condition of training of future ecologists in Kazakhstan and Turkish higher education systems, we will note some similarities:

- Education modernization in both countries requires creation of new legal, scientifically - methodical, financially - material conditions;
- there are privileges for separate categories of citizens for ensuring availability of higher education, the state support of talented youth and improvement of the social position of the population;
- expanding the boundaries of international cooperation: training abroad, institutional mobility (opening of branches of foreign higher education institutions in RK), receiving foreign degree without leaving native country, invitation of leading foreign teachers, academic exchange of teachers;
- governmental programs of both states pay great attention to education since it is acknowledged as an important component of economic, technological and social development both in Kazakhstan and in Turkey;
- remote education: each citizen can receive remote education, realizing the equality of opportunities of receiving education.

We should not forget that, while transferring a number of provisions regulating educational process in the Turkish higher education system, it is necessary to take into consideration that this system functions in other conditions, than the domestic system, therefore we should speak only about the use of separate elements if those lead to improvement of the Kazakhstan education. It is possible to refer a wide use of modern information technologies in a training process to such elements; we would like to pay special attention to accurately put work of the autonomous testing center, creation of conditions for independent works of students and active work in the areas of international cooperation.

Thus, the carried-out analysis about the initial condition of the Turkish higher education system will be useful in the modernization process of the Kazakhstan higher education on the basis of the positive aspects of constructing an educational policy of Turkey and development features of domestic education model.

Conclusion. In Kazakhstan, the problem of training ecologists with formed information, communicative and professional competences by the organization of ecological education did not get a full theoretical and practical decision, but the first steps were taken in this direction. A characteristic feature of the Turkish education system is a purposeful and systematic work on the formation of information, communicative and professional competences and responsible relation to the surrounding environment at all levels of education. Therefore, in Kazakhstan, it is necessary to form information, communicative and professional competences of future ecologists at all levels of education, namely, at higher school, which is limited in comparison with the education system in Turkey.

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ҚАЗАҚСТАН ЖӘНЕ ТҮРКИЯ МЕМЛЕКЕТТЕРІНІҢ ЖОҒАРҒЫ БІЛІМ БЕРУ ЖҮЙЕСІНДЕ ЭКОЛОГТАРДЫ ДАЙЫНДАУ ЖАҒДАЙЫН ТАЛДАУ

Аннотация. Экологиялық білім беру халықаралық ұйымдардың әрекеттері мен мүдделерін орындауда жоғары деңгейге ие. Жоғарғы экологиялық білім «адам-қоғам-табиғат» биологиялық жүйе заңдарын білу мен көзқарас қалыптастыруға көмектеседі. Аталған мақалада Қазақстан мен Түркия мемлекеттерінің жоғарғы білім беру жүйесінде болашақ экологтарды дайындау жағдайының ерекшеліктері қарастырылады. Қоғам мен табиғаттың өзара үйлесімді жолдарын іздестіру адамзат өркениетінің қарқынды экологизациялау үдерістеріне алып келді. Қоршаған ортаны қорғау мен дамыту мәселелерінің шешімін іздестіру адамзат сана- сезімінің жоғарылау нәтижесінде туындады. Қоршаған орта жағдайы мен халықтың экологиялық сауаттылығы болашақ эколог мамандардың біліктілік құзыреттіліктеріне тікелей байланысты.

Түйін сөздер: экологиялық білім, құзыреттілік, жағдай, білім беру жүйесі, қоршаған орта, адамзат.

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АНАЛИЗ СОСТОЯНИЯ ПОДГОТОВКИ ЭКОЛОГОВ В СИСТЕМЕ ВЫСШЕГО ОБРАЗОВАНИЯ КАЗАХСТАНА И ТУРЦИИ

Аннотация. Экологическое образование становится предметом интереса и действий международных организаций на самом высоком уровне. Высшее экологическое образование дает представление и знание законов о биосоциальной системе «человек – общество – природа». В данной статье рассматривается особенность условий подготовки будущих экологов в системе высшего образования Казахстана и Турции. Поиск путей гармонического взаимодействия общества и природы приводит к интенсивному процессу экологизации общей культуры человечества. Это вызвано необходимостью повышения восприимчивости людей и степени их участия в поиске решения проблем развития и сохранения окружающей среды. От уровня профессиональной компетентности будущего специалиста-эколога зависит состояние окружающей среды, общая экологическая образованность всего населения.

Ключевые слова: экологическое образование, компетенция, условие, образовательная система, окружающая среда, человечество.

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CYCLOHEXANE PRODUCTION BY HYDROGENATION OF BENZENE ON NICKEL SKELETAL CATALYSTS

Abstract. The aim of the presented scientific work is the development of methods for synthesizing modified nickel catalysts and the technology of hydrogenation of benzene, by developing new and modified heterogeneous catalysts with high activity, selectivity, stability, productivity and maximum service life.

Highly active stationary alloy alumo-nickel catalysts with additives as modifiers, technologies for their preparation and activation have been developed.The optimal conditions for the liquid-phase hydrogenation of benzene under hydrogen pressure in their presence were determined.Optimal compositions of modified alloy catalysts for the selective hydrogenation of benzene, the conditions for their preparation and the hydrogenation process in their presence were found.A method of producing cyclohexane, in the presence of a modified nickel catalyst, providing a high total yield of the desired product is developed.

Keywords: cyclohexane, skeleton nickel catalysts, activity and selectivity of catalysts, benzene, promotion by ferroalloys, phase composition of catalyst, hydrogenation in liquid phase.

Introduction. Atyrau Oil Refinery started production of benzene in industrial batches, and the first shipment of 300 tons to the Tula Region of the Russian Federation was shippedin 2016.This product is produced at the catalytic reformer unit, which is part of the complex for the production of aromatic hydrocarbons.At the same time, an extractive distillation process is carried out with the extraction of benzene from gasoline components. This allowed the plant to achieve maximum production of high-octane gasolines with improved environmental characteristics of fuel, that is, to reduce the level of benzene in produced gasoline to 1%, in accordance with the requirements of the Technical Regulations of the Customs Union, as well as to obtain benzene with a purity of 99.9%, as a product with high added value and to export this product to world markets [1].

The state economic policy of Kazakhstan is aimed at achieving sustainable development of the country through the transition from the raw direction of development to processing according to the strategy of production of competitive and export-oriented goods.The same can be attributed to the catalytic processes of organic origin, because important problems for the technical process have been solvedby means of catalysis, such as the production of high-quality motor fuel, monomers for the production of synthetic rubbers, fibers, various polymer materials, intermediate products of organic synthesis, and much other. Catalytic reduction of benzene has great practical importance since reaction products have long attracted the attention of researchers as the starting objects for the synthesis of new compounds.Cyclohexane, produced by the catalytic hydrogenation of benzene, is used for the production of caprolactam, adipic acid and hexamethylenediamine, i.e. raw materials for the production of synthetic fibers, as well as various resins.

Thus, cyclohexane, obtained from local raw materials, creates the opportunity of import substitution in industry, and the products obtained during its processing open up new prospects for the domestic production of synthetic fibers and resins.

Materials and methods

It is known that even the introduction of small amounts of additives of various elements imparts new valuable properties to the metal and steels. Manganese gives the structure of steel fine-grained.As the manganese content increases, the tensile strength increases and the viscosity decreases. These properties of ferroalloys were the basis for research into their application in the production of catalysts. The characteristics of some grades of ferromanganese according to the State Standard 4755-91 are given in table 1.

Table 1 – Ferromanganese grades according to the State Standard 4755-91

Group	Mark	Composition, mass, %				
		Mn	C	Si	P	S
High-carbon	FeMn 75	от 70 до 82	8.0	2,0	0,1-0,5	0,03
Medium carbon	FeMn 80	от 75 до 85	0,5-2,0	2,0	0,2-0,35	0,03
	FeMn 90	от 85 до 95	0,5-2,0	2.0	0,2-0,35	0,03
High-carbon	FeMn 80	от 75 до 85	0,1-0,5	2,0	0,15-0,30	0,03
	FeMn 90	от 75 до 85	0,1-0,5	2,0	0,15-0,30	0,03

Experimental research to obtain catalysts containing additives were carried out in a high-frequency melting furnace of the OKB-8020 brand. The catalyst obtained in this way was used for hydrogenation of benzene and physico-chemical studies.

In the process of metal fusion, in our opinion, there is a shift in their external electronic levels [2-5], which can be explained by the promotional effect of aluminum additive.It should be noted that special attention should be paid to the correct choice of parameters, the cooling conditions of the alloy, since slow cooling contributes to the formation of a fine-crystalline structure and production in a high-dispersed state after the removal of aluminum catalytically active metal alloy.It is established that rapid cooling of the alloy leads to the formation of a large-crystalline structure of the alloy, which is not desirable in the technology of catalysts. The resulting alloy contained in its composition of Ni, Al, NiAl, Ni_2Al_3, and $NiAl_3$ [6-8]. The formation of the structure of the catalyst from Ni_2Al_3 flows through the so-called skeletal stage, in which part of the skeleton disintegrates with the formation of small Nickel particles. After cooling, the alloy catalyst is crushed.In the case of an equal ratio of Ni and A1 alloy is brittle and easily subjected to grinding. With an increase in the content of Ni in the catalyst, the material becomes more durable and the crushing process requires greater effort.

Activity, selectivity and stability of skeletal catalysts are associated with the presence of hydrogen in them in physically adsorbed and dissolved conditions. The hydrogen content in the catalyst depends on the leaching temperature, which is shown in figure 1.

An important role in obtaining high-quality catalyst is given to the choice of drying method of slightly oxidizing catalysts and skeletal Nickel.The washing of the catalysts from the water is recommended carefully to produce methanol or other alcohols of the aliphatic series. In addition, the best way to dry the catalysts is the process of removing water at low pressures and temperatures [9-12].

When the leaching process is completed, most of the solution is decanted, the sediment is washed from alkali and in the form of an aqueous suspension is transported to a special container into which the mineral oil is added, and then completely remove the water by heating it in avacuum.The finished catalyst is stored and transported in the form of an oil suspension. The service life of the catalyst Nickel Rhenium is not very large; since it is quickly poisoned by sulfur, oxygen and nitrogen compounds.

The catalyst Bug is exposed to regenerate more leaching A1. At skeletal Nickel contacts, the processes occur at approximately 373-393 K and a pressure of 2 to 8 MPa in the liquid phase. Wide opportunities for optimization of the characteristics of the catalysts of the Bug and Raney Nickel give the expansion of the range of applications in the manufacture of the base components of the original alloys.

We have developed a technological scheme of obtaining alloy skeletal catalyst comprises: a reactor for receiving the suspension of catalyst flowing setup column type and flow of the pilot plant. The basic technological scheme of obtaining the catalyst is shown in figure 2.

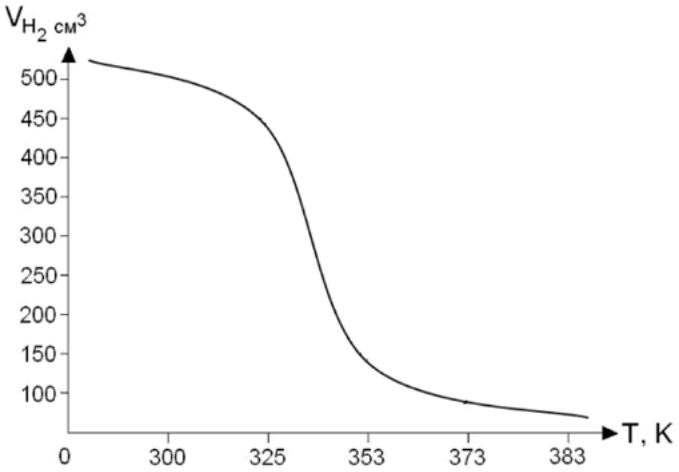

Figure 1 – The dependence of the volume of hydrogen to the temperature of the leaching of the catalyst

Leaching temperature, K	323	353	373
The volume of H_2 on catalyst 1 cm^3	470	160-170	140

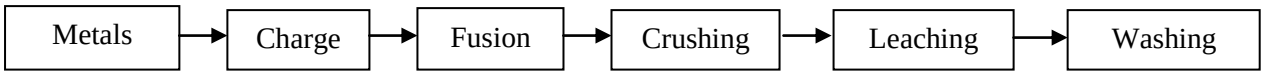

Figure 2 – Process flow diagram for producing a catalyst

With the aim of producing a catalyst Bug fused material is crushed to pieces the size of 3-5 mm, and for obtaining Nickel Raney – finely until the tiny state.

The catalysts consist of skeletal Nickel γ–Al_2O_3, Ni_2Al_3 and FH (ferroalloys). Modifying additives do not affect the parameter of the Nickel crystal lattice, but significantly grind its crystals (from 5.4 to 3.2 nm); increase the specific surface area of the catalyst to 130.0 m^2/g. It should be noted that in the literature is poorly lit, the effect of ferro-alloy on the physico-chemical properties of fused alumina-Nickel catalysts. In this regard, we investigated the effect of FSC (ferrosilicon), FMo (ferromolybdenum), Ft (ferrotitanium) and FSCH (ferrosilicochrome) on the phase composition and structure of aluminum-Nickel alloys and catalysts.

Dispersion of catalysts affects the activity and selectivity of catalysts.

Granulometric composition of initial and leached alloys was determined by sedimentation analysis and microscopy. It is shown that the catalysts have a narrower distribution of particle size.

The studied granulometric composition of skeletal Nickel catalysts with additives FSCH, FCH, FSC and FMo of ferroalloys [13-16].

Results and discussion

The study of benzene hydrogenation depending on the type of catalyst and the identification of kinetic dependences, with the establishment of optimal process parameters, has of great scientific and practical importance. For this purpose, researches on benzene hydrogenation on binary skeletal Nickel catalysts are carried out.

Catalytic properties of skeletal Nickel catalysts of different composition are studied. Results of anexperimental study of benzene hydrogenation process on skeletal Nickel catalysts with different Nickel contents. The research on the identification of kinetic mechanism is identified the following parameters the process of hydrogenation: the process temperature is 180^0C; a pressure of 4 MPa. The data obtained in the course of experimental studies are presented in table 2.

Table 2 – The results of the process of benzene hydrogenation on skeletal Nickel catalysts at a temperature of 180^0C and hydrogen pressure of 4 MPa
Experimental conditions: 200 ml of benzene, the amount of catalyst 0,5 g

#	Alloy composition in weight %	The yield of cyclohexane (%) time (min)			
		10	20	30	40
1	Ni-Al = 30:70	11,0	20,5	30,0	39,8
2	Ni-Al = 40:60	9,0	25,0	38,5	49,2
3	Ni-Al = 47:53	7,0	18,5	32,5	45,0
4	Ni-Al = 50:50	16,2	40,0	55,0	68,0
5	Ni-Al = 55:45	9,0	29,5	46,5	59,0
6	Ni-Al = 60:40	9,0	17,2	27,0	33,3
7	Ni-Al = 70:30	1,0	5,0	7,0	9,5

During the research catalytic properties and kinetic regularities of alloy aluminium-Nickel catalysts, obtained from multicomponent systems, were studied.As additives to the Nickel catalyst, ferroalloys-Ferrosilicochrome (FSH), ferromolybdenum (FMo), ferrotitane (FTi) and ferrosiliconocalcium (FSC) were used. Obtained data of hydrogenation on skeletal Nickel-ferromolibdenum catalysts of benzene in cyclohexane are presented in table 3.

Table 3 – The results of hydrogenation of benzene on skeletal Nickel catalysts, with additives of ferromolybdenum at 160° C and 4 MPa.
Experimental conditions: 200 ml of benzene, the amount of catalyst – 0.5 g, duration of hydrogenation – 60 minutes

#	Alloy composition in weight %	The yield of cyclohexane (%) time, min					
		10	20	30	40	50	60
1	Ni : Al = 50	9.0	18.8	30.4	40.8	51.0	60.5
2	Ni:FMo:Al = 49:1:50	11.0	22.2	33.0	44.5	56.3	70.7
3	Ni:FMo:Al = 47:3:50	24.3	37.8	56.3	66.4	78.0	88.3
4	Ni:FMo:Al = 45:5:50	15.6	31.3	48.6	59.9	72.3	85.8
5	Ni:FMo:Al = 43:7:50	12.0	22.8	34.6	47.2	60.0	79.2
6	Ni:FMo:Al = 40:10:50	8.2	13.0	26.4	37.3	56.1	67.4

The output of cyclohexane at 160^0C and 4 MPa at 60 minutes of hydrogenation is 88.3%, which is significantly higher than on skeletal Nickel without additives.Further increase in the amount of additives to 10% leads to a slight decrease in the activity of the catalyst, wherein the output of cyclohexane ranges from 67.4-78.6%.

Based on the obtained data, the catalysts are arranged in a series [14, 15]:

Ni-Al-FMo> Ni-Al- FSH> Ni-Al- FSC.

With the increase in temperature from 50 to 100^0C, the rate of benzene hydrogenation at less active Ni-Al-5% Ti-Mo increases by 1.5 times, and at the most active Ni-Al-FMo - by 2.0 times.The promotional effect of ferroalloys can be explained by the physicochemical and adsorption properties of the initial alloys and catalysts, leading to the formation of new additional phases.

Liquid-phase hydrogenation of unsaturated compounds is a complex process consisting of several successive stages, transportation of reagents to the catalyst surface with their subsequent adsorption, catalytic transformation on the surface and, finally, desorption of reaction products from the catalyst surface. The most difficult ones are the stage of adsorption and reaction process on the surface, the catalysts having a chemical nature [20, 21]. At the same time, it is impossible to calculate the speed constants of all these stages of the process, so it is assumed that the total speed of the reaction should be determined by the speed of the slowest (limiting) of these stages.

As it is known[16-19], hydrogenation of the same unsaturated compound can proceed by one or another mechanism, depending on the nature of the catalyst, the solvent and the reaction conditions.

The obtained results of the research on benzene hydrogenation on skeletal Nickel catalysts with additives of the optimal composition of ferroalloys (5.0% FSH, 3.0% FMo and 5.0% FSC) at different temperatures are shown in table 4. The analysis of the table shows that the increase in the temperature of the experiment from 120 to 200^{0}C significantly increases the output of cyclohexane in all types of catalysts.

Table 4 – The hydrogenation of benzene to cyclohexane on Nickel skeletal catalysts with additives FMo, FSH and FSC at different temperatures

#	Alloy composition in weight %	The yield of cyclohexane (%) time, min					
		Rn_2 kgf/cm^2	Top, ^{0}C	10	20	30	40
1	Ni:Al = 50:50	40	120 140 160 180 200	3,0 6,5 9,0 13,0 16,8	6,6 14,3 18,8 27,6 35,0	10,0 20,8 30,4 43,8 52,3	13,2 27,0 40,8 58,0 74,6
2	Ni:FSH:Al = 45:5:50	40	120 140 160 180 200	8,0 10,0 12,2 29,6 36,4	14,3 21,8 30,2 42,0 57,8	20,5 32,2 44,6 60,8 79,0	26,0 44,5 87,4 83,0 99,6
3	Ni:FMo:Al = 47:3:50	40	120 140 160 180	15,4 17,0 24,3 34,3	19,7 90,6 37,8 49,5	24,5 38,8 56,3 68,8	31,6 50,5 66,4 90,0

The values of apparent activation energies calculated in the range 120-200^{0}C on the promoted catalysts range from 6.3 to 9.5 kcal/mol.

Consequently, skeletal Nickel catalysts exhibit high activity in reactions of hydrogenation of benzene to cyclohexane. The simultaneous increase in temperature experience, and the hydrogen pressure has a positive influence on the activity of the studied catalysts.

Conclusion. A series of new samples of modified aluminum-Nickel alloy catalysts for benzene hydrogenation to cyclohexane have been synthesized. Their chemical, phase and granulometric compositions, porous structure and physico-chemical characteristics of the catalysts promoted by ferroalloys are investigated. Kinetic regularities of the hydrogenation process on modified Nickel catalysts are established. Depending on the temperature and pressure of hydrogen, the optimal conditions for the technological process of synthesis of cyclohexane are established. Promotional activities of ferroalloys (FMn, FMnMo and FTi), on the physico-chemical and adsorption properties of fused alumina-Nickel catalysts are studied.

Kinetic regularities of benzene hydrogenation processes on samples of promoted catalysts are established. Experimentally determined that in developed floatable promoted catalysts increases the rate of reaction of selective hydrogenation of benzene in 1,0÷1,6 times than without additives. The optimal compositions of modified alloy catalysts, conditions of their preparation, activation and carrying out hydrogenation processes in their presence are revealed.

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БЕНЗОЛДЫ ҚАНҚАЛЫ НИКЕЛЬДІ КАТАЛИЗАТОР КАТЫСУЫМЕН ГИДРЛЕП ЦИКЛОГЕКСАН АЛУ

Аннотация. Ұсынылып отырған ғылыми жұмыстың мақсаты модифицирленген никельді катализаторларды синтездеу және бензолды гидрлеу технологиясының әдісін дайындау. Оған жоғары белсенді селективті, тұрақты және жоғары өнімділікке ие болған модифицирленген гетерогенді катализаторларды жаратумен қол жеткізуге болады.

Ғылыми іздену жұмыстарының нәтижесінде құймалы алюминий-никельді жоғары белсенді катализаторлар алудың технологиясы дайындалды. Бензолды сұйық фазада жоғары қысым астында сутекпен және катализаторлар қатысуымен гидрлеудің оңтайлы жағдайлары анықталды. Бензолды селективті гидрлеу үшін модифицирленген құймалы катализаторлардың оңтайлы құрамы анықталды. Модифицирленген никельді жоғары белсенді катализаторлар қатысуымен циклогексан алудың жаңа тәсілі жасалды.

Түйін сөздер: циклогексан, қаңқалы никельді катализаторлар, катализаторлардың белсенділігі және селективтілік, бензол, ферроқоспалармен промотрлау, катализатордың фазалық құрамы, сұйық фазада гидрлеу.

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ПОЛУЧЕНИЕ ЦИКЛОГЕКСАНА ГИДРИРОВАНИЕМ БЕНЗОЛА НА СКЕЛЕТНЫХ НИКЕЛЕВЫХ КАТАЛИЗАТОРАХ

Аннотация. Целью представленной научной работы является разработка методов синтеза модифицированных никелевых катализаторов и технологии гидрирования бензола, путем разработки новых и модифицированных гетерогенных катализаторов, обладающих высокими активностью, селективностью, стабильностью, производительностью и максимальным сроком службы.

Разработаны высокоактивные стационарные сплавные алюмо-никелевые катализаторы с добавками в качестве модификаторов, технологии их приготовления и активации. Определены оптимальные условия осуществления процесса жидкофазного гидрирования бензола под давлением водорода в их присутствии. Найдены оптимальные составы модифицированных сплавных катализаторов для селективного гидрирования бензола, условия их приготовления и проведения гидрогенизационного процесса в их присутствии. Разработан способ получения циклогексана, в присутствии модифицированного никелевого катализатора, обеспечивающий высокий суммарный выход целевого продукта.

Ключевые слова: циклогексан, скелетные никелевые катализаторы, активность и селективность катализаторов, бензол, промотирование ферросплавами, фазовый состав катализатора, гидрирование в жидкой фазе.

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HYDROMETALLURGICAL METHOD OF PROCESSING OF CRUDE TELLURIUM DIOXIDE TO PRODUCE PURE TELLURIUM DIOXIDE IN ORDER TO PREPARE PURE TELLURIUM DIOXIDE FOR REFINING

Abstract. The paper presents the results of investigations on the subsequent processing of the tellurium dioxide to produce pure tellurium dioxide and the subsequent refining of pure tellurium dioxide to produce metallic high purity tellurium. On the basis of the studies carried out, the following can be concluded: the depth of purification of tellurium dioxide from lead and copper impurities is much higher in comparison with the available methods. In addition, replacing the energy-intensive and prolonged (usually several hours) operation of cooling the solution to 0 °C with a simpler solution processing operation performed by adding a small amount of cheap and affordable reagent, iron chloride (III) for several minutes, greatly simplifies and accelerates process, and also reduces the cost of its implementation.

Key words: tellurium, impurities, refining, vapor dissolution, ferric chloride (III).

The refining and hydrometallurgical manufactory of lead production in Southern Kazakhstan have significant reserves to increase the production of tellurium. The task of this work was to develop methods for high extraction of tellurium with minimal costs. The production of tellurium dioxide by a hydrometallurgical method usually does not require complicated equipment, high temperatures and pressures, but causes certain difficulties in removing heavy metal impurities, especially copper, silver, plumbum, antimony, tin, hydrargyrum, and nickel. These difficulties increase with the production of high purity tellurium dioxide, when deep purification from these impurities is required.

Due to the fact that from the dust of agglomeration, the tellurium is not extracted from tellurium, and all the dust and lees of the hydrometallurgical manufactory are set in the head of the process, then in the end all the tellurium coming in with the raw material is in the agglomerate and enters the mine reduction melting. Similarly, tellurium is distributed and selenium. In the raw materials that are deposited on the lead plant, 12-15 tons of tellurium and 3.5 tons of selenium are contained per year.

The production of tellurium dioxide by hydrometallurgical method usually does not require complicated equipment, high temperatures and pressures, but it also causes known difficulties in removing impurities of heavy metals, first of all, such as copper, silver, plumbum, antimony, tin, hydrargyrum, nickel. These difficulties increase with the production of high purity tellurium dioxide, when deep purification from these impurities is required.

Previously known works [1-5] on the purification of tellurium dioxide from copper and lead impurities include the interaction of the tellurium dioxide produced by processing telluric slurry from the neutralization of selenium solutions with sodium hydroxide solution, the treatment of the resulting sodium tellurite solution with sodium sulfide, the separation of the precipitated into a precipitate of copper sulfides and lead by filtration, and treatment of the remaining solution with sulfuric acid to precipitate tellurium dioxide. After separation of the precipitate by decantation, its dehydration on the nutch filter, drying, grinding and testing, a commercial tellurium dioxide is obtained. A typical analysis of the product, %:

77.0 tellurium, 0.03 selenium, 0.02 silicic acid, lead is absent. But the product obtained is of poor quality, and the technological processes for cleaning working solutions are very complex and do not give a positive quality to the raw materials.

A method for purification from impurities [6] has been developed to produce high purity tellurium dioxide, used in the production of tellurite glasses for fiber optics, for the growth of paratellurite single crystals. The initial tellurium dioxide is calcined in a vacuum at a temperature of at least 550 °C. in a crucible made of inert material to tellurium dioxide, the calcined tellurium dioxide is melted, the resulting melt is vacuum distilled at a temperature of not more than 780 °C. The purified product is deposited on a substrate whose temperature is 450-650 ° C. The invention makes it possible to increase the purity of tellurium dioxide from metal impurities and residual moisture. The lack of technology lies in the high-temperature range of the process.

Scientists [7] have developed a method for purifying tellurium dioxide from copper and lead impurities. The method is based on the interaction of the tellurium dioxide produced by processing the tellurium sludge from the neutralization of selenium solutions, with a solution of sodium hydroxide. In this case, the obtained sodium tellurite solution is treated with sodium sulfide, followed by separation of precipitated copper and lead sulphides by filtration. After that, the filtrate is deoxidized with sulfuric acid to precipitate the dioxide of tellurium. After separation of the precipitate by decantation, its dehydration on the nutch filter, drying, pulverization and testing, a commercial tellurium dioxide is obtained. A typical analysis of the product,%: 77.0 tellurium, 0.03 selenium, 0.02 silicic acid, lead is absent. This method was not viable, as it had the following drawbacks: low purity of the product obtained; the difficulty of cleaning the solution of tellurite natrium from the impurities of copper and lead by means of sodium sulfide in production conditions where it is difficult to ensure the accuracy of the dosage of the reagent; the difficulty of cleaning the solution of tellurite natrium from the impurities of copper and lead by means of sodium sulfide in production conditions where it is difficult to ensure the accuracy of the dosage of the reagent; the use of sodium sulfide as a reagent does not allow to purify the solution from the impurities of tin, antimony and arsenic.

Along with this method, the following scientists developed [8] a method for purification of tellurium dioxide from mixtures of heavy metals. Dioxide of tellurium, obtained by oxidation of technical tellurium with nitric acid, interacts with sodium hydroxide solution, and precipitates of heavy metal impurities are separated, followed by separation of tellurium dioxide from the resulting solution of tellurite sodium by treating the solution with hydrochloric acid to pH 3 , 0-3.5. This method is simpler than the previous one, since it does not require the use of a special reagent, sodium sulfide, the interaction of which not only with the solution but also with the impurity sediment can cause the dissolution of some of them (possible contamination with sulfur) and make it difficult to purify the solution. The advantages of this method are as follows: after dissolution of tellurium dioxide in the deposit, gold and selenium completely leave, which can be used in hydrometallurgy of gold. When neutralizing the solution with hydrochloric acid, additional purification of tellurium takes place from copper, lead, silver, manganese, nickel and other impurities. But despite the perfect methods of solving the problem, there are the following disadvantages:

– the need to use as raw material only a material that is fairly pure in tellurium (technical tellurium with a purity of at least 98.5%);

– a low degree of purification of tellurium dioxide from iron (34.5%) and silicon (51.5%) in the alkaline solution stage;

– impossibility of deep purification of tellurium dioxide from lead and copper impurities in the stage of treatment (neutralization) of an alkaline solution with hydrochloric acid, because of their precipitation from the solution together with tellurium dioxide [9, 10].

The most perfect technical essence is the method of purifying tellurium dioxide from copper and lead impurities [11]. The method involves interaction of tellurium dioxide with a solution of sodium hydroxide and a two-stage treatment of the resulting solution of sodium tellurite with a mineral acid separating the precipitate of metal impurities after the first stage while cooling the solution to 0 °C and separating the precipitate of the dioxide of the tellur after the second stage of treatment. The first stage of treatment of the sodium telluride solution with a mineral acid (for example, sulfuric acid) is usually carried out to a pH of 9-10. At the same time, tellurides of copper, lead and other heavy metals fall into the precipitate, as well as a certain amount of tellurium dioxide itself (5-10% of the original quantity). The solution is cooled

to 0 °C to reduce it to the lowest possible concentration of copper and lead tellurites, since the solubility of the latter decreases with decreasing temperature. The second stage of treatment is, as a rule, up to pH = 3-4. In this case practically all the tellurium dioxide contained in the solution falls into the precipitate, as well as part of the impurities that are soluble in it. The method makes it possible to obtain tellurium dioxide with a lead content of $4 \cdot 10^{-3}$ % and copper $1 \cdot 10^{-3}$ % even at high concentrations (up to 5%) of these metals in primary tellurium dioxide. The following nuances are not taken into account:

– low depth of purification of tellurium dioxide from lead, copper and other heavy metals;

– the need to cool the sodium tellurium solution to 0 °C after the first stage of treatment with acid, which requires special refrigerating equipment, an increase in production areas, additional energy and labor costs.

On the basis of the foregoing, our task is to improve the purity of the final product.

A characteristic feature of modern metallurgical production is the integrated use of raw materials. Increasing the extraction of basic and associated metals is the main task of metallurgists in the modern world of growing innovative technologies.

Along with the available methods, foreign scientists [12-15] have developed a method for obtaining tellurium of high purity. Purity (99.9995%) can be achieved by repeated distillation technique under a dynamic vacuum of $\sim 5 \cdot 10^{-3}$ Torr, using a research setup made of quartz tube. The analysis of the impurity of purified tellurium made inductively by double plasma optical emission spectrometry (ICP-OES) confirmed the reduction of the total impurity content from 87 to 4 ppm for three consecutive distillations in a single experimental process. The main impurities in tellurium, such as Al, Ag, Pb, Cu, Bi, Ni, Fe, Mn and Mg, are effectively removed after purification. Analytical results are discussed with regard to vapor pressures (pv) of impurities. The evaporation level (We) and the permeability line (λ) are calculated under experimental vacuum conditions, distillation temperature (T) and system measurements. But the economic value using high-tech devices is higher than the cost price of tellurium, and does not provide for the industrial introduction of technology.

In the process of mine melting, tellurium practically completely passes into the verteble. 600 kg of tellurium is lost with the waste slag, the average tellurium content in the slag is 0.0003%, i.e. make up - 5% of the loaded with raw materials. The distribution of selenium is somewhat worse, losses with slags reach 2 tons, more than 55 percent of the total amount, the selenium content in BPC slags averages 0.001 percent. This situation is natural from a comparison of the properties of sulfur, selenium and tellurium. Sulfur, contained in the agglomerate by 70-80%, passes into the dump slag (the sulfur content in the slag is 2-2.3%), selenium, as an element more "metallic" than sulfur, goes about half to the slag, the rest to the vertices, and tellurium is the most "metallic" of the elements of Group 6 passes almost entirely into crude lead.

Rough lead is fed to continuous de-laying, part of the slurries that the reflecting furnace could not pass, enter the smelting furnace in a small smelting furnace. In the matte of the reflector furnace, the tellurium content is 0.023%; within a year, 1,200 kg of tellurium and 575 kg of selenium are sent with the product of the matte of the reflecting furnace (the content of the mud in matte is 0.011%), which is about 10% of tellurium, with raw materials and 15% selenium. With the commodity matte of a small smelting furnace, 0.9 t of tellurium (its content is 0.015%) is sent for the year, which is 7% of the raw material and 0.3 t of selenium - 8% of the raw material.

Therefore, under the normal conduct of the process of continuous de-identification, i.e. with an optimal amount of sulfur, arsenic dissolves in the matte in the form of Cu_3As, Fe_2As, in the absence of sulfur, spieses may appear, in this case arsenic practically completely disappears from the ground lead and significant losses of antimony begin.

When loading the sulphidizer - PbS, the matte is washed out and there is practically no loss of antimony with matte, the content of antimony in matte does not exceed 0.1%, while the arsenic content is 2-3%.

In Cu_2S, 14% of metallic lead dissolves at T = 1100 °C; in matte containing 20-22% lead, the sulphide content accounts for 6-8%, which dissolves PbSe and PbTe, the content of Te in matte depends on some degree of lead content in matte.

The arsenic content in the lead was at a level of 0.02-0.004%; 94-90% of arsenic was converted into matte and 6-10% into lead-depleted lead, and tellurium by 75-80% passed into de-ground lead.

In the process of fine-tuning matte in a small reflecting furnace, the content of tellurium, as well as silver, is somewhat lower [16].

Thus, 75-80% of tellurium passes into de-leaded lead and a high extraction of tellurium through the plant is possible only with a high degree of obscuration of the ground lead.

In factory conditions, 3 tons of tellurium is dispatched for a year with sodium antimonate, 0.57 tons of tellurium is sent to the storage facility with calcium arsenate, and 0.8 tons is extracted into the gray foam. Thus, in lead after distellellurization there are 4.37 tons of tellurium. During the same time, 102.8 tons of alkaline telluric melts with a content of 8.67% of the body are obtained, i.e. 8.9 t of tellurium were recovered. The degree of distellellurization is an average of 67% per year.

Therefore, the goal of this project is the development of an integrated technology for producing tellurium of high purity of TV-4 brand from tellurium concentrate.

The conducted studies of obtaining tellurium dioxide from alkali melts of lead production were successfully crowned, as evidenced by the results obtained and samples of products of laboratory and experimental-industrial tests, which were presented in other works of the authors of this article.

Therefore, in this paper we present the results of studies on the subsequent processing of crude tellurium dioxide to produce pure tellurium dioxide and the subsequent refining of pure tellurium dioxide to produce metallic high purity tellurium.

Purification of tellurium dioxide from impurities of lead, copper and other heavy metals, including the reaction of the initial tellurium dioxide with a solution of sodium hydroxide and two-stage treatment of the resulting solution of sodium tellurite with mineral acid, separating the precipitate of the impurity metals after the first stage of treatment and precipitating the tellurium dioxide after the second stage, solution sodium tellurite before separating the precipitate of impurity metals, according to theoretical assumptions, is treated with iron (III) chloride. This makes it possible to obtain tellurium dioxide with lead content $(1\text{-}2)\cdot10^{-3}$ and copper $1\cdot10^{-5}$ %. At the same time, the content of impurities of other heavy metals, for example, such as silver, gold, bismuth, selenium, mercury, nickel is not more than $1\cdot10^{-5}$ %.

The depth of purification of tellurium dioxide from the admixtures of lead and copper is much higher in comparison with the available methods. In addition, replacing the energy-intensive and prolonged (usually several hours) operation of cooling the solution to 0 °C with a simpler solution processing operation performed by adding a small amount of cheap and affordable iron (III) ferment for a few minutes greatly simplifies and accelerates process as well.

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ТЕЛЛУРДЫҢ ТАЗА ҚОСТОТЫҒЫН РАФИНАЦИЯЛАУҒА ДАЙЫНДАУ МАҚСАТЫНДА ТЕЛЛУРДЫҢ ҚОСПАЛЫ ҚОСТОТЫҒЫН ГИДРОМЕТАЛЛУРГИЯЛЫҚ ӘДІСПЕН ҚАЙТА ӨҢДЕУ

Аннотация. Мақалада жоғарғы тазалықтағы металды теллурды алуды негізі болатын теллурдың таза қостотығын рафинациялауға дайындау мақсатында теллурдың қоспалы қостотығын гидрометаллургиялық әдіспен қайта өңдеу жолдары қарастырылған. Зерттеулер нәтижесінде келесіде тұжырымдар жасауға болады: қазіргі кезде қолданылып жатқан әдістермен салыстырғанда тазалығы әлдеқайда жоғары құрамында қорғасынның және мыстың қоспасынан тазартылған теллур қостотығын алу болады. Сондай-ақ, энергияны көп жұмсайтын және ұзақ уақытқа (әдетте бірнеше сағат) ерітіндіні салқындату операциясына қарағанда бірнеше минутта орындалатын арзан әрі қол жетімді темір (III)хлоридінің аз мөлшерін қосу арқылы қарапайым өңдеу операциясына алмастыру айтарлықтай жеңілдетеді және жеделдетеді, операцияның жүзеге асырудың құнын төмендетеді.

Түйін сөздер: теллур, қоспа, рафинациялау, чандық шаймалау, темір (III) хлориді.

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ГИДРОМЕТАЛЛУРГИЧЕСКИЙ СПОСОБ ПЕРЕРАБОТКИ ЧЕРНОВОЙ ДВУОКИСИ ТЕЛЛУРА ДЛЯ ПОЛУЧЕНИЯ ЧИСТОЙ ДВУОКИСИ ТЕЛЛУРА С ЦЕЛЬЮ ПОДГОТОВКИ ЧИСТОЙ ДВУОКИСИ ТЕЛЛУРА РАФИНИРОВАНИЮ

Аннотация. В статье представлены результаты исследований по последующей обработке черновой двуокиси теллура с получением чистой двуокиси теллура и последующая рафинация чистой двуокиси теллура для получения теллура металлического высокой чистоты. На основе проведенных исследований можно заключить следующее: глубина очистки двуокиси теллура от примесей свинца и меди значительно выше по сравнению с имеющимися способами. Кроме того, замена энергоемкой и длительной (как правило, несколько часов) операции охлаждения раствора до 0 °С более простой операцией обработки раствора, выполняемой путем добавления в течение нескольких минут небольшого количества дешевого и доступного реагента – хлорида железа (Ш) значительно упрощает и ускоряет процесс, а также снижает затраты на его осуществление.

Ключевые слова: теллур, примеси, рафинирование, чановое растворение, хлорид железа (III).

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THE ARTISTIC WORLD OF VALUE SYSTEM IN THE MODERN PROSE (based on "Parasat Maidany")

Abstract. In order to understand the genre features of the Kazakh literature in the context of independence, today's literary science is not limited to the literary-aesthetic dimensions and is widely used by scientific and axiological methodology. On the one hand, this is due to the demands of modern trends in the integration of science. In this article the author tries to reveal the nature of the artistic trends in the modern Kazakh prose on the basis of the theory of values, and analyzes the features of the universal human values in T. Abdikuly's 'Parasat Maidany'.

Keywords: universal human values, modern prose, artistic trends.

In today's global cultural and spiritual principles of modern life T. Oral says that paradigm values the nature of individual cohesive [1, 23]. One can clearly trace the tendency of this process, and literary. How to admit a system of shared artistic values of the characters, their relationships mostly correctly identified by ear was born in the twentieth century, today this value changes, events, characters and moral ideals, values, direction, kin-on the contrary excited region in the case of his attitude, not only their domestic irrationality. The logic of phenomena that is not "excess", of the measured phenomena. This phenomenon is a genre of literature, there is reason to believe that caused shaped features. After all, everyone born in the era of literary trends, styles and manners-he is critical considering the expiration of skills, and it is interpretation an objective assessment. Against the tide and brought them up to themselves, the search for new values, to assess the system of values, there is again truth to replace the former argument. In the alignment of independence, especially in such new features on the site literary and artistic works for years has done for a long time in the twenty-first century. Of course, as examples of the artistic prose of the early twentieth century, the origins as called "years of temperate" (жылымық жылдар). Some properties of some Kazakh writers of the last century-the beginning of the stories of "years of temperate" dedicated to the exit of the sixties and seventies in the literature considerably developed, with a maximum of independence had the opportunity to discover your essence. Of course, all the areas of European works-full of Western aspects of character were about details not received. Here in the independent feature-the presence of signs of legitimacy. However, the battle for the nature of innovative works, expressed in the various experiments observed the extension of access for each writer. Deconstruction of the Kazakh literature, neonatologist, just a stream of consciousness, as the last quarter of the century with the works of the most emerging currents that, in turn, again and again several works that have served them polemically the birth of their opinions and acts. The awareness has become ahead of Kazakh's prose as an event not story. The questions of nature of philosophical works come universal. It, as mentioned above, first of all, the phenomenon of art expression occurred depending on the specifications. Thoughts issue dynamisms forward through the thoughts, as dramatism to strive. This approach attempts to give humanity to reveal the character and values through which paint. Naturalistic tradition in the last century-curettage of realistic nature, poetry, monologues of the characters works, there are also internal dialogues between the weights through the opening of the last quarter century of the Kazakh literature. We have such processes often

work on T. Abdik's novel "Parasat Maidany" in the history of mankind with each other, fighting good and evil, justice and abuses of freedom and nature as one of aesthetic values-open in philosophical prose, although it was introduced it was regarded as a success. It seems in "Parasat Maidany" thoughts are heavier than storyline. The main character, which is in correspondence with someone else in an ambulance. Both principles of life, views, are common, and they values have a significant different views. The points with each other do not cross, but this letter actually was written to himself, even he did not know it. "Parasat Maidany" is an intellectual dispute about the competition, the participants are human beings and land. However, the main character wrote a letter to him, later found out that it was in the diary, students in a stranger. The next day a completely different person – the inner person who is particularly afraid to write him a letter "hanging" other cancer, which finally itself alive. It would seem that clear and the image of the writer epilogue the preamble works, the main storyline in the first person, the main character sets out with a mouth child. However, the object of a fine writer – the man and the society. Today the worth of the individual, the state of public consciousness, through the opening of business interested. Through relationships he's no hero. Author received collective goals, mostly single-handedly attempt to discover the essence of the deep through transshipment. Hence, the literature the core to see that face as it is today. Artistic, aesthetic, philosophical and psychological detailed all around my face. Human being is a – physical whole, a deeper knowledge; the person – the history, the personality – society, individual – society, personality is manifested on the basis of natural relations. "Parasat Maidany" is a character of the story epistolary examples of the genre. Because split conflicts in the human mind, the writing process is through the power of the present dynamism. "...fear the grip of feelings, thoughts escaped, scared animals who had fled, which does not obey me," says the hero [2; 19].

There are usually not too many thoughts in the texts. But we see that in the near future in philosophical letters, tractates, network coverage long, complex ideas - how exactly are we sonar complex conversational phrases. On the one hand, the characters, revealing the essence are character. For example, M. Auezov in his novel-epopee "Abay zholy" he almost just used brief words. That is, monologically dialogues, paragraphs, volume of character as the psychology, spiritual and intellectual level can be seen. On the one hand, we realized that the skill of the writer. Features of story are event, which seem "good" thoughts than "game". Reflections of the writer a reasonable thought dramatism internal use, on the one hand, the engagement value message. To find forms a meaningful unit, the reader writer knew that the idea in the literature is the element record through one. Especially, the method most frequently encountered in the works. The characteristics of the genre are his subjective opinion. The writer skillfully using the properties of the genre. Because these letters are the core of the exchange of subjective opinions. It is noteworthy that all the characters show its essence, based on the system of values that reflect art materials. Semantic circle, the reader moved on to her letters, a single lap to read.

According to tradition, in the memory tape of the character - the author, his work and the soul forms the structure by blasting. But our heroine is someone but not against reality. Because two different faces, one thing remains-condition, a set of principles and transformations in human consciousness of two different writers. Twice put on 4-5, there is only one character. However, the battle is two people – two heroes actually. Divide the hero into two parts – a more complex question. Overall, not about a process, not a phenomenon in the Kazakh literature of the hero of the two explosions. In the early twentieth century in the Kazakh prose of J. Aymauytov's story "Illusion", in M.Auezov's story "Orphan's situation" and M. Zhumabayev's "sin of Sholpan" we noticed first signs. Through the internal monologue of the characters of works of art in themselves. However, the sixties, the thaw, the period of the major representatives of the literature – O. Bokey, A. Suleimenov, A. Kekilbayev, A. Tarazi, M. Magauin's heroes it is possible to see characters against themselves. However, demands the deep analysis of phenomena of the spiritual space of the dwelling of the hero, near to double of Independence. Because, in fact, only from the west, I think the novel the last quarter century-the explosion in two novels hero, to fight the signs of proceeds from the mutual meeting. For example, at the beginning of 2000's Magauin's "Jarmaq" (2007) well described of the character's face, the separation of the two bodies. However, the author of two persons, one chorus – there is a selection of two men, which we have analyzed. But here in T. Abdik's novel the characters are not physically divided into two showers, two explosions describe the phenomenon of a spiritual point of view. All of this is a more complex phenomenon that the soul of man, his inner advanced science indicates that still cannot reach. Man is a complex being. It, as well as representatives of

mass media, to penetrate deep into the phenomena, in science it is noted that the development of the problem of the unconscious has made a significant aims referred to in literary theory descriptions in psychology.

"Parasat Maidany" is the main novel and its heroines are under fights. At the forefront of the story basically correctly identified the ear, after the usual classical worst conflict, the conflict of ideas the main role. Space on the event city of masters «thought-system image allow for the identification of values, a clash of views. The first character is a worthy citizen of human values. And second, the hero, the stranger – all that is needed reformatting the current destructive of values, the position of a person, human. The first is "mercy, compassion, sympathy, good vision, the quality of life, standing in the way of humanitarian rapid site more – all this will not last forever and is quickly absorbed" [2; 9]. The differences of each other see them through the value system, essentially only the opinion of only by correspondence. Because, the main character in a letter to his euthanasia As feelings, values, attitudes are formed mainly through. Edema above, unfortunately, the main source of values is that: feelings, mind, and action. That is how we values conflict, and make conflict situations between the two characters. But it only refers to the conflict within the field of consciousness. "Exactly as hachagim – day and night the house will not go" [2; 24]. The main character will fight with strangers, a lot of happiness to his friend, and values. But, fortunately, the first to achieve the constant current values, to be honest, the second is to break all of his, say what you need in the open position. He said: "Al-ayat, moral, we have to do tsars of justice on re-registration. Happy mankind cannot spiritually ...only freedom without borders," writes in a letter [2; 26]. A character who has a ready answer. "People still have not established the implementation of moral principles, by contrast, is stagnating already spiritually. Mistaken construction of new churches in the spiritual, not Vice versa, Allemagne sacred places, Hamann, lasciando accident," says [2; 28]. "Because, someone's freedom, only the freedom to Sally on the ground, was seriously injured in the future – by abuse of trust" [2; 29]. Here appears the concept of the value of the border. In the border of human values has a limit. The risk is, when the discharge value Klecan over others. For example, generosity, due to losses, the limit saberlite – cnbce, limit freedom Janata, and a t heroism evil.b. may be continued. And duty, duty should not be violated – is the ability to keep an average weight. The basis of social problems in society, the idea of the piece, Adela, aroma, humanism, spiritual, to be surge in Janata of additional professional education" [2; 33]. He, in turn, can open the path of spiritual terrorism. Loneliness as an enemy of human values presented in this concepts eyebrows. "Such loneliness in space black hole (black holes), such as holes. Bolyai cooled, power WIDI, gherd, MD to return send symathy ventilation. Aratyn leaving a hundred isolation, we would do exploits" [2; 34]. The only character or two. But I live by one person. The main goal of a writer is not itecture two characters. Meant that the game is just a tool for the transmission of ideas works. In respect of Magzhan Zhumabayev character by selecting the first author of "prison life, because the sanalia" paragraph cites the verses. Because, the main character in the society of the injustice, cruelty and compassion natantia stomach. They deliberately initan the soul of man, diseases that prevent a quiet life. In order for the protagonist is not particularly expensive value in life. Dear human values that he in response to the letter by writing a review in its features. At the same time, he is not a supporter of universal values, orussi. The specifics of the psychological pathology of the disease under the diary of the protagonist places in various days of the week dawn forgot to write. Every day he wakes up another man as her second one in four. For those that don't fill in the diary every day to fill. On the contrary, the eyes daily appearance – the other person reads. Physiological, psychological deviation from the rule of law in the pathology of the people in the hospital with a diagnosis, and now centile spiritual point of view, its pathology, is accepted as the usual kisses just endured the passage. About this writer: "morality than from the sale matted what pathology can be?" – the question of the hero through a big problem. [2; 17].

There is no essay without discussion. If does not work, the poetic power is too weak, the mines will become an essay. And "Parasat Maidany", hereinafter referred to as the self and the self of the situation that the struggle, which have not read this work to the reader. When a large number of see from the header, to read this work, his plot conflict, not a character(s) place in the mind stressing that convinced. Thus the literary critic. I think that the next relevant K. Januzakova's opinion. Shee believes, "Parasat Maidany" is a hero of the author, the main character of the story "the yellow kid" but the specific color, the surface is the surface of the eye are unable to imagine clearly. But the inner world of the character, human nature, consciousness clear worldview that excites him clear," says [3; 394]. The external portrait of

the main character, that is, in the work, but the portrait – the inner world of the individual, kin-enthusiastic, psychological and spiritual-direction, it seemed. The author of this society through the thoughts are forming portrait. Notably, we need the system or largely the appearance of the face will look age not a secret, than spiritual.

T. Abdik is able to make dynamism. Open a real conflict of values position, if the main criterion is the value system but entity, the character. Characters' soul of the division the writer has raised the question of whether to open the face. Indeed, the weight of the idea of the protagonist, psychological, medical pathology, society, people is spiritually in half, or close up, there were all in mass society. In this respect, as in the story of the A. Nurpeisov's "Last duty" officials say all people in society and government's harmful habits, the formation of the Soviet ideology can be seen. "Parasat Maidany" on the fronts of the" individuals indicates an idea "I" to replace people. Big collapse of humanity, one of the reasons not to cope with the disease of egoism, the "I" that proves arrogance way. His even mind-beliefs and the writer knew that animals have consciousness on a scientific basis. The Foundation of universal values of the whole society, requiring the removal date reserve, which entails post. As a rule, the disease to treat the patient's medical instantly. Nobody had not got a treatment of the disease and not society as a whole, entering into the spiritual address. Because the material mass society, the satisfaction of physiological needs in a way, about personality, human behavior in their videos, only departure material values, high spirituality was forgotten. Ecology of consciousness due to big trouble for people. Spiritual-ethical pathology, pathology of solid hazardous medical was afraid of society, thousands of times. And ecology for the purification of consciousness, a spiritual person, and it decides to fight to get a lower back, usually up to. The theory of values, values of social groups in the society presented in the works of the most high – is the intelligentsia, the report says. But we do not know, we in the story the intellectuals, for whom sometimes men, actions, not knowing it, they say that a vicious man. About modification and additions in the minds of the population values and the strengthening of his spiritual pathology tale already have a primer that will help in a critical mass of intellectuals, not far from the village. Therefore, a great demand the world. "… like millions of people the rules of life sale their Soule to Satan as did Faust" [2; 62].

"Over the years of Independence the literature of the tragic human condition, the explanation of loneliness, a spiritual fall, a dead end, as the fate of man occupies a special place." says the literary critic Zhanuzakova [3; 399]. This view is confirmed by culture. The main channels and contradictions of culture and research on I wrote. Satershinov "clash of old and new in the internal values, loss of orientation as a result of transition to market relations, and the emergence of an ideological vacuum «question» [4; 5]. It is clear that each of its values the dominant social system. At the same time, the Independence, spiritual, ideological system of the socialist market society legal step the appearance of the vacuum phenomenon in Kazakh society. In the Kazakh people over the past quarter century, on the one hand, the capital market system and financial wealth, comes forward, on the other hand, Kazakh nationality, historical and cultural values, a priority to study phenomena such as the re-construction. Being revived and the public consciousness, spiritual values, instantly reconstructive phases, which cannot take away. Here, "Parasat Maidany" main novel of the story of such period, psychology and value system is analyzed from the point of view of artistic truth. Within seventy years of the domination of the Soviet system of values, universal values, it is often illegal independence for the influence of fit, thus, the presence and nature of material values, which are dominant in the national. I think that the impetus for the emergence of ideological vacuum in municipalities Starshinov. Changed public system of beliefs, motives, settled under the pessimistic priorities in art and literature the tragic and positions, and is not ambiguous. The gap on the two faces, corroding from the inside, creates a literary or artistic works, such as the output current values in their independence, to increase its prose is often done poorly represented in the alignment distribution. However, its advantage in the Kazakh literature of the deep writer is still not revealed. However, this work touches the soul of man, gives aesthetic impact. Novelist-scientist S. Asylbekuly claims "...works of fiction, fiction is not the only, ay, the main duty of art – this, man, nation, entire humanity and moral health of the cities of China, especially the improvement of the improvement of his nature, his thoughts and paid, a sense of purity, transparency of the soul. Such a high, exalted the conscious activity of man, the mission hundreds of thousands of institutions, including those provided only in fiction," - said in this regard, we believe that reasonable opinion [5; 48]. Activities from the point of view of aesthetics of this writer, made for the purpose of recruitment.

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ҚАЗІРГІ ПРОЗАДАҒЫ ҚҰНДЫЛЫҚТАР ЖҮЙЕСІНІҢ КӨРКЕМДІК ӘЛЕМІ («Парасат майданы» повесінің негізінде)

Аннотация. Тәуелсіздік тұсындағы қазақ әдебиетінің жанрлық ерекшеліктерін жете түсіну үшін бүгінгі әдебиеттану ғылымы тек қана қалыптасқан әдеби-эстетикалық өлшемдермен шектеліп қалған жоқ, сондай-ақ ғылыми-аксиологиялық методологияның да мүмкіндіктерін кеңінен пайдалануда. Бұл, бір жағынан, ғылымдар интеграциясы белсенді жүзеге асып жатқан заманауи үрдістердің талабынан туындап отыр. Аталмыш мақалада автор қазіргі қазақ прозасындағы көркемдік тенденциялардың табиғатын құндылықтар теориясы негізінде ашуға тырысады әрі Т. Әбдікұлының «Парасат майданы» повесіндегі жалпы адамзаттық құндылықтардың бейнелену ерекшеліктерін сарапқа салады.

Түйін сөздер: жалпы адамзаттық құндылықтар, қазіргі проза, көркемдік үрдістер.

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ХУДОЖЕСТВЕННЫЙ МИР СИСТЕМЫ ЦЕННОСТЕЙ В СОВРЕМЕННЫЕ ПРОЗЫ (На основе повести «Парасат майданы»)

Аннотация. Чтобы понять жанровые особенности казахской литературы в контексте независимости, сегодняшняя литературная наука не ограничивается литературно-эстетическими измерениями и широко используется научной и аксиологической методологией. С одной стороны, это связано с требованиями современных тенденций в интеграции науки. В этой статье автор пытается выявить характер художественных тенденций современной казахской прозы на основе теории ценностей и анализирует особенности общечеловеческих ценностей в «Парасат Майданы» Т. Абдикулы.

Ключевые слова: общечеловеческие ценности, современная проза, художественные тенденции.

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PARADOX OF GLOBALIZATION: PREJUDICES AND STEREOTYPES

Abstract. Globalization is certainly characterized by connectedness, but that does not mean it implies the emergence of a truly "borderless" world. Globalization surely does imply mutual interdependence, but it does not herald the end of the nation-state system. Since Kazakhstan received its independence, the country had been taken by the globalization storm. This conclusion can be reached by analyzing the usual indicators – the rates of the trade, transport, and communications development. Judging by these indicators, the growth Kazakhstan is demonstrating is more than reassuring. The collapse of the Soviet Union led to profound changes in ethnicity and identity policies and practices in the newly independent countries, including Kazakhstan. The ethnically diverse population of Kazakhstan presented a particularly unique challenge for the new regime and its approaches to the identity-building policies. The need of this research is defined by an increase of international interactions and international tension in communication in the Republic of Kazakhstan. We believe that ethnic stereotypes of different ethnic groups have distinctions depending on ethnos, i.e. ethnic stereotypes at the Russian and Kazakh nationalities have distinctive features. The obtained data allow us to draw a conclusion that Russians in their autostereotype tend to pay more attention to their own personal and business qualities. Thus, in an autostereotype of Kazakhs are priority qualities, concerning humanistic and communicative properties of the personality.

Keywords: globalization, ethnic stereotypes, ethnos, autostereotype, heterostereotypes.

Introduction. After independence from the Soviet Union in 1991, Kazakhstan rapidly opened its door to the world, unlike its neighboring countries, Uzbekistan or Tajikistan. In 21st century, owing to its rich natural resources and high world price of oil, Kazakhstan has enjoyed the benefits of globalization. Now, Kazakhstan is a leading country in Central Asia, and trying to secure its role as a bridge between Europe and Asia.

The Republic of Kazakhstan is a landlocked country, which is surrounded by five countries: Russia, China, Uzbekistan, Turkmenistan and Kyrgyzstan. Kazakhstan was a part of USSR until its collapse.

Because of its vast territory and abundant natural resources, especially oil from Caspian Sea, Kazakhstan was a major supplier of energy to Soviet Union. Extraction industries kept growing in the post-Soviet era. The World Bank estimates that exports of natural resources account for seventy percent of Kazakhstan's total exports in 2007. Now, the world is paying attention to Kazakhstan as one of the most important oil producers outside the Middle East.

Globalization was not always beneficial to Kazakhstan. Being highly dependent on world economy made the economy of Kazakhstan vulnerable to wild fluctuations. Kazakhstan also struggled to avoid the traps of 'Dutch disease,' as a rentier state.

Since Kazakhstan is exporting oil worldwide, people who are both inside and outside the country are indifferent to its democratic reform. Nursultan Nazarbayev, the president of Kazakhstan has been in president for years (since Kazakhstan declared its independence.) The country did not struggle much during the transition from communist to 'democratic' regime because of the abundant natural resources, giving the country an allusion of wealth. The oil wealth has allowed Nazarbayev to suppress media from opposition parties.

Increasing number of ethnic conflicts in international interactions nowadays was the main reason of our conducted research. Formation of the personality happens in specific conditions which in psychology are defined by the term "social situation of development" of the personality (Vygotsky, 1978; Leontyev, 1975). The problem of development of the personality in the social environment is one of the central problems of psychology. The cross-cultural aspect in development of the personality was investigated by famous scientist as Levy-Strauss (1995), Levi-Bruhl (1983), Benedict (1934), Luriya (1974), Mukanov (1979), Kohn (1967).

We have seen that social categorization is a basic part of human nature and one that helps us to simplify our social worlds, to draw quick (if potentially inaccurate) conclusions about others, and to feel good about ourselves. In many cases, our preferences for ingroups may be relatively harmless – we may prefer to socialize with people who share our race or ethnicity for instance, but without particularly disliking the others. But categorizing others may also lead to prejudice and discrimination, and it may even do so without our awareness. Because prejudice and discrimination are so harmful to so many people, we must all work to get beyond them.

Literature review. The advantage of a stereotype is that it enables us to respond rapidly to situations because we may have had a similar experience before. The main disadvantage is that it makes us ignore differences between individuals; therefore we think things about people that might not be true (i.e. make generalizations). The stereotypes help us to simplify our social world; since they reduce the amount of processing (i.e. thinking) we have to do when we meet a new person.

Prejudice and stereotyping are biases that work together to create and maintain social inequality. Prejudice refers to the attitudes and feelings – whether positive or negative and whether conscious or non-conscious – that people have about members of other groups. In contrast, stereotypes have traditionally been defined as specific beliefs about a group, such as descriptions of what members of a particular group look like, how they behave, or their abilities. As such, stereotypes are cognitive representations of how members of a group are similar to one another and different from members of other groups. Importantly, people can be aware of cultural stereotypes and have cognitive representations of those beliefs without personally endorsing such stereotypes, without feelings of prejudice, and without awareness that such stereotypes could affect one's judgment and behavior. Prejudice and stereotyping are generally considered to be the product of adaptive processes that simplify an otherwise complex world so that people can devote more cognitive resources to other tasks. However, despite any cognitively adaptive function they may serve, using these mental shortcuts when making decisions about other individuals can have serious negative ramifications. The horrible mistreatment of particular groups of people in recent history, such as that of Jews, African Americans, women, and homosexuals, has been the major impetus for the study of prejudice and stereotyping. Thus, the original conceptions and experiments were concerned almost entirely with conscious, negative attitudes and explicitly discriminatory actions. However, as the social acceptability of prejudice and stereotypes has changed, the manifestations of prejudice and stereotypes have also changed. In response to these changes, and given that people who reject prejudice and stereotyping can still unwittingly internalize stereotypic representations, the study of prejudice and stereotyping has recently moved to include beliefs, attitudes, and behaviors that could be considered positive and not obviously or overtly prejudiced. Importantly, even when prejudice and stereotypes are ostensibly positive (e.g., traditional women are wonderful and adored), they preserve the dominance of powerful groups: they not only limit the opportunities of stereotyped groups but also produce a litany of negative outcomes when those group members defy them. Because of these new conceptions of bias, there have also been methodological adaptations in the study of prejudice and stereotyping that move beyond the conscious attitudes and behaviors of individuals to measure their implicit prejudice and stereotypes as well. This article gives a quick tour through the social psychological study of prejudice and stereotyping to inform the reader about its theoretical background, measurement, and interventions aimed to reduce prejudice.

Researchers have found that stereotypes exist of different races, cultures or ethnic groups. Although the terms race, culture and ethnic groups have different meanings, we shall take them to mean roughly the same thing at the moment.

Research of problems of ethnic stereotypes was widely investigated abroad. Every year around 50-60 papers published concerning various aspects of ethnic stereotypes. The literature review of this problem shows that ethnic stereotypes – the difficult psychological term which describes them as the installations and as simplified, the schematized images of ethnic groups (Brewer& Campbel, 1976; Tajfel, 1982).

We tried to allocate the main aspects of work with representatives of various ethnic groups. Allport (1937) was one of the first who came to a conclusion that contacts between representatives of the different groups will proceed more favorably, if groups:

1) Have the equal status;

2) Pursue common goals;

3) Depend on cooperation with each other;

4) Interact with assistance of the law, the authorities or custom.

Even with the most favorable conditions of cross-cultural contact the fact of entry into new culture consist with difficulties and interethnic intensity. Therefore we hook our attention on studying of social adaptation as process of personal activity to conditions of the new social environment.

The concept social adaptation in the English-speaking countries was analyzed by the term "adjustment" unlike biological adaptation. Many researchers called this special direction «psychology of adjustment". In "adjustment psychology" the main attention was paid to pathological phenomenon of the personality: to neurotic and psychosomatic frustration, the deviating and criminal behavior, etc.

The English researcher Bochner (1982) offered four most general categories of consequences of cross-cultural contacts:

1) Genocide, i.e. destruction of group;

2) Assimilation when one group gradually adopts or forced to accept customs, beliefs, etc. of dominant group up to full dissolution in it;

3) Segregation, i.e. a course on separate development of groups;

4) Integration - a case when groups keep the culture identity, but unite in uniform society on different significant basis for them. According this model (Bochner, 1982) that result of cross-cultural contact is integration.

According to the theoretical concept Bochner (1982) allocates four possible results of cross-cultural contacts for the individual:

1) "deserter" is a refusal of the culture, choice of foreign culture;

2) "chauvinist" is a refusal of foreign culture, exaggeration of the importance of own culture.

3) "marginal" has a fluctuation between two cultures;

4) "intermediary" the result of synthesis of two cultures person is able to be a link between various cultures and nations.

But, even knowing, in what direction social support has to be conducted, it is very difficult to realize similar system as there are many psychological prerequisites for the reserved attitude towards "strangers". It is ethnocentrism and the related searches of positive group identity and protection of the system of values.

Reseach model. During conducting the research we believe that ethnic stereotypes of different ethnic groups have distinctions depending on ethnos, i.e. ethnic stereotypes at the Russian and Kazakh ethnos have distinctive features. We conducted a series of pilot studies with students of the first – third years of the Aktobe higher education institutions. We gathered data from 1 and 3 year students of K. Zhubanov Aktobe State University (250 Kazakhs and 248 Russians).

In conducted research there were used following tests:

1. Test of stereotypes of "typical Russian" and "the typical Kazakh".

2. Ethno psychological questionnaire.

3. Test of ethnical stereotypes (Nurgaliyeva, 2000).

4. "Who am I?" questionnaire

5. "Attributing of qualities" (Katz and Braly).

Data analysys. In presented further tables we showed the average ranks of Russian students their autostereotype. For receiving group results the arithmetic average on each personal qualities, attributed to separate ethnos was analyzed. Then the received average ranks of all stereotypic qualities again were ranged as it should be reduction: stereotypic qualities with the greatest average rank the secondary rank 1 following - a secondary rank 2, etc. was attributed.

Table 1 – Autostereotype of Russians

Ranks	Stereotypic quality	M
1	Possession self-respect	1,52
2	Discipline	1,28
3	Generosity	1,25
4	Independence	1,25
5	Diligence	1,23
6	Idleness	1,22
7	Forgiveness	1,22
8	Efficiency	1,16
9	Cruelty	1,15
10	Humanity	1,15
11	Cowardice	1,15
12	Tactfulness	1,13
13	Laziness	1
14	Talkativeness	1,1
15	Thrift	1,1

Apparently from the rank distribution (table 1) such qualities as "possession of self-respect (1.52)", “discipline (1.28)” are the center of an autostereotype of Russians students. For the Russian ethnos the self-respect it’s reflection of “Russian soul”. We are interested in the maintenance of ethnic stereotypes not in one culture, but in differences between representatives of various ethno cultures.

The obtained data allow to draw a conclusion that at an autostereotype of Russians there is an obvious tendency of a priority of allocation of the stereotypic qualities expressing the attitude of the personality towards themselves and business qualities that is confirmed by high ranks at the heart of which, certainly, the idea of self-esteem, self-realization and activity of the personality lies. The direction of system of stereotypes goes from personal qualities to the interpersonal relation.

Table 2 – Autostereotype of Kazakhs

Ranks	Stereotypic quality	Me
1	Naiveté (kindness)	1,52
2	Courage	1,28
3	Generosity	1,25
4	Good nature	1,25
5	Umannost	1,23
6	Talkativeness	1,22
7	Efficiency	1,22
8	Tactfulness	1,16
9	Gravity	1,15
10	Possession self-respect	1,15
11	Diligence	1,15
12	Sociability	1,13
13	Truthfulness	1
14	Commitment to national traditions	1,1
15	Sensitivity	1,1

From the table 2 such stereotypic qualities, as "naiveté - 1,52" are the center of an autostereotype of Kazakhs; "courage-1,5", "generosity-1,47"; "good nature-1,45"; "humanity-1,42"; "talkativeness-1,42"; "efficiency-1,4"; "tactfulness-1,4"; "gravity-1,38"; "possession of self-respect-1,38"; "sociability-1,36"; "truthfulness-1,36"; "diligence-1,36"; "commitment to national traditions-1,35".

The direction of system of stereotypes goes from the interpersonal relations to development of personal qualities. It should be noted that in the course of carrying out a pilot study of autostereotypes of Kazakhs we faced that in representation of Kazakhs quality "naiveté" has positive character, than in Russian. The sense of the word "naiveté" in the Kazakh language designates such concepts as modest, friendly, good-natured, and even merciful, i.e. has deeply positive contents.

Table 3 – Heterostereotypes of Russians

Ranks	Stereotypic quality	Me
1	Commitment to national traditions	1,35
2	Religiousness	1,3
3	Idleness	1,3
4	Generosity	1,21
5	Cheerfulness	1,21
6	high intelligence	1,2
7	Progressiveness	1,2
8	Collectivism	1,2
9	Boastfulness	1,2
10	Gravity	1,2
11	Irascibility	1,11
12	Accuracy	1,19
13	Efficiency	1,19
14	Possession of self-respect	1,1
15	Cunning	1,1

In a heterostereotypes of Russians (table 3) we see other type of the relations, than in an autostereotype of Russians. So, Russians attribute to Kazakhs: "commitment to national traditions-1,35", "religiousness - 1,3" "idleness-1,3", "generosity-1,21", "cheerfulness-1,21", "high intelligence-1,20", "progressiveness-1,2", "collectivism-1,2", "boastfulness-1,2", "gravity-1,2", "irascibility-1,11", "accuracy-1,19", "efficiency-1,19", "possession of self-respect-1,10".

Thus, in a heterostereotypes of Russian participants is priority the qualities concerning, the general orientation of the personality and the attitude towards itself at Kazakhs where commitment of Kazakhs to national traditions is especially expressed. Here the direction of system of heterostereotypes of Russians in relation to Kazakhs has a personal and cultural focus.

The heterostereotypes of Kazakhs participants (table 4) is made by the following stereotypic qualities: "independence-1,43", "levity-1,42", thrift-1,36", "accuracy-1,33", "high intelligence-1,33", unsociability-132", "good nature-1,3", "progressiveness-1,3", boastfulness-1,28", "diligence-1,26", "collectivism-1,25", "rancor-1,23", "individualism-1,23", "truthfulness-1,21". Stereotypic quality "independence" which occupies the highest rank on ranging, belongs to the attitude towards itself. But stereotypic qualities of this block didn't find continuation in other Kazakhs revealed by us qualities in a heterostereotypes.

The analysis of rank distribution, allow us to state that, in a heterostereotypes of Kazakhs the stereotypic qualities relating to the general orientation of the personality that is confirmed by results of our researches are fundamental. Therefore, Kazakhs attribute Russian the general orientation of the personality which cornerstone the idea of the general development of the personality is. In an image of the Russian ethnos, Kazakhs especially didn't mark out other stereotypic qualities though the positive, negative or neutral orientation of these qualities demands an explanation.

Table 4 – Heterostereotypes of Kazakhs

Ranks	Stereotypic quality	Me
1	Independence	1,43
2	Levity	1,42
3	Thrift	1,36
4	Accuracy	1,33
5	high intelligence	1,33
6	Unsociability	1,32
7	Good nature	1,3
8	Progressiveness	1,3
9	Boastfulness	1,28
10	Diligence	1,26
11	Collectivism	1,25
12	Rancor	1,23
13	Individualism	1,23
14	Truthfulness	1,21
15	Efficiency	1,21

At estimation of nationalities three types of an assessment took place: positive directed stereotypes, negative directed stereotypes and neutral stereotypes (see table 5).

Analyzing the obtained data on the block: communicative characteristics, it is possible to draw the following conclusions:

– 50% of the Kazakh students and 90% of Russians students have the positive autostereotype.

– 25% of the Kazakh students and 10%" Russians students have the negative stereotype sent to a car.

– 25% of Kazakhs have neutral autostereotype.

– 50% of the Kazakh students and 50% of Russians students have the positive directed heterostereotypes, 45% of the Kazakhs and 50% of Russians have the negative directed heterostereotypes, and respectively 5% of Kazakhs have a neutral heterostereotypes.

The comparative analysis of ratio autostereotypes of Kazakhs and Russians showed that the positive directed autostereotype of Russians in communication area is higher, than a positive autostereotype of Kazakhs. Such result gives us the chance to claim that Russians attribute to themselves the following positive communicative qualities, as: sociability, cheerfulness, truthfulness, tactfulness, talkativeness, sensitivity and good nature. The positive directed heterostereotypes of Russians and Kazakh students coincide.

Discussion. This qualitative work has provided a greater understanding of the possible reasons for the formation of ethical stereotypes of students. The strong theoretical underpinnings of the data analysis were useful in organizing the data meaningfully and in generating hypotheses for future testing on the ways in which stereotyping, cross-cultural interactions are related. Students of both nationalities participated in our experiment. Our study has some limitations. The study design was based on what students thinks and understand as typical national qualities. For clarity of our research we included only purebred people. Aktobe is one well-developed city on border with Russia; most of the people there are marginal's. That's why to find a purebred participant was a problem in multinational Kazakhstan.

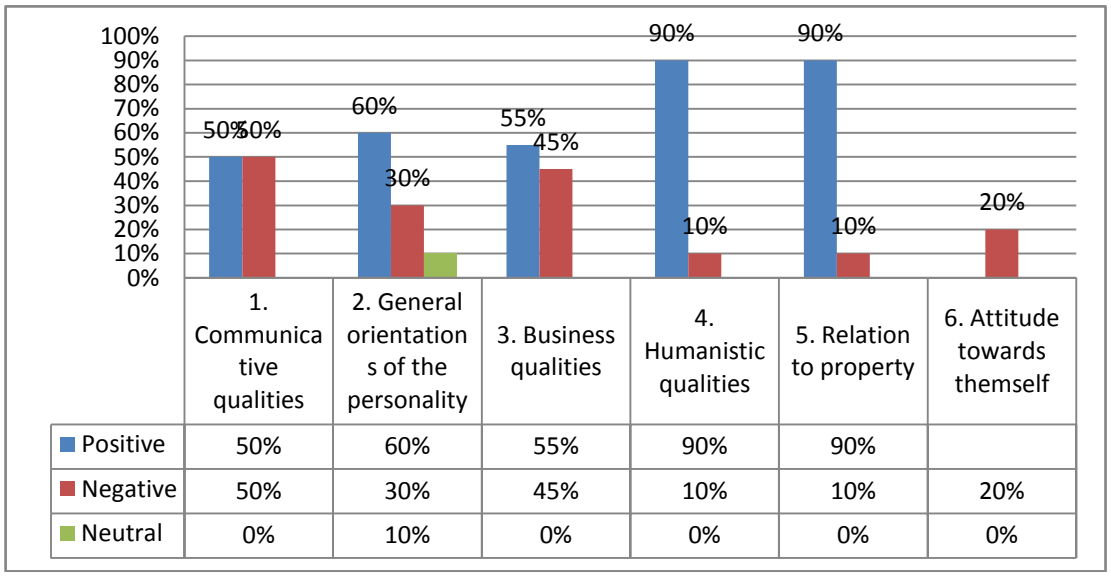
The sex, ethnicity, and age of the participant (mostly females, 17-19 years old) may have affected on our results in certain topics. For example, Naiveté (kindness, simplicity) has a two opposite meaning, for Kazakhs its positive personal quality close to kindness but for Russians same word means simplicity with negative attitude like "bluntness".

The analysis of process of expansion of experimental tasks, statements and answers of students says that at an autostereotype of Russians there is an obvious tendency of a priority of allocation of the stereotypic qualities expressing the attitude of the personality towards themselves and business qualities that is

confirmed by high ranks at the heart of which, certainly, the idea of self-esteem, self-realization and activity of the personality lies. The direction of system of stereotypes goes from personal qualities to the interpersonal relation.

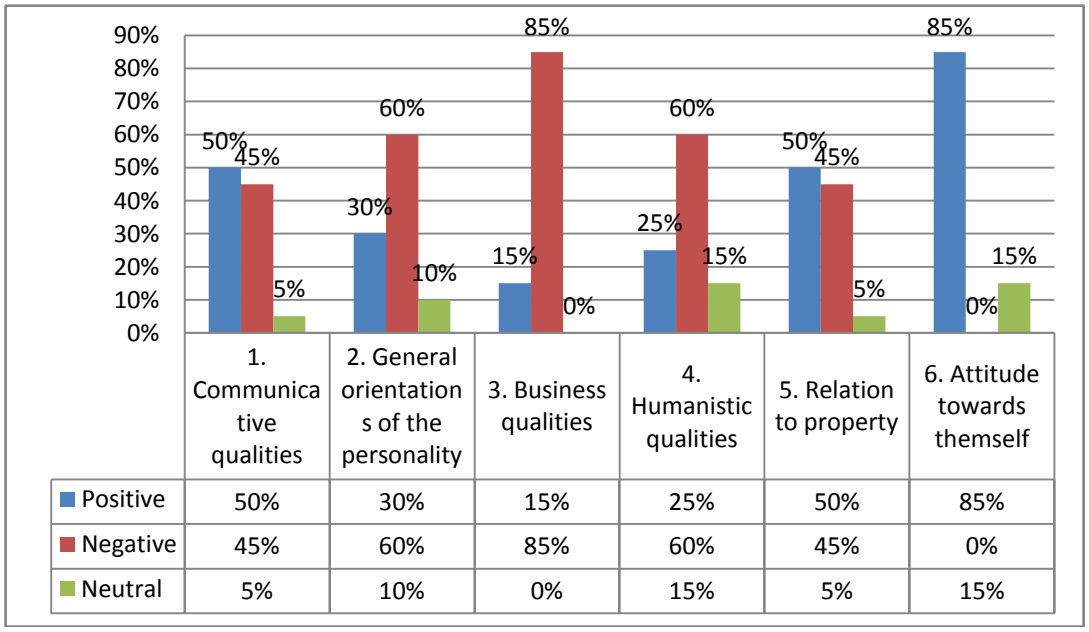
In an autostereotype of Kazakhs is priority the qualities concerning humanistic and communicative properties of the personality that is confirmed by high ranks which cornerstone the idea of the humane relation to people around the persons who are combined with business and communicative characteristics is. The direction of system of stereotypes goes from the interpersonal relations to development of personal qualities.

In a heterostereotypes of Russians is priority the qualities concerning, the general orientation of the personality and the attitude towards itself at Kazakhs where commitment of Kazakhs to national traditions is especially expressed. Here the direction of system of heterostereotypes of Russians in relation to Kazakhs has a personal and cultural focus



	1. Communicative qualities	2. General orientations of the personality	3. Business qualities	4. Humanistic qualities	5. Relation to property	6. Attitude towards themself
Positive	50%	60%	55%	90%	90%	
Negative	50%	30%	45%	10%	10%	20%
Neutral	0%	10%	0%	0%	0%	0%

Figure 1 – Heterostereotype of Russian



	1. Communicative qualities	2. General orientations of the personality	3. Business qualities	4. Humanistic qualities	5. Relation to property	6. Attitude towards themself
Positive	50%	30%	15%	25%	50%	85%
Negative	45%	60%	85%	60%	45%	0%
Neutral	5%	10%	0%	15%	5%	15%

Figure 2 – Heterostereotype of Kazakh

In a heterostereotypes of Kazakhs the stereotypic qualities relating to the general orientation of the personality that is confirmed by results of our researches are fundamental. Therefore, Kazakhs attribute Russian the general orientation of the personality which cornerstone the idea of the general development of the personality is. In an image of the Russian ethnos, Kazakhs especially didn't mark out other stereotypic qualities though the positive, negative or neutral orientation of these qualities demands an explanation.

Conclusion. Kazakhs have positive auto and heterostereotypes. The participants irrespective of the place of residence tend to show higher level of self-esteem compare with their auto and hetero stereotypes. Especially sharp gap is observed between the attitude towards themselves and the relation to the typical representative of the ethnic group. We compared results of emotional assessment of autostereotype with self-esteem and found that both ethnic groups didn't show significant differences. Kazakhs and Russians the emotional attitude towards representatives of the ethnic group appeared the most positive (the importance of distinctions at the level r=0,05). A heterostereotypes of Kazakhs at the emotional level significantly don't differ from a autostereotype. There is integration, groups keep the cultural identity, but unite in uniform society on another the significant basis for them. The cognitive image of Russian is rather contradictory. Most of Kazakhs characterize "the typical Russian" as businessman and hardworking person (Me=10,5), in heterostereotypes of Russians in relation to "the typical Kazakh" on the "business qualities" block received rather low marks, nevertheless, attribute first of all such block as "the relation to property", i.e. thrift (2,4), generosity (2,2), accuracy (2,12). As we see, despite a positive emotional assessment of "typical Russian", in heterostereotypes of Kazakh ethnic group contains such negative qualities as "sluggishness" and "irascibility". Such ambivalence is connected, probably, by fact that Kazakhs (Russian-speaking) estimated, first of all "the" Kazakhs who adapted to a local way of life, i.e. talking and communicating with Russians, underwent counter assimilation because of a large number of international contacts.

It should be noted that we managed to show differences of ethnic stereotypes at representatives of different ethnic groups. At the basis of theoretical and empirical research we sought to study features of ethnic stereotypes and to give definition of a stereotype, as always developing under the influence of certain cultural factors and the interethnic installations which are available reflection of manifestation. Such installations are formed in various spheres of activity. It and the relations of people with readiness to go for contacts with persons of other nationality and the relation to ethnic national values of other people, including to various elements of own and other culture.

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ЖАҺАНДАНУ ҚАРАМА-ҚАЙШЫЛЫҒЫ: НАНЫМ МЕН СТЕРЕОТИПТЕР

Аннотация. Жаһандану елдерді біріктіру үрдісін білдіреді, алайда, «шексіз» әлем мағынасында қолданылмайды. Жаһандану елдердің экономика аралық дамуға қатысуын білдіреді. Тәуелсіздікке ие болған мезгілден бастап Қазақстан бар күшін бүкіләлемдік қауымдастыққа жаһандану және интеграциялану үрдісіне бағыттады. Алайда, жаһандану үрдісі мемлекетіміздің егемендігін дамытуымен қатарласты, оның барысында қоғам өзінің мәдениеттік, этникалық және діни сәйкестігін ізденуге тырысады. Қазақстан көп ұлттық мемлекет бола тұра, басқа елдерден өзінің толеранттылыққа, эносаралық төзімділікке және халықтар достығына деген көзқарастарымен ерекшеленеді. Сонымен қатар қазіргі мезгілде біз тіл саясатындағы өзгерістерді көріп отырмыз, яғни кириллицадан латын алфавитіне ауысу барысын бақылап отырмыз.

Түйін сөздер: жаһандану, этникалық стереотиптер, этнос, автостереотип, гетеростереотип.

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ПАРАДОКС ГЛОБАЛИЗАЦИИ: ПРЕДРАССУДКИ И СТЕРЕОТИПЫ

Аннотация. Глобализация, подразумевает собой процесс интеграции стран, однако совсем не означает что "безграничный" мир. Глобализация, подразумевает вовлеченность стран в меж экономическое развитие. С момента получения независимости Казахстан бросил все свои силы на процесс глобализации и интеграции в мировое сообщество. Однако процесс глобализации так же совпал с развитием суверенного государства, в процессе становления которого общество стремится к поиску своей идентичности, как культурной, так и этнической, религиозной. Многонациональное государство Казахстан отличается от других стран своим особым видением толерантности, межэтнической терпимости и дружбы народов. Вместе с тем в настоящее время мы наблюдаем изменения в языковой политике, переход от кириллица к латинскому алфавиту.

Ключевые слова: глобализация, энтические стереотипы, этнос, автостереотип, гетеростереотипы.

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THE RISKS IN THE SYSTEM OF ECONOMIC SECURITY OF ENTERPRISE

Abstract. The purpose of the scientific article is to make a comprehensive decision in risk management in the system of economic security of the enterprise.

The following methods are used in the research: dialectical method, method of analysis and synthesis, scientific abstraction, induction and deduction.

In the process of scientific research the following results are obtained: the system of economic security of the enterprise is justified; the main sources of threats to the environment for the economic security of the enterprise are identified; the sequence of the elements of risk management technology is shown; the principles and methods of risk management in a particular situation are justified.

The authors' conclusions can be used in the process of determining the sequence of actions by business entities in the risk management model to ensure a reasonable combination of risk and benefit.

Keywords: economic security, threats, risks, technology, risk management methods

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РИСКИ В СИСТЕМЕ ЭКОНОМИЧЕСКОЙ БЕЗОПАСНОСТИ ПРЕДПРИЯТИЯ

Аннотация. Целью научной статьи является принятие комплексного решения в управлении рисками в системе экономической безопасности предприятия.

При проведении исследований использованы следующие методы: диалектический метод, метод анализа и синтеза, научной абстракции, индукции и дедукции.

В процессе научного исследования получены следующие результаты: обоснована система экономической безопасности предприятия; выявлены основные источники угроз внешней среды для экономической безопасности предприятия; показана последовательность выполнения элементов технологии управления рисками; обоснованы принципы и методы управления рисками в конкретной ситуации.

Выводы автора могут быть использованы в процессе определения хозяйствующими субъектами последовательности действий в модели управления рисками для обеспечения разумного сочетания риска и выгоды.

Ключевые слова: экономическая безопасность, угрозы, риски, технология, методы управления рисками

In modern terms, the process of successful operation and economic development of enterprises largely depends on improving their activities in the field of economic security.

Problems of economic security arise in front of each enterprise not only in times of crisis, but also when working in a stable economic environment. However, the set of objectives to be solved in this case has a significant difference.

The economic security of an enterprise is the state of protection of the vital interests of the enterprise from internal and external threats, formed by its management and personnel through the implementation of legal, economic, organizational, engineering, technical and socio-psychological measures. It is also possible to formulate the definition of the economic security of the enterprise as a state of the most effective use of organizational assets in order to avoid threats and ensure the stable functioning of the enterprise at present and in the future [1].

The economy of a single economic entity is exposed to a multitude of threats, determined by the *composition of resources* and the *types* of carried out *activities*.

The main source of threats to the economic security of the enterprise is the external environment:

- negative transformations of the political situation;
- transformation of legal regulation affecting the conditions of economic activity (taxation, property relations, contractual legislation);
- underdeveloped market infrastructure;
- damage to assets and fixed assets of the enterprise;
- use of unfair competition means;
- fraud;
- theft of material supply;
- unauthorized access of competitors to confidential information constituting a commercial secret;
- illegal actions of criminal structures;
- hacking and destruction of information support of enterprise operation - viruses, network attacks, etc.

Economic security is a comprehensive risk management solution. Enterprises operate in different conditions of a competitive environment, having a different internal environment, level of production potential, staffing. In this regard, each enterprise has risks that are directly inherent only to this company and related to the specifics of production, technological, commercial, financial and other activities. It is important to timely identify and determine the probability and time of their occurrence, as well as possible damage [2-4].

The same risks can occur in various areas of production and economic activities. Therefore, when managing risks, the main thing is to identify possible areas of risk in relation to the enterprise under investigation.

The purpose of developing any model of risk management is to ensure the successful operation of the enterprise in terms of risk and uncertainty. This goal can be achieved by solving the following main objectives:

- identification of possible economic risks;
- reduce financial losses associated with economic risks.

The risk management model is a sequence of actions that provide a reasonable combination of risk and benefit. While risk management technology is the basis of any risk management model (Figure 1).

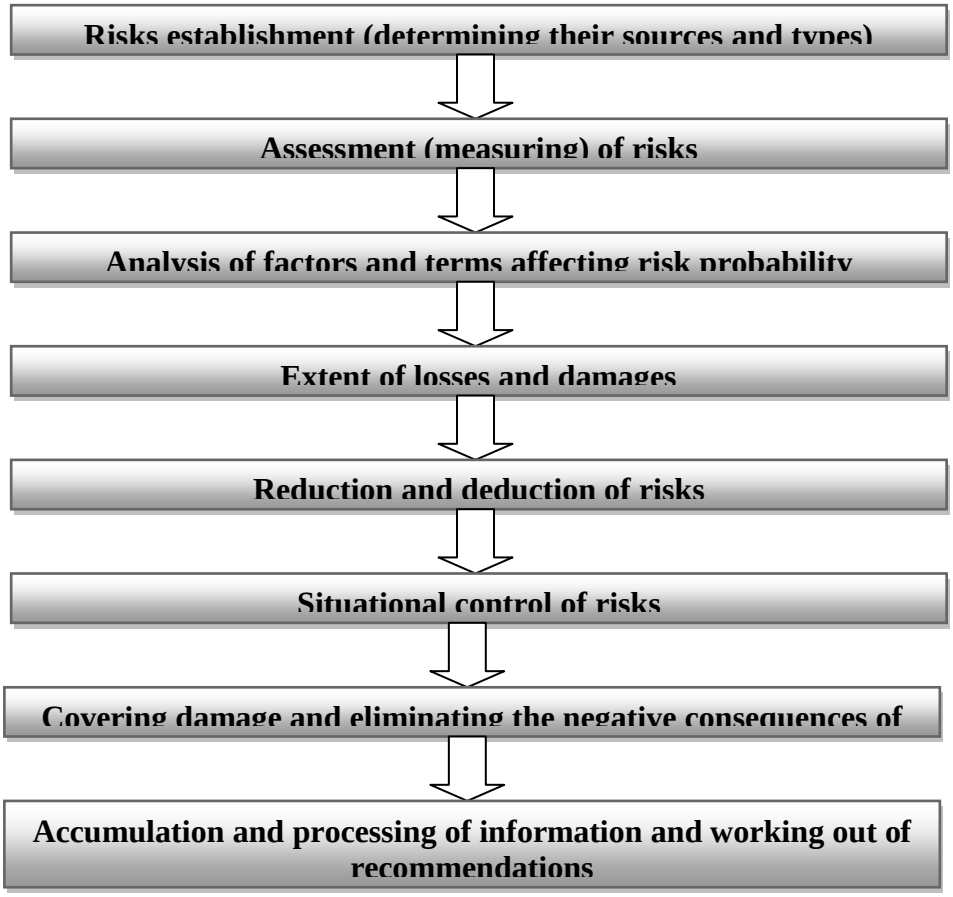

Figure 1. Risk management technology

Risk management technology is unchanged and includes the following consistently performed elements: risk establishment (determining the sources and types of risk); Risk assessment, analysis of factors and terms affecting the probability of risk, the Extent of losses and damages, limiting (standard) risk levels, the choice of methods and means for reduction and deduction of risk, situational risk control, comparison of risk with the permissible (regulatory) level of risk, the implementation of measures for placing the risk, its adjustment in the light of the emerging situation, covering the damage and eliminating other negative consequences of the manifestation of risk, the accumulation and processing of retrospective information on risk situations and manifestations of risk, development of recommendations for future [5-7].

The overall system of enterprise management includes the risk management system. Risk management is a set of methods, techniques and activities that allow, to some extent, to predict the onset of risk and to make decisions about the impact on it. At the same time, obtaining reliable and sufficient information is especially important. And only it allows to make the correct decision about actions in the conditions of risk. This information includes awareness of the availability and demand profile for goods and capital, financial stability and solvency of customers, partners and competitors, prices, rates and tariffs, insurance conditions, dividends and interest, the likelihood of damage.

Risk management, usually considered as the system of risk management and economic (primarily financial) relations arising in the management process, includes the strategy and tactics of management actions. As we know, the management strategy is the direction and means of using the funds to achieve the goal, and tactics are specific methods and techniques that serve for the achievement of the goal in real conditions. The task of management tactics is to choose the optimal solution, methods and techniques of management that are most appropriate for a particular economic situation. In this connection, the classification of the main methods of managing the enterprise's economic risks is presented in Table 1.

Table 1. Classification of the main methods of managing the economic risks of the enterprise

Methods	Content
Risk prevention	- Acquisition of necessary information about the risk - Strategic planning of the enterprise activity - Active focused marketing - Forecasting the development of the external environment - Staff training and instruction - Implementation of preventive measures
Avoiding of risk	- Refusal of unreliable partners - Search of guarantors - Refusal from risky projects - Dismissal of incompetent workers
Risk localization	- Creation of subsidiaries for the implementation of risky projects - Creation of special (with a separate balance sheet) structural units - Conclusion of agreements on joint activities for the implementation of risky projects
Diversification of risk	- Distribution of risks between participants of individual projects (co-executors) - Diversification of sales and supplies - Diversification of investments - Diversification of activities - Risk distribution over time
Reducing the impact of risk	- Limitation - Self-insurance (creation of reserves and reservations) - Mutual insurance - Insurance

In general, risk management methods are not complementary and alternative. Each enterprise, based on the current economic situation, should make the most rational choice. Limitation in financial resources of the enterprise generates the desire to reduce any costs. When funding activities related to risk management, the cost of risk should be taken into account.

The mentioned methods contribute to reducing the overall value of risk of the enterprise. Some of these methods guarantee a reduction in risk at the present time, and some in the future. Individual methods can be described as measures of direct impact, and others - indirect.

Thus, risk management is a set of interrelated processes of preparing, accepting and organizing the implementation of management decisions that make up the risk management process. The ultimate goal of risk management in the context of economic security is the identification of the most vulnerable aspects in the operation of the enterprise and the leveling of threats in this area [8-11].

On the basis of all of the above, it can be concluded that today, in Kazakhstan there are certain problems in the field of ensuring economic security. In order to comply with the mechanism for its provision by relevant authorities, as well as interested enterprises and citizens of the state, it is necessary to use and strengthen their interconnection aimed at full and strict compliance with the laws regulating activities to ensure economic security in the protection of vital economic interests of a person, society and a state from internal and external threats.

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КӘСІПОРЫННЫҢ ЭКОНОМИКАЛЫҚ ҚАУІПСІЗДІК ЖҮЙЕСІНДЕГІ ТӘУЕКЕЛДЕРІ

Андатпа. Ғылыми мақалада қарастырылатын мәселенің мақсаты - кәсіпорынның экономикалық қауіпсіздік жүйесіндегі тәуекелдерді басқаруда кешендік шешім қабылдау болып табылады.

Зерттеу жүргізу кезінде келесі әдістер қолданылды: диалектикалық әдіс, талдау және синтез әдісі, ғылыми абстракция, индукция және дедукция.

Ғылыми зерттеу барысында келесі нәтижелер алынды: кәсіпорынның экономикалық қауіпсіздігі негізделді; кәсіпорынның экономикалық қауіпсіздігіне әсер ететін сыртқы ортаның негізгі қауіп-қатер көздері анықталды; тәуекелділіктерді басқару технологиясының элементтерінің орындалу дәйектілігі көрсетілді; тәуекелдерді басқарудың нақты жағдайдағы қағидалары мен әдістері негізделді.

Автордың тұжырымдары шаруашылық жүргізуші субъектілер тәуекел мен пайданы ақылға қонымды ұштастыру үшін тәуекелділіктерді басқарудың моделі бойынша іс-әрекеттердің дәйектілігін анықтауда пайдалануға болады.

Түйін сөздер: экономикалық қауіпсіздік, қауіп-қатерлер, тәуекелдер, технология, тәуекелдерді басқару әдістері.

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GROWTH, DEVELOPMENT AND MEAT QUALITIES OF BULL-CALVES AGAINST THE BACKGROUND OF APPLICATIONS WITH BIOLOGICAL PREPARATIONS OF THE PREVENTION SERIES

Abstract. For the first time on the basis of complex studies the zootechnical expediency of the developed biological preparations Prevention-N-A and Prevention-N-E in beef production technology for the realization of bioresource potential of meat qualities of Black Motley bull-calves was scientifically and experimentally proved. Activation of the growth and development of bull-calves in the periods of growth, rearing and fattening was established against the background of biopreparations, which resulted in higher slaughter and meat qualities of the carcasses and, as a consequence, in a higher yield of valuable cuts: brisket and sirloin by 6.1 and 4.0 kg ($P < 0,01$-0,001), rump by 2,6 and 1,7 kg ($P < 0,05$-0,01) and thick flank by 8,6 and 7,1 kg ($P < 0,001$) (compared with the control group).

The largest content of highest-quality meat came from the carcasses of the bull calves of the 1st (27.8±0.72 kg) and the 2nd (26.7±0.58 kg) test groups: 3.5 and 2.4 kg more, respectively, as compared with the control group (24,3±0,73 kg), and also from their cuts: brisket and sirloin - 0,9 and 0,7 kg more, respectively, rump - 0,5 and 0,3 kg, and thick flank – 2,3 and 1, 5 kg ($P < 0.05$-0.001).

The high quality of meat carcasses by organoleptic, biochemical and spectrometric indicators and, consequently, the safety of the tested preparations was proved. It was found that biological preparations lead to the realization of bioresource potential of the organism due to activation of haemopoiesis, cellular and humoral factors of non-specific resistance (with a more pronounced Prevention-N-A effect). The novelty of the data obtained is confirmed by the patents of the Russian Federation for invention No. 2602687 and No. 2622765 registered in the Public Register of Inventions of the Russian Federation on October 26, 2016, and June 19, 2017, respectively.

Keywords: bull-calves, growth, rearing, fattening, biopreparations Prevention-N-A and Prevention-N-E, meat qualities.

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РОСТ, РАЗВИТИЕ И МЯСНЫЕ КАЧЕСТВА БЫЧКОВ НА ФОНЕ ПРИМЕНЕНИЯ БИОПРЕПАРАТОВ СЕРИИ PREVENTION

Аннотация. Впервые на основе комплексных исследований научно обоснована и экспериментально доказана зоотехническая целесообразность применения разработанных биопрепаратов Prevention-N-A и Prevention-N-E в технологии производства говядины для реализации биоресурсного потенциала мясных качеств бычков черно-пестрой породы. На фоне применения биопрепаратов установлена активизация роста и развития бычков в периоды выращивания, доращивания и откорма, что обусловило более высокие убойные и мясные качества туш и, как следствие, выход ценных отрубов: спиногрудного – на 6,1 и 4,0 кг (P<0,01-0,001), поясничного – на 2,6 и 1,7 кг (P<0,05-0,01) и тазобедренного – на 8,6 и 7,1 кг (P<0,001), нежели контроле. Наибольшим содержанием мякоти высшего сорта характеризовались туши бычков 1-й (27,8±0,72 кг) и 2-й (26,7±0,58 кг) опытных групп соответственно на 3,5 и 2,4 кг по сравнению с контролем (24,3±0,73 кг), а также их отруба: спиногрудной – на 0,9 и 0,7 кг, поясничный – на 0,5 и 0,3 кг, тазобедренный – на 2,3 и 1,5 кг (P<0,05-0,001). Доказана доброкачественность мясных туш по органолептическим, биохимическим и спектрометрическим показателям и, следовательно, безопасность испытуемых препаратов. Установлено, что реализация биоресурсного потенциала организма бычков была вызвана активизацией гемопоэза, клеточных и гуморальных факторов неспецифической устойчивости биопрепаратами, при более выраженном соответствующем эффекте Prevention-N-A. Новизна полученных данных подтверждена патентами РФ на изобретение № 2602687 и № 2622765, зарегистрированных в Государственном реестре изобретений РФ 26.10.2016 г. и 19.06.2017 г. соответственно.

Ключевые слова: бычки, выращивание, доращивание, откорм, биопрепараты Prevention-N-A и Prevention-N-E, мясные качества.

Введение. Скотоводство России является одним из основных жизнеобеспечивающих секторов отечественного аграрного производства, оказывающим решающее влияние на уровень продовольственного обеспечения страны и определяющим здоровье нации.

Стратегия развития отрасли направлена на увеличение доли отечественного производства продукции и формирование молочных и мясных ресурсов в соответствии с научно обоснованными нормами потребления, повышение ее конкурентоспособности и инвестиционной привлекательности, и предусматривает решение важнейшей социально-экономической задачи по обеспечению населения биологически полноценной продукцией [2, 4, 11, 17, 21].

По объемам производства отечественная скотоводческая отрасль отстает от целевых показателей на 25 %, при этом более 95 % говядины производит за счет убоя на мясо сверхремонтного молодняка и выбракованного взрослого поголовья скота молочного и комбинированного направлений продуктивности, убойный контингент которых и уровень продуктивности не обеспечивают необходимые объемы производства [1, 5, 9, 15, 20, 29, 30]. В большинстве регионов России, в том числе и в Чувашии преобладающей по численности из пород молочного скота остается черно-пестрая (55,7 %), как наиболее высокопродуктивная с хорошей оплатой корма продукцией. В результате селекции скот приобрел черты, присущие молочному типу, но с хорошими признаками мясности, и обладает большим потенциалом продуктивности, превосходящим многие породы по зоотехническим и экономическим показателям. Поэтому для производства говядины в основном используется молодняк черно-пестрой породы, более адаптированный и максимально реализующий биоресурсный потенциал при оптимальных условиях кормления и содержания [6, 22, 24].

С целью предупреждения иммунодефицитного состояния, стимулирования уровня неспецифической защиты организма к прессингу эколого-технологических стресс-факторов и реализации биоресурсного потенциала мясных качеств бычков используют широкий ассортимент кормовых и биоактивных добавок, иммунокорректоров, антиоксидантов и биопрепаратов, однако многие из них не проявляют желаемый биоэффект [3, 7, 13, 14, 16, 18, 19, 26, 34, 35].

В контексте вышеизложенного разработка и внедрение в технологию производства говядины комплексных биопрепаратов для активизации защитно-приспособительных функций организма к условиям среды обитания и реализации биоресурсного потенциала мясных качеств бычков, является актуальной проблемой современной зоотехнической науки и практики [19].

Цель настоящей работы – реализация биоресурсного потенциала мясных качеств бычков черно-пестрой породы биопрепаратами Prevention-N-A и Prevention-N-E.

Материал и методы. Экспериментальные исследования проведены в условиях молочно-товарной фермы СХПК «Новый Путь» Аликовского района Чувашской Республики в соответствии с планом научных исследований ФГБОУ ВО Чувашская ГСХА, а обработка материалов осуществлялась в БУ ЧР «Чувашская республиканская ветеринарная лаборатория» Госветслужбы ЧР, лаборатории био- и нанотехнологий и в лаборатории кафедры морфологии, акушерства и терапии ФГБОУ ВО Чувашская ГСХА в период с 2013 по 2017 гг.

Объектами исследований были три группы бычков черно-пестрой породы по 15 животных в каждой, с рождения до 540-суточного возраста. Новорожденных бычков всех групп в течение 1 сутки содержали на подсосе с матерью в родильном отделении, затем до 21-суточного возраста – в профилактории, до 180-суточного возраста – в типовых помещениях для выращивания, а в последующем до 360-суточного возраста – в помещениях для доращивания и до 540-суточного возраста – в помещениях для откорма.

С целью реализации биоресурсного потенциала мясных качеств бычков в технологии их выращивания применяли комплексные биопрепараты из натурального сырья, разработанные учеными ФГБОУ ВО Чувашская ГСХА: Prevention-N-A (В.Г. Семенов, Ф.П. Петрянкин, В.А. Васильев и др.) и Prevention-N-E (В.Г. Семенов, Д.А. Никитин, В.А. Васильев и др.). Животным 1-й опытной группы внутримышечно инъецировали биопрепарат Prevention-N-A в дозе 3 мл на 2-3 и 7-9-е сутки жизни, 2-й опытной группы – Prevention-N-E в указанной дозе и в те же сроки, контрольной группы – биопрепараты не вводили.

Prevention-N-A – комплексный препарат для активизации неспецифической резистентности организма и реализации продуктивного потенциала молодняка, представляет собой водную суспензию, содержащую полисахаридный комплекс дрожжевых клеток Saccharomyces cerevisiae, иммобилизированных в агаровом геле с добавлением производного бензимидазола и бактерицидного препарата группы аминогликозидов.

Prevention-N-E – комплексный препарат для стимуляции неспецифической резистентности организма и профилактики заболеваний сельскохозяйственных животных, представляет собой водную суспензию, содержащую полисахаридный комплекс дрожжевых клеток Saccharomyces cerevisiae, иммобилизированных в агаровом геле с добавлением производного бензимидазола и антибиотика группы макролидов.

Результаты. Установлено, что показатели микроклимата в помещениях для выращивания, доращивания и откорма бычков соответствовали зоогигиеническим нормам.

Среднесуточные рационы для бычков в периоды выращивания до 90 и 180 суток, доращивания до 360 суток и откорма до 540 суток обеспечивали потребности организма в энергии и питательных веществах, минеральных элементах и витаминах согласно детализированным нормам кормления.

Применение в технологии выращивания бычков биопрепаратов Prevention-N-A и Prevention-N-E стимулирует их рост и развитие. Так, к завершению периода откорма бычки 1-й и 2-й опытных групп превосходили контрольных сверстников по живой массе на 20,8 и 16,8 кг, высоте в холке – на 5,2 и 3,8 см, ширине груди за лопатками – на 3,3 и 2,0 см, глубине груди – на 2,3 и 1,9 см, обхвату груди за лопатками – на 4,8 и 4,2 см, косой длине туловища – на 6,8 и 4,6 см, ширине зада в маклоках – на 2,2 и 1,8 см и обхвату пясти – на 0,8 и 0,7 см соответственно ($P<0,05$-$0,01$).

Среднесуточный прирост и коэффициент роста животных опытных групп также оказались выше, нежели в контроле, во все периоды постнатального онтогенеза.

Индекс длинноногости животных подопытных групп уменьшался по мере их роста, индексы растянутости, сбитости, грудной и тазо-грудной, наоборот, увеличились, а индекс костистости практически не изменялся.

Живая масса молодняка 1-й (466,4±3,03 кг) и 2-й (462,4±3,53 кг) опытных групп при снятии с откорма оказалась выше по сравнению с контролем (445,6±2,79 кг) на 20,8 кг (или на 4,7 %; P<0,001) и на 16,8 кг (т.е. на 3,8 %; P<0,01). Бычки 1-й (454,0±3,51 кг) и 2-й (449,6±3,39 кг) опытных групп превосходили сверстников контрольной группы (430,7±2,71 кг) по предубойной живой массе на 23,3 кг или на 5,4 % (P<0,001) и на 18,9 кг, т.е. на 4,4 % (P<0,01). Установлено, что масса парной туши бычков, выращенных на фоне внутримышечной инъекции биопрепарата Prevention-N-A, превосходила аналогичные показатели контрольной группы на 16,5 кг или на 7,2 % (P<0,001), а с применением биопрепарата Prevention-N-E – на 12,9 кг, т.е. на 5,6 % (P<0,01). Убой-ная масса животных 1-й опытной группы оказалась больше на 18,0 кг или на 7,4 % (P<0,001), а 2-й опытной группы – на 13,9 кг, т.е. на 5,7 % (P<0,01), нежели в контроле. По убойному выходу преимущество имели также бычки 1-й и 2-й опытных групп по сравнению с контролем на 1,1 и 0,8 % соответственно. Таким образом, на фоне иммунопрофилактики организма биопрепаратами установлено улучшение убойных качеств бычков.

Из представленных в таблицу 1 данных видно, что бычки 1-й и 2-й опытных групп превосходили контрольных сверстников по массе охлажденной туши на 16,1 и 11,9 кг (P<0,01), абсолютному выходу мякоти – на 13,5 и 9,7 кг (P<0,05-0,01), жира – на 1,5 и 1,0 кг (P<0,05-0,01), хрящей и сухожилий – на 0,5 и 0,3 кг (P>0,05), костей – на 2,1 и 1,9 кг (P>0,05) соответственно.

Таблица 1 – Морфологический состав туш бычков

Показатель	Группа животных		
	контрольная	1 опытная	2 опытная
Масса охлажденной туши, кг	220,6±2,37	236,7±2,47**	232,5±2,55**
Масса мякоти, кг	172,1±2,22	185,6±2,31**	181,8±2,36*
Выход мякоти, %	78,01	78,41	78,19
Масса жира, кг	12,0±0,32	13,5±0,22**	13,0±0,16*
Выход жира, %	2,8	3,0	2,9
Масса хрящей и сухожилий, кг	8,3±0,12	8,8±0,25	8,6±0,19
Выход хрящей и сухожилий, %	3,76	3,72	3,70
Масса костей, кг	40,2±0,75	42,3±0,66	42,1±0,71
Выход костей, %	18,22	17,87	18,11
Выход мякоти на 100 кг предубойной живой массы	39,96±0,17	40,89±0,25*	40,45±0,23
Индекс мясности	4,29±0,12	4,39±0,06	4,32±0,09

*P ≤ 0,05, **P ≤ 0,01.

Относительный выход сухожилий и костей с туш бычков опытных групп был, наоборот, ниже соответственно на 0,04 и 0,06 % и на 0,35 и 0,11 % (P>0,05), чем в контроле.

Выход мякоти на 100 кг предубойной массы бычков по 1-й опытной группе составил 40,89±0,25 кг, т.е. он оказался больше на 0,93 кг или 2,3 % (P<0,05), а по 2-й опытной группе – 40,45±0,23 кг, т.е. был больше на 0,49 кг или 1,2 % (P>0,01), чем в контроле – 39,96±0,17 кг.

По индексу мясности, характеризующей соотношение мякоти и костей, выгодно отличались туши бычков 1 опытной группы. У них указанный показатель составил 4,39, что больше, чем у бычков контрольной и 2-й опытной групп на 0,10 и 0,07 соответственно.

При оценке мясной продуктивности животных важно учитывать не только соотношение входящих в тушу тканей, но и соотношение анатомических частей, от которых получают различные сорта мяса. Анализ полученных данных (таблица 2) свидетельствует о том, что большая масса туш бычков опытных групп определила и высокие выходы наиболее ценных отрубов: спиногрудного – на 6,1 и 4,0 кг (P<0,01-0,001), поясничного – на 2,6 и 1,7 кг (P<0,05-0,01) и тазобедренного – на 8,6 и 7,1 кг (P<0,001), нежели в контроле. При этом выход указанных отрубов по отношению к массе туш у бычков 1-й и 2-й опытных групп оказался выше на 0,7 и 0,3 %, на 0,4 и 0,2 %, на 1,4 и 1,4 % соответственно, нежели в контроле.

Таблица 2 – Масса и выход отрубов с туш бычков

Показатель	Группа животных		
	контрольная	1 опытная	2 опытная
Масса туши, кг	220,6±2,37	236,7±2,47**	232,5±3,55**
в том числе отруба:			
шейный, кг	23,8±0,12	23,4±0,24	23,5±0,22
%	10,8	9,9	10,1
плечелопаточный, кг	41,0±0,22	40,2±0,20	40,4±0,19
%	18,6	17,0	17,4
спиногрудной, кг	61,8±0,66	67,9±0,51***	65,8±0,45**
%	28,0	28,7	28,3
поясничный, кг	23,2±0,40	25,8±0,48**	24,9±0,45*
%	10,5	10,9	10,7
тазобедренный, кг	70,8±0,85	79,4±0,80***	77,9±0,82***
%	32,1	33,5	33,5
*P ≤ 0,05, **P ≤ 0,01, ***P ≤ 0,001.			

Наибольшим содержанием мякоти высшего сорта (таблица 3) характеризовались туши бычков 1-й (27,8 кг) и 2-й (26,7 кг) опытных групп соответственно на 3,5 и 2,4 кг по сравнению с контролем (24,3 кг; P<0,05-0,001). При этом относительный выход говядины высшего сорта по отношению к общей массе мякоти был выше у животных опытных групп на 0,9 и 0,6 %, нежели в контроле.

Таблица 3 – Сортовой состав мякоти туш бычков

Показатель	Группа животных		
	контрольная	1 опытная	2 опытная
Масса мякоти, кг	172,1±2,22	185,6±2,31**	181,8±2,36*
Масса мякоти высшего сорта, кг	24,3±0,73	27,8±0,72**	26,7±0,58*
Выход мякоти высшего сорта, %	14,1	15,0	14,7
Масса мякоти первого сорта, кг	99,1±1,23	108,6±1,35***	105,6±1,29**
Выход мякоти первого сорта, %	57,6	58,5	58,1
Масса мякоти второго сорта, кг	48,7±0,62	49,2±0,60	49,5±0,59
Выход мякоти второго сорта, %	28,3	26,5	27,2
*P ≤ 0,05, **P ≤ 0,01, ***P ≤ 0,001.			

С кулинарной точки зрения определенный интерес представляет сортовой состав мякоти отдельных анатомических частей туш (таблица 4).

Анализ полученных нами данных свидетельствует, что шейный отруб по седьмой позвонок включительно преимущественно состоит из мякоти первого и второго сортов.

При этом бычки опытных групп уступали контрольных сверстников по массе мякоти высшего сорта на 0,1 кг и первого сорта – на 0,8 кг, но разница оказалась недостоверной.

В результате сортовой разделки плечелопаточного отруба туш бычков контрольной, 1-й и 2-й опытных групп установлено, что межгрупповые различия были незначительными (P>0,05). Жиловкой спиногрудного отруба выявлено, что наибольшим содержанием мякоти высшего сорта характеризовались отруба туш бычков опытных групп. При этом в опытных группах абсолютный выход мякоти высшего сорта был больше на 0,9 и 0,7 кг, а относительный – на 0,4 и 0,2 %.

Количество мякоти высшего сорта в поясничных отрубах туш бычков 1-й опытной группы было больше соответственно на 0,5 и 0,2 кг, нежели в контрольной и 2-й опытной группах. По относительному выходу мякоти высшего сорта также превосходили бычки 1-й опытной группы сверстников как контрольной, так и 2-й опытной групп соответственно на 0,4 и 0,2 %. В туше самым большим и наиболее ценным отрубом является тазобедренный, так как он дает наибольший выход мяса высшего сорта. Количество мякоти высшего сорта в тазобедренном отрубе бычков 1-й и 2-й опытных групп было больше на 2,3 и 1,5 кг (P<0,01-0,001), чем в контроле. При этом относительный выход мякоти высшего сорта составил в контрольной группе 19,1 %, в 1-й опытной – 20,2 и во 2-й опытной – 19,9 %.

Таблица 4 – Сортность мякоти отрубов туш бычков

Показатель	Группа животных		
	контрольная	1 опытная	2 опытная
Шейный отруб			
Масса мякоти, кг	20,3±0,37	18,7±0,44	18,9±0,48
Масса мякоти высшего сорта, кг	1,9±0,13	1,8±0,14	1,8±0,17
Выход мякоти высшего сорта, %	9,3	9,5	9,5
Масса мякоти первого сорта, кг	12,2±0,37	11,4±0,29	11,4±0,51
Выход мякоти первого сорта, %	60,2	61,2	60,6
Масса мякоти второго сорта, кг	6,2±0,25	5,5±0,32	5,7±0,25
Выход мякоти второго сорта, %	30,5	29,3	29,9
Плечелопаточный отруб			
Масса мякоти, кг	30,6±0,29	28,8±0,34	30,0±0,35
Масса мякоти высшего сорта, кг	4,1±0,19	4,0±0,16	4,1±0,10
Выход мякоти высшего сорта, %	13,4	13,9	13,6
Масса мякоти первого сорта, кг	19,0±0,35	18,0±0,22	18,7±0,30
Выход мякоти первого сорта, %	62,0	62,6	62,4
Масса мякоти второго сорта, кг	7,5±0,22	6,8±0,20	7,2±0,25
Выход мякоти второго сорта, %	24,6	23,5	24,0
Спиногрудной отруб			
Масса мякоти, кг	45,7±0,89	52,1±1,05**	51,0±0,84**
Масса мякоти высшего сорта, кг	4,6±0,19	5,5±0,16**	5,3±0,12*
Выход мякоти высшего сорта, %	10,1	10,5	10,3
Масса мякоти первого сорта, кг	21,4±0,37	24,6±0,51***	24,0±0,42**
Выход мякоти первого сорта, %	46,9	47,3	47,1
Масса мякоти второго сорта, кг	19,7±0,34	22,0±0,47**	21,7±0,44**
Выход мякоти второго сорта, %	43,0	42,2	42,6
Поясничный отруб			
Масса мякоти, кг	19,4±0,31	21,7±0,37**	20,5±0,32*
Масса мякоти высшего сорта, кг	3,0±0,11	3,5±0,17*	3,3±0,15
Выход мякоти высшего сорта, %	15,7	16,1	15,9
Масса мякоти первого сорта, кг	11,8±0,24	13,2±0,25**	12,5±0,14*
Выход мякоти первого сорта, %	60,8	61,0	60,9
Масса мякоти второго сорта, кг	4,6±0,21	5,0±0,27	4,7±0,22
Выход мякоти второго сорта, %	23,5	22,9	23,2
Тазобедренный отруб			
Масса мякоти, кг	56,1±0,97	64,3±0,94***	61,4±0,81**
Масса мякоти высшего сорта, кг	10,7±0,18	13,0±0,22***	12,2±0,25**
Выход мякоти высшего сорта, %	19,1	20,2	19,9
Масса мякоти первого сорта, кг	34,7±0,68	41,4±0,75***	39,0±0,71**
Выход мякоти первого сорта, %	61,8	64,4	63,5
Масса мякоти второго сорта, кг	10,7±0,12	9,9±0,17	10,2±0,19
Выход мякоти второго сорта, %	19,1	15,4	16,6

Таким образом, спиногрудной, поясничный и тазобедренный отруба туш бычков опытных групп характеризовались наибольшим содержанием мякоти высшего сорта по сравнению с контролем.

Результаты оценки качества говядины по органолептическим, биохимическим и спектрометрическим показателям представлены в таблице 5.

Говядина имела сухую корочку подсыхания и бледно-розовый цвет. Место зареза мяса было неровным, пропитано интенсивнее кровью, чем в других местах туш. Кровь в мышцах и кровеносных сосудах отсутствовала. Мелкие сосуды под плеврой и брюшиной не просвечивались. Поверхность разреза лимфатических узлов имела светло-серый цвет. Консистенция мяса плотная, упругая, при надавливании на его поверхность пальцем образовывалась ямочка, которая быстро выравнивалась. Мышцы на разрезе слегка увлажненные и не оставляли влажного пятна на фильтро-

Таблица 5 – Оценка качества говядины

Показатель	Группа животных		
	контрольная	1 опытная	2 опытная
Органолептический:			
внешний вид и цвет поверхности	пробы мяса покрыты подсохшей корочкой бледно-розового цвета		
мышцы на разрезе	слегка влажные, не оставляют влажного пятна на фильтровальной бумаге; цвет светло красный		
консистенция	на разрезе мясо плотное, упругое; образующаяся при надавливании пальцем ямка быстро выравнивается		
запах	специфический, свойственный для свежей говядины		
поверхностный жир	имеет желтоватый цвет; консистенция твердая, при надавливании крошится		
состояние сухожилий	упругие, плотные, поверхность суставов гладкая, блестящая		
прозрачность и аромат бульона	прозрачный, ароматный, на поверхности бульона большие капли жира		
Биохимический:			
pH (5,6 – 6,2)	5,96±0,03	5,98±0,01	5,94±0,02
амино-аммиачный азот, мг (в 10 мл вытяжки из свежего мяса не более 1,26)	1,20±0,01	1,17±0,01	1,18±0,01
формольная реакция	отрицательная		
реакция на пероксидазу	положительная		
реакция с сернокислой медью	отрицательная		
Спектрометрический, мг/кг			
свинец (не более 0,5)	0,08±0,01	0,08±0,01	0,07±0,01
кадмий (не более 0,05)	не обнаружено	аналогично контролю	аналогично контролю
мышьяк (не более 0,1)	не обнаружено	аналогично контролю	аналогично контролю
медь (не более 5,0)	0,81±0,04	0,84±0,02	0,83±0,03
цинк (не более 70)	27,5±0,24	27,8±0,16	28,2±0,21
ртуть (не более 0,03)	не обнаружено	аналогично контролю	аналогично контролю

вальной бумаге, имели светло красный цвет. Бульон, приготовленный из мяса, был прозрачный, ароматный, на его поверхности отмечалось незначительное скопление больших капель жира.

Установлено, что pH говядины в разрезе подопытных групп бычков варьировал в узком диапазоне и составил в контрольной, 1-й и 2-й опытных группах в среднем 5,96±0,03, 5,98±0,01 и 5,94±0,02 соответственно. Содержание амино-аммиачного азота в пробах говядины составило соответственно 1,20±0,01 мг (контрольная группа), 1,17±0,01 (1-я опытная группа) и 1,18±0,01 мг (2-я опытная группа), то есть оказалось в пределах норм. В исследованных пробах говядины бычков сопоставляемых групп реакция с формалином оказалась отрицательной, на пероксидазу – положительной, и с сернокислой медью – отрицательной.

По концентрации свинца пробы мяса бычков практически не отличались, и она составила в среднем в контрольной группе – 0,08±0,01 мг/кг, 1-й опытной – 0,08±0,01 и во 2-й опытной – 0,07±0,01 мг/кг. Таких токсичных элементов, как кадмий, мышьяк и ртуть в пробах говядины не обнаружено. Уровень меди и цинка в пробах мяса бычков был в пределах допустимых норм, и равнялся в контроле – 0,81±0,04 и 27,5±0,24 мг/кг, в 1-й опытной группе – 0,84±0,02 и 27,8±0,16 мг/кг и во 2-й опытной группе – 0,83±0,03 и 28,2±0,21 мг/кг. Следовательно, мясо бычков опытных групп по спектрометрическим показателям практически не отличалось от контрольных данных.

Таким образом, ветеринарно-санитарной экспертизой говядины установлено, что органолептические, биохимические и спектрометрические показатели мяса бычков, выращенных на фоне внутримышечной инъекции биопрепаратов Prevention-N-A и Prevention-N-E, не отличались от таковых в контроле и соответствовали требованиям Технического регламента Таможенного союза «О безопасности пищевой продукции» ТР ТС 021/2011 и Технического регламента Таможенного

союза «О безопасности мяса и мясной продукции» ТР ТС 034/2013, что свидетельствует о безопасности испытуемых препаратов и доброкачественности мясных туш.

На основании анализа возрастной динамики показателей клинико-физиологического состояния установлено, что температура тела, частота пульса и дыхательных движений у бычков сравниваемых групп на протяжении периодов выращивания, доращивания и откорма находились в пределах колебаний физиологических норм и разница в них была несущественной (P>0,05).

Апробированные в опытах на бычках черно-пестрой породы биопрепараты Prevention-N-A и Prevention-N-E активизируют продукцию эритроцитов и повышают концентрацию гемоглобина в крови, то есть улучшают гемопоэз, однако не оказывают влияние на лейкопоэз.

На фоне иммунопрофилактики организма подопытных бычков активизируются клеточные и гуморальные факторы неспецифической защиты, что особенно важно в ранний период постнатального онтогенеза. На 30-е сутки периода выращивания бычки 1-й и 2-й опытных групп превосходили контрольных сверстников по фагоцитарной активности лейкоцитов на 4,8 и 4,2 %, фагоцитарному индексу – на 1,1 и 0,8, лизоцимной активности плазмы – на 2,1 и 1,5 %, бактерицидной активности сыворотки – на 6,3 и 5,5 %, концентрации иммуноглобулинов в сыворотке крови – на 3,1 и 2,1 мг/мл.

Фагоцитарная активность нейтрофильных сегментоядерных лейкоцитов по отношению к Staphylococcus aureus у бычков контрольной, 1-й и 2-й опытных групп постепенно нарастала по мере их роста и развития с 31,0±1,26 до 64,6±1,44 %, с 30,6±1,21 до 71,6±1,47 % и с 30,8±1,02 до 70,0±1,41 % соответственно. Наиболее выраженная активность указанного клеточного фактора неспецифической резистентности организма отмечалась у 30-, 90-, 18-, 360- и 540-суточных животных 1-й опытной группы на фоне применения биопрепарата Prevention-N-A по сравнению с контрольными данными соответственно на 4,8 %, 6,8, 7,0, 6,9 и на 7,0 % (P<0,05-0,01). Указанная активность лейкоцитов у животных 2-й опытной группы вследствие внутримышечной инъекции биопрепарата Prevention-N-E оказалась так же достоверно выше, нежели в контроле, начиная с их 30-суточного возраста и до завершения периода откорма: у 30-суточных бычков на 4,2 %, 90-суточных – 5,6, 180-суточных – 5,6, 360-суточных – 5,4 и 540-суточных – на 5,4 % (P<0,05).

Фагоцитарный индекс у животных контрольной, 1-й и 2-й опытных групп нарастал с 1-го по 540-е сут исследований с 2,3±0,12 до 9,2±0,37, с 2,1±0,10 до 10,2±0,41 и с 2,5±0,22 до 9,4±0,40 соответственно. Следует отметить, что среднее количество бактерий в одном фагоците у животных 1-й опытной группы оказалось достоверно выше, чем в контроле, на 30-, 90- и 180-е сутки периода выращивания соответственно на 16,6 %, 16,7 и 13,7 %, и на 360-е сутки периода доращивания – на 17,5 % (P<0,05). Фагоцитарный индекс у бычков 2-й опытной группы был так же выше по сравнению с контролем, но разница оказалась достоверной только на 30- и 90-е сутки на 12,2 и 12,5 % (P<0,05).

Лизоцимная активность плазмы крови бычков контрольной и 2-й опытной групп последовательно возрастала в период выращивания с 1-го по 90-е сутки соответственно с 7,1±0,36 до 20,3±0,55 % и с 7,3±0,35 до 22,6±0,42 %, но на 180-е сутки указанного периода она уменьшилась до 20,0±0,41 и 22,2±0,58 %, а в последующем – в периоды доращивания и откорма – она неуклонно повышалась, достигнув пика к моменту снятия с откорма – 24,4±0,51 и 26,4±0,40 %. Мурамидазная активность указанного фермента у бычков 1-й опытной группы непрерывно повышалась в период эксперимента с 7,1±0,33 до 26,5±0,39 %. Указанный показатель гуморального звена неспецифической резистентности организма у животных 1-й и 2-й опытных групп оказался достоверно выше, чем в контроле, начиная с 30-суточного возраста и до убоя: у 30-суточных животных на 2,1 и 1,5 %, 90-суточных – 3,4 и 2,3 %, 180-суточных – 3,9 и 2,2 %, 360-суточных – 2,3 и 1,8 % и у 540-суточных – на 2,1 и 2,0 % (P<0,05-0,001) соответственно.

Установлено, что бактерицидная активность сыворотки крови подопытных животных имела тенденцию к нарастанию по мере их роста и развития с 1-го по 540-е сутки: в контрольной группе с 33,6±1,07 до 60,0±0,85 %, в 1-й опытной – с 33,3±1,19 до 63,3±0,96 % и во 2-й опытной группе – с 33,4±1,14 до 61,9±1,16 %. При этом бактерицидная активность сыворотки крови животных 1-й опытной группы была выше контрольных данных во все сроки исследований: на 30-е сутки – на 6,3 %, 90-е сутки – 6,1 %, 180-е сутки – 4,6 %, 360-е сутки – 3,8 % и на 540-е сутки – на 3,3 % (P<0,05-0,01). Следует отметить, что указанная активность сыворотки крови животных 2-й опытной группы

так же была выше, чем таковая у сверстников контрольной группы, особенно в период выращивания. Так, 30-суточные бычки указанной опытной группы превосходили контрольных животных по этому фактору гуморального звена неспецифической резистентности организма на 5,5 %, 90-суточные – на 5,5% и 180-суточные – на 5,6 % (P<0,05-0,01).

Установлено, что концентрация иммуноглобулинов в сыворотке крови бычков подопытных групп нарастала по мере их роста и развития: в контрольной группе – с 11,6±0,68 до 28,1±0,93 мг/мл, 1-й опытной – с 11,5±0,64 до 32,1±0,76 мг/мл и во 2-й опытной – с 11,4±0,70 до 31,8±0,72 мг/мл. Уровень указанного иммунокомпетентного фактора сыворотки крови животных 1-й и 2-й опытных групп оказался достоверно выше на 3,1 и 2,1 мг/мл; 3,6 и 2,0 мг/мл, 4,1 и 2,9 мг/мл, 3,9 и 3,1 мг/мл и на 4,0 и 3,7 мг/мл (т.е. на 19,2 и 13,0 %; 16,3 и 9,0 %; 15,6 и 11,1 %, 13,9 и 11,1 % и на 14,2 и 13,2 %) через 30, 90, 180, 360 и 540 суток после постановки опытов, нежели в контроле (P<0,050,01).

На основании анализа результатов иммунологических исследований установлено, что бычки, выращенные с назначением биопрепаратов, с дальнейшим доращиванием и откормом в типовых помещениях, имели более высокие показатели клеточной и гуморальной неспецифической защиты организма. Причем, иммуностимулирующее действие Prevention-N-A на организм было более выраженным, чем Prevention-N-E.

Обсуждения. На современном этапе развития скотоводства для обеспечения системы надежной защиты здоровья и реализации биоресурсного потенциала мясных качеств бычков возникает необходимость активизации неспецифических защитных факторов организма к прессингу технологических и экологических факторов среды обитания в периоды выращивания, доращивания и откорма биопрепаратами, характеризующимися высокой биодоступностью и безвредностью для организма.

Фармацевтический рынок предлагает широкий ассортимент разнообразных средств, многие из которых имеют химическое происхождение, биологическая доступность которых мала. Кроме того, предложенные ранее препараты действуют только на отдельные факторы неспецифической резистентности, что не в полной мере обеспечивает активизацию иммунной системы организма. При вторичных иммунодефицитах в развитии заболевания существенную роль играют условно-патогенные и патогенные микроорганизмы, поэтому в лечении животных используют антибактериальные препараты, которые могут оказать иммуносупрессивное действие [8, 10, 14, 16, 23, 25, 27, 28, 31, 33].

Мы считаем наиболее целесообразно назначать животным иммуностимуляторы, изготовленные из натурального сырья, с антибактериальными препаратами. При сочетанном применении их по возбудителю наносится двойной удар: антибактериальный препарат подавляет функциональную активность возбудителя, повышая его чувствительность к фагоцитозу, а иммуностимулятор активизирует фагоцит, повышая его способность обезвреживать возбудителя.

С учетом изложенного выше научное исследование было посвящено реализации биоресурсного потенциала мясных качеств бычков черно-пестрой породы направленной коррекцией постнатального формирования и развития неспецифической резистентности организма биопрепаратами Prevention-N-A и Prevention-N-E во взаимосвязи с гигиеническими условиями содержания и кормления.

Динамика живой массы, как абсолютная, так и относительная, дает относительно точный прогноз о развитии мясной продуктивности животного, как при жизни, так и после убоя [32]. На фоне двукратного внутримышечного введения бычкам биопрепаратов Prevention-N-A и Prevention-N-E на 2...3-е и 7...9-е сутки жизни в дозе 3 мл установлено повышение их роста и развития. К завершению периода выращивания 180-суточные бычки 1-й и 2-й опытных групп превосходили по живой массе контрольных сверстников на 7,2 и 4,8 кг, доращивания – на 14,6 и 12,0 кг, а при снятии с откорма – на 20,8 и 16,8 кг соответственно (P<0,05-0,001).

Классики отечественной зоотехнии Богданов Е.А., Кулешов Н.Н., Иванов М.Ф., Голдобин М.И. и др. указывали, что только конституционально крепкие животные отвечают хозяйственно-биологическим требованиям. Полученные нами данные и анализ экстерьерно-конституциональных особенностей бычков в динамике свидетельствуют, что животные опытных групп превосходили контрольных сверстников, как по высотным, так и по широтным экстерьерным промерам, к при-

меру, к завершению периода откорма: по высоте в холке – на 5,2 и 3,8 см, ширине груди за лопатками – на 3,3 и 2,0 см, глубине груди – на 2,3 и 1,9 см, обхвату груди за лопатками – на 4,8 и 4,2 см, косой длине туловища – на 6,8 и 4,6 см, ширине зада в маклоках – на 2,2 и 1,8 см и обхвату пясти – на 0,8 и 0,7 см соответственно.

С целью оценки мясной продуктивности и качества говядины был проведен контрольный убой бычков в возрасте 18 месяцев по 5 животных из каждой группы. Установлено, что бычки 1-й и 2-й опытных групп превосходили контрольных сверстников по массе охлажденной туши – на 16,1 и 11,9 кг (P<0,01), абсолютному выходу мякоти – на 13,5 и 9,7 кг (P<0,05-0,01), жира – на 1,5 и 1,0 кг (P<0,05-0,01), хрящей и сухожилий – на 0,5 и 0,3 кг (P>0,05), костей – на 2,1 и 1,9 кг (P>0,05) соответственно. Относительный выход сухожилий и костей с туш бычков опытных групп был, наоборот, ниже соответственно на 0,04 и 0,06 % и на 0,35 и 0,11 % (P>0,05), чем в контроле. Таким образом, от животных подопытных групп были получены полномясные туши, но все же, лидерство оставалось за бычками 1-й опытной группы по всем убойным показателям.

Питательная ценность, вкусовые качества и кулинарные достоинства различных естественно-анатомических частей туши неодинаковы. В нашем опыте большая масса туш бычков 1-й и 2-й опытных групп определила и высокие выходы наиболее ценных отрубов: спиногрудного – на 6,1 и 4,0 кг (P<0,01-0,001), поясничного – на 2,6 и 1,7 кг (P<0,05-0,01) и тазобедренного – на 8,6 и 7,1 кг (P<0,001), нежели контроле.

Сортовой состав мякоти во многом определяет его дальнейшее использование мясоперерабатывающими предприятиями и ассортимент мясных изделий. Наибольшим содержанием мякоти высшего сорта характеризовались туши бычков 1-й и 2-й опытных групп соответственно на 3,5 и 2,4 кг по сравнению с контролем (P<0,05-0,001). В туше самым большим и наиболее ценным отрубом является тазобедренный, так как он дает наибольший выход мяса высшего сорта. Количество мякоти высшего сорта в тазобедренном отрубе бычков 1-й и 2-й опытных групп было больше на 2,3 и 1,5 кг (P<0,01-0,001), чем в контроле.

Качество мясной продукции обусловливается ее химическим составом и биологической полноценностью, которая в свою очередь определяется соответствием продукта потребностям организма человека и гарантированной безвредностью его применения сообразно физиологическим нормам [12]. В результате ветеринарно-санитарной экспертизы установлено соответствие говядины требованиям Технического регламента Таможенного союза «О безопасности пищевой продукции» ТР ТС 021/2011 и Технического регламента Таможенного союза «О безопасности мяса и мясной продукции» ТР ТС 034/2013, что свидетельствует о доброкачественности мясных туш.

Апробированные в опытах на бычках черно-пестрой породы биопрепараты Prevention-N-A и Prevention-N-E повышали количество эритроцитов и концентрацию гемоглобина в крови, то есть улучшали гемопоэз, а также активизировали клеточные и гуморальные факторы неспецифической защиты.

Заключение. Под влиянием биопрепаратов Prevention-N-A и Prevention-N-E ускоряется рост и развитие бычков черно-пестрой породы в периоды выращивания, доращивания и откорма, что обуславливает более высокие их убойные и мясные качества и, как следствие, выход ценных отрубов – спиногрудного, поясничного и тазобедренного, а также – наивысший выход говядины высшего и первого сортов. Экспериментально доказано, что реализация биоресурсного потенциала организма бычков вызвано активизацией гемопоэза, клеточных и гуморальных факторов неспецифической резистентности организма биопрепаратами, при более выраженном соответствующем эффекте Prevention-N-A.

Выводы.

1. Применение в технологии выращивания бычков биопрепаратов Prevention-N-A и Prevention-N-E двукратно на 2...3-е и 7...9-е сутки жизни в дозе 3 мл стимулирует их рост и развитие.

К завершению периода откорма бычки 1-й и 2-й опытных групп превосходили контрольных сверстников по живой массе на 20,8 и 16,8 кг, высоте в холке – на 5,2 и 3,8 см, ширине груди за лопатками – на 3,3 и 2,0 см, глубине груди – на 2,3 и 1,9 см, обхвату груди за лопатками – на 4,8 и 4,2 см, косой длине туловища – на 6,8 и 4,6 см, ширине зада в маклоках – на 2,2 и 1,8 см и обхвату пясти – на 0,8 и 0,7 см соответственно (P<0,05-0,01). Среднесуточный прирост и коэффициент

роста животных опытных групп также оказались выше, нежели в контроле, во все периоды постнатального онтогенеза.

Индекс длинноногости животных подопытных групп уменьшался по мере их роста, индексы растянутости, сбитости, грудной и тазо-грудной, наоборот, увеличились, а индекс костистости практически не изменялся.

2. На фоне применения биопрепаратов улучшаются откормочные и убойные качества бычков.

Установлено повышение предубойной живой массы животных опытных групп на 23,3 и 18,9 кг, массы парной туши – на 16,5 и 12,9 кг, убойного выхода – на 1,1 и 0,8 %, абсолютного выхода мякоти – на 13,5 и 9,7 кг, внутреннего жира – на 1,5 и 1,0 кг и индекса мясности – на 0,10 и 0,07 соответственно (P<0,05-0,01), а также наиболее ценных отрубов: спиногрудного – на 6,1 и 4,0 кг (P<0,01-0,001), поясничного – на 2,6 и 1,7 кг (P<0,05-0,01) и тазобедренного – на 8,6 и 7,1 кг (P<0,001), нежели в контроле.

3. Включение в технологию выращивания бычков биопрепаратов Prevention-N-A и Prevention-N-E способствует улучшению мясных качеств.

Наибольшим содержанием мякоти высшего сорта характеризовались туши бычков 1-й (27,8±0,72 кг) и 2-й (26,7±0,58 кг) опытных групп соответственно на 3,5 и 2,4 кг по сравнению с контролем (24,3±0,73 кг), а также их отруба: спиногрудной – на 0,9 и 0,7 кг, поясничный – на 0,5 и 0,3 кг, тазобедренный – на 2,3 и 1,5 кг (P<0,05-0,001).

Говядина соответствовала требованиям Технического регламента Таможенного союза «О безопасности пищевой продукции» ТР ТС 021/2011 и Технического регламента Таможенного союза «О безопасности мяса и мясной продукции» ТР ТС 034/2013.

4. Применение биопрепаратов Prevention-N-A и Prevention-N-E в технологии выращивания, доращивания и откорма бычков не влияет на клинико-физиологическое состояние организма.

5. Апробированные в опытах на бычках черно-пестрой породы биопрепараты Prevention-N-A и Prevention-N-E активизируют продукцию эритроцитов и повышают концентрацию гемоглобина в крови, то есть улучшают гемопоэз, однако не оказывают влияние на лейкопоэз.

6. На фоне иммунопрофилактики организма подопытных бычков активизируются клеточные и гуморальные факторы неспецифической защиты, что особенно важно в ранний период постнатального онтогенеза. На 30-е сутки периода выращивания бычки 1-й и 2-й опытных групп превосходили контрольных сверстников по фагоцитарной активности лейкоцитов на 4,8 и 4,2 %, фагоцитарному индексу – на 1,1 и 0,8, лизоцимной активности плазмы – на 2,1 и 1,5 %, бактерицидной активности сыворотки – на 6,3 и 5,5 %, концентрации иммуноглобулинов в сыворотке крови – на 3,1 и 2,1 мг/мл.

Рекомендации. Для реализации биоресурсного потенциала мясных качеств бычков черно-пестрой породы рекомендуем применять в технологии производства говядины комплексные биопрепараты Prevention-N-A и Prevention-N-E, представляющие собой иммуностимуляторы на основе полисахаридного комплекса дрожжевых клеток Saccharomyces cerevisiae в сочетании с бактерицидными препаратами групп аминогликозидов и природных макролидов:

1) внутримышечно инъецировать новорожденным бычкам биопрепарат Prevention-N-A двукратно на 2-3 и 7-9-е сутки в дозе по 3 мл;

2) вводить внутримышечно бычкам биопрепарат Prevention-N-E двукратно на 2-3 и 7-9-е сутки жизни в дозе по 3 мл.

Предложенные биопрепараты способствуют реализации биоресурсного потенциала мясных качеств бычков за счет активизации защитно-приспособительных функций организма к прессингу эколого-технологических факторов среды обитания и избирательной мобилизации гематологического профиля крови, клеточных и гуморальных факторов неспецифической резистености, при более выраженном соответствующем эффекте Prevention-N-A.

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PREVENTION СЕРИЯЛЫ БИОПРЕПАРАТТАРДЫ ҚОЛДАНУ АЯСЫНДА БҰҚАЛАРДЫҢ ӨСУІ, ДАМУЫ ЖӘНЕ ЕТТІЛІК САПАЛАРЫ

Аннотация. Алғаш рет кешенді зерттеулер негізінде қара-ала тұқымды бұқалардың еттілік сапасының биоресурстық әлеуетін іске асыру үшін ойлап табылған Prevention-N-A және Prevention-N-E биопрепараттарын қолданудың зоотехникалық мақсатқа сәйкестігі ғылыми негізделгендігі және тәжірбие жүзінде дәлелденді. Биопрепараттарды қолдану аясында бұқаларды өсіру, өсіріп жеткізу және бордақылау кезінде өсу белсенділігі мен дамуы орнатылды, бұл өз кезегінде ұшаның сойыстық және еттілік сапаларын ас жоғарылауына алып келді, соның нәтижесінде, құнды кесектер шықты: тексерудегіге қарағанда арқатөстік – 6,1 және 4,0 кг-ға (P<0,01-0,001), белдік – 2,6 және 1,7 кг-ға (P<0,05-0,01) және жамбастық – 8,6 және 7,1 кг-ға (P<0,001) ұлғайды. Жоғары сортты жұмсақ еттер 1-ші (27,8±0,72 кг) және 2-ші (26,7±0,58 кг) тәжірибелік топтардағы бұқа ұшаларында байқалды, 3,5 және 2,4 кг-ға сәйкес тексерудегімен салыстырғанда (24,3±0,73 кг), және де олардың кесектерінде: арқатөстік – 0,9 және 0,7 кг-ға, белдік – 0,5 және 0,3 кг-ға, жамбастық – 2,3 және 1,5 кг-ға (P<0,05-0,001). Ет ұшаларының органолептикалық, биохимиялық және спектрометрикалық көрсеткіштері бойынша өнімнің сапалылығы дәлелденді және де, сәйкесінше, сыналып отырған препараттардың қауіпсіздігі. Бұқалардың организмының биоресурстық әлеуетін іске асыру биопрепараттардың тұрақтылығына тән емес гемопоэзаның, жасушалық және гуморальды факторлардың жандануы, ашық Prevention-N-A сәйкес эффектісін кезінде, орнатылды. Алынған мәліметтердің жаңалығы РФ өнертабыстарының Мемлекеттік реестрінде 26.10.2016 ж. және 19.06.2017 ж. сәйкес тіркелген өнертабыс патенттерімен № 2602687 және № 2622765 РФ расталған.

Түйін сөздер: бұқалар, өсіру, өсіріп жеткізу, бордақылау, Prevention-N-A және Prevention-N-E биопрепараттары, еттілік сапалары.

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SOCIO-ECONOMIC INDICATORS OF LIVING STANDARDS IN THE REPUBLIC OF KAZAKHSTAN

Abstract. The article analyzes the main components of the population's living standards in the Republic of Kazakhstan in terms of such indicators as the income level of the population and their purchasing ability, the average monthly wage, the average size of the accrued pensions, and the subsistence minimum. The analysis included separate regions of the country and Kazakhstan as a whole.Indicators that reduce the quality of life of Kazakhstanis are revealed.

Based on the conducted studies, it was concluded that the quality of life of the population is an integral characteristic that gives an idea of the life activity of a person and society, therefore the improvement of the quality of life is the main task and criteria of the activity of the authorities.

Keywords: standard of living, quality of life, quality of life components.

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СОЦИАЛЬНО-ЭКОНОМИЧЕСКИЕ ПОКАЗАТЕЛИ КАЧЕСТВА ЖИЗНИ НАСЕЛЕНИЯ РЕСПУБЛИКИ КАЗАХСТАНА

Аннотация. В статье анализируются основные компоненты качества жизни населения РК по таким показателям, как уровень доходов населения и их покупательная способность, среднемесячная заработная плата, средний размер начисленных пенсий, величина прожиточного минимума. В анализ были включены отдельные регионы страны и Казахстан в целом. Выявлены показатели, снижающие качество жизни казахстанцев.

На основании проведенных исследований был сделан вывод о том, что качество жизни населения выступает интегральной характеристикой, дающей представление о жизнедеятельности человека и общества, поэтому повышение качества жизни является главной задачей и критерием деятельности органов власти.

Ключевые слова: уровень жизни, качество жизни, компоненты качества жизни.

Введение. Экономика Казахстана находится на важном этапе развития, включающем формирование социально-экономической модели, ориентированной на преодоление последствий финансового кризиса и способной к адаптации к реалиям современных процессов, происходящих во всей мировой экономике, которая характеризуется усилением глобализации и конвергенции. В современных условиях в РК одним из приоритетных направлений социально-экономической политики является повышение качества жизни населения.

Качество жизни и всестороннее развитие человека – данные категории составляют содержательную характеристику современных подходов к проблемам экономического роста и развития общества.

В практике анализа уровня жизни и его статистического учета используется стоимостной интегральный показатель – стоимость жизни. Термин «стоимость жизни» используется для обозначения стоимости предметов потребления, соответствующей определенному уровню удовлетворения потребностей. Согласно такой трактовке изменения в стоимости жизни определяются динамикой потребительских цен, структурными изменениями в потреблении, связанными с ростом доходов и потребностей, состоянием рыночной конъюнктуры (соотношение платежеспособного спроса и предложения товаров), а также другими факторами. При таком понимании стоимость жизни в наибольшей степени соответствует содержанию категории уровня жизни, учитывает условия жизни и труда [1]. «Стоимость жизни» рассматривается в виде потребительских бюджетов населения (фактических, нормативных, прогнозных) и предлагается в качестве стоимостного инструмента исследования системы уровень жизни.

Определение уровня жизни – достаточно сложный процесс, с одной стороны, зависящий от оценки состава и величины потребностей общества, а с другой – ограничивающийся возможностями экономики страны в их удовлетворении. В международных сопоставлениях уровень жизни может характеризоваться целым рядом сводных и частных показателей: валовой национальный доход; реальные доходы населения; средняя и минимальная заработная плата работников и уровень пенсий, их соотношение с прожиточным минимумом; уровень потребления населением основных материальных благ; обеспеченность жильем; дифференциация доходов и потребления; продолжительность жизни; уровень образования и др. [2].

Результаты исследования. В мировой практике в качестве интегрального показателя ресурсного обеспечения уровня жизни используется величина валового национального дохода (ВНД) на душу населения, исчисленная по паритету покупательной способности валют. В феврале 2016 года на одного жителя страны приходилось в среднем 70,1 тысячи тенге дохода. Это на 14% больше, чем годом ранее [3].

Конституция Республики Казахстан декларирует, что государство является демократическим, светским, правовым и социальным, высшими ценностями которого являются человек, его жизнь, права и свободы. Исходя из этого, основной задачей социальной политики государства и главным критерием ее эффективности является неуклонное повышение качества жизни народа [4].

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В Стратегии «Казахстан-2050»: новый политический курс состоявшегося государства» и во всех посланиях Президента Республики Казахстан народу, начиная с 1997 г. по 2017 г., отмечено, что на первом плане государственной политики остаются вопросы социального самочувствия, процветания, улучшения благосостояния граждан Казахстана и вопросы социальной поддержки населения [5].

Благосостояние общества во многом зависит от правильно выбранной социальной политики государства, которая, в свою очередь, зависит от того, достаточно ли полной информацией оно обладает, и насколько информация полно показывает проблемы в современном обществе [6]. От решения проблем уровня и качества жизни во многом зависит направленность и темпы дальнейших преобразований в стране и, в конечном счете, политическая, а, следовательно, и экономическая стабильность в обществе. Решение этих проблем требует определенной политики, выработанной государством, центральным моментом которой был бы человек, его благосостояние, физическое и социальное здоровье. Именно поэтому все преобразования, которые, так или иначе, могут повлечь изменение уровня жизни вызывают большой интерес у самых разнообразных слоев населения.

Казахстанский курс на форсированное индустриально-инновационное развитие также предъявляет новые высокие требования к модели социального развития. Наблюдается еще большее смещение государственной стратегии в сторону социальных приоритетов. Казахстан позиционирует

себя как социально ориентированное государство, которое имеет до сих пор значительную нагрузку на государственный бюджет по расходам на социальное обеспечение. Доля расходов на социальное обеспечение составляют 1/5 часть затрат государственного бюджета, при этом сектор вместе со здравоохранением создает менее 2% ВВП.

Главными приоритетами государственной политики нашей республики, в соответствии с установками Президента страны, были и остаются развитие человеческого капитала и повышение качества жизни населения. Реализуемые в этих целях программы Правительства направлены, прежде всего, на сохранение занятости и повышение уровня доходов, социальную защиту наиболее уязвимых категорий населения. Даже в условиях разразившегося мирового финансового кризиса государство не отказалось от соцподдержки своих граждан. Благодаря финансовой «подушке» в виде средств Национального фонда государству удалось сохранить в неприкосновенности все социальные программы, и даже увеличить финансирование по некоторым из них.

Согласно отчету Глобального индекса конкурентоспособности Всемирного экономического форума (ГИК ВЭФ) за 2015–2016 годы Казахстан занял 42-ое место в рейтинге среди 140 стран, поднявшись на 8 мест в сравнении с результатами рейтинга прошлого года.

Обсуждение результатов. По Индексу человеческого развития в 2016 году республика вошла в группу стран с высоким уровнем развития, заняв 56 место из 188 стран. По данным Международной организации труда, в рейтинге средних заработных плат казахстанцы с 339 евро на человека занимали скромное 61 место из 71 страны, в которых проводились исследования. Утешением является то, что богатые нефтью Аргентина и Азербайджан оказался ещё ниже, на 62 и 63 местах соответственно [7].

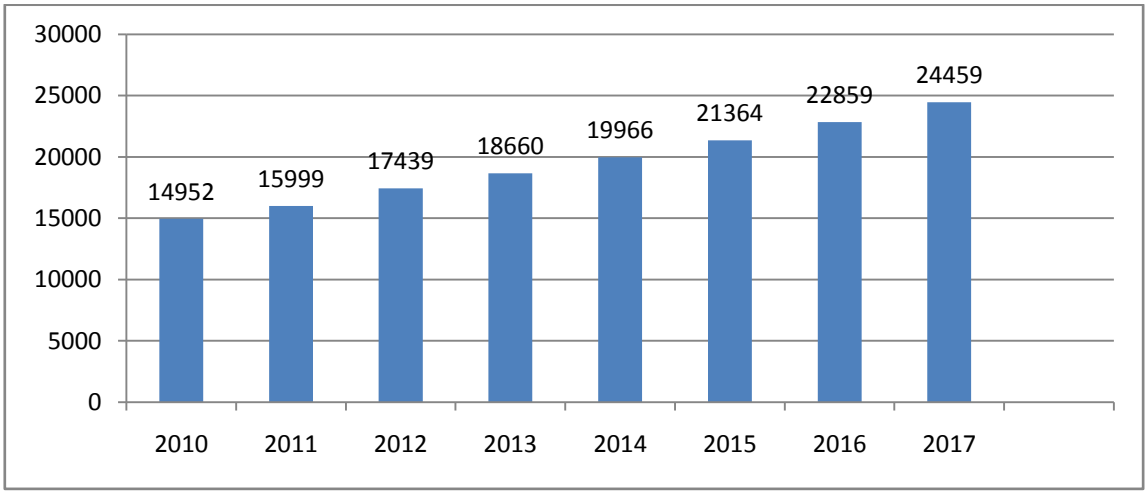

Рисунок 1 – Динамика роста минимальной заработной платы в РК за 2010–2017 гг.

Городское население Казахстана составляет 54%, оно проживает в 87 городах, самыми крупными из которых являются:

– Алматы (1 705 тыс. чел);
– Шымкент (886 тыс. чел);
– Астана (873 тыс. чел);
– Караганда (498 тыс. чел).

Если брать удобство жизни и перспективы развития, то лидером можно назвать Астану – уникальный город, бывший Целиноград, и как столица, построенная чуть ли не с нуля.

Если брать возможности для бизнеса, Алматы вне конкуренции. По другим параметрам сами казахстанцы спорят между собой и увлечённо создают различные рейтинги.

Позитивный тренд связан с действиями государства в инвестиционной области. Активно строятся дороги, школы, детские сады, при поддержке власти создаются новые производственные предприятия, создаются рабочие места.

В стране средняя продолжительность жизни достигла 69 лет, выросло благосостояние населения, которое стало больше тратить средств на приобретение товаров длительного пользования.

Улучшились и другие индикаторы качества жизни и демографические показатели, от которых зависит устойчивое развитие страны и ее конкурентоспособность на внешней арене. При этом главными причинами смертности остаются сердечно-сосудистые заболевания, несчастные случаи, травмы, убийства, новообразования.

Вместе с тем у Казахстана имеется множество проблем, решение которых позволит повысить качественные показатели существования населения. Например, одной из существенной причин отставания качества жизни в селах от города является нехватка качественной питьевой воды. По показателю водообеспеченности в расчете на душу населения Казахстан занимает последнее место в СНГ.

Другим важным индикатором формирования нового качества человеческого потенциала является образованность населения страны. В данном направлении развития Казахстан достиг высокого уровня развития. В настоящее время образовательный уровень казахстанцев составляет 99,7%. Эти достижения во многом обязаны тому, что расходы государственного бюджета страны на образование довольно высоки. В настоящее время основной задачей системы образования является подъем качества образования. Одним из методов решения данной задачи является переход на мировые стандарты, в том числе на 12-классную систему обучения.

Весь жилищный фонд страны на начало 2017 года составил 283,9 млн.кв. метров, из которых 167,3 млн. кв. метров, или 58,9%, расположились в городах и других городских поселениях, а 116,6 млн. кв. метров (41,1%) – в сельских населенных пунктах. При этом, почти весь (96,3%) жилищный фонд ныне находится в частной собственности населения страны и лишь 3,7% (10,3 млн. кв. метров) остались в государственной. Несмотря на значительный рост объемов строительства новых жилых зданий за последние 6–7 лет, обеспеченность населения страны жильем продолжает оставаться довольно острой проблемой.

За 2016 год реальные доходы населения РК сократились на 4,5%, это самое значительное падение уровня жизни за последние 16 лет. Предыдущий антирекорд был зафиксирован в 2009 году, когда уровень реальных доходов за год уменьшился на 3,1%. Снижение покупательной способности заработных плат казахстанцев продолжалось в течение практически всего года, лишь в декабре уровень реальных доходов вырос на 2,4%, однако на итоговый годовой показатель это временное повышение не повлияло [8].

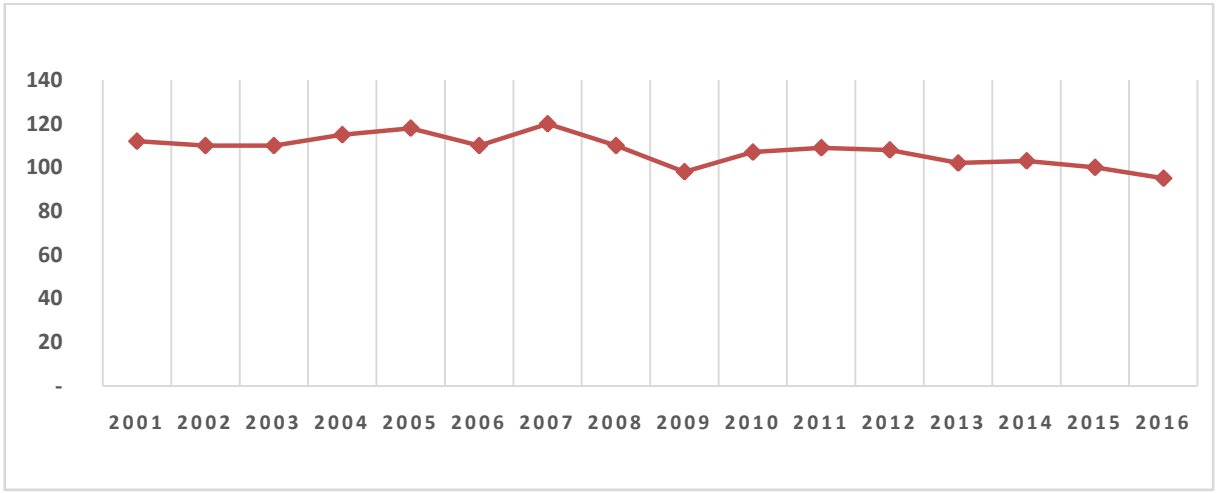

Рисунок 2 – Индекс реальных денежных доходов (% к году) [9]

Удорожание жизни в стране первыми ощущают на себе наиболее незащищенные слои населения.

В течение 2011-2015 годов в Казахстане резко сокращалась численность населения, имеющая доходы ниже прожиточного минимума, – за этот период численность уменьшилась более чем в 2 раза. Однако в 2016 году этот процесс не только остановился, но и наметилась обратная тенденция, – по итогам 3 квартала численность таких казахстанцев составила 452 тысяч человек, или на 6 тысяч человек больше, чем было год назад.

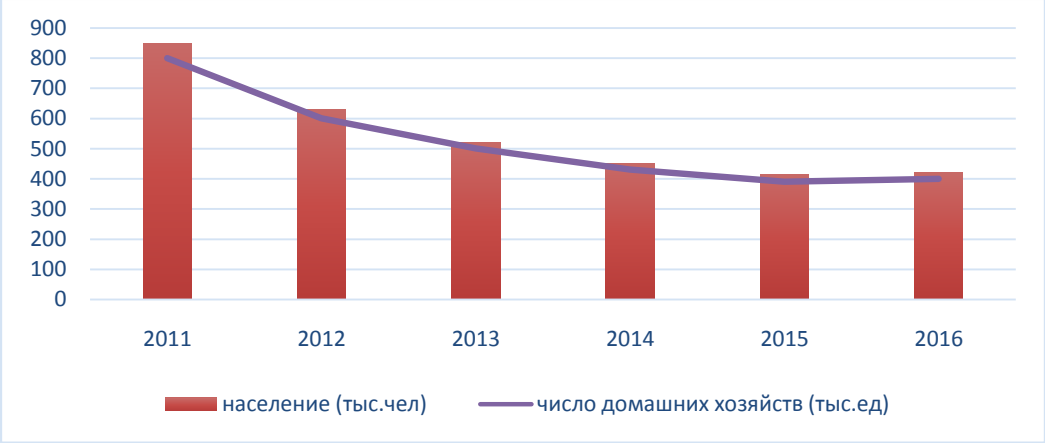

Рисунок 3 – Население имеющие доходы ниже прожиточного минимума [9]

Численность 10% наименее обеспеченного населения за год выросла быстрее, чем 10% наиболее обеспеченных. По сравнению с уровнем на конец 3 квартала 2015 года число малообеспеченных казахстанцев выросло почти на 27 тысяч человек, в то время как число обеспеченных граждан РК увеличилось на 18,3 тысяч человек.

Напомним, что годом ранее прирост числа богатых казахстанцев составил 31 тысяч человек против роста на 24 тысячи человек числа 10% наименее обеспеченных жителей страны.

10% наиболее обеспеченных граждан РК обладают 23,6% всех доходов населения. При этом уровень неравенства в РК пока остается низким (0,281), хотя по сравнению с 2013 годом его показатель вырос. Ниже риведены данные доли населения РК, имеющего доходы ниже стоимости продовольственной корзины.

По данным Агентства статистики РК, если в 2001 году доля граждан с доходами ниже прожиточного минимума составила 16,1 %, то в 2016 году этот показатель составил уже 0,1%. В Казахстане не рассчитывается реальный уровень продовольственной безопасности населения, и самый важный социально-экономический показатель неизвестен. Есть лишь такой индикатор, как доля населения, имеющего доходы ниже стоимости продовольственной корзины. Но практической ценности он абсолютно не имеет, поскольку стоимость продовольственной корзины искусственно занижена. Так, в настоящее время 0,2% населения имеет доходы ниже продовольственной корзины, которая составляет 12 тыс. 442 тенге. И этот показатель создает картину благополучия, не отображая истинной ситуации. Людей, которым не по карману качественное питание, на порядок больше.

Одним из основных факторов, влияющих на качество жизни, является возможность заниматься достойно оплачиваемым трудом. Поэтому неудивительно то внимание, которое руководство страны уделяет настоящему вопросу. Экономический рост и меры правительства привели к тому, что уровень занятости населения республики имеет долгосрочную и стабильную тенденцию к росту. Так, данный показатель возрос с 89,6% – в 2001 году до 94,6% – в 2011 году. В ноябре 2017 года уровень инфляции в Казахстане составил 0,90%, что на 0,30 меньше, чем в октябре 2017 года и на 0,30 меньше, чем в ноябре 2016 года. Вместе с этим, инфляция с начала 2017 года составила 6,48%, а в годовом исчислении – 7,43%.

Между тем Программой занятости на первом этапе ее реализации по этому показателю установлена планка на уровне 5,5%, т.е. можно утверждать, что данный «вес взят».

Сегодня в Казахстане те, кто трудятся, вынуждены затягивать пояса все туже и туже, так как значительно возросли коммунальные платежи, цены на продукты, а зарплата еще и снизилась благодаря неподконтрольной и непобедимой инфляции. Почти половину своих ежемесячных доходов казахстанцы тратят на покупку продуктов питания. Для сравнения: в кризисный 2009 год на это уходило меньше 36% зарплаты. С 2015 года, исходя из данных исследования, на покупку еды 23% казахстанцев расходуют две трети заработанных средств, 20% – чуть меньше половины, а 10% - все деньги. То, что большая часть зарплаты уходит на продукты питания, свидетельствует о

низких доходах наименее обеспеченных слоев населения. Фактически доля расходов в бюджете семьи на питание- показатель бедности. Этот показатель в отличие от официальной статистики нельзя обмануть: он самый универсальный и окончательный индикатор уровня бедности. Тут сразу и инфляция, и цены на продукты, и уровень зарплаты. И поэтому не удивительно, что в связи с кризисом эта доля увеличилась. Если граждан, тратящих на еду половину заработка, в стране более 50%, можно говорить о том, что страна бедная. Между тем в развитых странах семьи тратят на питание около 20–25% ежемесячного дохода. В некоторых странах показатели еще лучше: в Англии, например, на еду тратится 11% доходов населения, во Франции – 14%.

Повышение заработной платы, о котором сообщалось в течение 2016 года, не компенсировало инфляцию, что привело к снижению реально располагаемых доходов населения. Задолженность по заработной плате по-прежнему сохраняется, причем основная причина – нехватка собственных средств предприятий – связана с кризисными явлениями в экономике и не может быть устранена без серьезного вмешательства государства. Кроме того, повышение заработной платы, во-первых, неравномерно по регионам Казахстана, что ведет к углублению социально-экономической дифференциации регионов. Во-вторых, повышение заработной платы осуществляется на базе нынешнего ее уровня, без пересмотра принципов начисления заработной платы, например, в бюджетных отраслях. В-третьих, нет обоснованных расчетов достойного уровня заработной платы с учетом социальной значимости деятельности, профессионально-квалификационных характеристик работников и уровня социально-обусловленных потребностей. Все это значительно снижает эффект от мер правительства по повышению заработной платы [9].

Сложившийся в стране нищенский уровень реальной заработной платы и критически высокая ее дифференциация породили многочисленные проблемы. Доля населения, имеющего доход меньше прожиточного минимума, составляет 25%.

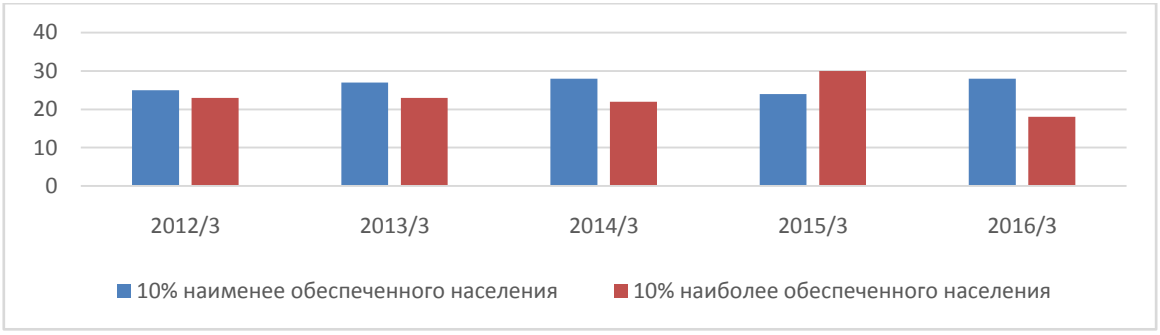

Рисунок 4 – Годовой прирост численности наименее и наиболее обеспеченного населения (тыс. чел) [7]

Наибольшее число бедных жителей в РК проживает на юге Казахстана: ЮКО (289,6 тысячи человек на конец 3 квартала 2016 года), Алматинской области (201 тысяча человек) и Алматы (175 тысяч человек).

За год наиболее интенсивно численность малообеспеченного населения росла в Алматы (+4,7 тысячи человек), Астане (+4,3 тысячи человек) и ЮКО (+3 тысячи человек). В среднем в европейских странах средний класс составляет около 60% от всего населения. В Казахстане же это число по данным исследования «Эксперт Консалт» составляет около 10%.

По итогам 2017 года прожиточный минимум в РК составлял 23,8 тысячи тенге – на 10% больше, чем годом ранее. Для сравнения, показатель инфляции за соответствующий период – лишь 7,4%.

Наиболее высокие показатели – в столицах и нефтяных регионах (тут же и самые высокие заработные платы по РК, и, зачастую – наиболее высокий уровень цен на товары и услуги).

Лидирует Мангистауская область - 28,7 тыс. тг, +8,8% к предыдущему году, далее Астана – 27,5 тыс. тг, +9,7% за год, следом Алматы – 26,5 тыс. тг, +9,6% за год, и Атырауская область – 24,5 тыс. тг, +9,9% за год.

Состояние здоровья населения, как индикатора социального благополучия общества, зависит не только от уровня и ресурсов системы здравоохранения и социального обеспечения в стране, но

и от ряда других факторов – ведение здорового образа жизни, охрана окружающей среды обитания и проживания людей и т.д. Так, уровень заболеваемости населения активным туберкулезом в 2016г. снизился с 95,3 до 86,6 на 100 000 населения.

В 2017 Казахстан занимает 16 место по уровню инфляции в мире. Инфляция в Казахстане, как и во многих странах, рассчитывается на основе индекса потребительских цен на товары и услуги. При этом под потребительскими ценами подразумевается конечная цена, которую платит покупатель товара или услуги и которая включает в себя налоги и сборы.

Цены на продовольственные товары за семь месяцев т.г. (июль 2017 г. к декабрю 2016 г.) увеличились на 4,6%, непродовольственные – на 3,5%, платные услуги – на 3,3%.

Уровень цен в Казахстане на основные товары и услуги за 2016-2017 годы

в процентах, прирост +, снижение -

	Июль 2017г. к				Январь-июль 2017 г. к январю-июлю 2016 г.
	июню 2017г.	декабрю 2016г.	июлю 2016г.	декабрю 2015г.	
Товары и услуги	0,1	3,8	7,1	12,6	7,6
Продовольственные товары	-0,5	4,6	8,6	14,7	9,4
Непродовольственные товары	0,4	3,5	7,7	13,2	8,2
Платные услуги для населения	0,5	3,3	4,7	9,6	4,8

С начала текущего года (июль 2017г. к декабрю 2016г.) повышение цен отмечено на картофель на 47,4%, баранину - на 11,5%, говядину - на 10%, овощи свежие - на 9,1%, фрукты свежие, молоко консервированное - по 7%, конину - на 6,2%, масло сливочное - на 5,8%, сыр сычужный - на 5,3%, кондитерские изделия - на 4,9%. Снижение цен зафиксировано на огурцы на 69,3%, помидоры - на 45%, яйца - на 29,2%, крупу гречневую - на 16,4%, масло подсолнечное - на 9,7%, перец сладкий - на 6,3%.

Прирост цен на автомобили, стеклянные и керамические изделия составил по 5,3%, текстильные изделия - 3,8%, газеты, книги и канцелярские товары - 3,6%, бытовые приборы - 3,2%, товары личного пользования - 3,1%, фармацевтическую продукцию, строительные материалы - по 3%. Сжиженный газ в баллонах подорожал на 7,7%, дизельное топливо - на 7,4%, бензин - на 5,1%.

Уровень цен на услуги санаториев вырос на 9,4%, правовые услуги - на 7%, страхование личных транспортных средств - на 6,8%, услуги здравоохранения, путевки на экскурсии и отдых - по 4,9%, в области отдыха, развлечений и культуры - на 2,8%, общественного питания - на 2,6%. Проезд внутригородским автобусом подорожал на 4,2%, междугородним автобусом - на 4,4%, воздушным пассажирским транспортом - на 16,9%, а железнодорожным - подешевел на 0,3%.

В сфере жилищно-коммунальных услуг тарифы на канализацию увеличились на 9,6%, отопление центральное - на 7,3%, холодную воду - на 5,7%, газ, транспортируемый по распределительным сетям - на 4,8%, горячую воду, электроэнергию - по 3,8%, содержание жилья - на 3,5% [10].

Выводы. Таким образом, анализ основных компонентов качества жизни населения РК позволил сделать вывод, что наиболее актуальной задачей в области оптимизации качества жизни населения РК является борьба с бедностью. При снижении доли населения с доходами ниже прожиточного уровня растет численность «богатых». Проблема выражается в низкой покупательной способности заработной платы и пенсии, росте денежных доходов населения области преимущественно за счет социальный выплат, высоком уровне социального и экономического неравенства. На основании проведенных исследований можно сделать вывод о том, что качество жизни населения выступает интегральной характеристикой, дающей представление о жизнедеятельности человека и общества, поэтому повышение качества жизни является главной задачей и критерием деятельности органов власти.

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ҚАЗАҚСТАН РЕСПУБЛИКАСЫ ХАЛЫҚТЫҢ ӨМІР САПАСЫНЫҢ ӘЛЕУМЕТТІК-ЭКОНОМИКАЛЫҚ КӨРСЕТКІШТЕРІ

Аннотация. Мақалада ҚР халқының өмір суру сапасының негізгі құраушы компоненттері, сатып алу қабілеттілігі, орташа еңбекақы, зейнетақының орташа мөлшері мен өмір сүру минимумының мөлшері талданған. Талдауда елдің жекелеген аумақтары да, тұтас Қазақстан көлемі де қамтылған. Қазақстандықтардың өмір сапасын төмендететін көрсеткіштер анықталған.

Жүргізілген зерттеулер негізінде Қазақстан халқының өмір сапасы адам мен қоғамның өмір сүру іс-әрекетін көрсететін интегралды сипатқа ие екендігін, сондықтан, өмір сүру сапасын арттыру билік органдарының қызмет етуінің негігзі критерийлері мен негізгі мақсаты болып табылатындығы туралы қорытынды жасауға болады.

Түйін сөздер: өмір деңгейі, өмір сапасы, өмір сапасының компоненттері.

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HISTORICAL MANUSCRIPT OF THE KAZAKH KHAN ALIAKBAR

Abstract. The family of B. T. Amre (Shymkent City, Kazakhstan) has kept some metal flag pommel. The comparison with the known data about the eastern flags allows us to consider that this flag pommel is the end part of shaft from bunchuk (standard) owned by the Kazakh khan Aliakbar. Other descendants of Aliakbar kept the ancient manuscript, consisting of 86 pages. This handwritten book is titled as "Kissa Dastan Genghis Khan". It was written by Abd Rakhim Uzkandi in Turkestan in 1228/1813 by order of Aliakbar, the son of Karabash Muhammad sultan. “Kissa Dastan Genghis Khan" is a new source on the history of the Kazakh Khanate; the information about the genealogy, burial place of the Kazakh khans, and relationship between Khan Tauke and Isfahan governor is of particular interest.

Key words: banner pommel, horsetail, standard, manuscript, genealogy, burial place, Kazakh khans.

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ИСТОРИЧЕСКАЯ РУКОПИСЬ КАЗАХСКОГО ХАНА АЛИАКБАРА

Аннотация. В семье Б. Т. Амре (г. Шымкент. Казахстан) храниться металлическое навершие знамени. Сопоставление с известными данными о восточных знаменах позволяет считать что данное навершие является завершающей частью древка бунчука (штандарта) казахского хана Алиакбара. У других потомков Алиакбара хранится старинная рукопись, состоящая из 86 страниц. Рукописная книга обозначена как «Кисса дастан Чингиз хан». Она была написана Абд Рахим Узканди в городе Туркестане в 1228/1813 г. по заказу ‘Али Акбар султана сына Карабаш Мухаммад султана. «Кисса дастан Чингиз хан» представляет новый источник по истории казахских ханств, особенно интересны сведения о генеалогии, о месте погребения казахских ханов, о связи хана Тауке с исфаганским правителем. Хранящаяся рукописная книга является первой из известных нам сочинений написанных по заказу казахского правителя.

Ключевые слова: навершие знамени, бунчук, штандарт, рукопись, генеалогия, казахские ханы, места захоронения.

В семье Б.Т.Амре (Бекайдар Төлжанұлы Әмре, проживающий в г. Шымкенте, Казахстан), которые являются потомками хана Алиакбара – сына казахского султана Карабаша (Қарабаса), храниться металлическое навершие знамени. Оно состоит из сфероконического верха, закрепленного к втулке, которая несколько расширяется к основанию. Общая высота составляет 22,5 см В основании втулки располагается утолщенное кольцо диаметром 5,2-5,3 см. В нижней части втулки видны гнезда от гвоздиков, служивших для укрепления навершия на древке. Изделие местами деформировано. Куполовидная верхняя часть имеет ряд вмятин, часть втулки у основания погнута, утрачены мелкие фрагменты изделия в местах, прилегающих к отверстиям для гвоздиков. Отсутствуют следы какой-либо орнаментации (рисунок 1).

Рисунок 1 – Навершие знамени казахского правителя Алиакбара. Фото М. Кожа. 2013 г.

Форма навершия знамени хана Алиакбара имеет сходство с завершениями бунчуков/тугов правителей и полководцев Османской империи XVI-XIX вв., которые сохранились в музеях Европы. Они служили знаком власти, обычно это было древко с привязанным хвостом коня. На верхнем конце древка бунчука чаще всего помещался металлический шар, иногда полумесяц. В восточной Европе этот символ власти получил распространение после татаро-монгольского нашествия. Бунчук у османов служил вместо штандарта. Перед османским пашой, который выполнял обязанности визиря носили бунчук, на конце которого были три конских хвоста. Перед самим султаном несли бунчук с семью хвостами. Обычай ношения бунчука был и у казаков на Украине, где их носили перед гетманом и запорожскими казаками. Также бунчуки выставлялись перед походной палаткой гетмана [4].

О знаменах и бунчуках казахских ханов имеются ряд упоминаний в восточных источниках. В анонимном персоязычном сочинении Алам-ара-йи Шах Исмаил имеется упоминание о казахском знамени [3, с. 5-13]. О девяти казахских знаменах, об обычае поднимать бунчук (туг) сообщается в сочинении Бахр ал-асрар махмуда ибн Вали [10, с. 331]. В историческом сочинении Шах-Махмуда Чураса сообщается о разгроме войск казахов во главе с Хакк-Назар-ханом, в ходе которого были захвачены «семь бунчуков и знамен төрä из рода Джучи. Они-то и суть семь бунчуков и знамен» [10, с. 380]. В дополнении к этим данным, мы хотим обратить внимание на упоминание «ханского знамени» правителя Средней Орды, о чем говориться в представлении начальника Оренбургской экспедиции И.Кириллова, датируемый 1 мая 1734 г. [8, с.108].

Таким образом, казахские ханы, как и правители ряда азиатских и европейских стран имели бунчуки и знамена, служившие символами власти. Поэтому, скорее всего, хранящееся у потомков хана навершие является завершающей частью древка бунчука/штандарта (туга) казахского правителя Алиакбара.

Алиакбар в произведении известного казахского поэта Майлыкожа (1835-1898) упоминается как Әліақбар, Әлібек, который как отмечается был возведен ханом во время противоборства с Кокандом и является младшим братом последнего казахского правителя г. Туркестана Тогай-хана [12, 203 б.]. Потомки Тогай-хана, проживающие в с. Тореарык в Ордабасинском районе Южно-Казахстанской области, считают, что хан похоронен в местности Шейбан-тогай вблизи с. Караконыр Отрарского района.

Отец Алиакбара «Коныратской волости султан Карабаш» упоминается в журнале похода атамана Телятникова 15 июня 1797 г. [7, с. 172]. В русских источниках известен как Аликен, Алиакбар, Джакелен [5, с. 95,142-143]. Алиакбар, согласно исследованию И.В.Ерофеевой, являлся последним казахским ханом. В 1858 г. он был провозглашен ханом влиятельными старшинами племени конырат, кыпшак Среднего жуза, некоторыми подразделениями племени сары-уйсын

Старшего жуза в ходе народно-освободительного движения южных казахов против кокандского военно-административного господства в регионе. Он скончался в 1860 г.

В семье Ж.О.Файзуллаева (Жанысбек Оразханұлы Файзуллаев, проживающий в г. Шымкенте, Казахстан), который также является потомком казахского хана Алиакбара, хранится старинная рукопись, состоящая из 86 страниц (рисунок 2). Рукописная книга обозначена как «Кисса дастан Чингиз хан». Она была написана Абд Рахим Узканди в городе Туркестане в 1228/1813 г. по заказу ʻАли Акбар султана сына Карабаш Мухаммад султана. Судя по нисбе автор рукописи уроженец города Узгент, что соответствует городищу Кыр-Узгент (Жанакорганский район Кызылординской области), верхние слои которого относятся к XVIII в. [2, с. 162-163].

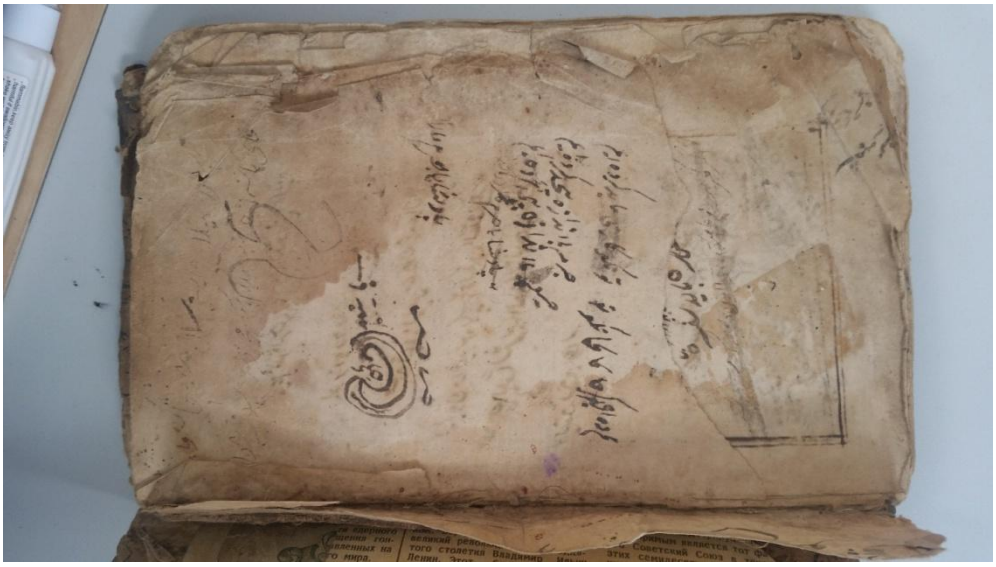

Рисунок 2 – Страница рукописи «Кисса дастан Чингиз хан». Фото М. Кожа

В сочинении Абд Рахим Узканди упоминаются легендарные правители Востока, содержится информация о Шайбанидах и других ханах Центральной Азии. Повествование начинается с Чингисхана: «Фасыл. Чингиз хан набарасы Жучи ханның ұғлы Сайын хан. Аның ұғлы Тоқай Темур хан». Изложенная далее родословная изобилует большими и малыми лакунами, ошибочными замещениями личных имен, путаницей в хронологической последовательности чередования поименованных дальних предков, что, видимо, характерно для родословных росписей нового времени [6, с. 40].

Примечательна генеалогия казахских ханов. Родословная от одного из основателей Казахского ханства Жанибека до Алиакбара представлена следующим образом: «Аның ұғлы - ʻАзиз Жанибек хан. Аның ұғлы – Жадик хан. Аның ұғлы – Шығай хан. Аның ұғлы – Ишим хан. Аның ұғлы – Жангир хан. Аның ұғлы – Тауаккал Мұхаммад бахадур хан. Аның ұғлы - ʻАли шах. Аның ұғлы – Шах Мұхаммад Бахадур хан. Аның ұғлы – Шах Сайид Бахадур хан. Аның [ұғлы] Қарабаш Мұхаммад султан. Аның ұғлы - ʻАли Акбар сұлтан», что в целом соответствует современным историческим данным. Особенностью данной генеалогии является то, что один из основателей казахского ханства Джанибек обозначен здесь как ʻАзиз Жанибек-хан. Его сын Жадик, который обычно в востоковедных исследованиях именуемый как султан в данной рукописи обозначен как хан. Известный казахский хан Тауке (1672-1715) упомянут в рукописи как «Тауаккал Мұхаммад бахадур хан», что является его полным именем [11, с. 226, 252. Табл. 4]. По данным Е.И.Ерофеевой из детей Тауке известны двое – Болат и Семеке (1731-1738) [5, с.103]. В рукописи же указаны -ʻАли шах и Шах Мухаммад Бахадур хан (полное имя хана Семеке). Согласно Е.И.Ерофеевой, старшим сыном Семеке являлся Сеит (Шасеит) (1741-1745), который в рукописи Абд Рахим Узканди обозначен как Шах Сайид Бахадур хан. Автор «Кисса дастан Чингиз хан» счел необходимым отметить, что данное имя дано с учетом происхождения его матери, которая принадлежала к сословию сейидов г. Ташкента. Алиакбар являлся внуком Шах Сайид Бахадур хана. По Е.И.Ерофеевой же он «являлся внуком султана Сангкая (Санхая), правнуком хана Кушыка» [5, с. 95].

В рукописной книге содержится новая информация о месте погребения хана XVII в. Есима. Считалось, что он погребен в г. Туркестане [9, с. 8]. Скорее всего, в г. Туркестане погребен другой Есим. По Б.Т.Туякбаевой, погребенный в г. Туркестане у ханаки Ходжа Ахмеда Ясави Есим-хан отмечен как скончавшийся в 1797 г. [13, с. 16]. К сожалению, автор не приводит никаких аргументов в пользу своего утверждения.

По данным Е.И.Ерофеевой, Есым, скончавшийся в 27 марта 1797 г., являлся сыном хана Нуралы, внуком хана Абулхаира и был похоронен в степи недалеко от р. Урал, напротив Калмыковской крепости [5, с. 127]. Поэтому Есым, являвшийся ханом 1795-1797 гг. большинства родов поколения байулы Младшего жуза не может быть погребенным в г. Туркестане.

Скорее всего, в небольшом мавзолее у ханаки Ходжа Ахмеда Ясави похоронен младший сын хана Семеке, внук хана Тауке Есым (Есим, Ишим). Годы правления этого хана 50-е годы XVIII в. - 1798 г. Совместно с ханом Абулмамбетом владел г. Туркестаном и некоторыми близлежащими городками [5, с. 81].

Согласно сведениям «Кисса дастан Чингиз хан» могила знаменитого Есим-хана (умершего в 1628 г.) располагается в г. Ташкенте, на знаменитом кладбище Шайхантаур. Китайский источник, составление которого было закончено в 1851 г. сообщает: «казахский аймак считает столицей Ташигань (Ташкент), однако его князья и ханы зимой и летом имеют свое место кочевья. Когда умирают, то их (прах) возвращается для погребения в Ташигань» [1, с. 326]. Как известно на кладбище Шайхантаур погребен и знаменитый казахский бии Толе.

В рукописи впервые указывается, что Жахангир (Джахангир)-хан, Тауккал Мухаммед Бахадур-хан (Тауке), Шах Мухаммад Бахадур-хан захоронены в Туркестане. Последний хан известен в русских источниках как Шемаха, Шемяка, Семеке» [5, с. 77].

Интересна информация о международных связях хана Тауке. В рукописи указывается о получении Тауке-ханом от правителя Исфахана Шах Сулаймана восемдесять ружей, восемдесять сабель, по две девятки породных лощадей: «Исфахан падшахы Шах Сулайман Тауаккал Мұхаммад Бахадур ханға тухфа учун саксан мылтық, саксан қылыч, йекі тоқуз арғымақ килган. Тамам илгару йукали алтундин».

Навершие знамени и рукопись «Кисса дастан Чингиз хан» представляют уникальные памятники ханского периода истории Казахстана. Впервые выявлена рукопись, написанная по заказу казахского султана. Она содержит ряд неизвестных данных о генеалогии, о местах захоронений казахских ханов, о связях с правителем Исфахана, ряд легенд о ханах и эмирах Центральной Азии.

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ҚАЗАҚ ХАНЫ АЛИАКБАРДЫҢ ТАРИХИ ҚОЛЖАЗБАСЫ

Аннотация. Б. Т. Амренің (Шымкент, Қазақстан) отбасында металдың жоғарғы жағы сақтаулы тұр. Тудың басы туралы тарихи деректермен сәйкестендіру арқылы, садақ білігі бунчуктың (штандарт) қазақ ханы Али Акбардың қорытынды бөлігі болып табылады деп болжайды. Алиакбардың басқа ұрпақтары 86 беттен тұратын ежелгі қолжазбаға ие. Қолжазба кітабы «Шыңғыс ханның қисса дастаны» деп аталады. Ол 1228/1813 жылы Түркістан қаласында Абдрахим Узканди Қарабаш Мұхаммед Султанның ұлы Әли Акбар Сұлтанның тапсырмасы бойынша жазылған. «Шыңғыс ханның қисса дастаны» қазақ хандары жөніндегі жаңа дерек болып табылады. Әсіресе, қазақ хандарының генеалогиясы, жерлеу орындары, Тәуке ханның Исфахан басшылығымен қарым-қатынасы туралы тың мәліметтер келтірілген., Сақталған қолжазба кітабы қазақ билеушісінің бұйрығымен жазылған тұңғыш белгілі еңбек болып табылады.

Түйін сөздер: тудың басы, банчук, штандарт, қолжазба, генеология, қазақ хандары, жерлеу орындары.

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МЕЛДЕБЕКОВ Алихан Мелдебекұлы
70 жаста

Қазақстан Республикасы ауыл шаруашылығы және биология ғылымының білікті маманы, ауыл шаруашылығы ғылымының докторы, профессор,Ұлттық ғылым академиясының академигі, Қазақстан Республикасы Білім және ғылым министрлігі Ғылым Комитетінің «Зоология институты» РМК бас директоры Мелдебеков Алихан Мелдебекұлы 70 жасқа толды.

Алихан Мелдебекұлы 1948 жылы24 наурызда Оңтүстік Қазақстан облысы Бәйдібек ауданы, Ақтасты ауылында дүниеге келген.

Еңбек жолын 1964-1965 жылдары – Прогресс совхозында шопанның көмекшісі болып бастап, – кіші, аға ғылыми қызметкер, ғалым хатшы, бөлім меңгерушісі болып, 1988-1991 ж. – Бүкілодақтық мал шаруашылық институтының докторанты (Мәскеу қаласы), 1991 ж.. – ауыл шаруашылығы ғылымдарының докторы, 1993-2003 ж. – Қазақ ғылыми-зерттеу мал шаруашылығы институтының директоры, 2003 жылы Ұлттық Ғылым академиясының академигі, 2003 жылдан қазірге дейін – «Зоология институты» РМК бас директоры лауазымына дейін көтерілді.

А. М. Мелдебеков биология және аграрлық ғылымға зор үлес қосқан ғалым, іскер ұйымдастырушы ретінде танылды. Қазақстанда өсірілетін ірі қара мал тұқымының ет өнімділігі және шаруашылыққа тиімді белгілерін жақсартуға бағытталған жаңалықтардың ғылыми және тәжірибелік маңызы зор болды. Бұл жасаған жұмыста малдардың өсетін ортасымен жануар ағзасының өзара байланыс теориясы толықтырылып, зоотехникалық және биологиялық ғылымға қомақты үлес қосты. Көп жылдық ғылыми зерттеулердің нәтижесінде «Жетісу» , «Әулиекөл» малының жаңа аймақтық типі және «Ақырыс», «Ертіс» сүтті малының жаңа типін ашты. Өндіріске жаңа жобалар енгізгені және Қазақстан ғылымының дамуына елеулі үлес қосқаны үшін Мелдебеков Алихан 2001 жылы А. Бараев атындағы мемлекеттік сыйлықтың лауреаты атанды.

А. М. Мелдебековтың басшылығымен Зоология институтында көптеген жылдар бойы дағдарыста тұрып қалған «Қазақстан фаунасы» 30 томдық басылымдар қайтадан жалғасын тапты. Жан-жануарлардың дүние жүзінде және Қазақстанда таралуы, өсіп-өнуі, систематикасы, экологиясы, жаңа түрлері туралы мәліметтер берілген. Олардың ішінде, әсіресе, саны азайып, сирек кездесетін және жойылып кету қаупі бар, «Қызыл кітапқа» кірген түрлердің жағдайы жақсы көрсетілген. Оларды қалпына келтіру мәселелері сөз болады. Құлан мен тоғай бұғысының кеңінен таралуына көңіл бөлінген. Ақбөкеннің жағдайы мен келешегі кеңінен талқыланады және арқар-

ларды көбейту жолдары көрсетілген.. Бөдененің биологиялық ерекшелігі, оны қолда өсіріп көбейту кеңінен сөз болады. 2008 жылы Зоология институты Халықаралық құрметті «Алтын Феникс» сыйлығын алды,ал бас директор А.М.Мелдебеков Халықаралық достық орденімен марапатталды, 2009 жылы Австрия мемлекетінің Халықаралық Вена қаласының университетінің Құрметті профессоры атағын алды, 2009 жылы Монголия Ұлттық Ғылым Академиясының академигі болып сайланды, 2010 жылы Ғылым мен білімді дамытудағы Еуроодақтың алтын медалімен марапатталды. 2011 ж. Англияда, Оксфорд қаласында өткен Еуроодақтың «Ғылым адамы» атты медалімен марапатталынып, дүние жүзіндегі атақты ғалымдар реестріне жазылды.

Ғылым жолында А. М. Мелдебековтің өз мектебі, яғни пікірлес, ойлас еңбектерін жалғастырушылар да жеткілікті. Ол жоғары білікті мамандар дайындауға көп көңіл аударады. Оның жетекшілігімен 9 ғылым кандидаты, 6 ғылым докторы дайындалды. А. М. Мелдебеков Қазақстанның ғылымына қомақты үлес қосып, оның дамуына әлі де тұрақты қамқорлық жасауда. Алихан Мелдебекұлы 360 -тан аса еңбек жариялады, оның ішінде 8 кітап, 5 кітапша, 16 өндіріске ұсыныс, 1 атлас, 4 патент және 9 авторлық куәліктің иегері. Аталған ғылыми еңбектердің сыртында А.М.Мелдебековтың басшылығымен бас редактор ретінде 17 кітап шықты. Халықаралық, Бүкілодақтық және республикалық конференцияларда, мәжілістерде 100-ден астам баяндама жасады. Алғаш рет «Алматы облысының Қызыл кітабы» (2006) мен Оңтүстік Қазақстан облысының Қызыл Кітабы (2014) аймақтың жануарлар әлемі кадастры баспадан шықты. 2010 жылы А.Мелдебековтың жетекшілігімен және ҚР Үкіметі Қаулысымен Қазақстан Қызыл кітабының төртінші басылымы (Жануарлар) 4 мың данасы шығарылды, ол Қазақстан Республикасындағы ғылыми ұйымдар, жоғарғы оқу орындары, барлық табиғат қорғау ұйымдары үшін сирек кездесетін және құрып бара жатқан жануарларды сақтау, қорғау және қалпына келтіруде жетекшілік ететін үстел кітабы болып табылады. Ол мал шаруашылығы мен ветеринария ғылыми-өндірістік орталығы және Зоология институтында үш мамандық бойынша докторлық диссертацияларды қорғау кеңесінің төрағасы болды.

Сіз осы салиқалы да сабырлы,парасатты , абыз жасқа өзіңіздің салауатты ақыл ойыңыздың арқасында абыроймен жетіп отырсыз. Осы мехнаты да, мерейлі кезі де мол мерзім ішінде 25 жыл басшылық лауазымдарда болып,мазмұнды еңбек жолын жүріп өтіп келесіз. Алдыңызда кездескен қиындықтарға, кихметтер мен ауыртпалықтарға мойын ұсынбай, олардың бәрін бойыңыздағы өзіңізге ғана тән байсалдылық, төзімділік және қайсарлық секілді асыл қасиеттеріңізбен жеңе білдіңіз. Алихан Мелдебекұлы жасандылыққа,жағымпаздыққа, жаны қас, қандай жағдай болса да бетің бар, жүзің бар демей турасын айтқанды жақсы көретін ғалым. Лауазымды адамдардың алдында да мәймөңкелеуді білмейді, өтірік айтқанды жаны сүймейді.

Қай жерде жұмыс істесеңіз де, қандай лауазымда болсаңызда, сіз өз ісіне берілген еңбек сүйгіштігіңізбен, парасаттылығыңызбен, ұжым алдында тұрған келелі мәселелерді іскерлікпен шешумен әріптестеріңізге және шәкірттеріңізге үлгі-өнеге көрсете білдіңіз. Сіз еліміздің игілігі үшін табандылықпен, мақсаткерлікпен еңбек етіп, өзіңіздің терең біліміңіз бен бай тәжірибеңізді тәуелсіз еліміздің ғылымының дамуына және өркендеуіне жұмсап келесіз. Сізге тән тамаша қасиет – ой өрісіңіздің жоғарылығы, қарапайымдылығы, іскерлігіңіз, әділдігіңіз, мейірбандылығыңыз, табандылығыңыз, адамдармен тіл табыса алатындығыңыз, оларды белгіленген мақсатқа жұмылдыра алатындығыңыз, әсіресе қарым-қатынасты орнықтыра білетіндігіңіздің арқасында әріптестеріңіздің арасында айрықша құрметке лайықты беделге ие болдыңыз.Елімізге істеген еңбегіңіз, келер ұрпаққа берер тәліміңіз,алдағы уақытта жалғасын табады деп сенеміз.Ағайын туыстың, әріптестеріңіздің құрметіне бөленіп ұзақ та мәнді ғұмыр кешіңіз. Қазақстан ғылымына сіңірген еңбегіңіз үшін ҚР Тәуелсіздігінің 10, 20 және 25 жылдығы медалімен марапатталдыңыз, ҚР ғылымды дамытудағы еңбегіңіз үшін БҒМ төсбелгісі және көптеген Құрмет грамоталарымен және алғыс хаттарымен марапатталдыңыз.

Құрметті Алихан Мелдебекұлы!

Осы мерей той күні деніңізге саулық, жасыңызға ұзақтық, шығармашылық табыс, қажымас қайрат, бақыт, отбасыңызға Алла құт-береке берсін, Рухыңыз биік болсын деп тілейміз!

ҚР БҒМ ҒК «Зоология институты» РМК бас директордың
ғылым бойынша орынбасары М. Ж. Сүлейменов

МАЗМҰНЫ

Ғылыми мақалалар
(ағылшын тілінде)

Ғылыми мақалалар

(орыс тілінде)

Мерейтойлар

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