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Energy Efficiency of Anti-Turbulent Additives for Sequential Pumping

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Key words and phrases: oil products; sequential pumping; anti-turbulent additives; process of mixture formation; increased productivity; resource-saving; energy saving.

Abstract: The purpose of this work is to study the influence of anti-turbulent additives on the sequential pumping of oil products. The author considers the change in volume of the mixture and the specific energy consumption, assuming that both parameters will decrease. The assumption has been verified by the calculations and the effectiveness of the additives has been justified.

The relevance of the work is due to the fact that at present the volumes of oil products are growing at an incredible speed, and at the same time the cost of electricity used for pumping increases, and therefore the issue of reducing economic costs arises. One way to solve this problem is the use of polymeric additives [1; 2]. Particular attention is also paid to the fact that the prices for additives are getting lower every year, and the equipment necessary for this process is mounted quickly enough.

In the work, the effectiveness of the use of anti-turbulent additives (**ATAs**) is considered in the example of sequential pumping of various petroleum products. The application of ATAs in the sequential transfer is explained by the fact that during the transport of petroleum products, different in their properties, a process of mixture formation occurs in the contact zone of two media [2].

According to the Strategic Development Program of Transneft PJSC for the period until 2020, there are long-term plans for the development of oil product pipelines (**OPPLs**). One of these projects is the construction of the OPPL Nizhny Novgorod – Ryazan – Moscow. In this paper, I consider the possible effectiveness of using ATAs in the Nizhny Novgorod – Ryazan section of the pipeline. In the considered example gasoline and diesel fuel (**DF**) are pumped. The CDR-102 “Dupon Conoco” is added to the DF. The research is restricted to the following conditions:

– the pumping equipment is not modernized;
– pumping is done in the advanced turbulent mode;
– pumping is done in certain areas.

These conditions must be observed for the reason that deviation from them will lead to the opposite effect, i.e. an increase in the volume of the mixture. We increase it to the level of gasoline productivity in order to reduce the unevenness of pumping and to reduce the pressure

Table 1. Mixture volume change

Parameter	Without ADAs	With ADAs
Λ_{DF}	0.0221	0.01711
V_{cm}, m^3	561.06	416.82

Table 2. Changes in electricity consumption

Parameter	Without ADAs	With ADAs
$N_{DF\ cons}$, KW	2735.84	2905.63
E_{sp}, KW · h/t	2.83	2.75

Table 3. The amount of savings after increasing pumping volumes

Cost of ADA equipment and its installation:	6.02 m RUR
Tariff revenues:	41.3 m RUR
Economic efficiency:	35,27 m RUR / year
Payback period:	~2-3 months

jump when switching to a less viscous oil product. As a result of the calculations, we have the following (Table 1).

The volume of the mixture decreased by 22.58 % as a result of a decrease in hydraulic resistance. The volume of the mixture was calculated by the formula [2]:

$$V_{cm} = 1000\left(\lambda_{DF}^{1.8} + \lambda_{G}^{1.8}\right)\left(\frac{D}{L}\right)^{0.43} V_{pl},$$

where λ_{DF} and λ_G are the coefficients of hydraulic resistance of diesel fuel and gasoline, respectively; D is internal diameter of the pipeline; V_{pl} is volume of pipeline; L is traveled mixture path.

Now consider the changes in the electricity costs (Table 2).

The power consumption increased during the DF transfer. But at the same time specific energy consumption decreased, due to the reduction in the period of pumping the initial volume of fuel, and accordingly the cost of pumping of petroleum products reduced. However, the benefits obtained by reducing the specific energy costs will not pay for the cost of ADA equipment and its installation, since the costs are approximately 3.6 million rubles, and the profits are 1.33 million rubles. Therefore, the pipeline was loaded with an additional batch of diesel fuel, the estimated number of days of pumping was brought up to 350 days, and it was found how much could be saved at the expense of the tariff revenues (Table 3).

Now, on the same pipeline, let's consider what will happen if we increase the concentration of ADAs (Fig. 1).

The effectiveness of using ADAs in this case will be the following (Fig. 2) [1].

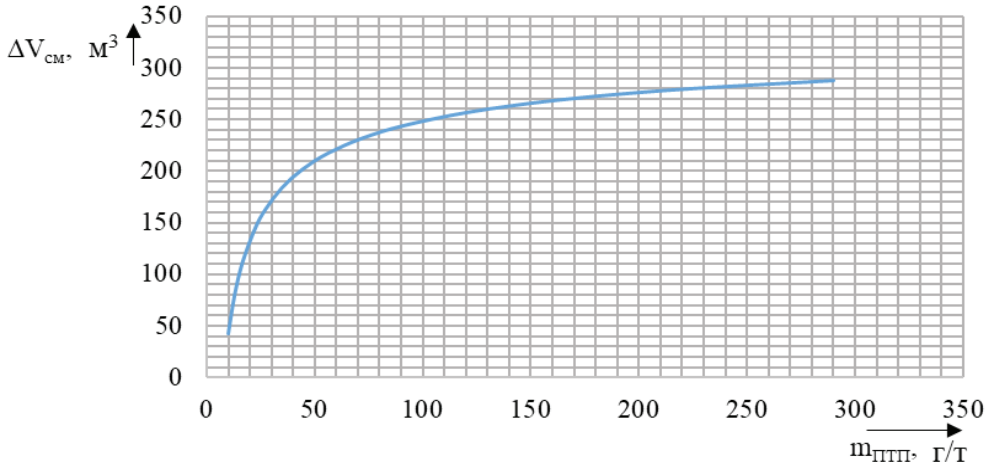

Fig. 1. Change in volume of the mixture with increasing concentration of ADA

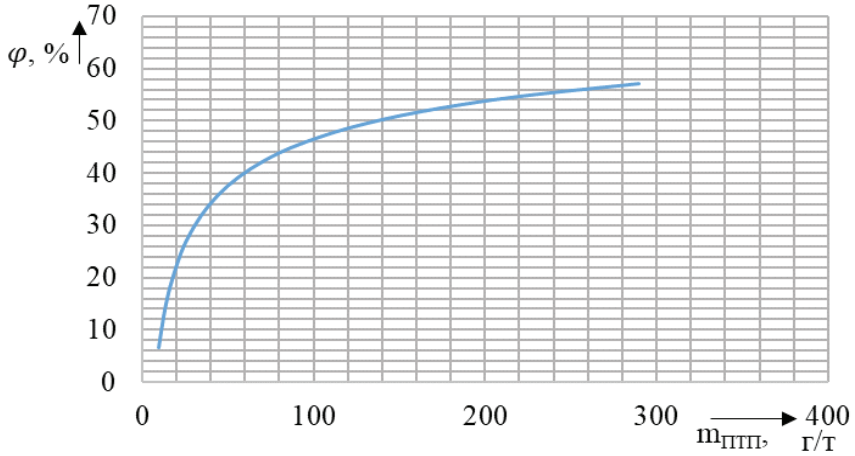

Fig. 2. The change in efficiency with an increase in the concentration of additives

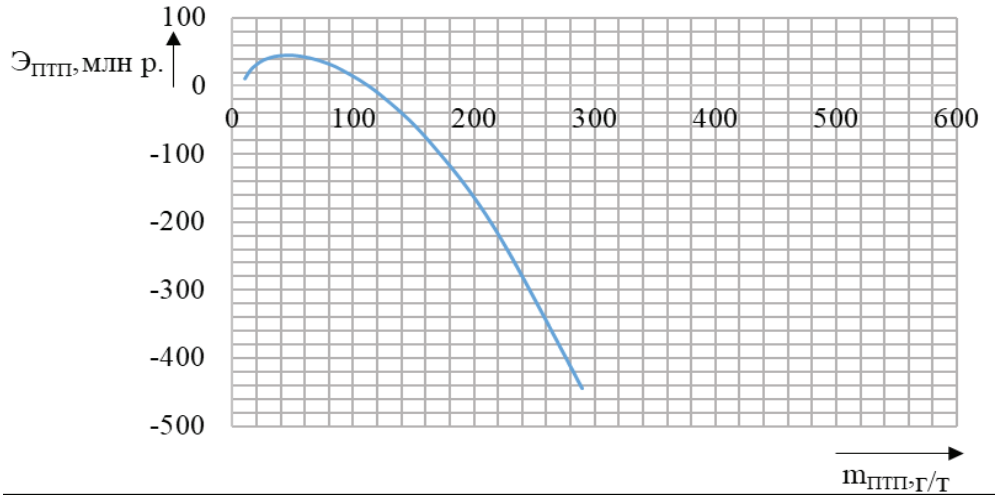

Fig. 3. Economic efficiency of the use of additives

The maximum efficiency can be considered on the following graph (Fig. 3). As can be seen, the economic efficiency reaches its peak, and then goes to decline.

According to the graph (Fig. 3), one can find the most effective concentration of additives to achieve the maximum economic effect.

Conclusion. It was found that the use of ADAs has a favorable effect on the work of the oil product pipeline, increases its throughput, reduces the volume of the mixture formed, and reduces energy costs.

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Энергетическая эффективность противотурбулентных присадок при последовательной перекачке

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Ключевые слова и фразы: нефтепродукты; последовательная перекачка; противотурбулентные присадки; процесс смесеобразования; увеличение производительности; экономия ресурсов; экономия электроэнергии.

Аннотация: Цель исследования – изучить влияние противотурбулентных присадок на последовательную перекачку нефтепродуктов. В работе поднимались такие задачи, как оценка изменения объема смеси и удельных энергозатрат, предполагалось, что оба параметра уменьшатся. После технологического расчета это подтвердилось, и была доказана эффективность применения присадок.

UDK 533

Quantum Plasma Condensate Ultraviolet Laser

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Key words and phrases: plasma quantum condensate; laser; maser; plasma ultraviolet laser; not-degenerate plasma; internal energy of phase transition; solid plasma phase; discharge plasma metallurgy.

Abstract: Quantum plasma condensate ultraviolet laser as a new option of energy device based on the use of phase transitions in plasma is proposed. Any waste that is in abundance, including lithium, boron, sulfur, silicon, phosphorus, copper and iron can serve as materials for laser; this is shown on the basis of energy calculations. The example of using gas waste (containing those items and entering the smoke alarm) as a plasma emitter by heating it to a temperature of a few thousand degrees at pressure 1 ATM is described. It is shown that the process of allocation of energy in laser is accompanied by phase transformation of a new kind of substance: first plasma discharge formed plasma liquid, and then (when it is further cooled) formed a solid conglomerate, that is the crystalline formations. Solid plasma phase is a substance with new properties. The authors offer named this new area as the discharge plasma metallurgy.

Modern energy is in dire need of a medium-sized power source, which is environmentally clean, and not associated with the consumption of expensive resources. The proposed option of energy device based on phase transitions in plasma should be attributed specifically to the kind of sources [1–3].

Atomic and molecular systems are used as a carrier of electromagnetic field in conventional laser and maser devices. Pumping and radiation are carried out with this due to discrete (quantum) transitions between energy levels that are selected in a certain way. We can implement optical and x-ray emission in plasma by using a combination of transitions in continuous and discrete spectra of ionic and atomic states. Quantum states of a particular type are possible in not-degenerate plasma: they are due to electrons and ions bounds, i.e. the action of the effective force of attraction between particles, the result of which is the formation of the new stable energy levels below the basic levels of isolated atoms. This is due to the action of specific quantum force that arise in electronic exchange bars, and it turns out that

the effect of the exchange should consider it is in the continuous spectrum (i.e. in ionized state of matter). To "enable" quantum forces it is enough that attitude $\lambda_б/r_e$ totaled the amount *order* 1/3÷1/5, i.e. it is enough just to "order" approximation of the de-Broglie wavelength $\lambda_б$ to inter-electrons destination r_e. This is a specificity of the continuous spectrum of plasma: wave functions of electrons are oscillating in nature, slightly decreasing with distance between atoms, and so the wave functions overlap may be significant.

It was shown that such forces could lead to the formation of new collective energy levels in systems [4; 5]. Similar phenomena (perhaps only and external physical manifestations in relation to the properties of the energy spectrum) have a place in superconductors: conduction electrons that are initially quasi-free are clearly pronounced tendency to mutual pairing, consequence of which are the emergence of a Cooper's pair and energy gap in the spectrum, which leads to superconductivity [5].

Plasma level of lowering energy electronic system (negative sign), calculated by us by order-of-magnitude and based on one electron, is equal to [4]:

$$W_1 = -3z^2 e^2 n^{1/3} \Lambda,$$

where z is the degree of ion ionization; n is concentration; e is the charge of an electron in *cgs* units; Λ~15 is logarithmic factor (type of Coulomb logarithm).

We denote by I ionization energy, also calculated for a one electron. Then the above interaction leads to a lower energy level of particles (relatively to atomic) when implementation the inequality $I < W_1$.

Obviously, this condition is relatively easily solved in fairly dense (but not yet degenerate) plasma. The frequency of the transition from a state of continuous spectrum into the lower energy state is equal to $\omega = W_1/\hbar$.

The best way to get excess energy, equal to module $|W|$, is creation of dense gas discharge from a mixture of easy ionized type elements, such as cesium, carbon, nitrogen and other. If we take $n = 10^{19}$ sm^{-3}, $z = 5$, that per unit volume (1 sm^3) such a mixture will get:

$$|W_1| = 3 \times 10^{-16} n^{4/3} \text{ erg} \sim 30 \text{ kJ/sm}^3.$$

This energy radiates mostly in the lines of the spectrum with energies $\hbar\omega$ ~ 10 EV, i.e. in the ultraviolet range. The duration of radiation is determined by quantum transition. The characteristic length of radiation is determined by the diffusion of quanta. They are approximately equal $\tau \sim 3R^2 n\sigma/c$, where $\sigma \approx \sigma_0 n\lambda^3$ is the cross-section of the inhibitory processes, $\lambda = 2\pi c/\omega \sim 10^{-5}$ sm is the wavelengths emitted by quanta, $\sigma_0 \approx 10^{-24}$ sm^2 is the Thomson scattering cross-section; from here $\sigma \approx 10^{-19}$ sm^2.

The minimum time for radiation is $\tau \sim 10^{-7} \div 10^{-8}$ sec. Therefore, when the concentration $n \sim 2 \times 10^{19}$ sm^{-3} (atmospheric pressure) and single ionization elements such as lithium, boron, sulfur, silicon, phosphorus, copper and iron, energy W_1 ~ 25 EV, that is several times higher than the efforts on ionization.

Thus, materials for laser can serve virtually any wastes that contain these elements in abundance. Enough, for example, take gas coming into the smoke alarm, and use it as a plasma emitter. This requires the following.

1. Collecting gas and heat to a temperature of a few thousand degrees at pressure 1 ATM. It is advisable to use at the first stages of compounds easily ionized atoms or molecules.

2. Producing ionization with the help of pulsed electric field with such a breakdown

tension, which would ensure the length of run on energy $l_\varepsilon \sim l/n\sigma\varepsilon$ when submitting the "seed" electrons with energy $\in$ ~10 kV, where $\sigma \sim 10^{-16}$ sm^2 – elastic scattering cross section, where we can purchase energy order starting, which would enable the development of discharge with subsequent ionization.

Implementing the transition (under the influence of quantum exchange forces) to the lower energy level, which is accompanied by radiation quanta with frequencies $\omega \geq W_1/\hbar \sim 10^{17} c^{-1}$, i.e. already in the soft x-ray region. An increase in concentration and charge lead to radiation of harder quantum. It seems this radiation is observed in a number of plasma elements (for example, in pinch effect, explosive or drip emission, etc.) [6; 7].

The proposed laser mechanism differs from other known ones, primarily because pumping is carried out at frequencies lower than operating frequency. An important feature of plasma ultraviolet laser is that the energy of the laser radiation will be charged not from an external source (pumping), but represents the internal energy of phase transition in the plasma.

Plasma laser devices are completely safe; risk relates only to normal working with the technique of high voltages. Materials used are mixtures of light elements; they are very cheap, no extra costs of producing them are required. We can use garbage(in the literal sense of the word) as laser fuel,effectively "burning"it for the production of laser energy.

It is possible that use of waste, even the struggle for waste will be characteristic of the civilization of the 21st century. Nature must be rational. Another important fact is that the process of energy production is accompanied by the phase transformation of the substance of the new species. Firstly, from plasma discharge the plasma liquid substance is formed, and then, when it cools later, a solid conglomerate (crystalline formation) is formed. We meet with this kind of transformations, for example, in volcanic eruptions. We assume that the hard phase plasma is a substance with some new properties that are not predictable in advance. Anyway, we get new very useful materials when ending "combustion" process.

This area of technology can be called the discharge plasma metallurgy.

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Квантовый плазменный конденсатный ультрафиолетовый лазер

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Ключевые слова и фразы: плазменный квантовый конденсат; лазер; мазер; плазменный ультрафиолетовый лазер; невырожденная плазма; внутренняя энергия фазового перехода; твердая плазменная фаза; электроразрядная плазменная металлургия.

Аннотация: Предложен новый вариант энергетического устройства, основанного на использовании фазовых переходов в плазме, – плазменный ультрафиолетовый лазер. На основе энергетических расчетов показано, что материалами для лазера могут послужить практически любые отходы, которые в обилии содержат литий, бор, серу, кремний, фосфор, медь и железо. Описан пример использования газового отхода, содержащего эти элементы и поступающего в дымоуловитель в качестве плазменного излучателя путем нагрева его до температуры несколько тысяч градусов при начальном давлении 1 атм. Показано, что процесс энерговыделения в лазере сопровождается фазовой трансформацией вещества нового вида: сначала из плазменного разряда образуется плазменная жидкость, а затем (при ее дальнейшем охлаждении) образуется твердый конгломерат – кристаллические формации. Твердая плазменная фаза является веществом с новыми свойствами. Эту область предложено назвать электроразрядной плазменной металлургией.

UDK 691

Source Materials and Corrective Ingredients for Lightweight Expanded Clay Aggregate Gravel Manufacturing

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Key words and phrases: LECA; LECA gravel and LECA sand; porous aggregate material; fuel consumption rate of LECA production.

Abstract: For LECA gravel and sand, universally known as LECA (Lightweight Expanded Clay Aggregate), manufacturers use natural clayey rocks with a low melting point that tend to bloat when heated to 1,100–1,250 °C, as well as various ingredients that improve the production properties and quality of the end product. Porous aggregate materials are made all over the Russian Federation. LECA gravels account for the largest specific share in total production of porous aggregate materials. The main objectives to improve LECA production technologies include: reducing density to 300–400 kg/m^3 and fuel consumption to 70–75 kg/m^3 compared to the sector's average values of 500–600 kg/m^3 and 90–100 kg/m^3 respectively. The critical characteristics of clayey rocks used to make LECA include: bloating ratio, bloating interval, bloating temperature, chemical and mineral composition, refractory ability, the content of ferriferous and organic compounds, and the content of quartz, carbonates and sulfurous compounds.

Easy-bloating clayey rocks with bloating ratios 4.5 up are mainly composed of clayey minerals from the group of montmorillonite and hydromica with some kaolinite mixed in. As a rule, these tend to be finely dispersed clays. Their content of psammite-aleurite fractions is around 3–5 %, while finely dispersed 0.005 mm grain size fractions can be as high as 85–90 %. In such clays, the content of free quartz is minimal (5–12 %), with minor quantities of impurities such as feldspar, mica, glauconite, gypsum, and with individual grains of accessories.

Medium-bloating clays with bloating ratio in the range of 2.5–4.0 are composed of clayey minerals with largely dominating hydro-mica and kaolinite (clayey fractions is such clays can be 60–65 %, the quantity of free quartz being 30–40 %). The content of large-grain ballast impurities – feldspar, mica, glauconite, carbonates and accessories – is building up.

Weakly bloating clays and loams with bloating ratios under 2.5 are mainly composed of hydromica, beidellite and kaolinite, with a touch of montmorillonite and lots of free quartz (up

to 45–50 %). The content of ballast minerals (feldspar, etc.) grows, while the quantity of clayey fractions falls to 30–50 %.

Non-bloating clays and loams differ from weakly bloating ones by even lower content of clayey fractions and more impurities such as free quartz and other ballast minerals.

Finely dispersed fractions isolated from weakly bloating and non-bloating loams and clays, whose mineral content includes montmorillonite, hydromica, beidellite, ingda-vermiculite and some kaolinite in various proportions, can bloat strongly (with bloating ratios of 4.5 and higher).

The above characteristics are helpful for:

– evaluating the use of source material;

– set the approximated key parameters of LECA manufacturing;

– identify the permissible variation range of clayey rock main parameters for LECA manufacturing.

LECA manufacturing businesses have long-term stocks of materials that can be used to make porous aggregate materials, including for LECA gravel.

To boost the bloating ability of clayey material, manufacturers add corrective ingredients, while the pellet surfaces are treated with fire-resistance powders.

To strengthen the LECA gravel, the material is enhanced with solid or liquid high alumina content ingredients (refractory clays, power plant ash, loams, etc.) and clint (tripoli, diatomite, flask). Such ingredients are added directly to the batch mix or on the granule surfaces before or during baking. The strength of the vitreous component increases as aluminum and silicon are added to the melt. If up to 10-25% of refractory clays and ashes are added to the mix, this does not improve the apparent density of the LECA, but it does increase its strength by some 20-50%.

Clayey material can be processed using a number of methods:

– plastic – universally adopted thanks to large stock of plastic clayey material available;

– dry – less frequently used, since deposits of mudstone and clayey shales are mainly located in Central Asia, Karelia and the Russian Far East;

– slip and powder methods – the most power-intensive (these methods are only used as an exception, supported with a special feasibility study).

Research done by Samara-based NIIKERAMZIT (Russia) established that the physical state of clay, particularly at the onset, unambiguously determines the consistency ratio B and the plasticity index $w_{пл}$:

$$B = (w - w_p) / w_{пл},$$
$$w_{пл} = w_m - w_p,$$

where: w is the moisture of freshly mined clayey material, % by weight; w_p – the moisture of clayey material at rolling peak, % by weight; w_m – moisture of clayey material at yield peak, % by weight; $w_{пл}$ – plasticity index, % by weight; and B – consistency ratio.

Bloating of clayey rock depends on a number of critical technology factors: the nature of the gas environment during baking, heating temperature and rate during different periods of heat treatment, and the nature of ingredients, processing and blending of the raw material.

A neutral medium is a positive influence on the bloating ability. An oxidizing medium (presence of oxygen) is adverse for the bloating ability of clay. Therefore, baking of LECA is not allowed with lots of excessive air, which in industrial furnaces can be frequently as high as 1.5–2.0 rather than the standard level of 1.05 recommended for rotary furnaces.

All types of clayey material lose their bloating ability with relatively gradual heating; greatest losses of the bloating ability occurs in baking of weakly and medium bloating materials.

Generally, if gradual heating of natural weakly bloating loams produces porous material with density around 1,000 kg/m^3.

Medium and easily bloating clays feature a much wider preheating temperature range without compromising the bloating ability considerably. The range is 200–400 °C for medium bloating clays, and 200–600 °C for easily bloating clays.

Considerable loss of the bloating ability is caused by preheating above the ignition point of the organic impurities, and when the preheating of raw granules is extended beyond the optimum time period.

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Исходное сырье и корректирующие добавки для производства керамзитового гравия

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Ключевые слова и фразы: керамзит; керамзитовый гравий и керамзитовый песок; пористые заполнители; вспучивание керамзита; прочность керамзитового гравия.

Аннотация: Для производства керамзитового гравия и песка, которые принято называть керамзитом, применяют природные легкоплавкие глинистые породы, способные при нагревании до 1 100–1 250 °С вспучиваться, а также различного рода добавки, улучшающие технологические свойства сырья или повышающие качество конечного продукта. Пористые заполнители изготавливают практически на всей территории РФ.

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Methodology of Architectural Design of Marine Terminal Complexes

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Key words and phrases: architectural planning solutions; master plan; initial data; methodology.

Abstract: The article considers the methodology of architectural design of marine terminal complexes. The proposed methodology consists of four main stages: obtaining and analyzing the initial data for the construction site, defining the principal layout of the master plan, developing architectural and planning solutions, and finalizing solutions for the “Land plot layout diagram” and “Architectural design” sections.

Methodology of architectural design is a complex and creative process of solving the problems of object design. Creating an architectural and planning solution of an object is influenced by a large number of different factors: climatic, functional-technological, volume-planning, structural engineering and engineering conditions, architectural and artistic, as well as urban, economic and operational requirements.

The methodology of architectural design in this particular case is the design of marine terminal complexes (**MTC**). The methodology consists of a sequence of sets of techniques and approaches for the development of the space-planning and architectural solutions of the object.

In this article, only architectural aspects of MTC design are considered. The proposed methodology can be used to develop “Land plot layout diagram” (**LPLD**) and “Architectural design” sections for the MTC project at the stage of the Architectural and Town Planning Solution (**ARPS**) and at the “Project” stage.

The whole process of developing the architectural part of the MTC project can be divided into four main stages [1].

Obtaining initial data for design and analysis of the construction site (Stage 1)

The list of initial materials for the development of the project includes: technical specifications and data on the construction site, including geology and possible restrictions.

On their basis, the architect conducts a thorough multifactor analysis of the selected construction site by the following main criteria:

– site configuration and its existing vertical planning;

– the nature of the surrounding buildings, main types of areas of the site to the external environment (both urban and water surface), as well as the most attractive views from the city to the site;

– organization of the external transport network: routes and traffic intensity, trajectories of people traffic;

– possible options for the organization of a berthing line for vessels of various types.

Dynamics of changes in the modern world of architecture and construction requires the collection and analysis of architectural and compositional solutions of similar objects, which in their parameters are comparable to the projected MTC. These materials can be obtained from literature sources, visual inspection of already constructed objects, and Internet resources.

Developing the layout of the MTC Master Plan (Stage 2)

The development of the layout of the MTC Master Plan involves creating a zoning scheme of the site [2], which should be based on the transport scheme that defines the traffic of people and all means of transport.

One of the distinguishing features of the design of the MTC territory is the simultaneous development of traffic patterns of people and various vehicles. Therefore, the transport scheme must include:

– the location of sea-going vessels with the display of the berth line configuration;

– the trajectory of movement of all means of transport, indicating the fronts of embarking/disembarking of passengers;

– routes for the movement of passengers – both at embarking and disembarking from vehicles and ships; ways of movement of people who are not passengers, but who need to access to other facilities within the MTC (business center, hotel, trade and public catering facilities, etc.).

The architect makes options of zoning schemes of the territory simultaneously with the development of transport schemes. It is important to organize wisely the movement of passengers, and, in the first place, to achieve the maximum reduction in the length of pedestrian routes and minimize their intersections with transport passages.

Developing architectural and planning solution of the MTC (Stage 3)

The creation of an architectural and planning solution for the MTC facilities is preceded by two stages:

– compilation of a functional-technological scheme;

– calculation of areas for individual zones or their groups, which is conducted according to regulatory documents.

When creating architectural and spatial solutions, the architect develops not only the internal functional and compositional structure of the building, but also represents the total compositional solution of the design object exterior [2].

Design solutions for MTC are made by the traditional design pattern, which include:

– plans, sections and facades of the main buildings in the allotted territory;

– selecting general style and color solution of the object;

– solution for construction projects.

Making a three-dimensional solution of the object and further development of its architectural and planning solution is the most important stage in the development of the object. However, a more detailed elaboration of architectural structures can have a significant impact on the general layout of the territory.

Finalizing architectural solutions for project sections (Stage 4)

The final stage of design involves finalizing the graphic images and text descriptions of the projected object in the established volume.

At the stage of submitting ARPS, the following materials are prepared:

– explanatory note with the description of the projected complex, with the justification of the decisions taken and the calculation of the main technical and economic indicators;

– graphic materials, including the situational plan, master plan, plans, sections and facades of the projected building, three-dimensional images of the territory as a whole and for individual design objects.

When preparing the 'Project' stage, the LPLD "Architectural and planning solutions" sections are presented. They include:

– an explanatory note describing the selected solutions, a table of technical and economic indicators for the complex, a description of the accepted architectural, spatial and space-planning solutions of the facilities;

– graphic images (situational and master plans), transport scheme, vertical planning of the site, plan of ground masses, landscaping plan, plan of engineering networks; plans, sections and facades of all buildings and structures on the construction site; three-dimensional images both of the construction site and individual objects, which give a fairly complete picture of their architectural and artistic expressiveness.

Obviously, the above design stages can form the basis for the creation of other architectural objects, but this article proposes an algorithm for developing MTC architectural solutions.

Materials, provided to the Customer after the ARPS stage is completed, are sufficient for making a decision on further design, adjustment or its cancellation. At the "Project" stage, materials mentioned above fully comply with the requirements necessary for their consideration by the Expert Board.

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Анализ проектирования морских вокзальных комплексов

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Ключевые слова и фразы: архитектурно-планировочные решения; генеральный план; исходные данные; методика.

Аннотация: В статье рассмотрена методика архитектурного проектирования морских вокзальных комплексов, которая состоит из четырех основных этапов: получение и анализ исходных данных по участку строительства, определение принципиальной схемы генерального плана, разработка архитектурно-градостроительного решения и формирование окончательных решений разделов «Схема планировочной организации земельного участка» и «Архитектурные решения».

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Linear-Functional Schemes to Manage Construction in Modern Conditions

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Key words and phrases: cooperation and combination; organization and association of participants in the construction market; corporate barriers; object building contractor.

Abstract: At present, construction industry requires organizational tools and methods that ensure effective management. The purpose of the article is to show the inability of the current linear and linear-functional system of organization in market conditions. The hypothesis of the study lies in the analysis of the characteristics of linear and linear-functional systems. To do this, it was necessary to prove the negative aspects of these systems through horizontal and vertical corporate barriers. The main methods of research in this article were the analysis of scientific literature, methods of the theory of management and the theory of organization. Based on the results of the study, the authors made conclusions that in the modern construction industry, the matrix form of the organization improves the management of the construction industry.

The organization of any contracting construction complex (**CCC**) is characterized by its local economic and socioeconomic systems. To form a new CCC means to design and implement its organizational structure. The introduction of a new or modernized organizational structure makes it possible to streamline the various links of participants in a construction project, both in cooperative, organizational forms, and in combination of their activities to achieve the project's objectives.

Today, as practice shows, linear and linear-functional organizational structures are most often used in construction. These structures are based on vertical hierarchical administrative subordination of structural units. Unfortunately, such structures are inertial, not always adaptive and sufficiently "rigid". It can be assumed that the linear and linear-functional principles of such an organization, apparently, will be of little use for the creation of a modern effective CCC.

Modern, effective linear and linear-functional organizational structures should be clearly in line with the set of work. Any deviation from the task in terms of volume or content causes problems with the use of available production capacities (their excess or deficiency), as well as the discrepancy in specialization and qualification. At the same time, considering them from the standpoint of inter-firm cooperative interaction of organizations, the relationship of administrative

subordination between them cannot take place at all. Only strictly contractual relations are relevant here.

At present, with a variety of forms of ownership, when the former economic (administrative-economic) attributes are weakened, the structural subdivisions of the classical linear-functional control scheme of the CCC are separated from one another by horizontal and vertical corporate barriers. Horizontal and vertical corporate barriers between primary and lower-level general and subcontractors are due to their own economic interests. The term “corporate (or institutional) barrier” here is understood as a certain discrepancy in the economic interests of the members of the CCC.

Corporate barriers are an obstacle to the establishment of cooperative relationships of participants in any project. The presence of such barriers causes permanent organizational processes such as acquisitions and mergers in any economic system. It can be said that the number of various corporate barriers in the CCC (i.e., the number of diverse economic disagreements among the participants in the construction of the facility) and the intensity of these processes are directly related to each other. In this regard, the general contractor in the CCC cannot guarantee to subcontractors that they receive the maximum possible profit within the framework of the joint project. This is due to the low management potential and manageability of the relevant structural units of the CCC.

In addition, the quality of managerial decisions of the general contractor with respect to subcontractors is negatively affected by the congestion in solving management issues “on its own”. Therefore, any external sub-contractor, not administratively subordinate to the general contractor can ignore any decision of the latter. In the actual conditions of today’s construction industry, none of the participants of the CCC takes any serious economic responsibility for their own decisions. Consequently, this state of management of the CCC does not increase the investment attractiveness of construction projects [1].

Summarizing all of the above, it can be argued that today the construction industry requires a different organization that will ensure the dynamic transformation and adaptation of the CCC under the permanently drifting production program. Our research has shown [2; 3] that in modern construction industry it is advisable to use a matrix structure, which, as practice has shown, allows a rapid change in the link and hierarchy of the CCC. The matrix structure will make it possible to ensure a free and dynamic establishment of cooperative links between the hierarchical levels of the CCC with the help of economic rather than administrative-economic levers.

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Роль линейно-функциональных схем управления строительным производством в современных условиях

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Ключевые слова и фразы: кооперация и комбинирование; организация и объединение деятельности участников строительного рынка; корпоративные барьеры; матричный принцип организации объектного подрядного строительного комплекса.

Аннотация: В настоящее время строительное производство требует организации, обеспечивающей эффективность управления. Целью статьи является выявление неспособности действующих сегодня линейной и линейно-функциональной систем организации производства в рыночных условиях. Гипотеза исследования заключается в анализе характеристик линейной и линейно-функциональной систем управления. Для этого необходимо было доказать отрицательные стороны данных систем через горизонтальные и вертикальные корпоративные барьеры. Основные методы исследования в статье – анализ научной литературы, методы теории управления и теории организации. По итогам исследования авторами сделаны выводы о том, что в современном строительном производстве для повышения эффективности управления строительным комплексом рекомендуется использовать матричную форму организации объектного подрядного строительного комплекса.

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Selecting Criteria for Space-Planning Structure of Temporary Mobile Rescue Stations of the Ministry of the Russian Federation for Civil Defense and Emergencies

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Key words and phrases: life support unit; temporary mobile rescue stations; liquidation of emergencies; Ministry of Emergency Situations for Civil Defense and Emergencies; mobile stations; design standards; space-planning structure; priority life support; assistance to the population; design rules; redeployment; emergency; functional zoning.

Abstract: In various geographic, social, climatic conditions of the Russian Federation, one of the main tasks of the Russian Federation Ministry of Emergency Situations is the temporary provision of basic necessary conditions for the health and life of citizens through the temporary mobile rescue stations. The lack of competent design of temporary mobile stations that meet all the requirements, rules and standards, as well as standards for the design of mobile stations for various emergency situations and conditions in which assistance is provided to the population, has identified the main research problems.

The article outlines the ways of solving this problem, determines the strategy, goals and main directions of the research. The analysis of the experience of using temporary mobile rescue stations in Russia with regard to the specifics of the subjects of the Russian Federation (territorial, economic and social components of the region) made it possible to identify the basic requirements, norms and rules for the design of temporary mobile rescue stations and to ensure the priority needs of the population, as well as to outline the main criteria for the formation of the space-planning structure of temporary mobile rescue stations.

This study allows determining the necessary architectural and planning guidelines and designate a starting point for the design of temporary mobile rescue stations of the Ministry of Emergency Situations of the Russian Federation.

Recently, the government of the Russian Federation, in collaboration with the Ministry of the Russian Federation for Civil Defense and Emergencies, has become particularly concerned with the development of the system of prevention of emergencies in the country, as well as the liquidation of the consequences of natural disasters. Temporary mobile rescue stations of the Ministry of the Russian Federation for Civil Defense and Emergencies are becoming increasingly important due to annual natural, environmental, technogenic, military and biological social disasters.

The problem of the needs of most countries in solving emergency situations and providing the population with prompt and effective assistance is broadcast annually in the mass media. Specialists of the Ministry for Civil Defense and Emergency Situations take an active part in solving various types of emergencies at home and abroad. In geographical, social, climatic conditions of different regions of the Russian Federation, as well as in other countries, the main task besides eliminating the emergency is the temporary provision of basic necessary conditions for the health and life of citizens. It is important to organize training of rescue groups and supply technical equipment for the elimination of consequences, but also to provide fast, high quality, priority life support for the population in the emergency zones.

A special role in the development of temporary mobile rescue stations (**TMRS**) was the flood in the Krasnodar region in the summer of 2012. The main task of the Ministry for Civil Defense and Emergency Situations was the organization in all 83 constituent entities of the Russian Federation of temporary complex mobile stations in the reserve of rescue units for immediate assistance to the population of the Russian Federation in the event of emergencies.

One of the main factors reducing the efficiency and high level of assistance to the population in the emergency zones and decreasing the safety of the population and life support for the rescue teams of the Ministry of Emergency Situations of the Russian Federation is the lack of TMRSs that satisfy all the requirements, rules and design standards for various emergency situations and conditions.

The main objectives of the Ministry of Emergency Situations of the Russian Federation in different types of disasters are rapid immediate response to emergencies, protection of the population and territories from emergencies, ensuring the safety of people at various sites of the Russian Federation, the ability to anticipate any contingencies prior to their occurrence or during rescue works.

The lack of TMRSs meeting modern design technologies necessary for provision of quality assistance to victims in emergency zones and ensuring the priority needs of the population and maintaining the basic life needs of rescuers working in emergency situations has become the prerequisite for the research and general rules of design of such facilities.

The existing problem determined the direction and purpose of the study - analysis and study of the space-planning structures available to the Ministry for Civil Defense and Emergencies of similar facilities.

The analysis of the existing in Russia TMRSs showed that for minimal life support of the population in the emergency zones it is necessary to organize specialized stations that meet:

- the rules of planning of the territory, taking into account the specific location (design and construction practice in the regions of the Russian Federation);
- the requirements and rules for planning of the stations, taking into account all technological and functional processes for effective work and the minimum necessary level of life support on the basis of existing norms, rules of standards;
- certain design requirements for ensuring rapid delivery and deployment in emergency locations and requirements for building materials used in accordance with safety standards;

- planning requirements in accordance with various functional and technological processes, taking into account their joint work;
- design standards based on existing norms and rules for the design of civil buildings;
- safety standards of functional and technological processes of life support of the population;
- sanitary regulations and standards;
- requirements for the effective use of investment funds and the necessary performance indicators.

When designing temporary mobile life support stations for emergency zones, as well as the zones of deployment of rescue teams monitoring the territory, it is necessary to take into account:

- natural and climatic features of the location of the dislocation, climatic effects and loads (GOST 22853-83);
- type of mobility (GOST 25957-83);
- functional purposes of the objects of the post (GOST 25957-83);
- the specific situation in the emergency zone;
- requirements for the conditions of rendering assistance to the population;
- the ability to carry out multiple processes of dismantling, transportation and installation to new locations;
- the possibility of transportation by road, rail, air and water transport;
- the possibility of installation without using heavy crane equipment [3];
- requirements for building structures, materials – disassembly without significant destruction of materials [3];
- requirements for installation of the necessary technological, medical and engineering equipment directly in mobile stations to provide assistance and basic life support for the population, the possibility of built-in equipment and furniture;
- the ability to quickly change the planning solution of temporary rescue stations, depending on the needs of people [3];
- costs and performance indicators.

In order to determine the criteria for the formation of the spatial planning structure of temporary mobile rescue stations of the Ministry of the Russian Federation for Civil Defense and Emergencies, a study was conducted, the subject of which was the experience of using mobile rescue camps in the Bryansk Region, the Stavropol Territory, the Rostov Region and the Yamal-Nenets Autonomous District, as well as at the exhibition organized by the Academy of Civil Defense of the Ministry of Emergencies of Russia in Novogorsk.

Temporary mobile rescue stations represent a mobile complex (town) of the primary life support of the population in the emergency zone (mobile complex). This is a set of autonomous technical means and stocks of material resources adapted for independent movement or transportation to emergency zones on various modes of transport intended to supply the affected population with vital supplies and (or) no-consumer services, basic necessities and medical support [2].

In the process of studying the objects of the mobile complex, as well as the demonstration facilities of the Ministry of Emergency Situations of the Russian Federation, taking into account the experience of organizing mobile camps in various regions of the Russian Federation, the main criteria for the formation of the space-planning structure of the TMRS were identified. They include.

- *The territorial location* is one of the main factors influencing the planning structure of

the TMRS. The natural and climatic factor is the relief (the mountainous terrain, the plain), the climatic features of the region, the Arctic zone. The social factor (religious and national characteristics of a particular region, the number of affected populations) also plays a direct role in the proper organization of the TMRS. Depending on the zone location, there are two types.

1. Autonomous location is in an open area, outside the urban area or in an area where the use of urban buildings is impossible. In this case, the maximum equipment should be located in life support units.

2. Combined location is the combination of temporary life support units with existing buildings (stationary buildings), suitable for temporary organization of life support (various social infrastructure objects).

The types of planning of the TMRS are also determined by the size and form of the land plot. In many conditions, rational and linear types of planning are rational. The fan type contributes to a significant expansion of the TMRS. The linear type of planning is often used along the transport highway (snowstorms on the M4 motorway in the Rostov region in 2015) and along the coastline. Linear planning is marked by greater rationality, providing a clear functional organization, the shortest connections between functional zones, maximum concentration of buildings, economical use of engineering communications and reducing the number of their intersections. Linear planning is used when placing TMRS along transport highways and the coastal strip. The linear layout is most rational for cold climate conditions with an outside air temperature down to –40 °C [1].

Rectangular, concentric, free, mixed and compact types of layouts are also applicable. Compact layout gives comfortable conditions in different climatic conditions.

• *The functional process* represents a combination of two areas of functioning: creating conditions for a competent coordinated work of a team of specialists of the Ministry of Emergency Situations of the Russian Federation in specific emergency situations and providing priority vital needs of those affected by emergencies.

The competent planning organization of the TMRS is based on functional zoning, which brings clarity to the compositional and constructive schemes of organization of the territory. Based on the design features of mobile buildings and structures, as well as the safety of functional processes and the specific location of the site, it should be noted that the main view is horizontal zoning. The grouping of the basic and auxiliary units of functional zoning should be carried out in three directions.

1. Organization of life support for the population and rescue teams involves the main functional blocks of zoning including residential, communal, household, and food supplies, as well as the block providing basic social needs of the population (post office, bank, police, humanitarian aid point, point of contact).

2. The organization of the operational process of the rescue team is in the operational headquarters of the Ministry of Emergency Situations, including the control center, the unit for the crew on alert, the medical unit, the training unit, the technical unit (storage of special equipment and special vehicles), a special purpose unit, etc.).

3. Secondary functional processes include the point of gathering people, car parking, and the technical equipment unit to meet the basic needs of the population (power unit).

The functional interaction of the units should be built depending on the natural and social characteristics of a particular locality, which will make it possible to organize the connections between the main zones correctly and expediently. The size and spatial organization of the TMRS units is generally determined by internal features resulting from the nature of the action, the number of participants in the process, the necessary equipment and equipment of basic and

auxiliary life support units. [4].

• *The technological process* is connected with the process of training specialists for prevention of emergencies, and with the specifics of the work of the specialists of the Ministry for Emergency Situations in a particular situation [5]. The organization of the work of the rescue team is based on technological features of the work to prevent and eliminate emergencies of various types. The sequence of operations and technical equipment set the main vector of the planning organization of the operational headquarters and space-planning solution of the units of the Ministry of Emergency Situations.

When designing such stations, it is also necessary to take into account possible changes in both functional and technological processes.

• *The temporary criterion* is the duration of the life support of the population and the rescue team of the Ministry of Emergency Situations of the Russian Federation that directly affects the supply of the TMRS. When organizing temporary stations, the possibility of their re-equipment into stationary life-support stations should be taken into account.

Given the revealed criteria for the general planning layout of the TMRS facilities, the list and composition of the required units was drawn up, the basic planning procedure was determined according to the functional and technological processes, the direction of work and the existing regional problems. The conducted research allows creating the necessary architectural and planning guidelines and marking the starting point for the design of temporary mobile emergency rescue stations of the Ministry of Emergency Situations of the Russian Federation.

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Определение критериев формирования объемно-планировочной структуры временных мобильных спасательных постов Министерства Российской Федерации по делам ГО и ЧС

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Ключевые слова и фразы: блок жизнеобеспечения; временные мобильные спасательные посты; ликвидация ЧС; Министерство чрезвычайных ситуаций по делам ГО и ЧС; мобильные посты; нормы проектирования; объемно-планировочная структура; первоочередное жизнеобеспечение; помощь населению; правила проектирования; передислокация; чрезвычайная ситуация; функциональное зонирование.

Аннотация: В различных географических, социальных, климатических условиях регионов РФ одной из главных задач перед МЧС РФ в чрезвычайных ситуациях различного характера становится временное обеспечение основных необходимых условий для здоровья и жизни граждан посредством временных мобильных спасательных постов (**ВМСП**). Отсутствие грамотного проектирования временных мобильных постов МЧС РФ, отвечающих всем требованиям, правилам и нормам, а также стандартам проектирования мобильных постов с учетом различных нештатных ситуаций и условий, в которых производится оказание помощи населению, определило основную проблематику исследования.

В статье обозначены пути решения данной проблемы, определены стратегия, цель и основные направления исследования. Анализ опыта использования в России ВМСП, учитывая специфику субъектов РФ (территориальная, экономическая и социальная составляющие региона) и направления оказываемой помощи населению во время ликвидации последствий ЧС, позволил выявить основные требования, нормы и правила проектирования временных мобильных спасательных постов для обеспечения первоочередных потребностей населения, а также обозначить основные критерии формирования объемно-планировочной структуры временных мобильных спасательных постов.

Данное исследование позволяет определить необходимые архитектурно-планировочные ориентиры и обозначить стартовую точку для начала проектирования временных мобильных спасательных постов МЧС РФ.

UDK 332.133.44; 332.025; 331.52; 331.5.024.5

Regional Labour Market: Transformation of Human Potential, Labour Potential and Human Capital

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Key words and phrases: region human resources (workforce); human potential; labour potential; human capital; labour market; regional sustainable development.

Abstract: The paper deals with the perspectives connected with the role of the regional labour market in the context of transformations of the regional work force and consequences of this process for sustainable development of the region. It creates prerequisites to increase the level of economic security of the region, social and economic alignment, decrease social tension and increase opportunities for purposeful regulation of the regional workforce, including the interregional labour migration.

The major role and the place of the regional labour market in the context of ensuring sustainable development on regional and interregional level is explained by participation of the labour market throughout the process of transformation in a triad “human potential → labour potential → human capital”.

The level of development of any region is directly connected with the resource capacity, state and extent of the region resources utilization, including its workforce, which is originally shown in the form of the human potential (Fig. 1) [2; 4; 6].

The necessity of realization of the transformation process of “human potential → labour potential → human capital” into the regional resource is caused by the fact that for ensuring economic security of the region and, in general, sustainable regional development there have to be both sufficient amount and right nomenclature (spectrum) of the region resources, including the workforce.

The region work force performs a triple function. Firstly, it provides resistance of the regional economy to the crisis phenomena (that allows keeping the level of regional socio-economic indexes at the accepted level during the crisis period). At the same time, the level of acceptability of socio-economic indexes, being immanent for the concrete region, has to be defined for each region separately, and that has to be a subject of a separate research. Secondly, it provides a possibility for a post-crisis recovery of the regional economy (that brings regional socio-economic indexes rather close to pre-crisis level into rather short period). Thirdly, it provides functioning

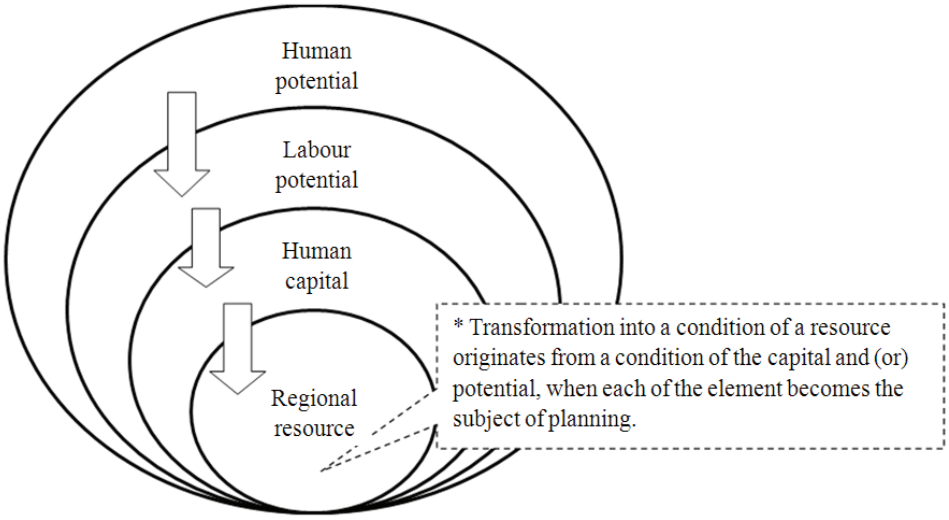

Fig. 1. Transformation of human potential into the regional resource

of the regional economy during the crisis period at the minimum acceptable level, i.e. a cut-off point (that allows keeping the minimum level of socio-economic indexes for the region, without demanding additional exogenous resources).

The implementation of this triple function is in many respects reached as a result of labour market mechanisms.

On the one hand, the regional labour market represents the instrument that provides transformation of the labour potential into the human capital. On the other hand, the regional labour market represents the instrument of alignment of labour and social disproportions through the organization of interaction of employers and job applicants, including potential workers. Thus it promotes social wellbeing and increases social and economic stability and economic security of the region.

In the context of this article, the potential workers are full or part-time employees and also those who do any paid work (public or civil service), who are not completely satisfied with working conditions, and under certain conditions are ready to take a free vacancy at any organizations, in particular, governmental bodies, enterprises, etc. [1; 7].

Now we can investigate the structure of the regional workforce.

If we consider traditional division of regions into labour-abundant and labour-deficient and look more closely into, it is possible to use a concept of a necessary and an excess workforce of the region that exists in any region (even labour-deficient region). So it is obvious that available workforce can be divided (to some reliability) into two groups – necessary (relevant) resources and abundant (excessive) resources (Fig. 2).

The abundant (excessive) workforce of the region is the part of the workforce that cannot be fully used in the labour processes of the regional economy. These people are not interested in retraining, professional development and other types of adaptation in structure of regional labour market, and thus they cannot be transformed into the human capital of the region.

It should be noted that one of the main problem of interregional labour market system is giving jobs (place of employment) to this category of citizens, who might be adequate to their labour potential in other regions where their competences are demanded.

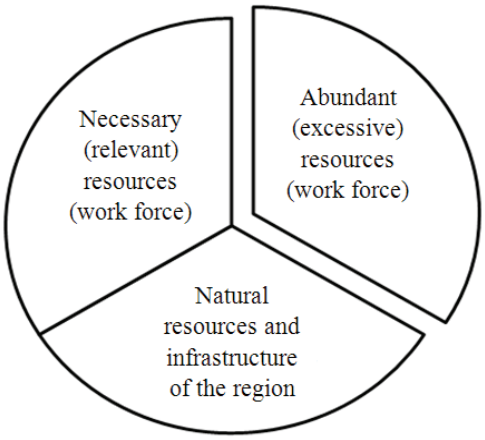

Fig. 2. Workforce in the structure of regional resources

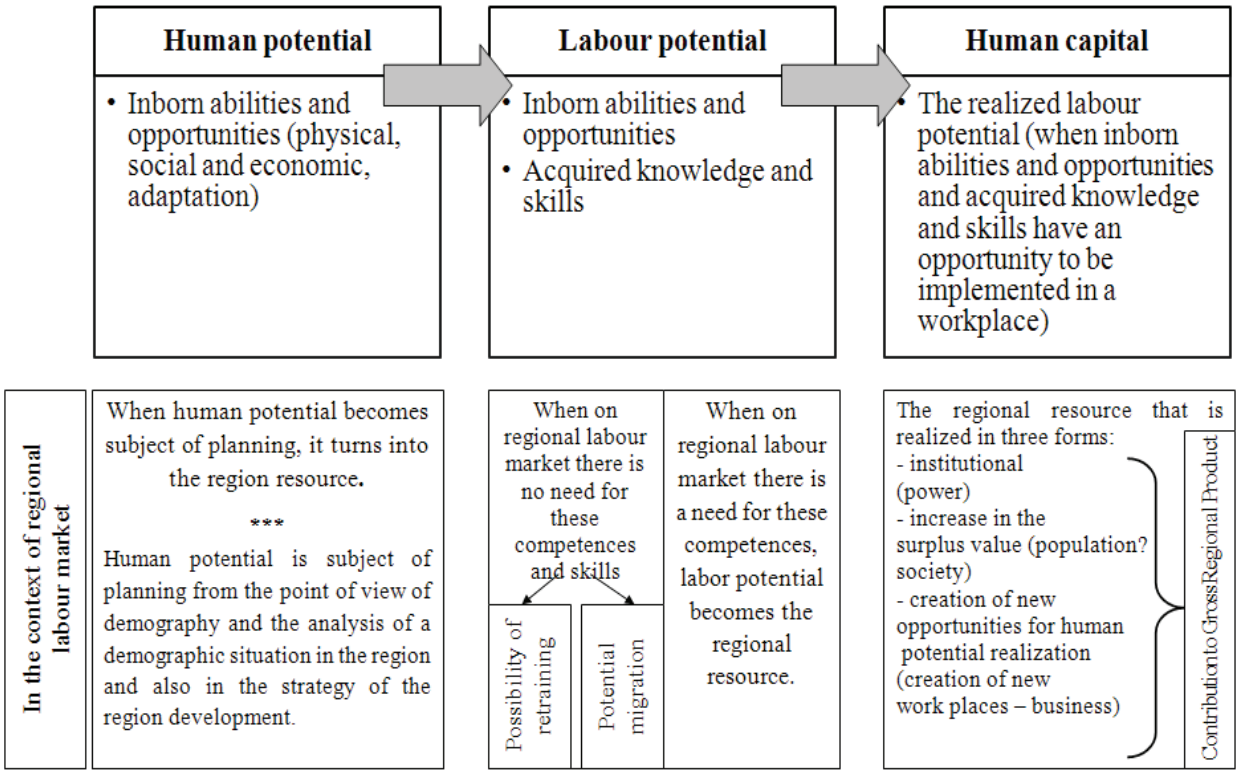

Fig. 3. Transformations taking place in the conditions of the regional labour market

The necessary (relevant) workforce of the region is the part of the workforce whose labour potential is demanded in the regional labour market. They have the necessary competences or can acquire them by training, retraining, professional development and other types of adaptation in the structure of the regional labour market. As a result, this type of workforce can

be transformed into the human capital of the region (resource of the region).

In this context, we are interested only in the regional workforce, while natural resources of the region, the level of security of the region and both the level of development and uses of these resources, their interaction with the workforce and labour market are not of serious concern to this study. The regional infrastructure and its elements in this context are of interest only from the perspective of a possibility of utilizing the regional labour capacity, its involvement into processes occurring in the labour market.

We consider the transformation process of "human potential → labour potential → human capital" into the regional resource in conditions of the regional labour market functioning (Fig. 3).

It is important to understand that the condition of the labour market in many respects depends on factors, influencing the economy of the region (its growth, stagnation, loss in performance), and also the processes connected with the labour market regulation [3]. Knowing the trajectory (path) of the changes happening in the economy under the influence of the crisis phenomena, it is possible to predict changes, which will happen in the labour market, and to respond appropriately.

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Региональный рынок труда: трансформация человеческого потенциала, трудового потенциала и человеческого капитала

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Ключевые слова и фразы: трудовые ресурсы региона; человеческий потенциал; трудовой потенциал; человеческий капитал; рынок труда; устойчивость регионального развития.

Аннотация: В статье рассматриваются перспективы, связанные с ролью регионального рынка труда в контексте трансформаций региональной рабочей силы и последствиями этого процесса для устойчивого развития региона. Это создает предпосылки к повышению уровня экономической безопасности региона, социально-экономическому выравниванию, снижению социальной напряженности и к реализации возможностей целенаправленного регулирования использования трудовых ресурсов региона, в том числе с учетом межрегиональной трудовой миграции.

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Problems of the Internal Quality Control System in Audit Organizations

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Key words and phrases: quality control; internal quality control; internal standards.

Abstract: The article explore the existing problems in the system of internal quality control of audit services. The author gives recommendations on the introduction of methodological developments on the organization of internal quality control of audit services.

The problematic issue of the organization and the implementation of audit quality control are inherent without exception to the entire world community. In Russia, in accordance with Article 10 of the "Law on Auditing Activity" No 307-FZ, the quality of auditing activities is ensured by the external and internal control over their implementation.

The relevance of the issue of quality control lies in the changes that have recently been made into the current legislation through the introduction into the lawful operation in the Russian Federation of International Standards on Auditing (**ISA**) developed by the Council for International Standards on Audit and Assurance of Authenticity (**IAASB**) and the International Federation of Accountants (**IFAC**). Audit organizations need methodological support in ensuring quality, methods of control, as well as economic evaluation of the effectiveness of ongoing activities. Lack of scientific and practical study of these issues determines the relevance and significance of this topic.

The system for checking the quality of the work of individual auditors and audit organizations (**AO**) by external auditors is established by an authorized federal body that can conduct such inspections on their own or delegate the right to conduct such audits to accredited professional audit associations (hereinafter – self-regulating auditor organizations, **SRAOs**) with respect to its members.

With regard to the system of internal quality control, each company should establish, regularly maintain and develop its own internal quality control system to ensure that the audits conducted by this organization fully comply with the regulatory documents governing audit activities. Internal quality control should be organized by the audit company itself, taking into account all the individual characteristics of the company; this form of control is called internal control.

In accordance with the requirements of the "Law on Auditing Activity" No 307-FZ, the AOs and individual auditors are obliged to establish and follow the rules of internal quality control of their audits. The requirements for these rules are regulated by the following Federal Auditing Standards (Standards) (hereinafter referred to as "FAS"): No 7 "Quality control of audit tasks"; No 34 "Quality control of services in audit organizations". However, in view of the recent

legislative changes, the introduction of the ISA, it is necessary to take into account both these recommendations and requirements.

Recommendations for Internal Control named in ISA 220, “Quality Control in an audit of financial statements”, on the basis of which FAS No 7 “Quality control of auditing” was developed.

Thus, internal audit quality control should be conducted and monitored by the audit firm independently in accordance with FAS No 7, which regulates the quality control of tasks performed during the audit, which in its essence is analogous to MCA 220 “Quality Control in an audit of financial statements”. Moreover, one can really see that many of the theses and positions of the standards are quite similar, and sometimes even identical. However, the most detailed description of audit procedures in Russian regulations is still significantly different from international standards.

Therefore, the problem of improving the quality is relevant for Russian audit. At the same time, neither in the domestic nor in the world practice have been established an unambiguous definition and criteria for the quality of the audit. In connection with the foregoing, an important direction in improving the quality of auditing is the generally accepted and legally stipulated measuring criteria.

The system of such measures of audit quality may include, first, adherence to the requirements of audit standards (both federal / international and internal), secondly, the presence of appropriate audit evidence sufficient for a reasonable opinion on the appropriate reliability of the auditor’s balance sheet, and thirdly, the methods used for auditing. The need to take into account the third quality criterion will be based on the fact that multiplying the cost savings for conducting an audit can lead to an economic inexpediency of audit (from the entrepreneurial perspective).

From all this it follows that the development of intra-firm standards is an important moment in the way of bringing auditing activity in Russia closer to international standards. The development and practical implementation of these standards will contribute to improving the quality of inspections, the effectiveness of their results, the beneficial understatement of the complexity of formal audit work. The availability of a well-developed system of intra-firm samples and standards, as well as its methodological support, will serve as an indicator of high professionalism and high reliability of the audit company’s activities, and compliance with it will not be superfluous, but a kind of additional confirmation of the results of the audit.

The main weaknesses in the organization of internal quality control are as follows:

1) auditing is a relatively new type of services, the quality of which in the Russian Federation is slightly lower than in the countries where auditing was introduced much earlier;

2) the formation of an internal quality control system calls for substantial financial costs and entails an increase in the prices of concluded auditing services contracts;

3) many audit organizations are very serious about the integrity of the audit. However, there are no widely used methods for justifying the cost of bona fide audit services. It is for this reason that honest auditors cannot rise up against unscrupulous opponents, underestimating costs at the expense of a lower contract price, due to the fact that “unscrupulous” auditors do not give proper sensitivity to audit procedures and collect sufficient evidence to form an appropriate judgment;

4) lack of strong regulatory framework.

The further development of the audit requires strengthening its regulatory framework, maintaining the basic principles of auditing, without which audit, as a service sector, may lose its independence and become a form of departmental control. This is currently the main problem

of auditing, the solution of which depends not on the individual representatives of the audit services, but on the collective decision.

All of the above complex issues are manifested in the formation of the internal control system of the audit firm. At the same time, a significant part of the problems can be solved by adopting new laws or by developing methodological recommendations on internal quality control. To make these issues more quickly promoted, the audit community, represented by SRAOs, audit firms and the auditors of the Russian Federation, should also take the initiative.

In the opinion of the author, the main ways of further development of internal audit quality control in the Russian Federation can be as follows:

– development of methodological recommendations on the organization of internal audit quality control standards, as well as their regular improvement in accordance with legislative changes;

– establishment of a clear circle of users of the results of quality control;

– determination of the mechanism for informing the management of the audit firm about the facts of non-compliance with the requirements of the ISA in quality assurance;

– development of scientific materials to improve the qualifications of practicing auditors in theoretical and methodological principles and practical skills of conducting internal audit quality control.

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Проблемы системы внутреннего контроля качества в аудиторских организациях

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Ключевые слова и фразы: внутренний контроль качества; внутрифирменные стандарты; контроль качества.

Аннотация: В статье рассмотрены вопросы имеющихся проблемных моментов в системе внутреннего контроля качества аудиторских услуг, а также рекомендации по внедрению методических разработок по организации внутрифирменного контроля качества аудиторских услуг.

UDK 330

Multidimensional Statistical Research into Management of Regional Innovation Structure

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Key words and phrases: system approach; process approach; innovations; innovation structure.

Abstract: The article analyzes regions of Siberian Federal District by the level of innovation development,using multidimensional statistical analysis, and considers the system and process approach in managing the innovative structure of the Siberian Federal District regions.

The current period of development of the Russian economy is defined as innovative. The creation and modernization of the innovation structure in the constituent entities of the Russian Federation is the main vector for improving innovation activity in general. In this regard, issues of evaluating and determining the prospects for the development of an innovation structure are becoming topical. Therefore, there is a need to identify the main trends in the development of science, to study the latest achievements in research and development, which will serve as a basis for innovationsat the enterprises.

In this connection, the issue of improving innovation statistics in the regions of the Russian Federation is of particular importance [4].

The statistical analysis and analysis of the formation and development of the innovative structure of the regions of the SFO conducted within the framework of this study made it possible to draw a number of conclusions:

1) An imbalance in the development of the innovation system of the regions, which manifests itself as a structural shift towards the manufacturing and technological sectors, is observed.

2) Under development of key elements of innovative enterprises in the regions: sales, information and personnel components, which should provide the so-called “technology corridor” for introduction of innovations, hinders the introduction of innovations.

3) The formed innovation structure in a number of regions is a structure for the generation of ideas, but not for the development of innovative entrepreneurship.

To provide methodological support of the process of formation of effective innovation infrastructure of the region, we consider it necessary to integrate the mechanism of the innovative elevator with the general scheme of the region’s innovation infrastructure.

In this regard, in Table 1, we present the stages of the implementation of the innovation project.

Achieving the goals of innovativeresearch and technology development of the Siberian Federal District involves solving the problems of building a management system that takes

Table 1. Stages of implementation of the innovation project.

Management stage	Stage description
Evaluating and describing subsystems	Diagnostics Structuration Forecast
Determining subsystem elements	Analysis Selection Creation
Finding dominant elements of system	Determination Representation Development
Organizing subsystems interaction	Integration Innovation program development
System development	Innovations Investment Replacement

into account a large number of economic entities that form a regional innovation structure. In this regard, it seems important to use a systematic approach aimed at organizing effective management of the innovation structure of the region [3].

It should be noted that the systemic approach presupposes systemic regulation of the innovative development of the region as a consciously organized set of conditions, priorities and restrictions on the transformation of its individual elements [5]. Accordingly, the following managementblocksshould be distinguished:

– regulation of the relations of the subjects of the innovation system of the region with the external environment;

– management of changes in the innovation environment of the region;

– management of the functioning and development of the innovation structure of the region [1].

Modern trends in the development of the economy assume a systemic integration of scientific and innovative activities; this is due to the transition to an innovative path. This calls for the use of a systematic approach in conjunction with the process approach, which in classical science is interpreted as an impact on production to achieve a specific goal using a continuous chain of logically interrelated managerial functions. The application of the process approach in the management of the scientific and innovative structure of the Siberian Federal District is connected with the organization of integration linksamong the subjects of the system. In this connection, there arises the need to analyze the whole multitude of processes in the regions [7]. Exclusively in this case, it is possible to identify and formulate development goals and objectives, define the integration processes and interrelations created by the management, and create conditions for generating innovations.

Summarizing the foregoing, we can say that the systemic approach is used to define the management elements of the development of the innovation structure of the region, while the process approach is used to form the integration interaction of the subjects of the system. Thus, we van conclude that in order to build a strategy for the development of the scientific and innovative structure of the Siberian Federal District, it is necessary to use system and process

approaches inseparably [6].

The conducted qualitative analysis of the classification of subjects showed that the relationship between socio-economic and innovation-scientific development of the regions is relatively weak. However, there is another connection: territorial entities with a high level of economic development are either innovative or scientifically developed.

We can distinguish the following types of regions based on the most important components of innovative development of regional systems: low active; medium active; scientifically active; innovatively active.

Thus, the territorial differences in scientific and innovative development lead to an imbalance in the innovative structure of the district as a whole. We propose stages of implementation of the innovative project as a basis for developing the strategy of innovative development of the district, based on the continuous use of the system and process approaches. These approaches will contribute to the emergence and establishment of new forms of interaction among regions, the rational use of resources for the development of innovation infrastructure.

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Управление инновационной структурой региона на основе многомерного статистического исследования

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Ключевые слова и фразы: системный подход; процессный подход; инновационная структура.

Аннотация: Проведен анализ субъектов Сибирского федерального округа (**СФО**) по уровню инновационного развития на основе системного и процессного подходов, предложены рекомендации по управлению инновационной структурой субъектов СФО.

UDK 34

The Criminal Justice System in Russia: Practices of Social Work with Offenders

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Key words and phrases: correctional social work; resocialisation; adaptation and re-adaptation of offenders; social work practices; rehabilitation programmes.

Abstract: This article focuses on selected aspects of social work with offenders within the Russian criminal justice system. The article identifies the goals and objectives of correctional social work, characteristics of social work at correctional facilities, and relevant methods and practices.

The current system of criminal justice reforms emphasises the need to revise the very essence of social work with offenders, which is aimed at the resocialisation, adaptation, and re-adaptation of convicts, prisoners awaiting release, and ex-convicts. This necessitates devising effective methods for supporting offenders, developing post-penitentiary rehabilitation practices, and identifying the role and essence of social and instructive work at correctional facilities. The above makes the development of correctional social work and the training of qualified specialists in the field an important task.

International researchers identify the following major objectives of social work in the criminal justice system: giving recommendations, providing information, and assisting the court in imposing a sentence; adhering to sanctions imposed by the court; developing and introducing effective crime prevention programmes; supporting offenders prior to and after the release; facilitating resocialisation [6]. Veronica Coulshed and Joan Orme argue that a social worker specialising in support for offenders should strive to minimise the damage caused by imprisonment and contribute to the social and psychophysiological welfare of offenders during imprisonment. Other objectives include support for offenders in changing their criminal behaviour and lifestyle and the development of a realistic plan of post-penitentiary rehabilitation using a wide range of social connections [3].

According to E.I. Kholostova and A.S. Sorvina, social work at correctional facilities has certain characteristics distinguishing it from other areas of social work. Firstly, it takes place within a closed, isolated system characterised by low publicity. Secondly, the object of correctional social work is people with a high social ill-being index, experiencing increased levels of stress. Thirdly, correctional social work is conducted amid the 'struggle between two irreconcilable ethical and legal concepts'. Fourthly, pursuing the same goals as penitentiary institutions do, social work is closely connected to criminal penalty enforcement. Fifthly, correctional social work does not terminate with the period of imprisonment, it continues during post-penitentiary rehabilitation of offenders. Finally, a social worker occupies a special position in the criminal justice system, being a mediator between the state and the citizen and between the 'philosophy of the criminal

world and the philosophy of punishment' [9, p. 296].

Drawing on international research on the "therapeutisation" of penitentiary facilities, A.V. Babushkin argues that the engagement of the outer world in the "sanitation" of a penitentiary facility is possible through importing specialists and services (consulting offenders on legal, medical, insurance, financial and other issues); exporting the facility's services to the society; organising social events bringing together members of the community and convicts at the facility; providingreality beyond the facility experience, i.e. giving offenders an opportunity to leave the prison walls; engaging relevant stakeholders in social work with offenders (employers, NGOs, etc.); organising meetings with the community, etc. [1].

A number of authors – S.A. Luzgin, M.I. Kuznetsov, V.N. Kazantsev and others – emphasise the distinguishing features of social work at correctional institutions. These are the dominance of prison subculture, criminogenic interpersonal communication, a lack of conventional communication, prevalence of criminal methods of conflict resolution, violence and abuse, unfavourable social and psychological background, and an increased risk of violence and abuse [11]. M.V. Sorokin supplements this list with such features as close attention of international organisations to social work in prisons and problems with the detection of offenders refusing to obtain identifications, which makes it impossible to verify their right to social support [5].

Margaret Show believes that a specialist in social work with offenders should be able to: assess the danger that offenders pose to themselves and the others; assess the personal and social needs of convicts; assess the risk of a relapse (which requires collaboration with other specialists); carry out strategic planning and consult specialists working in the criminal justice system (penitentiary facility staff), including organising trainings for such specialists; work with the families of offenders and other members of offenders' social networks; work with convicts individually and in groups; prevent addictive behaviour; support for convicts during preparation for release; develop coordination programmes and initiatives aimed to reduce the risk of a relapse; assess and monitor social programmes implemented at penitentiary institutions [10].

A. Roberts and D. Springer emphasise that a specialist in social work in the criminal justice system should have: basic knowledge for direct social work practice with clients (planning, administration, and management of social services within the criminal justice system); opportunities to develop skills in the criminal justice system through the use of internships to gain "hands-on" practice experiences in planning and administration; skills in interprofessional cooperation and managing change; expertise in the public social policy, programme development, and support for offenders; preparedness to develop personal qualities (empathy, sociability, stress resistance, etc.) [8].

To achieve the goal and objectives of correctional social work, a social worker uses various methods and practices – individual and group work, training, and rehabilitation. Using the cognitive, behavioural, and dynamic methods of consulting in individual work with offenders, a social worker helps them to satisfy their basic needs, broadens their horizon and encourages creativity, gives recommendations on organising life during imprisonment, helps to build up self-confidence, encourages independence, proactivity, and responsibility, and provides support. Based on the same methods, group therapy is aimed at preventing violence, sex crimes, and drug and alcohol abuse and developing the skills of interpersonal communication both among offenders and between offenders and their families.

Training programmes developed and implemented by social workers at correctional institutions make it possible for offenders to mobilise new resources and make use of the time spent at the correctional institution. Training programmes can be divided into two large groups: formal training (for instance, obtaining vocational education) and informal training (group

activities, workshops, projects, individual dedicated events, and special initiatives aimed at all prisoners at the institution).

The rehabilitation programmes implemented by social workers are part of the process preparing an offender for release and reintegration into society. Under the supervision of social workers, recently released offenders take jobs, enrol on training course, take part in therapy, etc. [4].

Specialists in correctional social work carry out their professional duties under very unusual conditions and correctional social work has a number of unique characteristics. Thus, specialists in social work with offenders require specific knowledge and skills to manage stress and develop programmes aimed to secure positive changes in the personal qualities and behaviour of offenders.

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Система уголовного права в России: практика социальной работы с правонарушителями

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Ключевые слова и фразы: коррекционная социальная работа; ресоциализация; адаптация и повторная адаптация правонарушителей; методы социальной работы; реабилитационных программ.

Аннотация: Рассматриваются отдельные аспекты социальной работы с правонарушителями в российской системе уголовного права. В статье определены цели и задачи коррекционной социальной работы, даны характеристики социальной работы в исправительных учреждениях и соответствующие методы работы.

UDK 327

Foreign Political Relations of Great Britain in 1968–1979

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Key words and phrases: UK foreign policy; "special relations"; European Economic Community; USA; USSR.

Abstract: For many centuries,the diplomatic service of Great Britain retained the leading position in the development of both domestic and foreign policy decisions, while being based on two opposite tendencies: the preservation of traditions and the ability to change. Britain's foreign policy strategy consists of two components – continuity, which can be traced for a long time, and variability, i.e. constant adaptation to the conditions of a new historical era.

The Diplomatic Service of Great Britain is one of the oldest in Europe; its traditions have been formed for centuries. England became the third country after the Netherlands and Denmark that, according to the law of the Parliament, recognized the political and diplomatic immunity of foreign diplomats and thereby made a huge contribution to the codification of the science of diplomatic law. The Foreign Office, established in 1782, became one of the most influential ministries, helping to promote British interests around the globe. In 1911, the Charter of the Diplomatic Service was adopted in England, which became a code of conduct for a diplomat. The British Empire had a tremendous impact on the world politics.

However, in the twentieth century, the country faced significant changes in policy. After the First World War, Britain in fact passed the peak of its power, and after the Second World War, besides, it also lost almost all its colonies and possessions. In the second half of the twentieth century, as the empire disintegrated, there was a shift in the self-identification of British citizens, with long-term consequences for the country's foreign policy. In the country, the national movement became more active and led to a change in the self-consciousness of the people, who from now on considered themselves not British, but Scots, Welsh, Irish and English, respectively. This led to the fact that foreign policy ceased to be centralized and unified, it increasingly began to manifest not coinciding with the British aspirations of other ethnos of Great Britain. In the second half of the twentieth century, the Foreign Office was a ramified, extensive department that had links to the bureaucratic apparatus and the ruling strata, and had the ability to exert political influence.

As far as the diplomatic service is concerned, it lacked the dynamism in conditions of the world's variability, yet it retained the representative style of work. The use of force in international affairs led to the degradation of the diplomatic art of the country and a decrease in the role of the diplomatic service in matters of foreign policy. Gradually, the government's course delayed the service from the solution of significant tasks and the search for ways to establish international

contacts. The leaders of British diplomacy failed to create a balanced system of institutions and units both inside the state and beyond, increasing disagreements appeared due to the increase in staff.

Proceeding from the above situation, the British government realized the necessity of reforming the country's diplomatic service, as a result of which, on October 17, 1968, the Foreign Office was created in its modern form, the Foreign and Commonwealth Office, which united the former Foreign Office, the Ministry of the Commonwealth and Ministry of Colonies. New foreign missions were created, the volume and quality of trade and economic work increased, and London's international contacts became closer. Three regular diplomatic services, which for a long time existed separately (the diplomatic service, the professional staff of the Foreign Office and the overseas service of trade commissioners) were merged into the Her Majesty's Diplomatic Service three years earlier, on 1 January 1965.

In 1970, the next parliamentary elections were held in Great Britain, which were won by a conservative party headed by Edward Heath. On June 18, 1970, the results of the elections were announced, according to which the Conservatives received 350 seats in the House of Commons, against 288 in Labor and 6 in the Liberals. Conservatives collected 46.4 percent of the vote in the elections, Laborers 43.1 and liberals 7.5 percent [1]. It should be noted that during the time of the Conservative Party's stay in the opposition, the party's structure and ideological doctrine were reformed. Leading roles in the party were young politicians, including Edward Heath.

Until 1965, the party leader held office because of informal consultations between key figures of the party elite, the so-called 'magic circle'. The last conservative chosen in this way was Sir Alec Douglas-Hume. In 1965, the procedure for selecting the leader of the Conservative Party was reformed. The new system required voting among members of the parliamentary faction and it was necessary to collect more than 50 percent of the votes cast. In addition, the gap from the nearest competitor should be at least 15 %. In case of non-fulfillment of these conditions, a second and, if necessary, third round of voting was appointed. Heath became the first leader of the Tories, elected according to the new rules [2, p. 62].

Analyzing the foreign policy of Great Britain in the second half of the twentieth century and directly during the period of Heath's rule, it should be noted that the greatest attention was paid to relations with the United States. The contribution of Great Britain to the victory over the Nazis and the influence on the determination of the fate of the postwar world determined the country's high prestige in the world. Maintaining the status of a great power forced Britain to seek help from the United States of America. In return for the loan, England granted America access to the traditional markets for British goods. England's positions in the world weakened and financial, economic and military dependence on the United States was established.

Back in 1930, during the Great Depression in the US, Ludwell Denny's book "America conquers England" was published. It ended with the following words: "We once were the colony of England. The time will come when England will become our colony: not in form, but in substance. Machines provided England with power over the world. Now more advanced machines provide America with power over the whole world and England" [3, p. 9–10]. A turning point for Britain's foreign policy was the Suez Crisis of 1956. The Anglo-French-Israeli aggression against Egypt, conditioned by the desire to consolidate the situation in the Middle East and prevent the growth of Soviet influence in this region, was not successful. Important is the fact that the United States, playing the role of one of the initiators of aggression at a crucial moment decided to withdraw from England. The consequence of the Suez crisis for

Britain was the actual subordination of the United States. From now on, the foreign diplomacy of England followed in the wake of the policy of the States. British politicians realized that the status of a great power is a thing of the past. Therefore, the most correct solution will be the policy of preserving the Atlantic community and its strengthening, through the maintenance of a military-political alliance with the United States and NATO activities. From the world power, Britain became a satellite country of the United States. The foreign policy of the country in its nature was anti-Soviet and anti-communist, it was determined beyond its borders and national interests were neglected for the sake of "Atlantic solidarity". However, despite the US influence on England, the British government distanced itself from the rigid anti-Arab policy of the United States during the international crises in the Middle East in 1973, and earlier in 1965.

As far as the relations with the Soviet Union are concerned, until a certain point the United Kingdom played the role of a connecting link between the USSR and the United States. The status of England changed after joining the EEC and its re-qualification as an intermediary between the US and Western Europe. The favorable situation in the relations between the Soviet Union and Britain changed for the worse after the Soviet occupation of Czechoslovakia [4, p. 384–385]. According to official statements by the Soviet press, the British "reacted hostilely to the failure of the plans of the counter-revolution in Czechoslovakia". Suddenly, for the Soviet side, the exchange of goods was curtailed, because of the sharp curtailment of Soviet-British contacts. In the early 1970s, in spite of the new rapprochement between the United States and the Soviet Union, Hit's government went on to exacerbate relations with Moscow. In October 1979, trying to resume profitable trade with England, Soviet diplomacy put into practice its 'heavy artillery' in the person of USSR Foreign Minister Gromyko. However, even this measure was not successful, since in England there was a negative reaction to the actions of the Soviet government in the performance of the 'international duty' in Czechoslovakia. A certain negative role was played by the situation with the expulsion from England on September 24, 1971 of 105 Soviet representatives suspected of espionage. In reply to this, on October 8, 1971, Soviet authorities arrested or expelled from the USSR 18 British citizens.

The main issue of the early 1970s for Great Britain was the question of accession to the European Economic Community. Analyzing the background of Britain's accession to the EEC, it should be noted that in March 1957, representatives of six countries of Western Europe, namely France, Germany, Italy, the Netherlands, Belgium and Luxembourg signed an agreement in Rome on the establishment of the European Economic Community. In 1957, Great Britain was not part of the EEC. Initially, the British ruling elite did not believe in the effectiveness of the created Community, but fears of its growing strength were present. The creation of the EEC threatened competition for the UK in the struggle for traditional sales markets. In order to paralyze the bloc's efforts, Britain put forward a plan for a West European free trade zone, and after a while, creating the EFTA (European Free Trade Association) at the end of 1959, tried to prevent the integration of the union with its help. As the role of the EEC grew, the European market became increasingly important for England, which led to the beginning of negotiations on Britain's accession to the Common Market, but on conditions that would allow preserving specific relations with the US and only slightly affecting its relations with the countries of the Commonwealth [5, p. 42]. The discussion about joining the Community provoked negative sentiments among the countries of Western Europe. The wide opposition of the world public to the entry into the Common Market forced the Conservatives to put the decision of this issue in dependence on a number of conditions addressed to the governing bodies of the EEC. Not having achieved concessions and faced with the resolute opposition of France, who considered

London to be the 'Trojan horse' of the United States in Europe, Harold Macmillan in January 1963 interrupted negotiations on joining the Common Market. A new attempt to join the EEC was undertaken with the Labor Party coming to power in 1964. Negotiations were difficult; they got interrupted, and then resumed. Twice, de Gaulle applied the right of veto regarding the entry of Britain into the EEC. The situation changed in the best for the Kingdom side with the departure of de Gaulle from the post of French president in 1968. On December 12, 1969, at the meeting of the heads of the states included in the Community, a decision was made to start preparations for the negotiations on joining the United Energy System of Great Britain. June 30, 1970 Great Britain, Denmark, Norway and Ireland begin negotiations in Luxembourg on joining the EEC.

In the 1970s, the country faced serious social and economic difficulties, Britain was called "a sick man in Europe" [6]. The general strike in the UK industry, which took place in December 1970, led to an energy crisis. In this situation, England's accession to the Community was a very important issue. May 20, 1971 at a meeting between British Prime Minister Edward Heath and French President Georges Pompidou agreed on the conditions for Britain's accession to the EEC. The main conditions for entry were a significant increase in prices for agricultural products in the domestic English market, revision of agreements with the countries of the Commonwealth in accordance with the requirements of the EEC, the refusal to use the pound sterling as a reserve currency for international circulation, a guarantee of increasing contributions to the budget of the EEC. Finally, in January 1973, the United Kingdom, and with it Ireland and Denmark, were officially admitted to the EEC. Upon accession, England fulfilled the conditions that were set for it upon accession, and then began to seek a change in its position in the Community and try to take the lead.

In late 1973, the British economy was destined to face a serious test – the so-called 'oil shock'. In October, OPEC made an unprecedented decision to raise oil prices from $ 3 to $ 11.65 per barrel. This put the economy of Western countries on the brink of a global energy crisis, since the leading industries of industrial production were traditionally based on energy-consuming technologies. This process dragged on for a long time and caused a structural crisis of the industrial economic model. The increase in the costs of the crisis caused a significant increase in prices, as well as a reduction in effective demand. The United Kingdom, which provided up to two thirds of its oil needs through imports from the Middle East, was among the most affected countries.

Summarizing the foregoing, it should be noted that the inclusion of the country in 1973 in the process of European integration testified to the final folding of the new configuration of the "three great circles", among which the relationship between Britain and Europe came out in second place, pushing the Commonwealth factor. From now on, London has been re-qualified from the role of 'connecting link' in the relations between the US and the USSR as a broker between the US and Western Europe [7]. Passing through the fire and copper pipes of economic modernization, Britain has become one of the most dynamic economies in Europe, which in many respects not only caught up with, but surpassed its continental neighbors. However, in 1974, Heath was forced in the circumstances to announce early parliamentary elections so that voters could decide who could pull the country out of the crisis.

To the parliamentary elections, appointed on March 4, 1974, the government camp came up with a firm confidence in its victory. The hit stated about the desire to form a "strong government", independent of the 'opinion of the crowd' and able to respond to the challenge of the time. In turn, the Labor Party conducted an active election campaign. The main drawback of the Labor

Party was the obvious lack of new ideas and bright leaders, coupled with the activation of leftist and rightist groups inside the party. In these circumstances, Harold Wilson had to act as a 'peacemaker' in resolving disputes, sacrificing the integrity and consistency of the party system. The election campaign of the Labor Party was radical. It provided for extensive nationalization, strengthening of the system of state regulation, reduction of military expenditures, as well as holding a referendum on the terms of participation of Great Britain in the Common Market. As a result of the election, the Labor Party won 301 seats in the parliament, conservatives won 297 seats, and liberals won 14 seats. Accordingly, in the ratio Labor received 37.1 % of the vote, conservatives received 37.9 %, and liberals received 19.3 % [2, p. 11]. The result shown by the Liberal Party was amazing. Because for a long time it was on the verge of collapse. According to the election results, almost every fifth voter voted for the liberals. Based on the above-mentioned results, it should be noted that none of the parties won an absolute majority in the House of Commons. The results of the elections showed that the program settings of the two leading parties did not arouse the voters' confidence. Attempts Heath to consult with the leadership of the liberals on the formation of a coalition government did not succeed. After their failure, Heath granted the queen the resignation and the powers of the Prime Minister were transferred to Harold Wilson. A Labor minority government was formed, consisting of James Callaghan (Foreign Minister), Denis Healey (Finance Minister), Roy Jenkins (Minister of the Internal Affairs), Michael Foot (Minister for Employment) and others.

Analyzing the relations between Great Britain and the Soviet Union, it should be noted that the pattern of 'warming' in relations that occurred in the second half of decades could be traced. This was the case under Harold Macmillan in the 1950s, similarly during the reign of Harold Wilson in the 1960s and 1970s, as it was in the 1980s when Margaret Thatcher came to power. The improvement of relations was manifested in the signing in 1974 of an agreement on the development of economic, scientific, technical and industrial cooperation for a period of 10 years. In early 1975, Harold Wilson visited Moscow. For the first time, a protocol was signed between the Soviet government and Her Majesty's government on mutual consultations on the most important international problems and issues of bilateral relations. In addition, the Soviet Union was provided with a long-term loan of $ 1.8 billion. The UK supported the idea of a pan-European security system. At the final stage of the preparation for the Conference on Security and Cooperation in Europe, British diplomats contributed to its constructive work and on July 1, 1975, Wilson, together with the heads of other states, signed the Final Act of the Helsinki Conference.

The intensification of Britain's activity in Europe in the 1970s conditioned the cooling of the 'special relations' between London and Washington. Without denying the principle of Atlantic solidarity, Wilson tried to move away from the role of the 'junior partner' of the United States. The goal of the Labor government was a balance between the European and Atlantic vectors of foreign policy. British diplomats could not have liked the arrogant attitude of their American colleagues, and they showed a desire to preserve independence in foreign policy decisions to some extent, and sometimes even the imposition of their own opinions on a number of issues. British diplomats called for a foreign policy course independent of the two great powers. A desirable but difficult goal was cooperation with both the USSR and the United States of America.

The UK joined the EEC 16 years after its formation, which had both positive and negative sides. The negative side can be attributed to the fact that England did not have the opportunity to contribute to the structure.

In February 1975, within the Conservative Party, an event took place that had a huge impact on the future history and development of Great Britain. “Sensational and historical event” was the election of Margaret Thatcher to the post of party leader as a result of inner-party elections. The defeat of Edward Heath in the election of the party leader led to his resignation [8]. Thatcher headed the opposition government of Great Britain.

In the second half of the 1970s Great Britain was covered by protest actions, consolidated by the state services. The internal political situation had an impact on the foreign policy of that time.

The relationship between Great Britain and the United States of America continued to be very close. The UK continued to follow its foreign policy course in the wake of US foreign policy. From the world power, Britain became a satellite country of the United States. The foreign policy of the country in its nature was anti-Soviet and anti-communist, it was determined beyond its borders and national interests were neglected for the sake of “Atlantic solidarity”.

The complicated situation inside the country, the dependence on the United States led to the change of government, the defeat in elections to local self-government in 1977, the growing tension on the part of Irish extremists led to the weakening of Labor’s influence and their support among the population.In March 1979, a vote of no confidence in government was introduced, and Callaghan was forced to dissolve the government. During the 1979 elections, the Conservatives led by Margaret Thatcher won the elections. The victory of the Conservatives and the entry into office of the Prime Minister of the woman became a sensational event, never happened before.

Summing up the study of British foreign policy in 1970–1979, it is noteworthy that this period of the country’s history, under the influence of internal political problems caused by world economic crises, proved to be quite difficult for England. Internal political factors played a big role in solving foreign policy problems. Nevertheless, the principle of ‘hit harder’ implemented by the British government had sufficient success. London was able to speak from the previous imperial positions in international relations with the least losses, while maintaining a high international status. Having ceased to be a great empire, Britain acquired the status of an ‘axial power’. An important aspect in Britain’s foreign policy was the ‘special relations’ with the US, because in many decisions Britain relied on the former colony. The country’s foreign policy status was transformed from a world power, a colonial empire to a protectorate state of the United States of America. Such conditions as permanent membership in the UN Security Council, nuclear potential, as well as various forms of ‘soft pressure’ and influence in the formerly controlled territories contributed to the maintenance of significance in world politics.

In the 1970s of the twentieth century, the political views of British diplomats had traditional stability and conservatism. The Diplomatic Service of Great Britain for many centuries retained the leading position in the development of both domestic political and foreign policy decisions.

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Дипломатическая служба Великобритании в 1968–1979 гг.

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Ключевые слова и фразы: внешняя политика Великобритании; «особые отношения»; Европейское Экономическое Сообщество; США; СССР.

Аннотация: Дипломатическая служба Великобритании на протяжении многих столетий сохраняет за собой главенствующее положение в разработке как внутриполитических, так и внешнеполитических решений, при этом традиционно основываясь на двух противоположных тенденциях: сохранении традиций и способности к изменениям. Внешнеполитическая стратегия Великобритании складывается из двух составляющих: преемственности, которая прослеживается на протяжении долгого времени, и изменчивости, постоянной адаптации к условиям новой исторической эпохи.

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Analysis of the Period of Psychological Adaptation of College Freshmen

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Key words and phrases: adaptation; new college students; sense of belonging; cognition.

Abstract: The paper analyzes four stages of psychological adaptation of college freshmen: the period of anxiety, the period of interest, the period of adjustment and the period of confusion. In this context, the author explores the conditions for the development of the sense of belonging, normal behavior, and the sense of contentiousness to shorten the time of adaptation of new college students.

Introduction

When new students enter college/university, they have high expectations and pressures that push them into complicated psychological change. Some scholars called this period as “the second weaning stage”, when freshmen start a new independent living in university and leave their parents. Understanding of characteristics of new college students’ psychological change, can reduce their adaptation time, which is very important.

Characteristics of psychological changes of new college students

For new college students who have just been enrolled at university, psychological changes can be generally divided into four stages.

The first stage is the period of excitation and anxiety, which turns into stress reaction. The type and degree of stress reaction varies depending on personal qualities, living environment etc., while generally it is manifested as excitation and anxiety lasting for a long time when they enter the university.

The sources of excitation and anxiety are pleasure from the success and unpredictability for the future. However, this state of anxiety will reduce or disappear after freshmen gradually get used to university. The reasons for this phenomenon are the following.

1) Curiosity and comparison.

Every new circumstance, a new college friend, a new habit of living, etc., seems curious. When new college students compare the atmosphere of the university with their previous experience at high school, they might have positive impressions or get into depression.

2) Independence and belonging.

In society, interpersonal interaction is behavior that no one can escape. Freedom and

equality is the nature of man, especially young adults, who are trying to avoid control and guidance of their parents. Now they can do whatever they want, event something that their parents forbade them to do.

Another reason of anxiety is coming from the need of affinity. Unfamiliar feeling for new environment makes university students work together. Although the new communication technologies of web chatting and microblogging can facilitate the information exchange between old friends and first-year students and reduce level of anxiety, communication face to face can cause anxiety. However, building interpersonal relationships can increase psychological support and relieve anxiety.

The second stage is the period of interest. After being well acquainted with the university environment and in-depth contact with new friends, the first year students are satisfied with the needs of affinity; the development of activities to enrich the university life, for example, classroom voting, new membership, acceptance, etc., cause positive emotions and curiosity.

In China, high school students feel too tense to relax because of hard study for university. According to the research into physiology, relaxation phenomenon appears after activity is finished within bundle of nerves. On the other hand, in different circumstances first-year students behave in a different manner. Thus it is very important to guide them during this period.

The third stage is a period of smooth adjustment. After satisfying their need for interpersonal interaction, interests and hobbies, a relatively quiet period starts. At this time, the instruction is more intense than ever. College / university students behave calmly during this period. This time is very important for every student, as they strive for recognition by their peers.

The fourth stage is the period of confusion.

The information about the discipline received from senior students might cause confusion and lead to the loss of motivation to study. At the same time, a neglecting the purpose of learning will cause imbalance and misunderstanding in shaping the right view of life.

Recommendations

Since we are talking about the ability of students to integrate with the university culture, the conceptual cognition and behavior of university students occur in a new environment.

1) Emotional perspective.

Currently, the possibility of obtaining information in different ways has caused a very difficult situation for students to form stable emotional relationships. Anyway, in order to lead the student to become an individual who is destined for the future of the country, the university can provide a way to obtain information from the institution so that they feel a sense of belonging and personality. The context of university culture can be one of the positive ways to influence a university student in order to plan their future.

The role of the community is great. Friendship is manifested during community activities and learning. All these activities can be turned into hobbies and interests. In the established community, students are guided by the culture of university relationships.

2) Behavioral perspective.

Collaborative learning is essential. It can make university students understand the importance if working in a team, maintaining discipline and order.

3) Self-control in training.

Self-control behavior improves discipline and helps students to cope with the challenges of student life. University training should be planned to prepare individuals for independent professional activities. All types of people with skills can fit into the university culture.

4) Conscientious perspective.

The conscientious view of life of university students includes not only positive emotions, but also understanding of their social roles. In teaching consciousness, life values, and faith education can become a way to solve confusion of university students adapting to a new living.

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Анализ периода психологической адаптации первокурсников университета

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Ключевые слова и фразы: адаптация; первокурсник; чувство принадлежности; познание.

Аннотация: Анализируются четыре этапа психологической адаптации первокурсников университета: период беспокойства, период интереса, период привыкания и период замешательства. В этом контексте автор рассматривает условия, необходимые для формирования чувства принадлежности к группе и обществу, нормального поведения и сознательности с целью сокращения времени адаптации первокурсников.

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