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Architecture

ICONOGRAPHIC SYMBOLIZATION OF THE CAPITAL CITIES OF RUSSIA IN THE TSARITSYN ENSEMBLE OF THE XVIII CENTURY BY ARCHITECT V. I. BAZHENOV

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ИКОНОГРАФИЧЕСКАЯ СИМВОЛИЗАЦИЯ СТОЛИЧНЫХ ГОРОДОВ РОССИИ В ЦАРИЦЫНСКОМ АНСАМБЛЕ XVIII в. АРХИТЕКТОРА В. И. БАЖЕНОВА

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Abstract

In the 200 years since the life of the architect V. I. Bazhenov, significant changes have occurred with his legacy - the Tsaritsyno ensemble, during this time its urban development structure has almost completely changed. In the previous materials of the article there are no research materials, but rather overview subjective opinions are given. They provide reasoning about the supposed former beauty of the national heritage. describe information about the theatricalization of space and Masonic signs, which were never in the ensemble during the life of V. I. Bazhenov.

In the new study of the Tsaritsyno ensemble, the creative principles of V. I. Bazhenov were revealed, where the symbolization of the capital cities of Russia, characteristic of the cartographic structure of the state, is considered.

The peculiarity of the symbolic meanings of the capital cities of Russia lies in the historical ethnos, i.e. from the foundations of the emergence of the city, where the features included in them are contained in specific signs that are characteristic of a given place in the historical process.

Аннотация

За 200 лет после жизни архитектора В. И. Баженова произошли существенные изменения с его наследием – Царицынского ансамбля, за это время практически полностью изменилась его градостроительная структура. В предшествующих материалах статьей отсутствуют материалы исследований, а даются обзорные субъективные мнения. В них приводятся рассуждения о предполагаемой былой красоте национального наследия. описывают сведения о театрализации пространства и масонских знаках, которых при жизни В. И. Баженова никогда не было в ансамбле.

В новом исследовании Царицынского ансамбля были раскрыты творческие принципы В. И. Баженова, где рассматривается символизация столичных городов России, характерная для картографической структуры государства.

Особенность символических значений столичных городов России заключается на историческом этносе, т. е. с основ зарождения города, где входящие в них признаки содержатся в специфических знаках, которые характерны для данного места в историческом процессе.

Keywords: Ensemble, model, cartography, typology, national heritage, capital cities, iconic cities.

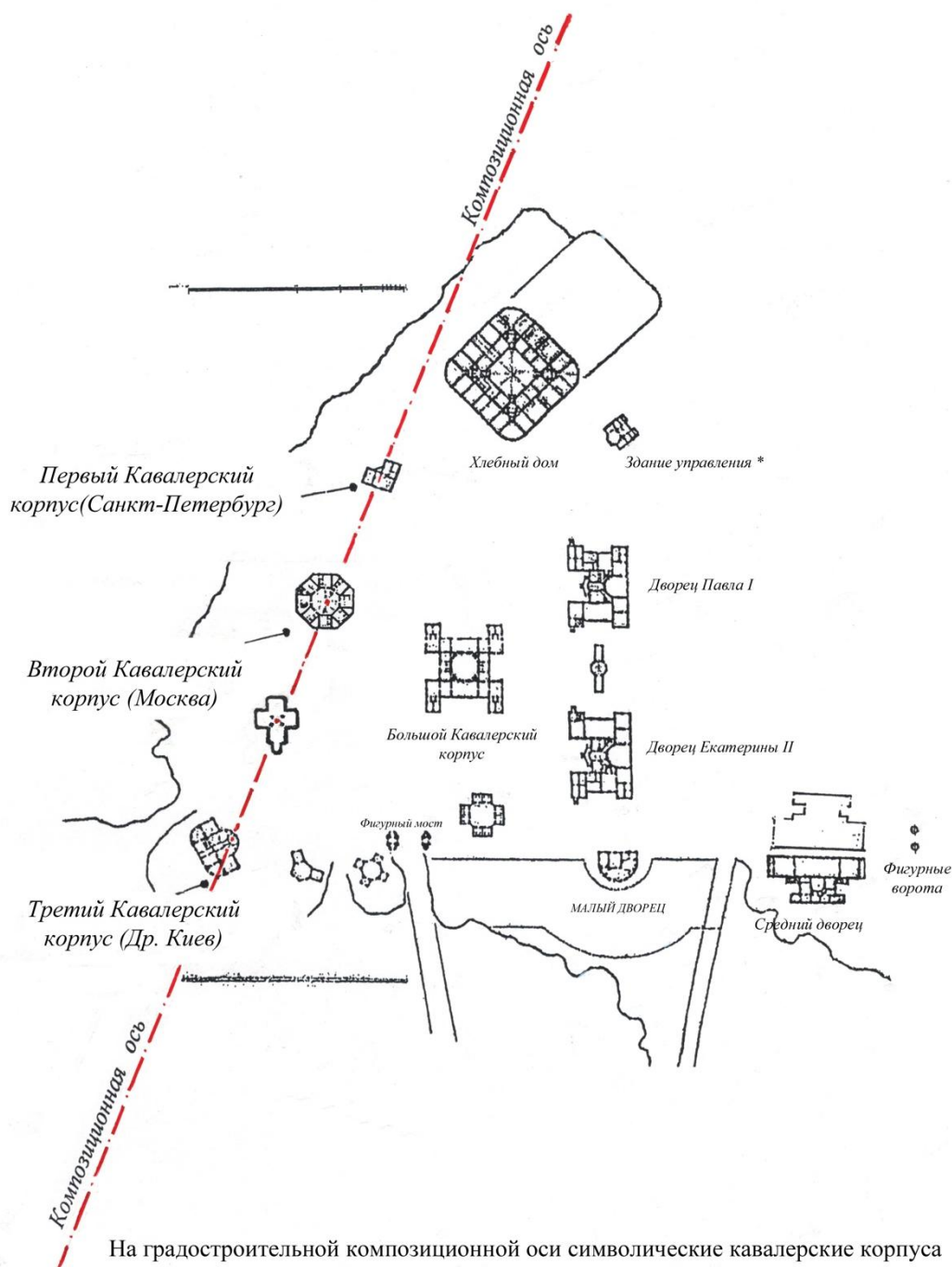
Ключевые слова: Ансамбль, модель, картография, типология, национальное наследие, столичные города, города-иконы.

Теоретическая архитектурная наука 200 лет не знала действительного предназначения Царицынского ансамбля В. И. Баженова. В отсутствии понимания и научного теоретического обоснования творческой идеи и принципов проектирования на примере выдающегося исторического шедевра произошло морально-профессиональное поползновение ответственности за сохранность национального наследия, что привело к исчезновению градостроительной основы и символических значений Царицынского ансамбля. В отсутствие методологии исследования баженовские принципы оказались недоступными.

В представленной монографии представлены научные обоснования национального наследия тематическом направлении – «Царицыно модель Российского государства». В исследовании дается аналитическо-синтетический анализ исторических материалов. По теоретическим исследованиям территория императорской усадьбы Царицынского ансамбля XVIII века представляет градостроительную структуру, содержащую историческую картографию России. На современном генплане г. Москвы содержится Царицыно в виде модели территории государства, которая имеет планировочную векторную связь с христианскими мировыми центрами – Римом и Константинополем (Стамбулом). Эта векторная связь подтверждается астрономической геодезией.

В структуру основной градостроительной композиции Царицынского ансамбля входит тематическо-сюжетная группа столичных городов, которая идентична географическому историческому расположению городов России. В Царицынском ансамбле столичные города России: Др. Киев, Москва, Санкт-Петербург соответствуют композиционной группе объектов, содержащие символические характеристики зарождения на территории государства.

На генплане 1775 года они представлены в виде отдельных корпусов по диагональной композиционной схеме соответственно – Первый, Второй и Третий Кавалерские корпуса. Тематическо-сюжетная группа столичных городов содержит типологические отличия, что и является уникальным для этой композиционной группы. Они располагаются с левой стороны дворцовой застройки, идущей вдоль оврага и Поповой горы. В этой части ансамбля дворцовая застройка ансамбля в виде линейной композиционной схемы, что свидетельствует о концептуальном построении тематическо-сюжетной группы столичных городов. Все объекты этой композиционной группы лежат на одной композиционной оси, которая проходит через геометрические центры объектов, где Первый Кавалерский корпус – Управительский дом, символ Санкт-Петербурга; Второй Кавалерский корпус (Восьмигранник) – символ Москвы; Третий Кавалерский корпус – символ Древнего Киева.



На градостроительной композиционной оси символические кавалерские корпуса располагаются последовательно — друг за другом, в соответствии исторического процесса появления — столичных городов

ГЕНПЛАН ЦАРИЦНСКОГО АНСАМБЛЯ

Композиционная ось нанесена на генплан В. И. Баженова (1775г.)

* Выполнен по планировочной схеме храма базиликального типа

© Определение значений кавалерских корпусов и построение композиционной оси Наумкина Г.И.

Санкт-Петербург (Первый Кавалерский корпус) является третьей столицей в истории России, представляет город административно-экономического управления государства, нового государственного статуса в качестве империи, которая построена при Петре I. Санкт-Петербург — представлен в виде носовой части корабля, напоминающий корабельную верфь — Адмиралтейства. Входной портик корпуса содержит с двух сторон парные колонны, которые опираются на белокаменную плиту. Они по вертикали содержат тканевый рисунок флага Гюйса, что подтверждает их принадлежность к символу корабля. Над входом портала

располагается своеобразный белокаменный кокошник с имитацией солнечных лучей солнца, исходящих из центра. Завершается кокошник свечеобразным элементом.

Москва (Второй Кавалерский корпус) содержит в плане восьмигранную геометрическую фигуру. Город Москва является второй столицей России. Корпус расположен на погосте церкви Богородицы Живоносный Источник, что следует связывать с символом национального значения – пантеона русских царей и князей. Объемно-планировочная решение Второго Кавалерского корпуса символизирован в виде царской короны, в соответствии национальной иконографии столичного города. Он же содержит концепцию идеального столичного города, в виде планиметрической композиции идеальной модели города, как это было в эпоху Ренессанса.

Древний Киев (Третий Кавалерский корпус) – символ зарождение христианства на Руси, состоит из базиликального и византийского типов христианских храмов, которые конструктивно неотделимы и встраиваются в один объём. Алтарная зона с четырехстолпным образованием входит в центральный объём ротонды. В прямоугольной части корпусе содержатся овальные и прямоугольные по форме зальные помещения.

В национальной истории Российского государства Древний Киев является первым столичным городом. В картографическом пространстве государства Древний Киев располагается в Европейской части, что соответствует его месту на территории Царицынского ансамбля. Он расположен на краю береговой линии пруда. С него начинается композиционное развитие столичных городов России. Древний Киев представлен в виде архитектурного симбиоза базиликального и византийских типов христианских храмов.

Эта композиционная группа, из всех построек занимает видовое место в градостроительном пространстве Царицынского ансамбля. В первоизданном авторском варианте группа столичных городов России имеет ярко выраженную иконографическую символику христианства, которая содержится на авторских и обмерных чертежах. Символическая особенность столичных городов определяется наличием завершающего пламенеющего элемента – свечи, которая размещается на кокошниках входных портиков зданий.

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Economic sciences

INTEGRATING EDGEWORTH BOX TO MACROECONOMIC POLICYMAKING TRADEOFFS OF ENVIRONMENT AND ECONOMIC GROWTH

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Lack of cobined models for policymakers is a main hardship of four dimensions of growth - no unified approach for tradeoffs between economy, environment, politics, and society. Traditional approaches often address these areas separately, relying on specialized models that lack cross-domain integration. A unified optimization framework could help policymakers understand the trade-offs between these domains and make decisions that align more closely with collective utility. The Edgeworth box can be used as a method for visualizing and optimizing exchanges between two agents and two goods. This proposal seeks to adapt the mathematical logic of the Edgeworth box into a higher-dimensional optimization tool for policy analysis, simplifying for now with two dimensions of EPI and GDP.

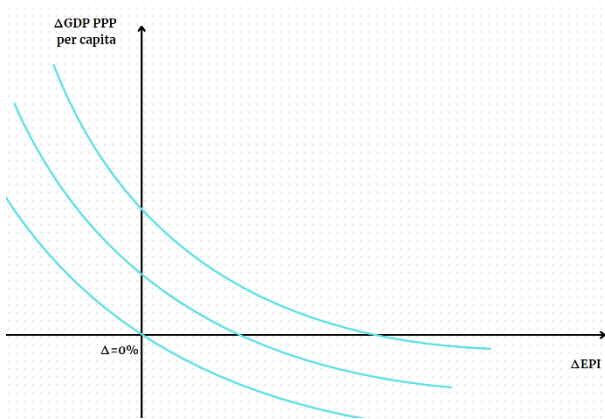


Figure 1. Government Choice

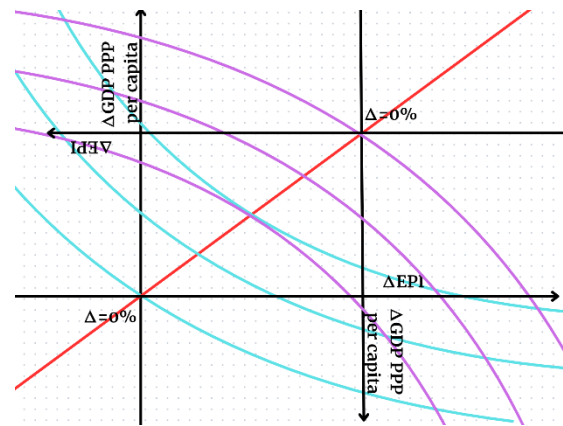


Figure 2. Government Choice Edgeworth Box

The integration of environmental considerations into trade policy follows patterns consistent with hierarchical preference theories and the Environmental Kuznets Curve. As societies achieve higher levels of economic development, their willingness to sacrifice pure economic efficiency for environmental protection increases [1]. Rather than looking at the curve as inevitably leading to environment-caring society as the economy improves, to a simplified two-dimensional consumer choice theory perspective with PPP GDP per capita growth rate and delta change in Environmental Performance Index. It will serve as an introduction to the model. Unlike traditional two-good, two-agent models, the proposed method can mathematically extend the framework to higher dimensions. The choice is made by the government; the initial budget (endowment) depends on previous years' choices; part of the indifference curve lies on negative coordinates. A government may sacrifice its natural resources, hindering the environment (negative delta EPI), and gaining a budget (positive GDP PPP per capita growth), explaining the Kuznets curve pre-industrial economy, and vice versa for developed states. Simple bilateral trade can be illustrated within the two-dimensional Edgeworth box with the assumption of the undefined limit of delta growth on both axes. The suggested model can be improved with additional dimensions (instead of two) to consider – four levels: economic, environmental, social, and political; while each attribute is a set of utilities interdependent with each other. Let us use two factors for simplicity. Two countries: A (high-income) and B (low-income). Attributes: GDP G_i and a vector of environmental qualities $E_i = (E_{i1}, \dots, E_{iM})$, where M is the number of pollutants. Government i maximizes:

$$U_i(G_i, E_i) = a_i \ln G_i + \sum_{m=1}^M \beta_{im} \ln E_{im}$$

a_i = preference weight on GDP

β_{im} = preference weight on pollutant m 's environmental quality

$$E_{im,t+1} = (1 - \lambda_m) E_{im,t} - \delta_m G_{i,t} + \sum_{j \neq i} M \phi_{ij}^{(m)} G_{j,t} - \psi_m 1\{E_{im,t} < \tau_m\}$$

λ_m = natural regeneration rate

δ_m = degradation per GDP unit

$\phi_{ij}^{(m)}$ = spillover effect from j to i

ψ_m = penalty when quality falls below threshold τ_m

Let $Z_G = G_A + G_B$ and $Z_{E_m} = E_{Am} + E_{Bm}$ be total outputs and environmental stocks. Feasible allocations lie in the set:

$$F = \{(G_A, G_B, E_A, E_B) \mid G_A + G_B = Z_G, E_{Am} + E_{Bm} = Z_{E_m} \forall m\}$$

The contract curve is given by:

$$\frac{a_A/G_A}{\beta_{Am}/E_{Am}} = \frac{a_B/G_B}{\beta_{Bm}/E_{Bm}} \quad \forall m$$

This equality states that marginal rates of substitution between GDP and environmental quality must be equal across countries. Let $x_{As} \in [0, 1]$ be the share of sector s offshored from A to B . Offshoring occurs when (including offshoring costs):

$$\frac{a_A/G_A}{\beta_{Am}/E_{Am}} < \frac{a_B/G_B}{\beta_{Bm}/E_{Bm}}$$

Notably, we have the following limitations of the model as of now: decompose each category to subcategories for decreasing oversimplification. Parameter estimations highly rely on think tanks and public surveys. Hypervolume analysis within EB becomes less intuitive. Multi criteria decision analysis frameworks can be explored to refine the model.

Conclusion

Richer countries trade clean technology in exchange for more GDP output in poorer countries - consistent with pollution haven hypothesis. Optimal trade balances current gains vs future degradation. The overall prediction is that there will be increased trade between high-income states and low-income states, where high incomes outsource environmentally harmful sectors to developing countries, who are eager to accept those for potential economic growth. This letter is not a full model, instead, it recommends to look at the interdependent factors of growth from utility perspective.

Keywords: Edgeworth box, pollution haven hypothesis, environmental policy.

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NEW TRENDS IN THE DEVELOPMENT OF THE GLOBAL ECONOMY

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<https://orcid.org/0009-0007-1222-4238>**Abstract**

The changes in the dynamic and structural parameters of the global economy development associated with the formation of a new model of economic growth in developed countries and countries with developing markets are analyzed. It is shown that the resource-technological and institutional characteristics of this model create conditions for maintaining sustainably high rates of global GDP growth. The main source of risks is the erosion of the system of global economic process management that has developed in recent decades, which can sharply reduce the contribution of foreign economic relations to economic growth.

Keywords: global economy, economic growth, GDP, international trade, foreign direct investment, global competitiveness, digital economy, global economic governance, protectionism, trade wars.

Introduction

Any self-respecting economist flatters himself with the hope that sooner or later he will have the honor of discovering and explaining a fundamentally new phenomenon in the field he studies. The larger the scale of such a phenomenon and the more controversy in the academic and expert community the processes occurring in the field of research related to it cause, the higher the subjectively perceived contribution of the corresponding scientific achievement to the development of economic science, to the solution of current problems of economic policy and - let's face it - to the prospects for the positive development of the professional career of its author. In this regard, it is not surprising that the greatest activity in predicting and describing new phenomena and trends is demonstrated by specialists in the field of global economics.

Discussion**CONCEPTUAL SEARCH**

For obvious reasons, the greatest competition of ideas is observed on the issues of forecasting economic crises and analyzing their key factors, developing recommendations for anti-crisis policy, and searching for a new trajectory of sustainable growth of the global economy after it emerges from the period of upheaval.

On the one hand, these are the issues that provide the greatest probability of obtaining new scientific results – primarily because the phenomena being studied themselves are new. On the other hand, all of the listed issues have a pronounced significance for public and political discussions, and the author of the brightest and most fruitful idea has a good chance of topping citation ratings and becoming a media headliner. In this regard, the wish to “live in an era of great change” sounds like a blessing, not a curse, for experts in the global economy.

The global crisis of 2008–2009 and the subsequent period of turbulent development of the global economy fully demonstrated the validity of the above observations. Although the relevant events did not bring with them intellectual innovations on the scale of the Keynesian revolution, the replacement of the import-substituting model of industrial policy with an export-oriented one, or even the “Washington

Consensus”, their influence on the discussions on the problems of the global economy is difficult to overestimate.

Leaving aside the curious aspects (including the emergence of professional “crisis forecasters” who almost annually predict new waves of recession, a “hard landing” of the world’s leading economies, the collapse of the eurozone, the disintegration of the world economy into conflicting regional blocs, etc.), a number of substantive achievements can be credited to the past decade, in particular, the emergence of the “new normal” hypothesis, the discussion of the comparative merits of alternative approaches to modeling economic development processes, and the analysis of the consequences of financialization and digitalization of the economy.

Some of the innovations have undergone a noticeable evolution as the post-crisis landscape of global development and regulation has formed. Thus, the “new normal” hypothesis, initially proposed to explain the low rates of economic recovery in the period immediately following the end of the acute phase of the crisis [1, 2], in subsequent years began to receive alternative interpretations to describe development trends within the framework of a new global context associated with technological changes (the growing use of digital technologies [3, 4]), a change in basic trends in the dynamics of world trade [5] and, more broadly, the formation of a new model of global economic growth¹. In turn, the expansion of the use of non-cooperative practices in the management of global economic processes (including the emergence of a real risk of trade wars), characteristic of recent years, has created a demand for further development of arguments on the need to preserve and improve the existing system of regulation of international economic relations, thanks to which, in the context of the 2008–2009 crisis, it was possible to ensure a broad international consensus on the inadmissibility of an uncontrolled escalation of trade barriers. Despite the dynamics of the processes taking place in the field of studying the global economy, the economy itself is changing even faster, which inevitably leads to the formation of “blank spots” on the intellectual map of researchers. Speaking about new development trends after the global economic crisis, we can highlight three main problem areas with the highest concentration of such spots.

Firstly, these are issues related to the structural and dynamic characteristics of the new growth model emerging in the global economy. While the fact of the transition to it is not in doubt, there is no consensus yet on the nature of the changes taking place. In many cases, there is no agreement in the academic community not only on what influence certain factors will have on the growth trajectories of developed countries and countries with emerging markets, but also on how real these factors themselves are. Secondly, the question of how sustainable the new model can be remains open. It has both a strategic and tactical dimension. Of interest is both the potential lifespan of the model (does it have a long-term perspective or will it outlive itself within one or two decades?), and the possibility of crisis impulses arising within it that could lead to upheavals in the global economy comparable in scale to the events of 2008–2009.

Finally, thirdly, today there is a high degree of uncertainty regarding future scenarios for the development of mechanisms for managing global economic processes. Over the past decades, these mechanisms have, in one way or another, contributed to a reduction in the level of barriers to international economic interaction and have restrained the spread of crisis impulses in the global economy. The observed I am currently seeing a tendency to replace multilateral approaches in the area of economic regulation with unilateral ones (in fact, copying with a certain delay similar trends in world politics) as one of the most significant challenges for the long-term prospects of global economic development.

New growth model: what to expect from it?

The new growth model, the transition to which had a decisive influence on the nature of the post-crisis recovery of the global economy, is a phenomenon that is both obvious and mysterious. Its main features took shape quite early – in fact, already in the first years of the current decade, thanks to which we can talk not only about their specific manifestations in various groups of countries, but also about the extent to which it justifies the hopes placed on it. At the same time, a number of its characteristics cause significant disagreements among specialists. The question is hotly debated: do they contribute to the acceleration of economic growth or create new risks for it?

If we talk about the main features of the new model of global economic growth, its main feature is the pronounced revenge of resources and technologies in the structure of factors responsible for the acceleration of global development processes (for more details, see [7]). The contrast with the previous period is obvious here.

Starting from the 1990s, institutional factors and related factors of economic policy came to the forefront in explaining inter-country differences in the rates and levels of economic development. Indeed, countries with transition economies that have successfully implemented market reforms have clearly demonstrated the possibility of accelerating growth rates even with unchanged endowment of productive resources. The influx of foreign capital and technology into such countries was considered as an additional argument in favor of the primacy of institutions and economic policy [8, 9]. In view of the exhaustion of the "transformational dividend" in the pre-crisis period and the sluggish response of the real sector to anti-crisis policy measures after 2008, assessments of the contribution of economic policy and especially institutional factors of development became increasingly moderate, while the role of productive resources and technology came to the fore.

The decisive role was played by (1) the change in the global demographic situation - the aging of the population in economically developed countries and the reduction in the influx of cheap labor into the labor markets of developing countries, as well as (2) the growth of competition for raw materials in the global economy, stimulating investment in the development of new types and sources of raw materials, resource-saving technologies and alternative energy technologies.

One of the key consequences of global demographic changes is that in the coming decades the role of cheap labor as a comparative advantage for countries in competition in global markets will radically decrease. For most leading countries with emerging markets, this will mean that maintaining sustainably high growth rates will require active substitution of labor with capital and the introduction of new technologies to increase total factor productivity.

To achieve this goal, deep structural reforms are needed, including a change in the composition of exports (reducing the share of labor-intensive goods and increasing the share of services), reorienting investments in favor of high-tech industries, and forming a national system of human capital accumulation based on the educational standards of economically developed countries. The transition to a new growth model will require significantly higher resource costs and institutional efforts from emerging market countries than from economically developed countries. The challenges associated with the shift in the age structure of society towards older cohorts, in the case of economically developed countries, require solving the long-familiar problem of increasing capital intensity and the technological level of production. True, some strategies for adapting to the relevant challenges (in particular, the transition to "unmanned" technologies in various areas of economic activity) may be fraught with significant social costs.

Economically developed countries will also have certain advantages in the area of using raw materials. If previously access to their sources was a serious problem for them, then in modern conditions the development and commercialization of new technologies for extraction, resource conservation and alternative energy acts as an effective balancing factor, which, on the one hand, reduces the dependence of developed economies on the import of raw materials, and on the other hand, creates opportunities for the export of both technologies and equipment and services oriented towards them, and even the raw materials themselves, extracted using new technologies (as in the case of the export of shale oil and gas from the USA).

Countries with developing markets, which still have limited potential for developing high technologies, in the short and medium term can count on either introducing them into the national economy through direct foreign investment, or on more or less legal replication of the technological achievements of developed countries. At the same time, as the experience of technological sanctions against Russia, Iran and the DPRK, as well as the first results of the US technological pressure on China, the opportunities for illegal borrowing of technologies are decreasing. Technological innovations may pose the most acute challenges to those countries with developing markets that have traditionally acted as exporters of raw materials. The prospects for further growth in demand for them are becoming increasingly uncertain, and the chances of facing increased competition in the market are becoming increasingly real.

In general, the impact of the "raw materials" component of the new growth model² on the prospects for global development should be considered positive. A decrease in the resource intensity of global GDP and the flexible use of technologies aimed at replacing relatively expensive resources (and their sources) with cheaper ones will lead to an increase in the volume of resource use without reaching the physical limits of their availability. The risks that the global economy will encounter growth limits due to the depletion of one or another type of natural resource are being pushed into the distant future (for oil and gas - at least a century)³. At the same time, new markets for technologies, high-tech equipment and services of specialized companies (including mining companies) are being formed, which

creates new opportunities for expanding international economic cooperation (including with the participation of countries with developing markets) and growth of global GDP.

EXPECTATIONS REALITY

To what extent did the actual development of the global economy in the post-crisis period correspond to the expectations associated with the formation of a new growth model? After the last "nest of black swans" in the global economy became empty in 2017 with the final overcoming of the eurozone crisis and its growth rate exceeded 3.7%, it became possible to talk about the validity of the thesis according to which the tasks of adapting to the standards of the new growth model for developed countries look much less problematic than for countries with emerging markets.

In the first group, the average growth rate in 2017–20184 increased by 0.17 percentage points compared to the average level of 2001–20075 (2.35% versus 2.18%). In the G7 countries, the acceleration of average growth rates amounted to 0.36 percentage points (2.16% versus 1.81%), and in the eurozone countries – as much as 0.4 percentage points. (2.21% versus 1.81%).

On the contrary, in the group of countries with developing markets, the average growth rate decreased by 1.85 percentage points (4.7% versus 6.55%), including in developing Asian economies – by 1.89 percentage points. Thus, here the growth rate decreased by more than a quarter compared to the pre-crisis period, while in the entire world economy the intensity of its decline was two times lower. The average growth rate of countries with developing markets reached its minimum values in 2015 (4.3%) at the peak of the problems of the Chinese economy (in the period from June 2015 to January 2016, the leading national stock index Shanghai Composite collapsed almost 2 times – from a maximum of 5178 points to 2638 points). Despite the subsequent partial improvement of the situation, the trend towards a relative slowdown in developing economies is highly likely to continue – in full accordance with the logic of the new model of global economic growth.

According to IMF estimates, in the period 2019–2023, global GDP growth rates will remain at 3.7–3.6% per year (with a slowdown of less than 0.15 percentage points by the end of the period). For economically developed countries, the IMF predicts a decrease in rates from 2.4% to 1.5% (primarily due to the curtailment of fiscal incentives in the United States, as well as the negative consequences of the protectionist policy of the Trump administration for both the American economy itself and the EU economy), and for countries with emerging markets – a minimal acceleration (from 4.7% to 4.8%). According to the forecasts of IMEMO RAS, there is currently no reason to expect such a significant slowdown in the growth of developed economies, and developing markets may reach growth rates of about 5.0% already in 2019. In the following years, we can expect a relative acceleration in the growth of economically developed countries: if at present they lag behind developing countries in terms of GDP growth rates by about 2 times, then by the mid-2020s the gap will decrease to 1.5–1.7 times.

Today's problems of the transition of the global economy to a new growth model can be characterized as follows. For developing markets, the difficulties of adapting to the loss of competitive advantages in the use of labor, as well as to the deterioration of prospects for increasing demand for raw materials, play a fundamental role.

The most striking illustration is the steady slowdown of the Chinese economy. Compared with its record growth in pre-crisis 2007 (14.2%), in 2018 the indicator fell more than twofold – to 6.6%, and, according to the IMF forecast, it may fall below 6% as early as 2022.6 This is largely due to the declining dynamics of exports. If in some years of the previous decade it exceeded 20% per year (in 2003 – an unprecedented 33.5%), then since 2012 it has fallen below 10%. In 2015, a decline of 2.3% was recorded (since the late 1990s, this has only been observed once – by 11.2% in 2009). Although the Beijing leadership is making active efforts to stimulate external demand for national export products (including within the framework of the "One Belt, One Road" initiative), maintaining high rates of economic development of the country is primarily associated with the use of internal sources of growth. At the 19th Congress of the Communist Party of China held in October 2017, an ambitious medium-term goal was put forward: by 2021, the centenary of the CPC, to completely overcome poverty and build a "moderately prosperous society". A slowdown in growth rates is an obvious threat to achieving this goal, which could potentially lead to not only economic but also social (and possibly political) problems.

In the case of emerging market countries focused on commodity exports, external sources of growth have also come under pressure, in no small part due to the aforementioned slowdown in the Chinese economy. Despite a partial recovery in global energy prices, the dynamics of exports in the Middle East and North Africa group of countries in 2017–2018 turned out to be negative (a decline of 1.3% and 0.5%, respectively), and the rates of economic growth in this group of countries (1.8% and 2%) were and more than 2 times lower than in the group of developing economies as a whole. Although the IMF

forecasts a moderate increase in their growth rates to 2.9-3% in 2020-2023, the expected export growth rates do not exceed 2.1% per year, which looks extremely unconvincing compared to 2001-2007, when they averaged about 6.3%.

In Latin American and Caribbean countries, export growth rates recovered to 4.5% compared to the lows of 2013-2014, when they fell to 1.1-1.2%, but this did not lead to a restart of economic growth. In 2018, the economies of Latin America and the Caribbean grew extremely slowly (1.2%), with five of them, according to IMF estimates, experiencing a recession (including Argentina - by 2.6%, the Dominican Republic - by 14.1%, and Venezuela - by 18%). Brazil's economy has been growing for the second year in a row (1% in 2017 and 1.4% in 2018), but this is clearly not enough to compensate for the decline of 2015-2016 (by 3.8% and 3.6%, respectively). Against this background, the dynamics of development of sub-Saharan African countries looks somewhat more favorable, having demonstrated growth of 2.7% and 3.1%, respectively, in 2017-2018. However, the high volatility of their exports, the average annual growth rate of which for the period 2001-2008 was 1.5%, amounted to only 1.9%, does not give reason for optimism. In general, it must be noted that the adaptation of developing economies to the change in the structure of comparative advantages in the global economy is proceeding with great difficulties.

For economically developed countries, which in 2017-2018 entered the trajectory of confident growth and by the beginning of 2019 surpassed the achievements of the pre-crisis period in a number of indicators⁸, the main challenge is associated with ensuring progressive development in the context of a reduction in the supply of labor. Theoretically, the growth constraints associated with this factor can be weakened by accelerating the replacement of labor with capital. However, the global economy does not yet know examples of dynamic GDP growth with an unchanged or shrinking volume of labor.

A kind of experimental testing ground in this case is Japan, which over the past decades has ensured a high standard of living for the population in the context of its accelerated aging and the virtual absence of an influx of labor from abroad. Many experts assumed that if the policy of stimulating economic growth launched in 2012–2013 (called “Abenomics” after Prime Minister S. Abe, who initiated it, in order to recall the success of “Reaganomics” three decades earlier⁹) was successful, Japan could set the benchmarks for a new growth model for economically developed countries. However, these expectations were not destined to come true. The economic growth rate recorded at the dawn of “Abenomics” in 2013 (2%) remained unsurpassed in the following years. However, by 2018, the unemployment rate reached its lowest level since 2000 (less than 2.9%), and the rate of growth of consumer prices increased from 0.5% in 2017 to 1.2% in 2018. However, it would be premature to interpret these changes as signs of the long-awaited exit of the Japanese economy from the deflation trap (in particular, given that the acceleration of inflation is explained mainly by the increase in prices for imported energy). If we exclude food raw materials and energy, the growth in prices in 2018 was only 0.5%. This is higher than in 2017 (0.1%), but not enough to state that deflationary trends have been overcome.

Finally, if we consider the potential sources of global maneuver in favor of labor-substituting capital-intensive technologies, their range is quite narrow today. In fact, we are talking mainly about the development of digital technologies. Their support has become the main direction of industrial policy in developed countries and leading countries with emerging markets, which is reflected in the formulation of such development concepts as “Industry 4.0”, “Industry of the Future”, Smart Factory, High Value Manufacturing.

Quantitative assessment of the macroeconomic consequences of the digital revolution is a difficult task. The effects of digital technology development are not concentrated in a limited range of industries, but cover to one degree or another all sectors of the economy, the development prospects of which, in turn, also depend on many other factors not directly related to technological changes. The most realistic assessment algorithm is to use the basic forecast for the development of the global economy [15] as a basis and calculate the possible contribution of digitalization factors, focusing on those digital technologies whose industry effects can be traced with a high degree of reliability on the basis of currently available market research and reviews. The following are named as key technologies, the introduction of which will be of fundamental importance for creating a new basis for the development of industry, financial and non-financial services [16, 17, 18, 19, 20]:

1) digital information processing technologies (creation of new products, upgrading traditional industries, management efficiency, the Internet of Things), including blockchain technologies (financial innovations, smart contracts, sharing economy);

2) 3D printing (creation of new products, production customization while maintaining economies of scale);

3) artificial intelligence (substitution of labor with capital – especially in telecommunications, unmanned transport, finance; machine learning as a prerequisite for production customization);

4) virtual reality (creation of new products, expansion of the range of tasks to be solved, especially in the entertainment, healthcare, education sectors);

5) 5G communications (communication services, management efficiency, the Internet of Things, unmanned transport).

According to preliminary calculations by specialists, the most optimistic estimates of the contribution of relevant technologies to accelerating global GDP growth do not exceed 0.15–0.25 percentage points per year. Of course, this is only the lower limit of the quantitative measurement of the macroeconomic consequences of digitalization. Their clarification is the task of further research as new statistical material appears. Foreign estimates also indicate the limited contribution of digital transformation to accelerating GDP growth and total factor productivity. All this does not allow us to consider the digital economy as the core of the new model of global economic growth. Most likely, it will become only one of many factors in its formation.

Is a new crisis coming?

Any sufficiently long period of progressive development of the global economy always leads experts to the idea that sooner or later it will be followed by a new crisis. The current situation obviously encourages alarmism: if nothing extraordinary happens, in mid-2019 the 120-month record for the duration of positive (without pronounced recessions) dynamics of global development will be broken. Although this period included the Eurozone crisis, the “drawdown” of the Chinese stock market in 2015, and the correction in the US stock market at the end of 2018, there are plenty of forecasts of an upcoming crisis [26].

If we abstract from emotions and stick to the facts established within the framework of business cycle studies, the situation looks as follows. Reasonable judgments about the high probability of the onset of any economic crisis - be it structural or cyclical - presuppose a clear indication of its basic conditions (the presence of fundamental imbalances in the economic system that require correction) and of the immediate triggers that create incentives for economic entities - taking into account the accumulated imbalances - to radically change their business behavior, ultimately leading to a collapse in the financial markets and a recession in the real sector of the economy.

It is essential that (1) the long-term crisis-free development of the global (or national) economy in itself, not accompanied by an increase in fundamental imbalances, cannot serve as an indication of the inevitability of a crisis in the near future; (2) statistical indications of the presence of economic imbalances cannot serve as evidence of the inevitability of a crisis if there are no factors that force economic entities to see them as an immediate threat to their interests; (3) the occurrence of events that historically led to the onset of crises, in the absence of economic imbalances observed on the eve of the corresponding crises, does not automatically mean the onset of a new crisis.

What can be said about the likelihood of a crisis in the coming years (on the horizon until 2021) based on the analysis of the listed factors? If we talk about a cyclical crisis, the main risks are associated with the curtailment of the quantitative easing policy implemented by the US Federal Reserve, as well as with the increase in volatility of the US stock markets: in 2018, the VIX volatility index calculated for them amounted to a record 130.25%, which significantly exceeded the levels of 2007 and 2008 - 94.64% and 77.78%, respectively.

At the same time, none of the traditional leading indicators of a cyclical crisis in the financial and real sectors in the first months of 2019 gave unambiguous indications of the inevitability of a cyclical downturn. Likewise, the factors that played the role of triggers for the global crisis of 2008–2009 and the “dot-com crisis” of 2000 have not been identified at the present time. Thus, in the short term, there are no grounds to predict a cyclical crisis.

The situation is more complicated with the probability of a structural crisis. Today, there are two key candidates for the status of a variable reflecting structural imbalances fraught with a crisis: (1) the growing unevenness of income distribution on a global scale [28, 29, 30], capable of undermining the legitimacy of the emerging growth model (and, therefore, its political support in the leading countries of the world) from the standpoint of social justice, and (2) a fundamental change in the proportions characterizing the growth of world trade and global GDP.

If the thesis about the growth of economic inequality does not have unambiguous statistical confirmation and, possibly, is the result of manipulations in data processing [14], then a change in trends

in the sphere of world trade is undoubted. Indeed, the events of 2008–2009 led to a radical change in its dynamics. To understand the essence of this change, let us consider the average annual ratio of the growth rate of world trade (in current prices at market exchange rates) to the growth rate of real GDP in the world economy since 1980.

First of all, the twofold increase in this analytical indicator in the 1990s compared to the 1980s (from 1.04% to 2.1%; while in 1994–1995 the growth rate of world trade outpaced the growth rate of global GDP by a record 2.9 times) attracts attention. It is not surprising that it was in the 1990s that not only was the concept of economic globalization formed, implying the accelerated development of world economic relations compared to national economies, but also that there was an almost universal rejection of import substitution priorities in industrial policy in favor of an export-oriented model¹⁵. In the 2000s, after the “dot-com crisis,” the growth rate of world trade slowed somewhat – on average, it outpaced the growth rate of global GDP by 1.4 times, and the maximum excess was 2.6 times (in 2000) and 2.1 times (in 2004). Nevertheless, the outpacing growth of world trade was evident, which led to, made the recommendations for economic policy unambiguous. As in the 1990s, the recipe for success seemed obvious: countries seeking to improve their positions in the global economy should focus on serving rapidly growing export markets.

After the 2008–2009 crisis, the situation changed dramatically. Starting in 2012, the ratio between the growth rates of world trade and real GDP averaged 1.1, and in 2015–2016 it fell to 0.8 and 0.7, respectively. In part, this reflected the above-mentioned problems of developing countries’ exports adapting to the changed structure of comparative advantages in international trade, and in part, the reason was the growth of trade barriers in the period following the onset of the global economic crisis.

In such circumstances, any factor that could lead to a further decline in the growth rate of world trade relative to the growth rate of global GDP could deal a significant blow to the growth prospects of export-oriented economies (including those specializing in high-tech exports). It is not surprising that the threat of trade wars that emerged in 2017–2018 has become the main contender for the role of trigger for the next structural crisis of the global economy.

The threat of trade wars

According to the WTO, 2018 saw a radical expansion of the use of protectionist measures in international trade. Although their total number increased slightly from mid-October 2017 to mid-October 2018 (the standard WTO monitoring period), amounting to an average of 11 measures per month (for comparison: for the same period in 2016–2017, 9 measures, the maximum in 2015 was an average of 19 measures), the volume of foreign trade supplies to which they apply increased more than 7-fold compared to the previous observation period, reaching \$588.3 billion. [33] The main reason was the introduction by the United States of increased import duties on steel and aluminum in March 2018, as well as an increase in duties on the import of Chinese goods worth a total of \$250 billion (the PRC leadership, in turn, increased duties on American goods worth \$110 billion).

The turn of American trade policy towards protectionism that occurred after D. Trump came to power marks a radical reassessment of its principles and goals. In the period after the end of World War II, its unconditional priority was liberalization, and the accelerated reduction of its own import barriers by the United States was aimed at:

1) obtaining reciprocal concessions in the area of opening markets from trading partners interested in gaining access to the capacious US market (including within the framework of multilateral negotiations in GATT/WTO);

2) promoting the internationalization of the activities of American companies, including the transfer of individual links of value chains abroad in order to increase competitiveness (including within the framework of NAFTA, taking into account the duty-free import of products manufactured in Canada and Mexico into the United States);

3) increasing the welfare of American consumers by reducing prices on imported consumer goods.

Given the high competitiveness of American products, such a policy was seen as a guarantee of the US economic leadership in the world (in this sense, the parallels with the free trade policy pursued by Great Britain during its period of trade dominance in the 19th century are indicative). The risks created by the policy of trade openness for individual sectors of the US economy (primarily the automobile industry in the 1970s and 1980s) were minimized by using specific industry barriers based on the ad hoc principle (for example, forcing Japanese automakers to voluntarily limit supplies to the US market).

The situation began to change significantly in the 2000s, when, against the backdrop of a sharp breakthrough by countries with developing markets (primarily China), the positive balance of benefits and costs of an open trade policy for the US became less obvious both economically and politically.

Growing imports¹⁶ began to exert increasingly pronounced pressure on production and employment in the US. In combination with the intensive transfer of many production facilities abroad, this caused a negative reaction from a significant portion of voters employed in the manufacturing industries, which largely predetermined the high support for D. Trump in the industrial states of the United States in the 2016 presidential elections.

It is significant that already under the Obama administration, the arguments in favor of further liberalization of foreign trade were predominantly political, not economic. After coming to power, D. Trump completely departed from the rhetoric of his predecessors and currently positions a high degree of openness not as a guarantee of American leadership, but as a threat to the American economy. Relatively low import duties in the United States (in 2016, their average weighted level was 2.4% compared to 3% in the EU, 5.2% in China and 7.5% in India) are considered one of the reasons for the asymmetric benefits of partner countries. Accusations by some of them (primarily China) of using incorrect trade practices (in particular, direct and indirect subsidies of exports) are an additional argument in favor of introducing trade barriers to protect the American economy.

The risks of such a policy consist in the revision of the entire system of regulation of the global economy created in the post-war period under the leading role of the United States. The curtailment of international trade will hit a wide range of its subjects (primarily China and Germany), as well as American consumers deprived of access to cheap imports, and producers whose exports will be limited by retaliatory measures of foreign countries. How high is the probability of a scenario of the development of full-scale trade wars?

On the one hand, one can point to a number of factors playing against it. Firstly, practice has shown that the result of a similar US initiative - the revision of the provisions of the North American Free Trade Agreement (NAFTA) - was not so much an increase in protectionism as a redistribution of the benefits of regional economic cooperation in favor of American economic entities. Many experts believe that the result of the trade The US pressure will also result in concessions from the recipient countries rather than retaliatory measures. Secondly, all parties involved understand the potential costs of an uncontrolled escalation of protectionism (a factor that was particularly evident in the negotiating strategies of the US and China throughout 2018 and early 2019). Thirdly, the US alliance with a number of partners against whom trade restrictions are aimed (primarily with the EU countries that suffered from the introduction of tariffs on steel and aluminum) significantly reduces the likelihood of their using retaliatory measures. In these conditions, it can be expected that as the global economy revives, global trade, whose growth rate has actually caught up with the growth rate of global GDP, will once again demonstrate acceleration, opening up new horizons for economic cooperation and growth. On the other hand, the threat of trade wars cannot be discounted either.

In the rating published in March 2019 by The Economist Intelligence Unit, the risk of a trade war between the US and China topped the list of key threats to the global economy by a significant margin [34]. History is replete with examples when the ambitions of politicians and conflicts of international economic interests led to the implementation of scenarios that ultimately did not suit anyone. In this regard, it is indicative that the current strengthening of protectionist sentiments is superimposed on the general trend towards a decrease in the level of cooperativeness in regulating international trade, manifestations of which are the impasse in the Doha Round of negotiations within the WTO, the decline in interest in mega-regional free trade agreements, the conclusion of which seemed a reality 3-5 years ago, as well as the expansion of the use of economic sanctions in global politics.

Of particular concern is the fact that the steps taken by the US leadership to reshape the global system of trade regulation have clear parallels with similar steps in the field of international security, including the withdrawal from the ABM and INF Treaties. If the revision of global trade regulations continues at the same pace as is already being observed in global security regimes, we will face a large-scale erosion of the system of global economic regulation (possibly including its financial aspects) in the coming years. The consequences of such a development could be extremely dire.

Conclusion

The results of the analysis allow us to conclude that the resource and technological characteristics of the new growth model in the global economy create certain advantages for developed countries, although developing countries, subject to a successful transition to a new structure of comparative advantages in competition in global markets, can also take advantage of its dividends. At the same time, institutional factors and economic policy factors, which have received priority attention from researchers since the 1990s, are by no means ignored within the framework of the new growth model. It is undeniable

that the problems of such countries as the DPRK and Venezuela depend to a decisive extent on the state of their economic institutions and the political decisions taken. However, the key channels of influence of the relevant factors are increasingly being considered not so much as the mechanisms for reducing transaction costs as such, but the intensity of the introduction of technological innovations and the development of new sources of production resources.

As for the main source of risks in the global economy, today the erosion of the system of managing global economic processes that has developed in recent decades is an unconditional candidate for this status. The destruction of the currently existing regulatory mechanisms could sharply reduce the contribution of external relations to economic dynamics and undermine the sustainability of the emerging new growth model of the global economy. If such a scenario is realized, the new growth model risks becoming a thing of the past without having fully realized its potential.

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Jurisprudence

CONDITIONS IN ALBANIAN CORRECTIONAL INSTITUTIONS: CHALLENGES AND THE ROLE OF THE OMBUDSMAN IN PROTECTING PRISONERS' RIGHTS

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Abstract

Correctional institutions in Albania face serious challenges including overcrowding, deteriorated infrastructure, lack of medical care, and violations of fundamental human rights. This paper aims to analyze the structural and functional shortcomings in the prison system, with a specific focus on the role of the People's Advocate (Ombudsman) in improving conditions and safeguarding prisoners' rights.

Through the review of official reports, legal frameworks, and case studies, the research evaluates the impact of the Ombudsman's interventions, particularly through the National Mechanism for the Prevention of Torture (NPM).

Finally, the study proposes practical recommendations for strengthening the protection of prisoners' rights and improving prison conditions across the country.

Keywords: Ombudsman, human rights, Albanian prisons, prison conditions, People's Advocate, National Mechanism for the Prevention of Torture (NPM), penitentiary reform, prisoners' rights.

1. INTRODUCTION

The treatment of prisoners and respect for their fundamental rights is a key indicator of a democratic society and the functioning of the rule of law. In Albania, the prison system has been the subject of continuous concern by both national and international organizations.

The People's Advocate, as an independent constitutional institution, plays a vital role in identifying human rights violations and in pressuring responsible authorities to take corrective measures.

This study examines the current state of Albanian correctional facilities and assesses the real impact of the Ombudsman's recommendations and actions in promoting humane treatment and legal standards.

2. OBJECTIVES

- To analyze the current conditions in Albanian correctional institutions.
- To evaluate the impact of the Ombudsman and the National Preventive Mechanism (NPM) in improving these conditions.
- To identify obstacles that hinder the implementation of the Ombudsman's recommendations.
- To offer concrete recommendations for improving the situation and aligning with international human rights standards.

3. METHODOLOGY

This is a qualitative research study based on:

- Analysis of **official reports** from the People's Advocate, especially from 2021 to 2024.
- Review of **Albanian legal frameworks** and **international human rights standards**, including the European Convention on Human Rights.
- **Case studies**, such as the Burrel Prison, known for extremely poor living conditions.
- Secondary sources from **civil society organizations** and **international monitoring bodies**.

4. FINDING AND DISCUSSION

1. Current Conditions in Prisons

Albanian prisons face persistent and systemic issues, including:

- **Overcrowding:** Institutions like Fushë-Kruja, Durrës, and Lezha exceed their designated capacity, limiting basic rights to privacy and dignity.
- **Deplorable infrastructure:** Inadequate lighting, poor ventilation, lack of hygiene, and failing sanitary facilities.
- **Healthcare deficiencies:** Limited access to specialized doctors, essential medications, and timely medical interventions.

- **Inhumane treatment:** Cases such as Burrel Prison have drawn attention for failing to meet even minimal standards of humane treatment.

2. The Role of the Ombudsman and NPM

The People's Advocate and the National Preventive Mechanism (NPM) have made notable efforts in:

- Conducting **regular and unannounced monitoring visits** to prisons.
- Publishing **detailed reports and urgent recommendations** regarding physical conditions and treatment of inmates.
- Recommending the **closure of facilities** that fail to ensure human dignity (e.g., Burrel Prison).
- Advocating for the **improvement of healthcare services, infrastructure, and respect for prisoners' rights.**

Despite this active role, implementation of the Ombudsman's recommendations remains **voluntary**, which significantly limits their effectiveness

Burrel Prison — A Problematic Case in the Albanian Penitentiary System

Burrel Prison is one of the oldest and most heavily criticized correctional facilities in Albania, known for the extremely harsh conditions experienced by inmates. It has been frequently highlighted in reports by the People's Advocate (Ombudsman), the European Committee for the Prevention of Torture (CPT), and various human rights organizations.

Main Issues:

- **Severe Overcrowding:** The prison's capacity is significantly exceeded, resulting in unbearable living conditions and lack of minimum personal space for prisoners.
- **Deteriorated Infrastructure:** The facility suffers from inadequate lighting, poor ventilation, and insufficient sanitary conditions, creating an unhealthy and unsafe environment.
- **Lack of Adequate Healthcare:** Inmates often lack access to specialized medical services and proper treatment for chronic illnesses.
- **Inhumane Treatment and Isolation:** Reports indicate frequent use of disciplinary isolation in conditions considered cruel, inhuman, and degrading.
- **Absence of Rehabilitation Programs:** There is insufficient support for education, vocational training, and psychological care for prisoners.

Burrel Prison serves as a stark example of the urgent need for deep reforms in Albania's penitentiary system and underscores the crucial role of the People's Advocate in monitoring and intervening to protect the rights and dignity of inmates.

5. CHALLENGES

- **Non-binding recommendations:** Institutions are not legally required to implement the Ombudsman's suggestions.
- **Budgetary constraints:** Limited state funding hampers structural improvements and service enhancements.
- **Lack of trained personnel:** Especially in medical, psychological, and rehabilitative services.
- **Retaliation concerns:** Prisoners who report mistreatment may face internal penalties or isolation, limiting transparency and accountability.

6. RECOMMENDATIONS

1. **Make the Ombudsman's recommendations binding**, or establish stronger follow-up mechanisms for accountability.
2. **Prioritize infrastructure investment** in the most critical facilities, starting with those under emergency conditions.
3. **Enhance healthcare services** within prisons by hiring specialized staff and ensuring access to medications.
4. **Develop structured rehabilitation programs** for inmates to support reintegration into society.
5. **Promote the involvement of civil society** in the monitoring process and in raising awareness of prisoners' rights.
6. **Draft and implement a long-term national strategy** for penitentiary reform, with the contribution of independent and international actors.

7. CONCLUSION

The conditions in Albania's correctional institutions require urgent and coordinated action. While the Ombudsman plays a crucial role in identifying violations and recommending improvements, the lack of institutional enforcement mechanisms undermines the impact of these efforts.

A democratic society must treat its prisoners with dignity and ensure that their fundamental rights are upheld, not as a privilege, but as a reflection of national and legal maturity. Strengthening the role and influence of the Ombudsman, increasing state investment, and fostering inter-institutional cooperation are essential steps toward building a humane and just correctional system.

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Physical sciences

THE LAWS OF PHYSICS ALLOW BY TIME TRAVELLING WITH USING TIME ZONES ON EARTH TO BRING BACK TO LIFE PEOPLE WHO DIED AS A RESULT OF ACCIDENTS, IN WAR AND FOR OTHER REASONS

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Abstract

In the article it is suggested that due to the fast (faster than the Earth rotates) movement on the Earth through time zones to carry out accessible to people travelling (for example, by plane) both in the past and in the future time. An example of realisation of such time travel routes is given, allowing to bring back to life people who died as a result of an accident or criminal humans activity.

Keywords: *arrow of time, special theory of relativity, anti-time, internal time, external time, time zones, time travels*

1. Introduction

The title of the article may be perplexing. What can physics have to do with bringing a person back to life? Especially not in science fiction, but in serious science? But, it turns out, it can, although this serious science itself does not agree with this opinion.

The fact is that it is possible to bring a person back to life by travelling through time. But the possibility of travelling in time, except for some purely theoretical situations - in the twin paradox of the special theory of relativity (SRT), as a result of teleportations in quantum mechanics and in some other exotic theoretical situations - in practical human activity is denied by physics even in the distant future.

However, this article provides descriptions of useful new human activities that are physically already feasible on Earth now using time travel to the past and into the future.

2. Proof of the physical reality of time travel on Earth is already in the present day

Here are a couple of quotes that illustrate the current state of understanding of the problem of time. "Time is the most frequently used word in the English language and the third most frequently used word in Russian. It is also frequently used in all other languages, too, because synchronizing actions in time is as important as coordinating them in space. Without knowing the exact time, it is impossible to organize your life and plan it in advance. If in ancient times you could rely on natural cycles and an internal sense of time, then in our days you must constantly have a watch or a phone with you. Time is the most important of the abstract concepts that we pronounce every day. Every thinking person has thought about the problem of time at least once in his life. And a huge amount of philosophical and scientific literature has been written on this topic. Nevertheless, no one can say with certainty even what time is." [1]

And here is what Stephen William Hawking writes about this [2]: "In ordinary life, there is a huge difference between moving forward and backward in time. Imagine that a cup of water falls from a table and breaks into pieces. If you film this fall, then when you watch the film, it will immediately become clear whether the film is running forward or backward. If it is running backward, then we will see how the fragments lying on the floor suddenly come together and, having formed a whole cup, jump onto the table. And you will be able to claim that the film was running backward, because in ordinary life this does not happen. Otherwise, all the faience factories would have to be closed."

This phenomenon, known as the 'arrow of time', is one of the most surprising problems in physics. The name 'arrow of time' was proposed by the British physicist Sir Arthur Stanley Eddington in the early XX century [3]. And all our life experience, as it would seem, confirms the truth of this concept.

But the corrected version of SRT [4]-[12], in which a new concept of 'anti-time' has appeared, induces this life experience to be corrected. Indeed, if we assume that soon travelling through the

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expanses of universes and antiverse of the hidden Multiverse will become possible for people on Earth, then time travel [13] will also become possible, both in the past and in the future.

Moreover, time travel on Earth is already not only possible now, but also exists, although it is not used [14]-[25]. And since they are much easier and cheaper than in space, we will consider them. At the same time we will need two new concepts - internal (or biological) time of a human being and external time of his environment. And these two times have different properties. Human biological time cannot flow backwards. That is, a person cannot return to his youth or childhood. But the situation in the external environment in which a human being is, as a result of human activity, can change in the most incredible way. And in this external environment it is already possible to move both to the future and to the past time. And even short-term movements in time can be very useful. For example, if you get an opportunity to look into the future time for a short time, you can make a better choice in the present. Or by travelling to the past, it is possible to correct something in the present time.

And such external time for people on Earth exists. It's known to everyone. These are 24 time zones, which are caused by the Earth's rotation around its axis. Moving through them in space, people also move in time. And depending on the direction of movement in space - to the west or to the east - they can move both to the past and to the future time. This is well known to everyone, but it has not been used in creative human activity so far.

But this is a free resource presented to us by nature to solve the problem of time travel, which is not difficult to use if you have an aeroplane (because you need to travel faster than the Earth rotates). Indeed, to travel 24 hours into the past, for example, you only need to move westwards by 24 time zones. To move into the future, you would have to do the same thing, but only by travelling east. All this is not difficult to do. It is also necessary to take into account that the closer to the pole - it does not matter which one, northern or southern - the transport route of time travelers will run, the less biological time will be required to cross one time zone. Therefore, it is more advantageous to lay it closer to the poles (for example, at a distance of 100-1000 km from the pole around the pole). But since the internal biological time in ordinary human activity for almost all people (who do not fly) flows much faster than external time, external time is usually not taken into account by people. Such a concept is still not even present in colloquial speech. And although millions of people are already travelling through time by flying planes, it has never occurred to anyone until now that there is any benefit to be gained from time travel. But it turns out that it is possible.

3. How the laws of physics can be used to bring a person who died as a result of a crime back to life.

Let's consider one of these situations. And from the analysis of this situation it will become clear how to act in other situations.

For example, let's assume that in one of the South American countries (this option will be convenient to explain, since this country is located near the South Pole) the president is killed. This situation is illustrated by Fig. 1, which shows the trajectories of movement in time:

- the President of this country;
- the head of the security service;
- and all the other people – both those who saw the assassination attempt on the president and those who did not.

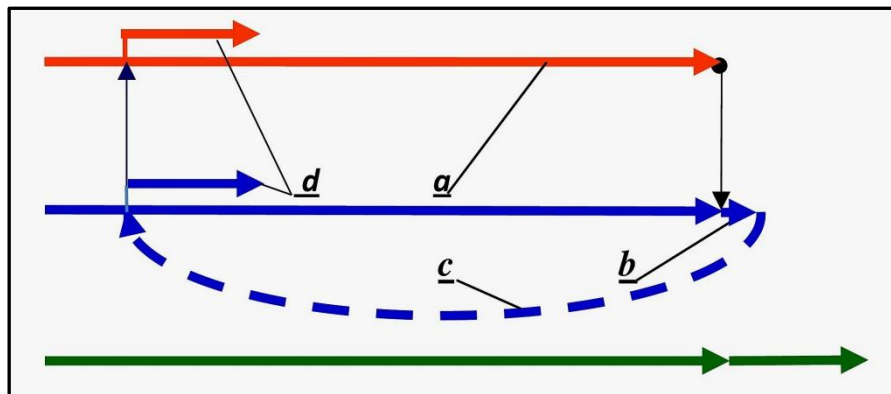


Fig. 1. Time travel routes of the President (in red) and the head of the security service (in blue), ensuring the return of the President to life after an assassination attempt on him, as well as the rest of the inhabitants of the Earth (in green). Solid lines show their movements on the surface of the Earth, and dotted lines show the movements of the head of the security service on an airplane through time zones.

Therefore, the temporal trajectory of the President's life ("a" in Fig. 1) ends with this murder (this moment is shown by a large black dot). And upon seeing this (shown by the thin black arrow), the head of the security service ("b" in Fig. 1) begins to act – he organises the President's delivery to the nearest military hospital, organises security, instructs him to report to the press that the President is alive, and instructs his staff to strictly prevent any leakage of information that the President has already died.

Then the head of the security service gets on an aeroplane ("c" in Fig. 1) and, having flown around Antarctica through 24 time zones, lands in the past time at the same aerodrome from which he took off in the present time. Outside time for him has changed into the past by 24 hours, and the internal biological time of his space-time journey, i.e. the flight time, has changed, for example, by 10 hours. Consequently, the head of the security service flew back in time 14 hours before the assassination attempt on the President. And therefore, during the remaining time ("d" in Fig. 1) he has time to take the necessary measures to save the President and neutralise the criminal (or criminals). And so for this country, its President - a real living President at that - could be saved².

However, as Figure 1 shows, the situation is still unresolved. Firstly, after the assassination attempt, which was witnessed by many people, the President in this situation turns out to be not only alive but also fully healthy as a result of the activities of the head of the security service. However, even Presidents do not recover so quickly. And to explain to the people how the President was brought back to life is to be inexpedient, as it is not known how it will be perceived by them. However, this can be remedied: the President will simply have to stay out of public view for the duration of his alleged treatment. Secondly, the President with the head of the security service and the rest of the citizens have so far found themselves existing on Earth in different times. And this circumstance is already more difficult to overcome.

And there can be only one way out of this situation – the President and the head of the security service, in order to return to the same time in which the rest of the people of the Earth are, need to make a journey into the future (see Fig. 2).

Therefore let's continue. After the President and the head of the security service have solved all their issues in the past time ("d" in Fig. 2), they get on a plane and fly around Antarctica in the opposite direction ("e" in Fig. 2). And thus in 24 hours they return from the past to the present

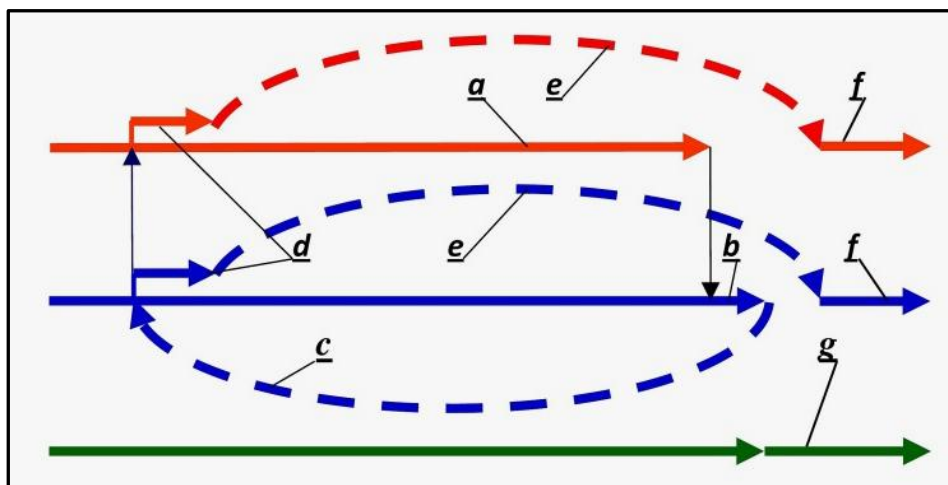


Fig.2. Time-travelling routes of the President and the head of the security service, ensuring the President's return to life after the assassination attempt, as well as the rest of the Earth's inhabitants. The solid lines represent their movements on the surface of the Earth, and the dotted lines represent the movements of the President and the head of security by aeroplane across time zones.

("d+e" in Fig. 2). And while they are flying, they have time to discuss their problems of the future. And after the plane arrives in the present, the President, together with the head of the security service, secretly gets into a car and leaves for a place of stay chosen on board the plane for the duration of his alleged treatment. And after the completion of this 'healing' ("f" in Fig. 2), the President already appears in his residence. And since the conditions $a + b = g$ and $d + f = h$ were met in such a time travel (see Fig. 2) then, eventually, the President and the head of the security service returned to the same time in which all the other people of the Earth were.

² Perhaps President Kennedy could have been saved in a similar fashion

This is how, presumably, the problem of bringing back to life people who have died as a result of an accident or someone else's criminal activity can be solved. But it is not excluded that during the realisation of the solution to this problem, additional circumstances may arise that will require their own solution. And which, hopefully, will turn out to be solvable.

4. Conclusion

The above are just assumptions that need to be verified experimentally. Moreover, these verification experiments are simple, easy to implement and quite convincing. But you need an airplane. And having flown around the North or South Pole through 24 time zones and having made sure that they actually got to the past or future time, the experimenters will get an answer to their question of whether they can actually travel in time. And after that, they can return to their present time in the manner described above. And if such an experiment confirms the assumptions made in the article, then the above-described and other travel routes to the past and future can be used to solve other problems. For example, simply by asking a passer-by what the date and time are, or by using your iPhone for this purpose. And the knowledge gained in this way can also be used to create more comfortable time machines.

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Political sciences

REGIONAL AND GLOBAL IMPACTS OF THE ZANGEZUR CORRIDOR

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Abstract

The Zangezur Corridor is a strategic transportation line of approximately 40 kilometers, established under Article 9 of the ceasefire agreement of November 10, 2020, that aims to directly connect the Azerbaijani mainland with the Nakhchivan Autonomous Republic via the Zangezur region of Armenia. Resurrected after the Second Karabakh War, the corridor aims to significantly shorten the distance compared to existing routes, reduce transportation times, and facilitate the integration of Azerbaijan with Nakhchivan. The project's opening will create significant value in Eurasia's energy and logistics networks by accelerating trade with Turkey and Central Asia. It will also complete the missing link in the Middle Corridor and contribute to Europe's energy security. However, the corridor's future is being debated due to Armenia's concerns, fears of a diminished transit role for Iran, and competition from major powers such as the US and Russia.

Keywords: Zangezur Corridor, South Caucasus, regional integration, energy security, geopolitics, transport infrastructure

Introduction

In today's international system, energy and logistics infrastructures have become one of the most crucial elements of both national security policies and economic development strategies. The Karabakh War of 2020 and the subsequent ceasefire agreement (tripartite declaration) of November 10, 2020, profoundly altered the balance of power in the South Caucasus; during this period, the transportation line known as the Zangezur Corridor came to the international agenda (Shpunt, 2025). The corridor is a strategic road and railway link, approximately 40–43 km long, that aims to connect the Azerbaijani mainland with the Nakhchivan Autonomous Republic via the Zangezur region of Armenia (Shpunt, 2025). This article examines the historical background and legal basis of the Zangezur Corridor and then evaluates its economic, political, and geopolitical impacts at the regional and global levels from the Azerbaijani perspective. The data used in the article were compiled from reliable journals, think tanks, and academic analyses.

Historical Background and Legal Framework

Soviet and Post-Soviet Period

The Zangezur Corridor idea is not new. During the Soviet era, projects aimed at connecting Azerbaijan's mainland with Nakhchivan by rail were developed; the Zangezur line was primarily intended for passenger transport (Shpunt, 2025). However, after the collapse of the Soviet Union in 1991 and the First Karabakh War of 1992–1994, transportation to Nakhchivan began to be provided entirely through Iran or Georgia, forcing the use of circuitous routes exceeding 700 km (Shpunt, 2025). Following the war, the territories occupied by Armenia geographically divided Azerbaijan in two, effectively closing the shortcut connecting Azerbaijan to Nakhchivan. During this period, the Bilasuvar–Julfa road, which crossed the Iranian border, became the main land connection between Azerbaijan and Türkiye (Valeji, 2024).

November 10, 2020 Ceasefire Agreement and Article 9

The Second Karabakh War ended in Azerbaijan's victory, and Armenia was forced to abandon the occupied territories. The Tripartite Declaration of November 10, 2020 (Azerbaijan, Armenia, and Russia) included Article 9, which stipulated the opening of economic and transportation links in the region. This article stipulated that Armenia provide a safe transit corridor for citizens, vehicles, and cargo between Azerbaijan's western regions and Nakhchivan. Baku considers this provision the legal basis for the Zangezur Corridor and insists that the opening of the corridor constitutes Armenia's ceasefire obligation.

Yerevan, on the other hand, is unwilling to accept an "extraterritorial" corridor out of concern that its sovereign rights could be violated (Cutler, 2024).

Azerbaijan Perspective

For Azerbaijan, the Zangezur Corridor is not just a transportation project; it is also a concrete expression of territorial integrity and national sovereignty. Connecting Nakhchivan to the mainland has been one of the country's fundamental foreign policy goals since the 1990s. President Ilham Aliyev, in a statement at the beginning of 2025, emphasized that the corridor would definitely be opened, saying, "The sooner the Yerevan administration realizes this, the better." The Baku administration defines the Zangezur Corridor as compensation for a historical injustice that separated Nakhchivan from the mainland during the Soviet and Armenian occupation. It demands free passage, not sovereignty, over the route, which will pass through Armenia (Cutler, 2024).

Economic and Logistical Impacts

Short Distance and Cost Advantages

The most significant benefit of the Zangezur Corridor is its ability to reduce transportation costs by shortening the distance. According to expert calculations, while the existing Baku–Tbilisi–Kars railway line uses a 250-km route through Georgia, the Zangezur line will connect Azerbaijan to Turkey with a mere 43-km crossing, shortening the route by approximately 343 km (Umarova, 2024). This reduction will reduce transit time by one day and enable faster delivery of energy and commercial goods to Europe and Central Asia (Umarova, 2024).

According to an analysis published in *Forbes*, it is estimated that the Zangezur Corridor could generate \$50–100 billion in annual trade volume and reduce Europe-Asia transportation times by 12–15 days thanks to the century-long leasing model proposed by the US in the summer of 2025 (Yıldız, 2025). Economic modeling by Oxford Economics indicates that the logistics improvements provided by the corridor will generate annual savings of \$20–30 billion (Yıldız, 2025). For Azerbaijan, the corridor is expected to increase non-oil exports by \$700 million and contribute an additional 2% annually to GDP (Yıldız, 2025). This data suggests that the corridor could lead to significant changes not only in regional but also in global supply chains.

Middle Corridor and Global Logistics

The Zangezur Corridor is a vital component of the East-West transportation network known as the Trans-Caspian Middle Corridor. The Middle Corridor connects China and Central Asia to Europe via the Caspian Sea, via the South Caucasus and Turkey, and is emphasized as a safer and faster alternative to the Suez Canal or northern routes via Russia (Guliyev, 2025). For example, cargo that can reach Turkey from Japan by sea in 45–60 days can be transported in 15–20 days via the Trans-Caspian route (Dayar, 2025). The opening of the Zangezur Corridor will ensure the uninterrupted operation of this corridor, reducing the number of crossing borders, reducing transit times, and facilitating multimodal transportation.

Energy and Natural Resources

Currently, Azerbaijan exports natural gas to Europe through the Southern Gas Corridor, reaching 12 billion cubic meters in 2023, with a target of 20 billion cubic meters by 2027. Furthermore, a portion of Kazakhstan's oil exports are transported through Baku, despite technical constraints. The opening of the Zangezur Corridor will make these energy flows faster and more secure. The International Energy Agency's 2025 World Energy Outlook projects that Europe will need an additional 20 billion cubic meters of natural gas by 2030; the route diversity provided by the corridor reduces Europe's dependence on Russian gas, creating a critical alternative for energy security.

Regional Political Influences

Armenia's Hesitations and Domestic Policy

Armenia is cautious about the opening of the Zangezur Corridor. The Yerevan government is concerned that the corridor will gain an "extra-strategitorial" status within its territory, arguing that this would constitute a violation of its sovereignty (Cutler, 2024). Furthermore, some Armenian public opinion harbors concerns that the corridor could be used by Turkey and Azerbaijan to strengthen their historical territorial claims (Cutler, 2024). Nevertheless, some analysts emphasize that the corridor would integrate Armenia into regional trade networks, attract investment to the country's economy, and reduce isolation (Guliyev, 2025). The alternative project, dubbed the "Peace Junction" by the Pashinyan government, is considered limited in its feasibility because it does not include cooperation between Azerbaijan and Turkey (Cutler, 2024).

Türkiye and the Turkic World

Turkey sees the Zangezur Corridor not only as a means to strengthen its relations with Azerbaijan but also as a key element of the "Turkic world integration" project within the framework of the Organization of Turkic States. According to an analysis published in *Modern Diplomacy*, the corridor will establish a direct land link from Anatolia to Central Asia, transforming Ankara into an intercontinental logistics hub and deepening ties among the Turkic Republics (Guliyev, 2025). In this context, Turkey's role is clearly to support the peace agreement with Armenia and conduct diplomacy to open the corridor. Olesya Vartanyan, in *Carnegie Politics*, argues that Turkey's growing regional influence, especially after the 2020 war, and its new approach towards Armenia have made Ankara an effective balancing act in the region (Vartanyan, 2025).

Iran's Concerns and the Aras Corridor

The Zangezur Corridor's most vehement opponent is Iran. Tehran fears the corridor will exclude Iran from transit routes, block the country's access to the Black Sea and the Caucasus, and strengthen the Azerbaijan-Turkey alliance. A report in *The Arab Weekly* reports that Iran expressed concerns about a "regional encirclement" following the 99-year lease of the corridor under the US-led 2025 peace agreement, which dubbed the route "Trump Road" (*The Arab Weekly*, 2025). Iran has also reached agreements with Azerbaijan to develop an alternative route known as the Aras Corridor and laid the groundwork for a 55-km line to provide access to Nakhchivan via Iran (Kaleji, 2024). Although some Iranian experts argue that the Aras Corridor is an alternative to Zangezur, Azerbaijan and Türkiye use this route as a diplomatic pressure tool, stating that the opening of Zangezur will diminish the importance of the Iranian route.

Russia and International Powers

While Russia strives to maintain its traditional influence in the South Caucasus, its influence in the region has weakened due to the war in Ukraine and increasing international isolation. According to *Forbes* analysis, Moscow's loss of credibility in the region was concretely demonstrated by its failure to intervene when Azerbaijan took full control of Karabakh in the fall of 2023 (Yıldız, 2025). This situation has led Armenia to turn to the West, leading to expectations that Russia could lose \$10–20 billion in transit revenue (Yıldız, 2025). Meanwhile, the US proposal to manage the corridor under a century-long lease reflects Washington's aim to reshape energy security and geopolitical balance in the region (Yıldız, 2025). US officials argue that this model draws inspiration from historical examples such as the Panama Canal and the Berlin Corridor and offers creative legal solutions to the parties (Yıldız, 2025). China, while stating that the corridor will provide efficiency for the Belt and Road Initiative, is concerned about the decrease in dependence on routes under its control.

Azerbaijan's Logistics Leadership Strategy

Azerbaijan is not only focusing on the Zangezur Corridor in the region; it is also progressing towards becoming a global logistics hub with projects such as the Baku–Tbilisi–Kars railway, the Alat Port, and the Southern Gas Corridor. Robert M. Cutler, on *The Liberum* website, emphasizes that Azerbaijan has successfully completed the BTK railway and is capable of carrying out comprehensive transportation projects, making Zangezur highly viable (Cutler, 2024). The article states that Azerbaijan's development of alternative routes through Iran provides strategic flexibility to counter Armenia's obstructive stance, but that Zangezur remains the preferred option (Cutler, 2024). In this context, Baku has placed the Zangezur Corridor at the center of both its development strategy and its diplomatic pressure tools.

Global Geopolitical Impacts

Diversification of Supply Chains and Sustainability

Shocks such as the COVID-19 pandemic and the Russian invasion of Ukraine have exposed the extreme dependence and fragility of global trade networks. The blockage of the Suez Canal, attacks on ships in the Red Sea, and political risks in the Northern Corridor have heightened the strategic importance of alternative routes. According to *Modern Diplomacy*, the Zangezur Corridor will complete the missing link in the Middle Corridor, increasing the resilience of Asian-European supply chains, reducing border crossings, and aligning with the European Union's Global Gateway project with its vision of "sustainable infrastructure independent of geopolitical pressures" (Guliyev, 2025). This aligns Turkey's goal of becoming a logistics hub, China's Belt and Road Initiative, and the EU's energy and trade security strategies.

Energy Geopolitics and Pipeline Size

An analysis published by the BESA Center highlights the importance of the Zangezur Corridor for hydrocarbon logistics. According to the article, the risks associated with the northern route have increased as a result of Russia's attacks on Ukraine and sanctions, thus increasing the value of new pipeline routes for hydrocarbon transportation (Shpunt, 2025). The article emphasizes that the corridor

was initially intended solely for passenger and regional freight transport, but has now become a geopolitical tool as energy transmission lines require new routes (Shpunt, 2025).

Great Power Competition and Regional Balance

An analysis by Güney Yıldız in *Forbes* interprets the US's idea of administering the Zangezur Corridor under a century-long lease as a strategic move against Russia and Iran (Yıldız, 2025). According to the article, opening the corridor would reduce Russia's influence in the South Caucasus and weaken Iran's transit role to Central Asia via Turkey and Azerbaijan. While this carries the potential to escalate geopolitical conflicts, it also presents opportunities for diplomatic innovation among major powers. The governance model proposed by the US, evoking the Panama Canal and the Berlin Corridor, could provide security and free passage guarantees to Azerbaijan while preserving Armenia's nominal sovereignty. However, as noted in *The Arab Weekly*, Iran and some regional actors view this model as a colonialist approach and harshly criticize it (*The Arab Weekly*).

Socio-Economic Reflections of the Corridor

Nakhchivan and Azerbaijani Society

The opening of the Zangezur Corridor will provide safe and rapid access to the homeland for the approximately half-million people of Nakhchivan, facilitating access to healthcare, education, and trade services. This development will also create economic opportunities for people living in the western regions of Azerbaijan. Experts predict that reducing land transportation costs could reduce transportation costs by more than 30% and create new jobs in border regions.

Armenian Economy and Social Perception

For Armenia, the corridor represents an opportunity for economic revitalization and a reduction in diplomatic isolation, but public concerns about security and sovereignty prevail. Allegations that Baku intends to assume customs and border control within the corridor are provoking criticism within Armenian society. However, some articles by moderate Armenians argue that the corridor could make Armenia a key link in trade networks connecting the Black Sea, the Caspian Sea, and the Persian Gulf. If Armenia succeeds in using this corridor in line with its national interests, it will be able to contribute to the diversification of the country's economy and the development of poor regions.

Central Asia and the Middle East

Central Asian countries such as Uzbekistan, Kazakhstan, and Turkmenistan view the Zangezur Corridor as a direct route to European markets. According to a Caspian Policy Center report, Central Asian exporters seek to gain time and cost advantages by reaching Turkey and the EU via Baku and Nakhchivan (Umarova, 2024). If Iran and Armenia block the corridor, Central Asian countries will turn to alternative routes and the importance of Iran's Aras Corridor will increase (Kaleji, 2024). However, it should not be forgotten that Baku's priority is Zangezur; this strengthens the vision of integration among the Turkic Republics under the umbrella of the Organization of Turkic States (Guliyev, 2025).

Negotiations and Future Scenarios

The 2025 Process and the Role of the United States

The Abu Dhabi summit between Aliyev and Pashinyan, hosted by the UAE in 2025, was notable as the first meeting held outside of traditional mediating powers (Russia, the US, and the EU) and demonstrated the parties' desire to engage in direct dialogue. That same year, in US-mediated talks in Washington, a new agreement dubbed the "Trump Road" was signed, and a 99-year lease for the corridor was discussed. This initiative aimed to encourage Armenia to abandon its claims regarding Karabakh through constitutional amendments while also ensuring free passage for Azerbaijan. During discussions in the US Senate, it was proposed that the corridor be managed along the Panama Canal model, emphasizing that this could be a new paradigm for cooperation among major powers.

Armenia-Türkiye Normalization and Regional Peace

In *Carnegie Politics*, Olesya Vartanyan states that Armenia's normalization process with Turkey has directly impacted the Zangezur Corridor. Armenia's aid delivery following the 2023 earthquake in Turkey, Pashinyan's proposal for Mount Aragats as a national symbol instead of Mount Ararat, and the awarding of certain construction tenders to Turkish companies all sent positive signals to Ankara about peace (Vartanyan, 2025). However, Turkey requires Armenia to sign a peace treaty with Azerbaijan and remove the articles related to Karabakh from its constitution as a condition for opening the borders and establishing diplomatic relations (Vartanyan, 2025). The conclusion of this process will directly impact the uncertainties surrounding the opening of the corridor.

Possible Scenarios

1. Full Opening Scenario: Armenia and Azerbaijan sign a peace agreement, make the necessary amendments to the Armenian Constitution, and the Zangezur Corridor becomes fully operational. In this

scenario, Azerbaijan and Turkey would gain uninterrupted access to Europe and Central Asia via the Middle Corridor, while Armenia would integrate into the regional economy. In this scenario, Iran would likely lose transit revenues and Russia's influence in the region would be further weakened.

2. *Partial Agreement and the Aras Corridor:* If the diplomatic process drags on and Armenia delays full opening due to sovereignty concerns, Azerbaijan and Turkey could use the Aras Corridor more effectively through Iran. In this case, Iran would maintain its transit role while Zangezur's geopolitical importance would diminish. However, Baku will continue to prioritize the opening of Zangezur as a strategic goal.

3. *Continuing the Status Quo and Tensions:* If a lasting peace cannot be achieved between the parties, the risk of conflict in the border regions will persist, and the corridor project will be stalled. While Iran and Armenia remain strongly opposed, Turkey and Azerbaijan are attempting to achieve their goals through alternative routes and diplomatic pressure. This could reduce the effectiveness of the Middle Corridor and delay the diversification of supply chains.

Conclusion

The Zangezur Corridor is a multi-layered project with the potential to reshape the geopolitical and economic balances in the South Caucasus. For Azerbaijan, this corridor means reconnecting Nakhchivan to the mainland, ensuring historical justice, and embodying the country's vision of becoming a logistics hub. The project also supports Turkey's integration strategy with the Turkic world and provides Central Asian countries with access to the European market. Globally, Zangezur will complete the missing link in the Middle Corridor, enhancing Europe's energy security, challenging the dominance of actors like Russia and Iran in the region, and contributing to the diversification of supply chains.

The opening of the corridor derives its legal basis from Article 9 of the November 10, 2020 ceasefire and, as Baku emphasized, is considered a "right." However, Armenia's sovereignty concerns, Iran's strategic concerns, and great power rivalry complicate the project. The normalization process between Armenia and Turkey, the creative governance models proposed by the US, and the diplomatic flexibility of regional actors are the primary factors that will determine the corridor's future.

For peace and prosperity to be achieved in the South Caucasus, the Zangezur Corridor must be implemented on the basis of cooperation and mutual trust. From Azerbaijan's perspective, the corridor is not only a geographical link but also a key to regional peace and integration. This article demonstrates the project's regional and global impact, demonstrating why the Zangezur Corridor is crucial for the future not only of Azerbaijan and Armenia, but of all of Eurasia.

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Psychological sciences

FEATURES OF ADULTS' ATTITUDES TOWARDS MONEY: BELIEFS, BEHAVIOR PATTERNS, EMOTIONS

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ОСОБЛИВОСТІ СТАВЛЕННЯ ДО ГРОШЕЙ ДОРΟΣЛИХ ЛЮДЕЙ: ПЕРЕКОНАННЯ, ФОРМИ ПОВЕДІНКИ, ПЕРЕЖИВАННЯ

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Abstract

This study analyzes the psychological aspects of adults' attitudes towards money, focusing on beliefs, behavioral patterns, and emotional experiences. It is demonstrated that financial beliefs are shaped by a subjective assessment of one's financial situation, social factors (such as education and parental influence), and life experience. The paper examines the role of emotions—anxiety, confidence, and fear of loss—in the financial decision-making process and their link to rationality and risk-taking behavior. The influence of social roles (manager, employee, family member) on financial strategies is also explored. The research emphasizes the importance of financial stability for psychological comfort and overall well-being.

Анотація

Дослідження присвячене аналізу психологічних особливостей ставлення до грошей у дорослих людей, зосереджуючись на переконаннях, формах поведінки та емоційних переживаннях. Представлено, що фінансові переконання формуються під впливом суб'єктивної оцінки фінансового стану, соціальних факторів (таких як освіта та вплив батьків) та життєвого досвіду. Розглядається роль емоцій — тривоги, впевненості та страху втрат — у процесі ухвалення фінансових рішень, а також їхній зв'язок з раціональністю та ризикованістю поведінки. Окремо виділено вплив соціальних ролей (керівник, співробітник, член сім'ї) на фінансові стратегії. Наголошено на важливості фінансової стабільності для психологічного комфорту та загального добробуту.

Keywords: financial attitudes, financial beliefs, financial behavior, emotions, social roles, psychological well-being

Ключові слова: ставлення до грошей, фінансові переконання, фінансова поведінка, емоції, соціальні ролі, психологічний комфорт

Ставлення дорослих до грошей є комплексним явищем, що формується під впливом переконань, поведінкових патернів та емоційних переживань. Вирішальне значення у формуванні фінансових переконань має суб'єктивна оцінка власного матеріального становища, яка є найпотужнішим предиктором фінансової поведінки [3]. Крім того, фінансові моделі поведінки значною мірою залежать від раннього досвіду та соціального контексту. Дослідження показують, що мотивація до заощаджень часто пов'язана із зовнішніми факторами, такими як бажання досягти фінансової безпеки, а також зі схожістю поведінки з батьками [1]. Таким чином, фінансові переконання є результатом взаємодії суб'єктивних оцінок, впливу батьків та освітніх досягнень.

Емоційні переживання є ключовим чинником ухвалення фінансових рішень. Тривога, що виникає через невизначеність, може призводити до ірраціональних, імпульсивних рішень, тоді як надмірна впевненість часто пов'язана з неправильною оцінкою ризиків [5]. Важливим чинником є

також страх втрат, який змушує людей обирати більш обережну поведінку та низькоризикові інструменти, такі як депозити чи страхові продукти. Емоційний стан, пов'язаний з відчуттям фінансової безпеки, має прямий вплив на психологічне благополуччя: стабільність знижує рівень тривоги та стресу, тоді як фінансові труднощі можуть призводити до депресії [3].

Фінансова поведінка дорослих також залежить від виконуваних соціальних ролей. Керівники, як правило, схильні до більш ризикованих інвестицій, маючи більше фінансового досвіду та впливу. Натомість рядові співробітники, зазвичай, вибирають обережніші стратегії, зосереджуючись на заощадженнях для забезпечення базових потреб [2]. У сімейній ролі спостерігається тенденція, коли жінки частіше обирають довгострокові та менш ризиковані інвестиції, тоді як чоловіки схильні до більш ризикових інструментів (Sharma & Kota, 2019).

Фінансова стабільність безпосередньо впливає на психологічний комфорт та життєву задоволеність. Дослідження підтверджують, що високий рівень фінансового стресу корелює зі зниженням якості життя та зростанням ризику депресії, особливо серед молодих та літніх людей. Відчуття контролю над фінансами сприяє зниженню стресу, підвищенню самопочуття та здатності ефективніше справлятися з труднощами.

Висновки

Ставлення дорослих людей до грошей є комплексним явищем, яке формується під впливом взаємодії суб'єктивної оцінки власного фінансового стану, раннього досвіду, соціальних факторів (таких як освіта та вплив батьків) та поточних соціальних ролей. Виявлено, що фінансові рішення не є суто раціональними. Емоційні переживання, такі як тривога, впевненість і страх втрат, суттєво впливають на поведінку і можуть призводити до обережних або імпульсивних рішень, тоді як надмірна впевненість може спричиняти необґрунтовані ризики. Відчуття фінансової стабільності є важливим предиктором психологічного благополуччя та задоволеності життям. Фінансові труднощі, навпаки, корелюють з підвищеним рівнем стресу, тривоги та ризиком депресії. Тому ставлення до грошей — це не лише економічний, а й глибоко психологічний феномен, який тісно пов'язаний із загальним добробутом людини.

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PSYCHOLOGICAL APPROACHES TO THE INTERPRETATION OF THE CONCEPT OF CIVIC IDENTITY**Hennadii Tkachenko**

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ПСИХОЛОГІЧНІ ПІДХОДИ ДО ТРАКТУВАННЯ ПОНЯТТЯ ГРОМАДЯНСЬКОЇ ІДЕНТИЧНОСТІ**Геннадій Ткаченко**

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Вступ. Явище громадянської ідентичності в контексті психологічної науки набуло актуальності з розвитком гуманістичного напрямку, де визначальними є особистість, її свободи, усвідомленість свого буття тощо. Поняття ідентичності здебільшого вживають синонімом до поняття тотожності. З усім тим, так чи інакше, йдеться про явище усвідомлення та інтерпретування людиною своєї приналежності до тієї чи іншої соціальної спільноти, виконуваних нею соціальних ролей, а отже її соціальних позицій тощо. Як соціально-психологічний механізм ідентифікація сприяє інтегруванню особи на біологічному, соціальному і персонологічному рівнях у різного роду груп та спільнот, що своєю чергою, сприяє розвитку і формуванню цілісності особистості, її активності та суб'єктності.

У результаті ідентифікації як процесу особа доходить до усвідомлення себе, своїх рис, властивостей, які є подібними або відмінними від інших. Особистість порівнює себе з образами самої, індивідуальності, що є уможливленою в процесі її взаємодії із довкіллям (референтними групами, персонами тощо). Поряд з іншим, ідентичність визначає діапазон виконуваних особистістю ролей, а отже, її соціальну поведінку, активність. Соціальна ідентичність водночас вміщує знання, культурний досвід спільноти і суспільства загалом (Л. Нагорна).

Метою є розгляд основних підходів до трактування поняття громадянської ідентичності особистості.

Виклад основного матеріалу. Залучаючись в різні предметні сфери буття, особа до певної міри ідентифікується із середовищем, його вимогами до особистості. У результаті говорять про ідентичність як властивість особистості, тобто як результат ідентифікування особи з довкіллям, а радше з конкретною предметною його сферою. В такому контексті йдеться про різні види ідентичностей: культурну, соціальну, психологічну, музичну, мовну, етнічну, національну, етнонаціональну, громадянську та ін.

У сучасній психології виокремлюють щонайменше три підходи, в яких якнайяскравіше сформульовано проблему громадянської ідентичності та здійснено наукові пошуки щодо її розв'язання: психоаналітичний, соціально-психологічний, особистісний.

У контексті психоаналітичного підходу йдеться насамперед про неусвідомлювані, глибинні чинники становлення ідентичності особистості. Так, відомою є типологія особистості Е. Еріксона, який розвиток особисті розглядає і трактує через функціонування параметру психосоціальної ідентичності. В його концепції ідентичність має три складники: соматичний; особистісний та соціальний. Ця психосоціальна ідентичність є запорукою, головним критерієм міри розвиненості (і/або нерозвиненості) особистості, оскільки така ідентичність виконує функцію необхідної і достатньої умови (за Е. Еріксоном) стосовно соціальної взаємодії, спільної життєдіяльності, дотримання означених спільнотою норм і порядку. У цьому підході ідентичність трактують через параметри усвідомленості особистістю своєї автономності та параметри переживання своєї автономності, або її втрати, або втрати свого Я (Е. Еріксон).

У контексті соціально-психологічного підходу до дослідження ідентичності переважним є соціальний складник. Саме в контексті цього підходу визначальним є параметр соціальної ролі особистості, де ідентичність трактується як її само усвідомлення і сприйняття й прийняття її середовищем (групою, спільнотою, іншими). Отже, йдеться про процесуальні особливості самоусвідомлення і усвідомлення тотожності, подібності людей, які є членами групи, спільноти.

У такому трактуванні ідентичності у її структурі визначальними вважають індивідуальність особистості та її орієнтації на соціальне оточення (Л. Нагорна, І. Остапенко,

Г. Остроухова, Л. Снігур, Л. Сокурняська, О. Соснюк та ін.), Загалом, поняття ідентичності визначають як процес і результат соціалізації і ресоціалізації особистості; як соціально-психологічний механізм завдяки якому відбувається процес включення людини до соціального середовища, культури (О. Власова, Ю. Швалб та ін.). Своєю чергою, в результаті цілісного процесу соціалізації відбувається становлення і розвиток різних видів ідентичностей: особистісної, соціальної, громадянської, етнічної та ін. У дослідженнях йдеться про їхні взаємозумовленості, взаємозалежності тощо (Г. Таджфел та ін.).

У цьому підході явище ідентичності трактують як неперервний процес взаємодії особистості і середовища в результаті якого відбувається становлення особистісної, соціальної ідентичностей та їхніх похідних (етнічної, громадянської та ін.), поміж яких особистісна ідентичність є результатом соціальної ідентичності. Зважаючи на динамічність психічної діяльності зауважимо, що функціонуючи як системне явище особистісна ідентичність, своєю чергою, здійснює впливи на всі інші ідентичності. Тобто, відбувається формування, становлення і розвиток особистості через взаємодію з середовищем, що в психології розвитку позначають соціальною ситуацією розвитку. Йдеться саме про ту ситуацію, в якій особа конструює, здійснює свої відносини з іншими людьми у сталих і динамічних соціальних групах, маючи водночас і/або послідовно ознаки конкретного соціального (будучи її соціальною одиницею) оточення й унікальної особистісної неповторності (О. Вакуленко, О. Васютинський та ін.).

У контексті особистісного підходу до дослідження ідентичності переважним є трактування змісту та структури особистості. Зокрема, в психоаналітичних теоріях особистості (А. Адлер, К. Хорні та ін.) насамперед зважають на динамічні характеристики процесу розвитку людини. В ньому явища соціалізації та індивідуалізації трактуються як протилежні й здебільшого протиставляються, а саме соціум, довкілля, суспільство, культура трактують як чуже, інакше, навіть вороже до людини, яка прямує до свого самоствердження. Натомість соціальний бік формування особистості вчені в цій методологічній традиції тлумачать як такий чинник, який обмежує, регламентує, тисне на особистісний розвиток людини, формування її потреб, намірів тощо.

Висновки. Дослідники зазначають, що формування ідентичності насамперед пов'язане з осмисленням особистістю себе, тобто з пов'язана зі специфікою свідомості особистості, її мислення, розумової діяльності загалом. Будучи породженням буття людини, особистісна ідентичність своєю чергою є джерелом її найбільш визначних інтенцій, міри наявності відчуття «Я», що своєю чергою позначається на психологічному здоров'ї особистості. Процес ідентифікації є суперечливим, коли відбувається реалізація прагнень в досягненнях суспільного визнання, досягнення статусів й водночас потреба бути подібним, тотожним до інших. Потреба в досягненнях суспільного визнання може інколи виявитися потужнішою за потребу в фізичній безпеці. Особистість інколи може мати психологічну готовність втратити свободу заради визнання приналежності до соціуму, заради подібності з суспільством, з іншими особистість готова навіть в такий спосіб здобути почуття ідентичності (до прикладу, ілюзорної ідентичності).

Визначаючи цілі, ідеали провідні смисли буття людей саме політика, політична влада (Т. Траверсе та ін.) задає допустимі форми суспільної поведінки, задає у формі стереотипів масової свідомості суспільне цілепокладання, формулюючи цілі, задаючи напрями і шляхи саморозвитку, самовдосконалення особистості. У результаті такого спрямованого (прямого / опосередкованого, явного / прихованого) системного впливу формується загальна соціальна ідентичність особистості, і поряд з нею тією чи іншою мірою інші різні види ідентичностей, таких як релігійна, етнічна, національна, громадянська, які є осердям і необхідною умовою розвитку особистості.

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INTERPRETING EMOTIONS IN THE CONTEXT OF DIFFERENT PSYCHOLOGICAL APPROACHES**Kononenko Artem Ruslanovich**

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ІНТЕРПРЕТУВАННЯ ЕМОЦІЙ В КОНТЕКСТІ РІЗНИХ ПСИХОЛОГІЧНИХ ПІДХОДІВ**Кононенко Артем Русланович**

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В нинішніх вітчизняних реаліях емоційна сфера, як регулятор поведінки зазнає перевантажень, з чим, своєю чергою пов'язана здатність приймати коректні рішення. Розглянемо основні психологічні підходи в межах яких вивчаються емоційні стани особистості.

У традиції когнітивного підходу вважають, що емоції виникають як наслідок сприймання та інтерпретування подій. Емоційна реакція з'являється лише після того, як ситуація оцінена з погляду її особистої значущості. У стресових або кризових обставинах негативні емоції можуть суттєво впливати на мислення та процес прийняття рішень. Дослідники виокремлюють два рівні оцінки: **первинний** — визначення загрози, та **вторинний** — аналіз власних ресурсів і здатності впоратися з ситуацією, які разом характеризують інтенсивність емоційної реакції та впливають на поведінку людини (Finucane, Alhakami, Slovic, & Johnson, 2000).

У контексті теорії когнітивного дисонансу (Festinger, 1957) емоції розглядають як результат зіткнення між очікуваннями людини та реальними обставинами. У кризових ситуаціях соціальної нестабільності особа може переживати внутрішню особистісну суперечність стосовно вибору того чи іншого рішення.

У теорії «емоцій як джерела інформації» / *affect-as-information*, емоції вважають результатом осмислення та тлумачення подій, де емоційні стани самі по собі є індикаторами, які допомагають людині оцінювати ситуації та приймати рішення. Йдеться про те, що особа переживає свої емоції як сигнали важливості чи загрози стосовно конкретної події, яка пов'язана з її поведінкою (Schwarz & Clore, 1983), тобто емоції виконують інформативну, сигнальну функцію (позитивне / негативне забарвлення ситуації) та оцінну функцію (встановлення значущості ситуації).

До прикладу, відчуття тривоги може сприйматися як сигнал про можливу небезпеку, навіть коли об'єктивних загроз немає. Така ситуація особливо є характерною в кризових ситуаціях, коли люди схильні більше покладатися на емоційні враження, ніж на раціональні переконання. Дослідження показують, що навіть незначні коливання настрою, спричинені зовнішніми чинниками (наприклад, сонячна чи похмура погода), здатні змінювати суб'єктивну оцінку власного добробуту. Це підтверджує, що емоції можуть спотворювати дійсність, сприяючи помилковим висновкам про неї, тим більше, якщо вони не мають безпосереднього зв'язку з предметом оцінки (Schwarz, & Clore, 1983). У цій теорії підкреслюється важливість розуміння й аналізу власних емоцій у процесі прийняття рішень. Усвідомлення ролі емоцій може підвищити емоційну обізнаність і сприяти конструктивній інтеграції особистості в контексті складних обставин.

У традиції біологічного (нейропсихологічного) підходу насамперед зважають на мозкові структури, які зумовлюють виникнення емоцій. Так, при формуванні емоцій — особливо страху — активується мигдалина, частина лімбічної системи, яка відповідає за швидке реагування на загрозу. У ситуаціях сильного стресу, характерного для кризових періодів, така активація посилює імпульсивність, що має вияви як втрата особою контролю над поведінкою, спонтанні дії, в основі яких лежать інстинкти. Внаслідок цього особа схильна переважно приймати рішення під впливом ірраціональної сфери психіки (LeDoux, 1996).

Порівнюючи когнітивний та біологічний підходи щодо трактування емоцій, можна виявити як спільні риси, так і суттєві розбіжності в їх трактуванні. В контексті обох методологічних підходів йдеться про функціональний взаємозв'язок емоцій і поведінки. Проте, в традиції когнітивного підходу насамперед наголошується на усвідомлених процесах (мислення, оцінки та

інтерпретації подій), тоді як у біологічній йдеться про так звані автоматичні реакції мозкових структур, до прикладу лімбічної системи. Згідно з когнітивною інтерпретацією, страх виникає як наслідок суб'єктивного оцінювання особою ситуації як небезпечної, тоді як згідно з біологічною – страх є миттєвою реакцією мигдалини мозку на зовнішній стимул. У соціальній практиці зазвичай виникають феномени емоційної сфери, які є предметом інтерпретацій у контексті цих наукових традицій, як-от рефлексивного мислення, тілесної усвідомленості тощо.

Відомо, що емоції, які супроводжуються високою впевненістю (наприклад, гнів), сприяють поверховому, спрощеному способу прийняття рішень. Водночас емоції, які асоціюються з невпевненістю (тривога та інші), стимулюють глибше обмірковування ситуації та критичне мислення. Це свідчить про те, що не лише інтенсивність, а й якість емоційного досвіду прямо впливає на когнітивну обробку інформації та поведінкові стратегії людини (Tiedens & Linton, 2001).

Дослідження емоцій в контексті різних концепцій, які пояснюють взаємозв'язок емоцій і процесу прийняття рішень свідчать про те, що жодна з теорій не здатна цілісно охопити складність цього явища. Саме тому інтеграція когнітивних, біологічних, поведінкових, гуманістичних, психоаналітичних і соціокультурних аспектів дає змогу сформувати більш цілісне бачення тих процесів у межах міждисциплінарної методологічної традиції. У цьому контексті емоції трактують не лише як безпосередню реакцію особи на події, а й як так званий міст між зовнішніми обставинами та поведінковими відповідями. Прийняття рішень у таких умовах поєднує раціональні міркування з впливом особистого досвіду, емоційних станів, соціального оточення, культурних та інших детермінант.

Відповідно до двофакторної теорії емоцій, їх виникнення є результатом взаємодії фізіологічного збудження людини та когнітивної інтерпретації нею наявної ситуації, коли в стані невизначеності, новизни, емоційне реагування значною мірою зумовлюється попереднім досвідом, поточним сприйняттям реальності (Schachter & Singer, 1962).

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Technical sciences

NUMERICAL SIMULATION OF WEAK ROCKS CONSOLIDATION BY INJECTION ROCK BOLTS

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Abstract

Purpose of this work is to analyze changes in shape and dimensions of a rock mass area, fortified with the help of a polymer, depending upon the density of injection rock bolts to substantiate optimum process solutions to support roofs within the unstable rocks.

Numerical modeling method for coupled processes of rock mass strain and filtration of liquid components of a polymer has been applied. The model is based upon fundamental ideas of mechanics of solids and filtration theory. The problem has been solved using a finite element method. Its solution took into consideration both the initial permeability and the permeability stipulated by mine working driving, injection time of reagents and their polymerization, and effect of polymer foaming in the process of mixing of its components. Changes in physicomaterial and filtration characteristics of rock mass during polymer hardening were simulated. It has been taken into consideration that a metal delivery pipe starts operating as a reinforcing support element only after the polymer hardening.

If three and five injection rock bolts are installed within a mine working section then stresses, permeability coefficients, pressure of liquid polymeric composition, and geometry of the fortified area of rock mass have been calculated. It has been shown that rock bolt location is quite important to form a rock-bolt arch. The findings are recommended to be applied while improving a method to support the mine working roof and decrease water inflow as well as gas emission from the rocks, being undermined, into the working.

Keywords: *support, mine working, rock bolt, deformation, liquid polymer filtration, numerical simulation.*

Introduction

Injection rock bolts are applied to consolidate disturbed unstable rocks while driving mine workings **Ошибка! Источник ссылки не найден.** *-3]. An injection rock bolt is a metal pipe used for injection fortifying polymer solution into the fractured rock mass under high pressure. The reagent mixture is polymerized with 1.5-3.5 times increase in volume. The foamed composition fills even the small fractures in the rocks. When the foamed polymer hardens, the metal pipe is used as additional reinforcement, and a consolidated gas- and water-proof zone is formed around the rock bolt [4, 5].*

When developing a mine working support pattern with injection rock bolts, one should know how close is interaction between the consolidated zones and whether they form an integrated mechanical structure being an integral arch capable to protect the mine working against failure, gas emission and water inflows [6, 7]. If the consolidated zones do not interconnect then breakdown of the arch and roof failure are possible. Thus, the purpose of this research is numerical simulation of shape and size of polymer-hardened area depending on the location of injection rock bolts.

Numerical simulation is quite an expedient method to evaluate rock consolidation effect on the mine working stability. However, rock consolidation is usually simulated while assigning new characteristics to finite elements located at definite depth. Previous research did not take into consideration the following: temporal development of polymer pumping and hardening; geomechanics

of the formation of filtration area of liquid components of polymeric composition; operation of a steel delivery pump as a rock bolt; interaction degree of the reinforced zones around each rock bolt.

Methods

A numerical model of the coupled processes of rock deformation and liquid polymer filtration was developed to study geomechanical and filtration parameters in the mine working roof with injection rock bolts [9, 10]. This model takes into account both the initial permeability and the permeability stipulated by mine working driving, polymer injection time and hardening time, and effect of polymer foaming in the process of mixing of its components. Changes in physical-mechanical properties and filtration characteristics of rock mass during polymer hardening are simulated. It was taken into account that a metal pipe begins to work as a reinforcing support element only after the polymer hardening.

Computational results

The computations were performed for the cases when three or five injection rock bolts were installed in the mine working roof. Figure 1 shows calculation results concerning Q^* parameter characterized stress and zones of inelastic deformations, figure 2 shows permeability of rocks around the mine working [11] and figure 3 shows geometry of the consolidated area in the mine roof when number of rock bolts N is three or five.

It is demonstrated that location of rock bolts plays an important role for forming the rock-bolt arch [7].

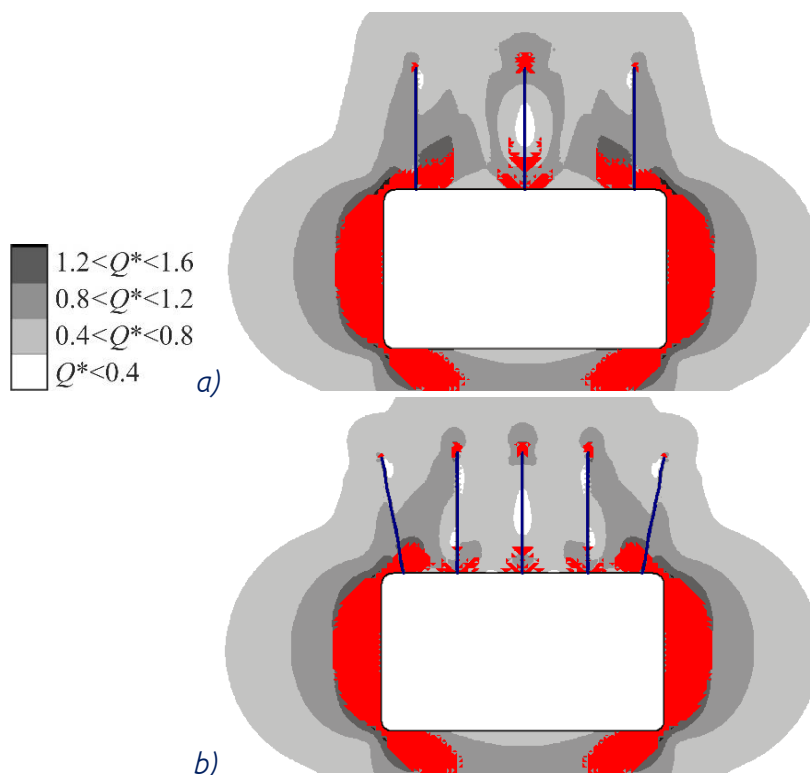


Figure 1. Formation of the reinforced area depending on the injection rock bolts density N :

a) $N = 3$; b) $N = 5$

In the context of the considered cases, an increase in the number of injection bolts in the mine working roof leads to a significant increase of the roof stability. Rock-bolt supports closely interact with each other; moreover, the integral arch is formed in the mine working roof. At the same time, the average value of permeability coefficients decreases by 4 times.

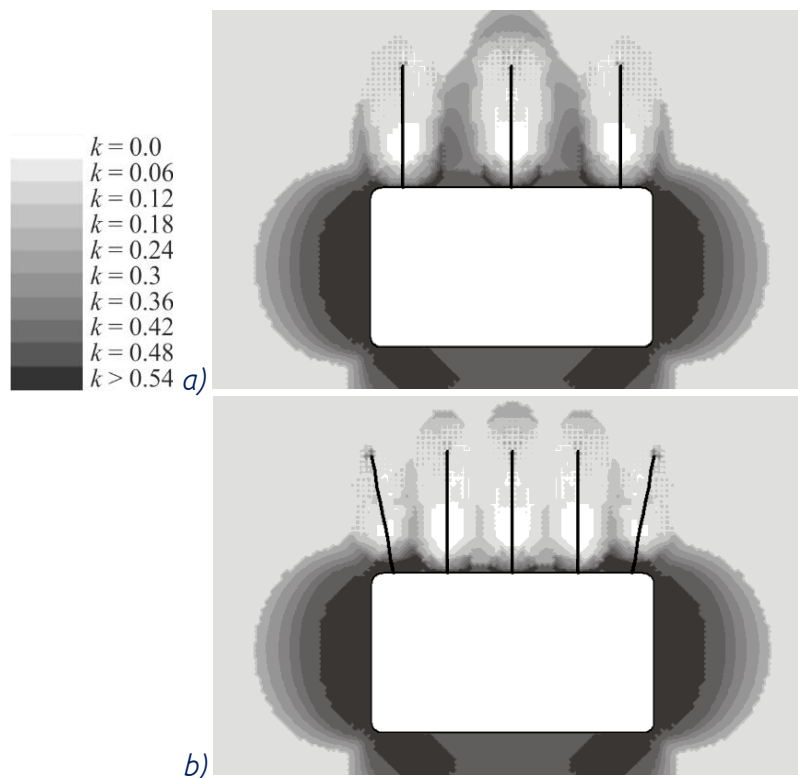


Figure 2. Distributions of the permeability coefficients k depending on the injection rock bolts density N :
a) $N = 3$; b) $N = 5$

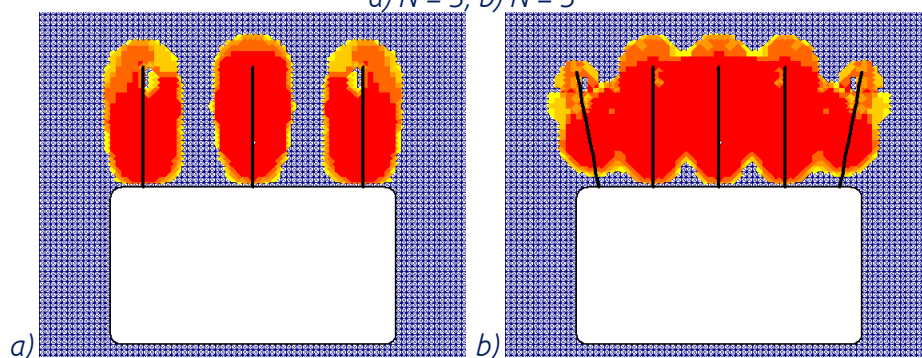


Figure 3. Interaction of rock-bolt supports depending on the injection rock bolts density N :
a) $N = 3$; b) $N = 5$

The formed rock-bolt arch may serve as a barrier restraining both water inflow and gas emission from the undermined rocks into the mine working [12].

Conclusions.

It has been demonstrated that the location of rock bolts is important to form the rock-bolt arch. In the context of the considered case, increase in the number of injection rock bolts leads to a sharp increase in the mine working stability, and average value of permeability coefficient experiences its 4 times decrease. The formed rock-bolt arch may serve as a barrier controlling both water inflow and gas emission from the rocks being undermined deep into a mine working.

When developing a pattern for the mine working support with injection rock bolts the following factors determined formation of a permeable zone for a polymer filtration should be accounted: time passed from the moment of a working face advance; initial rock permeability; and density of rock bolts. Consequently, to optimize schemes of the mine working support by means of injection rock bolts under specific mining and geological conditions, it is quite expedient to perform preliminary computations by using the proposed numerical model.

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