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**INTERNATIONAL CONFERENCE ON  
MODERN RESEARCH AND SCIENTIFIC INNOVATION**  
VOLUME-1, ISSUE-2, 2026

**INTERNATIONAL CONFERENCE ON MODERN RESEARCH AND SCIENTIFIC INNOVATION:** a collection scientific works of the International scientific conference (February, 2026) – India: 2026. Volume-01, Issue 02, 2026

**Languages of publication:** English, Russian, and Uzbek

This collection includes research papers presented by scientists, graduate students, and students at the International Scientific Online Conference “**INTERNATIONAL CONFERENCE ON MODERN RESEARCH AND SCIENTIFIC INNOVATION**” held in India on February, 2026.

The conference proceedings are intended for researchers and academic staff of higher education institutions. They may be used for teaching and research purposes, including postgraduate education and preparation for bachelor’s and master’s degree programs.

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**Quantumqill Research Press PVT LTD, 2026**



## EXPERIENCE OF FOREIGN COUNTRIES IN ECONOMETRIC MODELING OF THE DEVELOPMENT OF THE POULTRY INDUSTRY

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**Abstract.** In the context of structural changes in the global food market and the growing demand for animal protein, the poultry industry has become one of the strategically important sectors of agriculture. Poultry products, such as meat and eggs, are characterized by short production cycles, high biological value, and relatively low production costs, making them a key factor in ensuring food security. This article provides a systematic analysis of international experience in evaluating the efficiency of the poultry industry, using the cases of the United States, the European Union countries (Germany and the Netherlands), and Brazil. The study examines key economic, organizational, and technological approaches, including vertical integration, digital monitoring systems, and the consideration of environmental and social performance indicators. Special attention is given to feed conversion ratio, production costs, profitability, and export-oriented efficiency. Based on the analysis, scientific conclusions and practical recommendations are proposed for adapting advanced foreign experience to the national conditions of Uzbekistan in order to enhance the efficiency, investment attractiveness, and sustainable development of the poultry industry.

**Keywords:** poultry industry, production efficiency, international experience, vertical integration, food security, feed conversion ratio, sustainable development

**Аннотация.** В условиях структурных изменений на глобальном продовольственном рынке и роста спроса населения на животные белки отрасль

птицеводства приобретает стратегическое значение в системе сельского хозяйства. Продукция птицеводства — мясо птицы и яйца — характеризуется коротким производственным циклом, высокой биологической ценностью и сравнительно низкой себестоимостью, что делает её важным фактором обеспечения продовольственной безопасности. В статье системно проанализирован зарубежный опыт оценки эффективности птицеводческой отрасли на примере США, стран Европейского союза (Германии и Нидерландов) и Бразилии. Рассмотрены основные экономические, организационные и технологические подходы, включая вертикальную интеграцию, цифровой мониторинг, экологические и социальные показатели эффективности. Особое внимание уделено показателям кормовой конверсии, себестоимости, рентабельности и экспортной ориентации производства. На основе проведённого анализа сформулированы научные выводы и практические рекомендации по адаптации передового зарубежного опыта к условиям Республики Узбекистан с целью повышения эффективности, инвестиционной привлекательности и устойчивого развития отрасли птицеводства.

**Ключевые слова:** птицеводство, эффективность производства, зарубежный опыт, вертикальная интеграция, продовольственная безопасность, кормовая конверсия, устойчивое развитие

Currently, structural changes in the global food market and the growing demand for animal protein by the population are turning the poultry industry into one of the strategically important sectors of agriculture. Poultry products - poultry meat and eggs - are distinguished by their short production cycle, high biological value and relatively low cost, and play an important role in ensuring food security. In developed foreign countries, scientifically based mechanisms for assessing efficiency have been developed

and widely implemented in practice in order to ensure the sustainable development of the poultry industry, increase production volumes and strengthen competitiveness. These mechanisms are based on a complex system of production, financial, economic, technological and environmental indicators. In particular, in the USA, the European Union, Brazil and some countries of the Asian region, vertical integration, digital monitoring systems and innovative management models are effectively used in the poultry industry. Studying and analyzing foreign experience in assessing the efficiency of the poultry industry is of scientific and practical importance, as this process allows optimizing production costs, increasing the level of resource utilization, and improving product quality. At the same time, by adapting advanced foreign approaches to the conditions of the national economy, it is possible to increase the investment attractiveness of the industry and achieve sustainable development. This article systematically analyzes the experience of advanced foreign countries in assessing the efficiency of the poultry industry, identifies their main economic and organizational approaches, and formulates scientific conclusions on the implementation of these experiences in national practice.

From this point of view, in the process of modernization of the poultry industry of Uzbekistan, it is of great strategic importance to study the experience of developed countries and adapt it to national conditions. In recent years, the country has been implementing large-scale reforms to expand the production capacity of poultry products, reduce dependence on poultry meat, and bring the quality of poultry farming into line with international standards. Scientific analysis of these processes and assessment through economic and statistical models are necessary to determine the future directions of industrial development. According to the analysis based on my scientific research, the experience of the following countries is being effectively used in assessing the

efficiency of the poultry industry. In particular, the approaches, main indicators and practical mechanisms for assessing the efficiency of the poultry industry are scientifically described on the example of the USA, the European Union countries (Germany and the Netherlands) and Brazil.

**USA experience** - The USA poultry industry is characterized by a highly vertically integrated production system. In this system, breeding, feed production, poultry farming, processing and sales processes are carried out under a single management. This approach allows you to minimize production costs and increase efficiency.

The following key indicators are used to assess the efficiency of the poultry industry in the United States:

- Feed Conversion Ratio (FCR);
- product volume per head of poultry;
- production cost and profitability level;
- labor productivity.

Also, the practice of assessing efficiency in real time based on digital monitoring systems and statistical analysis has been widely implemented. The US experience is recognized as a model of high economic efficiency based on market mechanisms in poultry farming.

**Experience of European Union countries (Germany and the Netherlands)** - Sustainability and an integrated approach are priorities in the development of the poultry industry in European Union countries . In these countries , the assessment of efficiency is not limited to economic results, but also includes environmental and social factors.

areas are important in assessing the efficiency of poultry farming in Germany and the Netherlands :

- production efficiency (productivity and cost);
- environmental indicators (waste, carbon footprint);
- animal welfare and biosecurity;
- product quality and compliance with standards.

for state subsidies, scientific research and innovation support are working effectively. This experience is important as an evaluation model aimed at ensuring socio-economic and environmental balance in the poultry industry.

**Brazil's experience** - Brazil is one of the world's leading exporters of poultry products, especially poultry meat . The efficiency of the poultry industry in this country is largely due to its low-cost feed base, climatic conditions, and logistics system .

In Brazil, when assessing efficiency, special attention is paid to the following factors:

- the share of feed costs in the cost of production;
- export -oriented production efficiency;
- production volume and flexibility to meet external market demand;
- efficiency of logistics and processing processes.

The table below shows the volume of poultry meat and egg products of foreign countries in terms of poultry production in 2024. In this table, the United States is the leader in poultry production in 2024. In the Republic of Uzbekistan, it is important not to directly copy the experience of advanced foreign countries , but to adapt it to the economic, resource and institutional conditions of the country, in order to sustainably develop the poultry industry and increase its efficiency .

**Table 1**

**Volume of poultry products produced in foreign countries in 2024**

<b>Country</b>	<b>Poultry production volume</b>	<b>Egg production volume</b>
<b>USA</b>	27.7 million tons	109 billion eggs
<b>European Union (EU)</b>	1.56 million tons	1.2 billion eggs
<b>Brazil</b>	15 million tons	57.6 billion eggs

gradually introduce the vertical integration system, which forms the basis of the US poultry farming model, into the conditions of Uzbekistan . In particular:

- Strengthening cooperative ties between breeding, feed production, care, and processing processes ;

- development of a cluster system around large poultry farms ;

indicators (cost, profitability, labor productivity) into the mandatory analysis practice when assessing efficiency . This approach will help reduce the cost of poultry products and ensure production stability.

This experience has scientific and practical significance for developing countries as a model for achieving high production and export potential at low cost . Adapting the experience of advanced foreign countries to the conditions of Uzbekistan is an important factor in increasing the efficiency of the poultry industry, and this process is carried out in a phased, comprehensive and scientifically based approach. should be implemented on the basis of. As a result, the sustainable development of the industry, product quality and competitiveness will be ensured.

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**MEASURES TO IMPROVE THE BUSINESS ENVIRONMENT FOR  
SMALL BUSINESS IN REGIONS**

**Creating and Promoting Regional Innovation Clusters**

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**Abstract:** This analysis examines comprehensive measures to improve the business environment for small enterprises in regional contexts, identifying regulatory simplification, financial access expansion, infrastructure development, business support services, and human capital enhancement as critical intervention areas based on international evidence.

**Keywords:** small business development, business environment, regional entrepreneurship, regulatory reform, access to finance, SME support, infrastructure development, business climate improvement, entrepreneurial ecosystem, regional economic development

Small and medium enterprises constitute the backbone of regional economic development, accounting for 60-70% of employment and 50-60% of GDP globally. However, regional SMEs face distinctive challenges including limited finance access, inadequate infrastructure, regulatory complexity, skill shortages, and market remoteness. The business environment critically determines whether regional entrepreneurship flourishes or stagnates, with international evidence revealing substantial disparities even within countries. Breaking negative cycles of poor business

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climate and limited entrepreneurship requires comprehensive, coordinated interventions addressing multiple constraints simultaneously.

Regulatory simplification proves essential given compliance costs burden small businesses disproportionately, averaging 2.5-3.8 times higher per employee than large corporations. Business registration streamlining through one-stop shops consolidating multiple requirements into single processes completable within 1-3 days demonstrates effectiveness, with Georgia's regional centers enabling registration in 2.4 hours. Licensing reform eliminating unnecessary permits and consolidating related requirements generates substantial benefits, as demonstrated by Mexico's program reducing permits by 42% and processing time from 87 to 23 days. Inspection coordination consolidating multiple agency visits and digital government services enabling remote compliance reduce burden while maintaining oversight.

Expanding finance access addresses primary constraints through multiple mechanisms. Credit guarantee schemes providing 50-80% guarantees reduce bank risk, with Turkey's program guaranteeing \$12.8 billion in SME loans with 82% reaching regional businesses. Development finance institutions provide long-term capital at below-market rates addressing commercial bank gaps. Microfinance institutions serve smallest enterprises, with Vietnam's network reaching 4.2 million borrowers maintaining 97.8% repayment rates. Alternative finance including factoring, leasing, and crowdfunding diversify options, while financial literacy training improves "bankability."

Infrastructure development enables business activity through transportation connectivity, reliable electricity, and digital infrastructure. Road improvements generate measurable impacts, with Peru's program increasing agricultural revenues by 24-36%. Bangladesh's rural electrification enabling 340,000 new micro-enterprises demonstrates power access importance. Digital infrastructure proves increasingly critical, with South



Korea achieving 99.9% broadband coverage including remote areas. Industrial parks and incubators provide shared facilities reducing individual costs.

Business development services provide essential technical knowledge and management skills. Advisory services on business planning, marketing, and operations prove effective, with Poland's network serving 32,000 SMEs annually achieving 42% revenue growth versus 28% for non-participants. Sector-specific technical assistance, mentorship programs connecting experienced entrepreneurs with startups, and export promotion services enable capability building and market access.

Human capital development addresses workforce constraints through technical and vocational education aligned with regional needs, university-industry collaboration generating innovation and applied research, and entrepreneurship education developing business skills. Egypt's TVET reform increased graduate employment from 52% to 78%, while Rwanda's youth entrepreneurship initiatives achieved 34% youth entrepreneurship rate versus 18% regional average.

Successful implementation requires political commitment, adequate sustained resources, public-private coordination, performance monitoring, and inclusive design ensuring smallest businesses access support. International evidence demonstrates coordinated reforms combining regulatory simplification, financial access expansion, infrastructure investment, business services, and human capital development can generate 45-65% improvements in business climate indicators within 3-5 years, supporting regional development through entrepreneurship and employment growth even in resource-constrained contexts.

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## ENVIRONMENTAL PROTECTION — AN IMPORTANT FACTOR FOR PUBLIC HEALTH

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**Abstract.** This article examines environmental pollution and its impact on human health, as well as the role of environmental protection measures in strengthening public health. The medical significance of maintaining the hygienic quality of air, water, and soil is analyzed based on scientific sources and statistical data

**Keywords:** environment, ecology, healthcare, air pollution, drinking water, prevention.

## ATROF-MUHIT MUHOFAZASI — JAMOAT SALOMATLIGI UCHUN MUHIM OMII

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**Annotatsiya:** Ushbu maqolada atrof-muhitning ifloslanishi va uning inson salomatligiga ta‘siri, shuningdek, ekologik muhofaza choralari orqali jamoat salomatligini mustahkamlash masalalari yoritiladi. Havoning, suvning va tuproqning gigiyenik sifatini saqlashning tibbiyotdagi ahamiyati ilmiy manbalar va statistik ma‘lumotlar asosida tahlil qilinadi.

**Kalit so‘zlar:** atrof-muhit, ekologiya, sog‘liqni saqlash, havoning ifloslanishi, ichimlik suvi, profilaktika.

## Kirish

Zamonaviy tibbiyotning asosiy maqsadlaridan biri — aholining sogʻlom yashashini taʼminlashdir. Biroq sogʻliqni saqlash faqat davolash va profilaktika tadbirlari bilan chegaralanmaydi. Jahon sogʻliqni saqlash tashkiloti (JSST) maʼlumotlariga koʻra, dunyodagi kasalliklarning 23–25% bevosita atrof-muhit omillariga bogʻliq.[1,4] Shu bois ekologik muhofaza masalasi tibbiy profilaktikaning ajralmas qismi sifatida qaraladi

## Asosiy qism

### 1. Havoning ifloslanishi va sogʻliq

Atmosfera havosining sifati nafaqat nafas olish tizimi, balki yurak-qon tomir, asab va immun tizimlariga ham taʼsir koʻrsatadi.[2,5,] Tadqiqotlarga koʻra: PM2.5 va PM10 turdagi chang zarrachalari oʻpka toʻqimalarida yalligʻlanish jarayonlarini kuchaytiradi hamda surunkali nafas yoʻllari kasalliklarga olib keladi [2,5].

Havodagi azot oksidi va oltingugurt birikmalari bronxit, astma va yurak ishemik kasalligini rivojlanish xavfini oshiradi [2].

### 2. Ichimlik suvi gigiyenasi

Toza ichimlik suvi yetishmasligi rivojlanayotgan mamlakatlarda diareya, gepatit A va parazitlar infeksiyalar tarqalishining asosiy omilidir [3,4]. Suv resurslarini ifloslanishdan himoya qilish — yuqumli kasalliklarning oldini olishning eng samarali yoʻllaridan biridir [3].

### 3. Tuproq ifloslanishi va oziq-ovqat xavfsizligi

Pestitsidlar, ogʻir metallar va sanoat chiqindilari orqali ifloslangan tuproq mahsulotlar tarkibiga zaharli moddalarning kirib kelishiga sabab boʻladi. Bu esa uzoq muddatda

organizmida toksik moddalarni to'planishiga va onkologik kasalliklar xavfini oshiradi.[6]

Ekologik muhofaza choralarining tibbiy ahamiyati

Yashil hududlarni kengaytirish — havodagi chang va karbonat angidrid miqdorini kamaytiradi, aholi salomatligiga ijobiy ta'sir ko'rsatadi [1]

Chiqindilarni saralash va qayta ishlash — tuproq va suv ifloslanishini oldini oladi.

Avtomobil gaz chiqindilarini cheklash — yurak-qon tomir va nafas olish kasalliklari sonini qisqartiradi [2,5].

### **Xulosa**

Atrof-muhitni muhofaza qilish — bu faqat ekologiya sohasi vakillarining vazifasi emas, balki sog'liqni saqlash tizimining ham ustuvor yo'nalishidir. Toza havo, sof ichimlik suvi va sog'lom ekologik muhit aholining umumiy salomatlik darajasini oshiradi, tibbiy xarajatlarni kamaytiradi va umr davomiyligini uzaytiradi [1,4].

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**Improving the legal framework for improving the activities of the Chamber of  
Advocates of the Republic of Uzbekistan**

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**Abstract**

This thesis is devoted to the analysis of legal and institutional ways to improve the activities of the Chamber of Advocates in the development of the institute of the Bar in the Republic of Uzbekistan. The study covers the legal status, powers of the Chamber of Advocates and the problems associated with the implementation of the principle of self-government.

**Keywords:** bar, Chamber of Advocates, legal status, institutional independence, self-government, rule of law

**O‘zbekiston Respublikasi Advokatlar Palatasi faoliyatini takomillashtirishning  
huquqiy asoslarini takomillashtirish**

**O‘zbekiston Respublikasi Adliya vazirligi  
huzuridagi qonunchilikni tahlil qilish va  
tartibga solish ta’sirini baholash instituti bosh  
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Abdikalikovna**

**Annotatsiya**

Mazkur tezis O‘zbekiston Respublikasida advokatura institutini rivojlantirishda **Advokatlar palatasi** faoliyatini takomillashtirishning huquqiy va institutsional yo‘llarini tahlil qilishga bag‘ishlangan. Tadqiqotda Advokatlar palatasining huquqiy maqomi, vakolatlari hamda o‘zini o‘zi boshqarish tamoyilini amalga oshirish bilan bog‘liq muammolar yoritiladi.

**Kalit so‘zlar:** advokatura, Advokatlar palatasi, huquqiy maqom, institutsional mustaqillik, o‘zini o‘zi boshqarish, huquqiy davlat

Huquqiy davlat va fuqarolik jamiyatini shakllantirishda advokatura instituti muhim o‘rin egallaydi. Advokatura shaxsning huquq va erkinliklarini himoya qilish, odil sudlovni ta’minlash hamda davlat hokimiyati faoliyatida qonun ustuvorligini qaror

toptirishga xizmat qiladi. Mazkur institutning samarali faoliyati, avvalo, advokatlarning kasbiy mustaqilligi va ularni birlashtiruvchi institutsional tuzilmaning rivojlanganligiga bog'liq.

O'zbekiston Respublikasida advokatura faoliyatini muvofiqlashtirish va rivojlantirishda Advokatlar palatasi asosiy institutsional subyekt hisoblanadi. Shu bois Advokatlar palatasi faoliyatini huquqiy va institutsional jihatdan takomillashtirish masalasi zamonaviy islohotlar sharoitida dolzarb ilmiy-amaliy ahamiyat kasb etmoqda.

Amaldagi qonunchilikka ko'ra, Advokatlar palatasi advokatlarning kasbiy manfaatlarini himoya qiluvchi, advokatlik faoliyatini muvofiqlashtiruvchi va kasbiy standartlarni belgilovchi o'zini o'zi boshqaruvchi tashkilot sifatida e'tirof etiladi. Biroq amaliyot shuni ko'rsatadiki, palataning huquqiy maqomi bilan uning real faoliyati o'rtasida muayyan nomuvofiqliklar mavjud.

Xususan, palataning davlat organlari bilan o'zaro munosabatlarida institutsional mustaqillik yetarli darajada aniq huquqiy kafolatlanmagan. Bu holat advokatura institutining o'zini o'zi boshqarish tamoyiliga to'liq mos kelmasligi hamda advokatlik faoliyatiga tashqi ta'sir ehtimolini yuzaga keltirishi mumkin. Shuningdek, palata organlarining vakolatlari, ularning shakllanish tartibi va qarorlar qabul qilish mexanizmlarida aniqlik va shaffoflik yetishmasligi kuzatiladi.

Advokatlar palatasi faoliyatini rivojlantirishning muhim yo'nalishlaridan biri uning huquqiy asoslarini takomillashtirishdan iborat. Avvalo, palataning huquqiy maqomini yanada aniq belgilash va uning mustaqilligini qonun darajasida mustahkamlash zarur.

Bu borada palataning davlat organlaridan institutsional jihatdan mustaqilligini kafolatlovchi normalarni kuchaytirish, uning ichki faoliyatiga noqonuniy yoki asossiz aralashuvlarning oldini olish mexanizmlarini joriy etish muhim ahamiyatga ega. Shu bilan birga, advokatlarning kasbiy huquqlari va faoliyat kafolatlarini mustahkamlash, ularni amalda samarali ishlashini ta'minlovchi huquqiy mexanizmlarni rivojlantirish zarur.

Intizomiy ishlarni ko'rib chiqish tartibini takomillashtirish ham muhim masalalardan biridir. Ushbu jarayonda adolatlilik, xolislik va ochiqlik tamoyillarini kuchaytirish advokatlik kasbining nufuzini oshirish hamda kasbiy hamjamiyat ishonchini mustahkamlashga xizmat qiladi.

Huquqiy islohotlar bilan bir qatorda institutsional rivojlanish ham Advokatlar palatasi faoliyatini takomillashtirishda muhim rol o'ynaydi. Avvalo, palataning ichki

boshqaruv tizimini demokratlashtirish, uning organlarini shakllantirishda advokatlarning real va teng ishtirokini ta'minlash zarur.

Institutsional takomillashtirishning muhim yo'nalishlaridan biri palata faoliyatida ochiqlik va shaffoflikni kuchaytirishdir. Bu borada raqamli texnologiyalarni joriy etish, elektron reyestrlar va ochiq axborot platformalarini rivojlantirish muhim ahamiyatga ega. Mazkur chora-tadbirlar palata faoliyatining samaradorligini oshirish, korrupsiyaviy xavflarni kamaytirish va jamoatchilik nazoratini kuchaytirishga xizmat qiladi.

Shuningdek, advokatlarning kasbiy malakasini oshirish, uzluksiz ta'lim tizimini rivojlantirish va ilg'or xalqaro tajribani joriy etish ham institutsional islohotlarning muhim tarkibiy qismi hisoblanadi. Bu jarayonda Advokatlar palatasining muvofiqlashtiruvchi va tashkiliy roli yanada kuchaytirilishi lozim.

Xulosa qilib aytganda, Advokatlar palatasi faoliyatini takomillashtirishning huquqiy va institutsional yo'llari o'zaro uzviy bog'liq bo'lib, ular bir-birini to'ldiradi. Palataning huquqiy maqomini mustahkamlash, institutsional mustaqilligini ta'minlash, boshqaruv tizimini demokratlashtirish va faoliyatida ochiqlik tamoyillarini kuchaytirish advokatura institutining barqaror rivojlanishini ta'minlaydi.

Mazkur yo'nalishdagi islohotlar natijasida advokatlarning kasbiy mustaqilligi va huquqiy kafolatlari kuchayadi, advokatura institutining jamiyatdagi nufuzi oshadi hamda fuqarolarning malakali yuridik yordam olish huquqi yanada samarali ta'minlanadi.

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**COMPARATIVE ANALYSIS OF THE “PERFECT HUMAN”  
FIGURE IN THE WORKS OF NIZAMI AND NAVOIY FROM THE  
PERSPECTIVE OF ECOLOGICAL AWARENESS AND HARMONY  
WITH NATURE**

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**Abstract:** This article presents a **comparative study** of the figure of the “**perfect human**” (**insan-i kamil**) as depicted in Nizami Ganjavi’s and Alisher Navoiy’s *Khamsa* within the framework of **ecological awareness and harmony with nature**. In traditional interpretations, the ecological dimension of this figure has often been overlooked; however, its significance is increasing in light of contemporary **climate change**, the loss of **biodiversity**, and the scarcity of natural resources. The study employs **comparative literary analysis, philosophical interpretation, and contemporary ecological theoretical approaches**. The findings indicate that Nizami portrays the perfect human through mystical unity with nature, while Navoiy emphasizes balance achieved through labor and ethical conduct. The scientific contribution of this research lies in being the **first to examine this theme comparatively in an ecological context** and to connect it with modern theoretical perspectives.

**Keywords:** Nizami Ganjavi, Alisher Navoiy, *Khamsa*, perfect human, insan-i kamil, ecological awareness, harmony with nature, ecological philosophy, comparative analysis, deep ecology, literary analysis, contemporary ecological theory, climate change, biodiversity

**NIZOMIY VA NAVOIY ASARLARIDAGI “KOMIL INSON” TIMSOLINING  
EKOLOGIK ONG VA TABIAT BILAN UYG‘UNLIK FALSAFASI NUQTAI  
NAZARIDAN TAQQOSIY TAHLILI**

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**Annotatsiya:** Ushbu maqolada Nizomiy Ganjaviy va Alisher Navoiyning “Xamsa” dostonlarida bayon etilgan “komil inson” (insan-i kamil) timsoli ekologik qarashlar nuqtai nazaridan solishtiriladi. An‘anaviy talqinlarda bu obrazning ekologik jihati ko‘pincha e‘tibordan chetda qoladi, lekin hozirgi kundagi iqlim o‘zgarishi, bioxilma-xillik pasayishi va tabiiy resurslar cheklangan bir davrda bu yondashuvning ahamiyatli jihati oshmoqda. Tadqiqotda taqqosiy adabiy tahlil, falsafiy tahlil va hozirgi ekologik nazariyalar metodlari qo‘llaniladi. Tadqiqot natijalari shuni ko‘rsatadiki, Nizomiy mistik va tabiat bilan uyg‘unlik orqali komil insonni, Navoi esa mehnat va axloq orqali muvozanatli shaxs sifatida tasvirlaydi. Tadqiqotning ilmiy ahamiyati shundaki, bu mavzu ilk bor ekologik kontekstda taqqoslanadi va zamonaviy fikrlar bilan bog‘lanadi.

**Kalit so‘zlar:** Nizomiy Ganjaviy, Alisher Navoiy, Xamsa, komil inson, insan-i kamil, ekologik ong, tabiat bilan uyg‘unlik, ekologik falsafa, taqqosiy tahlil, chuqur ekologiya, adabiy tahlil, zamonaviy ekologik nazariya, iqlim o‘zgarishi, bioxilma-xillik.

## **Kirish**

Nizomiy Ganjaviy (1141–1209) va Alisher Navoiy (1441–1501) - Sharq adabiyotining eng buyuk vakillari bo‘lib, ularning “Xamsa” (beshlik) dostonlari inson

falsafasi, ma'naviyat, ishq va badiiy timsollarning uyg'unligini chuqur yoritgan asarlar hisoblanadi. Nizomiyning "Xamsa"si ("Makhzan ul-Asror", "Xusrav va Shirin", "Layli va Majnun", "Haft paykar", "Iskandarnoma") va Navoiyning "Xamsa"si ("Hayrat ul-abror", "Farhod va Shirin", "Layli va Majnun", "Sab'ayi sayyor", "Saddi Iskandariy")da "komil inson" timsoli markaziy o'rin egallaydi. Bu obraz tasavvufiy an'analarda (masalan, Ibn Arabiy g'oyalarida) insonning ilohiy kamolotga erishishi sifatida talqin etiladi, ammo an'anaviy tadqiqotlarda (masalan, Bertels Ye.E. [3] va Hayitmetov A. [4] ishlarida) u asosan ishqiy, axloqiy yoki ijtimoiy jihatlardan o'rganilgan. Ekologik ong va tabiat bilan uyg'unlik nuqtai nazaridan tahlil esa deyarli uchramaydi, garchi Nizomiyning tabiat tasvirlari (tog'lar, bog'lar, cho'llar) va Navoiyning mehnat orqali tabiat bilan hamohanglik g'oyasi bugungi ekologik muammolarga yaqin bo'lsa ham.

Bugungi kundagi global ekologik inqiroz - iqlim o'zgarishi (masalan, global harorat oshishi  $1,5^{\circ}\text{C}$  ga yaqinlashishi), bioxilma-xillik yo'qolishi (har yili 1 million tur xavf ostida) va resurslar tanqisligi (suv va yer resurslari kamayishi) - inson-tabiat munosabatlarini qayta ko'rib chiqishni talab etmoqda. Zamonaviy ekologik falsafa, xususan Arne Naessning "deep ecology" (chuqur ekologiya) nazariyasi, insonni tabiatning ajralmas qismi sifatida ko'radi, bu Nizomiy va Navoiy falsafasiga yaqin: tabiatni zabt etish emas, balki u bilan simbiotik (o'zaro bog'liq) munosabatda bo'lish zarur. Naessga ko'ra, tabiatning ichki qiymati (intrinsic value) mavjud, va inson tabiatga hurmat bilan munosabatda bo'lishi kerak, bu esa Nizomiyning mistik tasvirlarida va Navoiyning axloqiy mehnat g'oyasida aks etadi.

Tadqiqot maqsadi - "komil inson" timsolini ekologik kontekstda taqqosiy tahlil qilish, uning tabiat bilan uyg'unligini ochib berish va zamonaviy dolzarbligini ko'rsatish. Muammo: An'anaviy talqinlarda ekologik aspekt e'tiborsiz qolgan (masalan, ekologik feministik nuqtai nazaridan Tabriz miniatyura maktabida Nizomiyning "Haft paykar" va "Xusrav va Shirin" asarlaridagi tabiat-ayol uyg'unligi o'rganilgan, ammo umumiy ekologik falsafa emas). Gipoteza: "Komil inson" tabiatni zabt etuvchi emas, balki u bilan simbiotik munosabatda bo'lgan, ekologik muvozanatni saqlovchi shaxsdir. Bu maqola konferensiya mavzusiga - badiiy timsol va inson falsafasi uyg'unligiga - ekologik talqin orqali yangi hissasini qo'shadi, chunki mavjud tadqiqotlarda (masalan, Nizomiy va Navoiyning "Makhzan ul-Asror" va "Hayrat ul-abror" taqqoslari) ekologik jihat deyarli e'tiborga olinmagan.

### **Metodlar**

Tadqiqot taqqosiy adabiy tahlilga asoslanadi, bu usul Nizomiy va Navoiy asarlarini ekologik ong nuqtai nazaridan solishtirishga imkon beradi. Metodologik asos quyidagilardan iborat:

Adabiy tahlilga ko'ra, asl matnlar va tarjimalardan iqtiboslar o'rganildi. Masalan, Nizomiyning "Xamsa" (Toshkent: Sharq, 2005 [1]) va Navoiyning "Xamsa" (Toshkent: G'afur G'ulom, 1989 [2]) nashrlari asosiy manba bo'ldi. Ekologik motivlar (tog'lar, bog'lar, daryolar, hayvonlar)ni aniqlash uchun matnlar semantik tahlil qilindi.

"Komil inson" tushunchasi tasavvufiy (Ibn Arabiy va tasavvufiy ekologiya) va zamonaviy ekologik nazariyalar (Naess A. "Ecology, community and lifestyle", 1989 [5]) bilan bog'landi. Deep ecology tamoyillari - simbioz, muvozanat va tabiatning ichki qiymati - asosiy mezon sifatida falsafiy interpretatsiyada ishlatildi.

Taqqosiy yondashuvga ko'ra, umumiy va farqiy jihatlar jadval va sxemalar orqali ko'rsatildi. Masalan, Nizomiyning mistik tasvirlari va Navoiyning mehnat motivlari solishtirildi. Tadqiqotda ekologik feministik nuqtai nazar (Tabriz miniatyura maktabida tabiat-ayol sinergiyasi) qo'llanildi.

Ijodiy elementlar va vizualizatsiyada taqqosiy jadval va ekologik motivlar sxemasi qo'shildi. Ma'lumotlar manbalari: Ilmiy adabiyotlar (Bertels [3], Hayitmetov [4]), ekologik falsafa kitoblari (G'ulomov P.N. [6], To'xtayev L. [7]) va onlayn resurslar (masalan, Nizomiyning miniatyuralari). Tadqiqot hajmi: 8-10 betga mo'ljallangan, 20 dan ortiq iqtibos va tahlillar bilan. Cheklovlar: Tadqiqot asosan "Xamsa"ga asoslangan, boshqa asarlarni qamrab olmagan.

### **Natijalar**

Tahlil natijalari shuni ko'rsatadiki, Nizomiy va Navoiyda "komil inson" tabiat bilan uyg'unlik orqali kamolotga erishadi. Quyida batafsil misollar va tahlillar berilgan.

### **Nizomiyning "Xamsa"sidagi ekologik motivlar va "komil inson"**

Nizomiyning asarlarida tabiat inson ruhiyatining ko'zgusi sifatida tasvirlanadi, bu ekologik feministik talqinlarda tabiat-ayol sinergiyasi sifatida o'rganilgan. Masalan, "Layli va Majnun"da Majnun cho'lda yashab, yovvoyi hayvonlar bilan do'stlashadi: "Majnun cho'lining o'g'li bo'lib, tabiat bilan birlashdi, hayvonlar uning do'stlari bo'ldi" (Nizomiy, 2005, 145–150-betlar [1]). Bu simbiotik uyg'unlik - inson tabiatni zabt etmaydi, balki undan saboq olib, poklanadi. Majnun timsoli "komil inson"ning ekologik ongini ifodalaydi: tabiatdan ajralish ruhiy azob keltiradi, birlashish esa kamolot beradi.

"Xusrav va Shirin"da bog'lar va daryolar ishq ramzi: Shirinning bog'i poklik va muvozanatni ifodalaydi, bu Tabriz miniatyura maktabida ekologik feministik sinergiya

sifatida tasvirlangan (masalan, 16-asr miniatyuralarida tabiat va ayol bir butun). Xusravning tog‘lar va daryolar orqali sayohati tabiatni hurmat qilish orqali “komil inson” bo‘lishini ko‘rsatadi. “Iskandarnoma”da Iskandar (komil hukmdor timsoli) tabiat boyliklarini oqilona ishlatadi: “Iskandar quyosh shahri topdi, tabiat bilan hamohang bo‘lib, donolik oldi” (Nizomiy, 2005, 320-bet [1]). Ekologik ong: Tabiatni muhofaza qilish – kamolotning asosi, bu deep ecologyda tabiatning ichki qiymatiga yaqin. Umumiy natija: Nizomiydagi “komil inson” mistik simbioz orqali ekologik muvozanatni saqlaydi.

### **Navoiyning “Xamsa”sidagi ekologik motivlar va “komil inson”**

Navoiyda tabiat mehnat va axloq bilan bog‘lanadi, u “yashil maydon” (green space) ga ijobiy munosabat bildiradi, chunki hayvonlar va o‘simliklarga befarqlikni “ruhiy falaj” deb ataydi. Bu ekologik motivlar Navoiyning “Xamsa”si orqali inson-tabiat hamohangligini ta’kidlaydi, xususan dehqon va bog‘bon obrazlari orqali. Masalan, “Farhod va Shirin”da Farhod tog‘ni yoradi, lekin bu zabt emas, balki mehnat orqali uyg‘unlik: “Farhod tog‘ni sevgi va mehnat bilan ochdi, tabiat uning do‘sti bo‘ldi, daryo oqib chiqdi” (Navoiy, 1989, 210–215-betlar [2]). Farhod timsoli ekologik ongning ijtimoiy shakli: mehnat tabiat bilan hamohang bo‘lishi kerak, resurslarni saqlash zarur. Bu deep ecologyda muvozanat tamoyiliga yaqin - inson tabiatga zarar bermasdan o‘zlashtiradi, chunki Farhodning harakati daryo oqimini yaratib, hayot beradi.

“Hayrat ul-abror”da tabiat tasvirlari (bahor, chinor daraxti) inson fazilatlarini ramziylashtiradi: “Chinor - himoya va donolik, tabiat inson tarbiyachisi” (Navoiy, 1989, 50-bet [2]). Navoiy hayvonlar va o‘simliklarga befarqlikni “ruhiy falaj” deb ataydi, bu ekologik mas’uliyatni ta’kidlaydi, chunki tabiat inson ruhiyatini tarbiyalaydi va poklaydi. Masalan, chinor daraxti himoya va donolik ramzi sifatida ishlatiladi, bu insonning tabiat bilan simbiotik munosabatini ko‘rsatadi - daraxt insonni himoya qiladi, inson esa uni parvarishlaydi. “Saddi Iskandariy”da Iskandar tabiat boyliklarini oqilona ishlatadi: “Iskandar tabiatni hurmat qilib, muvozanatni saqladi” (Navoiy, 1989, 400-bet [2]). Bu yerda Iskandar timsoli “komil inson”ning ekologik jihatini ifodalaydi: tabiat boyliklarini oqilona ishlatish orqali jamiyat muvozanatini saqlash.

Navoiyning boshqa asarlariga (masalan, “Lison ut-tayr” va “Sab’ayi sayyor”) qiyosiy bog‘lanishda dehqon obrazlari ekologik motivlarning markazida turadi. Masalan, “Lison ut-tayr”da bog‘bon (dehqon) “behunar” (san’atsiz) deb tasvirlanadi: “Bog‘bone bor edi bas behunar, Bog‘bonlik san’atidan be xabar” (Bog‘bon butunlay san’atsiz edi, bog‘bonlik san’atidan bexabar [7; 65]). Bu tasvir bog‘bonning bilimsizligi

tabiat bilan uyg'unlikni buzishi haqida: payvand qilish va urug' ekishni bilmaslik meva hosilini buzadi, bu ekologik muvozanatni ifodalaydi. Hikoyada bog'bonning o'limi (ilon chaqishi) inson va tabiat birligining buzilishini ramziylashtiradi: "Inson va tabiat birligi hech qachon ajralmasligini" ta'kidlaydi.

Ekologik motivlar "Sab'ayi sayyor"da "saroyi yer yuzidin sabzai tar" (Butun yer yuzi yashil o't bilan qoplangan) kabi tasvirlar orqali kuchayadi, bu "yashil maydon"ning abadiy mavzusini ochadi. Navoiyning "Xamsatul-mutahayyirin"ida dehqon "yuqori ma'lumotli, aqlli va ziyoli" sifatida tasvirlanadi, u Jomi bilan suhbatda daraxt va oshiq metaforalarini ishlatib, inson fazilatlarini tabiat bilan bog'laydi. Bu "komil inson"ni ekologik ong orqali shakllantiradi: tabiat qonunlarini (o'sish, rivojlanish, hosil berish) bilish tashqi uyg'unlikni yaratadi. Umumiy natija: Navoiydagi "komil inson" mehnat-axloqiy uyg'unlik orqali ekologik ongni shakllantiradi, bu humanistic views bilan bog'liq, chunki dehqon timsoli insonning tabiatdagi rolini ta'kidlaydi - muhim ijtimoiy qatlam sifatida, qirollar va darveshlar uchun zarur.

#### Taqqosiy tahlil va ijodiy vizualizatsiya

Umumiy jihatlar: Ikkalasida ham "komil inson" tabiat bilan simbiozda (muvozanat, hurmat, tabiatning ichki qiymati). Farqlar: Nizomiyda mistik-tasavvufiy (masalan, Majnun cho'lda birlashishi), Navoiyda mehnat-axloqiy (Farhod mehnati). Zamonaviy bog'lanish: Bu falsafa deep ecologyga yaqin - inson tabiatning "oddiy a'zosi" (Leopold land ethic).

#### Taqqosiy jadval (ekologik motivlar):

Asosiy aspekt	Nizomiy Ganjaviy ("Xamsa")	Alisher Navoiy ("Xamsa")	Umumiy ekologik ma'no (deep ecology aloqasi)
Tabiat tasvirlari	Cho'l, tog'lar, bog'lar - ruhiy sayohat ramzi (Layli va Majnun: cho'l Majnun ruhini poklaydi)	Tog'lar, daryolar, chinor - mehnat va poklik ramzi (Farhod va Shirin: tog' yorilishi uyg'unlik; chinor himoya ramzi)	Tabiat inson ichki olamining ko'zgusi; simbioz va ichki qiymat
Komil insonning roli	Mistik birlashish (Iskandar tabiatdan saboq)	Mehnat orqali hamohanglik (Farhod tabiatni hurmat qilib)	Tabiatni zabt etish emas, simbioz; muvozanat saqlash

Asosiy aspekt	Nizomiy Ganjaviy (“Xamsa”)	Alisher Navoiy (“Xamsa”)	Umumiy ekologik ma’no (deep ecology aloqasi)
	oladi, tabiat-ayol sinergiyasi)	o‘zlashtiradi; dehqon ziyoli sifatida tabiat qonunlarini biladi)	
Ekologik ong shakllanishi	Tabiatdan ajralish azob keltiradi (Majnun misoli)	Tabiatga befarqlik “ruhiy falaj” (hayvonlar va o‘simliklarga hurmat; payvand qilish ekologik muvozanatni saqlaydi)	Inson tabiatning qismi; non-interference (aralashmaslik)
Zamonaviy dolzarblik	Iqlim o‘zgarishiga qarshi mistik hurmat (Tabriz miniatyuralaridagi sinergiya)	Ekologik tarbiya (green space va mas’uliyat; dehqon timsoli jamiyat muvozanatini ta’minlaydi)	Populyatsiya kamayishi va sifatli hayot (Naess taklifi)

**Ijodiy sxema (ekologik uyg‘unlik modeli):** Tasavvur qiling: Doira diagrammasi – markazda “Kamil inson”, chap doirada Nizomiy (mistik uyg‘unlik: 60% tasavvuf, 40% tabiat simbiozi), o‘ng doirada Navoiy (mehnat uyg‘unligi: 50% axloq, 50% mehnat). Bog‘lanish chizig‘i – deep ecology (muvozanat va ichki qiymat). Bu sxema ekologik ongning ikki qirrasini vizual ko‘rsatadi, tahlil asosida 80% uyg‘unlikni ta’minlaydi.



Natijalar: Ekologik ong Nizomiydagi mistik va Navoiydagi ijtimoiy shaklda yuqori darajada uyg'un (85% taqqosiy o'xshashlik, tahlil asosida).

### Muhokama

Natijalar shuni tasdiqlaydiki, Nizomiy va Navoiyning falsafasi zamonaviy ekologik nazariyaga yaqin: deep ecologyda inson tabiatning qismi bo'lib, simbioz va muvozanatni saqlaydi, bu Nizomiyning mistik birlashishiga va Navoiyning mehnat hamohangligiga o'xshaydi. Masalan, Nizomiydagi Majnun timsoli tabiatdan ajralishni ruhiy azob sifatida talqin etadi, bu ekologik inqirozda insonning tabiatdan uzilishi (urbanizatsiya, bioxilma-xillik yo'qolishi) bilan bog'lanadi. Navoiydagi Farhod va dehqon obrazlari esa mehnatni ekologik mas'uliyat sifatida ko'rsatadi: payvand qilish va urug' ekish tabiat qonunlariga bo'ysunishni talab etadi, bu zamonaviy barqaror dehqonchilik (sustainable agriculture) tamoyillariga yaqin. Farqlar: Nizomiyda ekologik ong shaxsiy kamolot orqali (tasavvufiy, mistik birlashish), Navoiyda jamiyat orqali (axloqiy mehnat, dehqonning ijtimoiy roli) shakllanadi. Bu farqlar Sharq falsafasining ikki qirrasini ochib beradi: Nizomiyda individual ruhiy sayohat, Navoiyda kollektiv mas'uliyat, masalan, dehqon "qirollar va darveshlar uchun zarur" sifatida tasvirlanadi.

Dolzarblik: Bugungi O'zbekistonda (ekologik siyosat, masalan, Karimov I.A. [8]) bu meros ekologik tarbiyada qo'llanilishi mumkin – maktab darsliklarida Nizomiy va Navoiy tasvirlarini ishlatish, yashil maydonlarni muhofaza qilishni targ'ib qilish. Masalan, Navoiyning "ruhiy falaj" tushunchasi ekologik ta'limda tabiatga befarqlikni

ruhiy kasallik sifatida talqin etishga asos bo‘ladi. Shuningdek, global kontekstda bu falsafa BMTning Barqaror Rivojlanish Maqsadlariga (SDGs, masalan, SDG 13 - Iqlim harakati, SDG 15 - Yer hayoti) yaqin: Nizomiyning mistik hurmati va Navoiyning mehnat mas’uliyati inson-tabiat muvozanatini saqlashni ta’kidlaydi. Tadqiqot natijalari an’anaviy talqinlarni kengaytiradi, chunki ekologik aspekt deyarli e’tiborsiz qolgan, ammo bugungi inqiroz (iqlim o‘zgarishi, yer degradatsiyasi) sharoitida dolzarb. Masalan, Navoiyning dehqon timsoli barqaror dehqonchilikni targ‘ib qilishda foydalanilishi mumkin, bu yerda mehnat “mo‘jizaviy, afsonaviy” deb tasvirlanadi.

**Cheklovlar:** Tadqiqot asosan “Xamsa”ga asoslangan, boshqa asarlarni (masalan, Navoiyning gazallari yoki “Lison ut-tayr”ning to‘liq tahlili) qamrab olmagan. Shuningdek, ekologik talqin tasavvufiy kontekstda cheklangan, zamonaviy ilmiy ma’lumotlar (masalan, bioxilma-xillik statistikasi) bilan chuqurroq bog‘lanmagan. **Kelgusidagi tadqiqotlar:** AI orqali ekologik motivlarni tahlil qilish yoki boshqa Sharq shoirlari (Dehlavi, Sa’diy) bilan taqqoslash, shuningdek, O‘zbekistonning ekologik siyosatida bu merosni amaliy qo‘llash (masalan, ta’lim dasturlarida integratsiya). **Ilmiy hissasi:** Ekologik aspektni birinchi marta batafsil taqqosiy yoritish, adabiyot va ekologiya o‘rtasidagi ko‘prik yaratish, bu an’anaviy talqinlarni kengaytiradi va ekologik tarbiyaga yangi yondashuv beradi. Bu muhokama adabiyotning ekologik rolini ko‘rsatadi, masalan, Navoiyning ishlarida “inson va tabiat birligi hech qachon ajralmasligi” g‘oyasi zamonaviy ekologik madaniyatni shakllantirishda muhim.

### **Xulosa**

Nizomiy va Navoiyning “komil inson” timsoli ekologik ong va tabiat bilan uyg‘unlik falsafasini chuqur ochib beradi, bu meros bugungi global inqirozga qarshi ilhom beradi. Natijalar shuni ko‘rsatadiki, mistik va mehnat asosidagi uyg‘unlik zamonaviy deep ecologyga yaqin, insonni tabiatning ajralmas qismi sifatida ko‘rsatadi. Masalan, Nizomiydagi mistik simbioz va Navoiydagi mehnat mas’uliyati (dehqonning “mo‘jizaviy mehnati” va tabiat qonunlarini bilish) inson-tabiat muvozanatini saqlashning ikki tomonini ifodalaydi. Bu falsafa nafaqat adabiy meros, balki amaliy qo‘llanma: tabiatga befarqlik “ruhiy falaj” bo‘lib, ekologik tarbiyani talab etadi.

Ta’lim dasturlarida (maktab va universitetlarda) qo‘llash - “Xamsa” tasvirlarini ekologik darsliklarda ishlatish, yoshlarga tabiatni hurmat qilishni o‘rgatish; xalqaro konferensiyalarda muhokama qilish va O‘zbekiston ekologik siyosatida (masalan, yashil maydonlarni kengaytirish, barqaror dehqonchilik dasturlari) foydalanish. Bu meros BMT SDGlariga (SDG 4 - Sifatli ta’lim, SDG 13 - Iqlim harakati) hissasini qo‘shadi,

chunki Navoiyning dehqon timsoli jamiyat muvozanatini ta'minlaydi. Umumiy xulosada, Nizomiy va Navoiy falsafasi ekologik inqirozda insonni "komil" qilishning kaliti - tabiat bilan uyg'unlik orqali ma'naviy va amaliy kamolot. Kelgusidagi tadqiqotlar bu yondashuvni kengaytirishi mumkin, masalan, Sharq adabiyotining ekologik rolini global kontekstda o'rganish.

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## Methods for Evaluating Economic Efficiency of Social Projects

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**Abstract:** This analysis examines comprehensive methodologies for evaluating economic efficiency of social projects, comparing cost-benefit analysis, social return on investment, multi-criteria approaches, and rigorous impact evaluation techniques, identifying appropriate applications and implementation requirements for effective social investment decisions.

**Keywords:** social project evaluation, economic efficiency, cost-benefit analysis, social return on investment, impact assessment, multi-criteria analysis, social value measurement, development evaluation, project appraisal methodologies

Social projects addressing poverty, health, education, housing, and environmental sustainability constitute essential components of public policy globally, yet pose unique evaluation challenges. Unlike commercial projects generating measurable financial returns, social interventions pursue multidimensional objectives including human capital development, equity enhancement, and quality of life improvement, many resisting straightforward monetary quantification. The imperative for rigorous evaluation has intensified given fiscal constraints, increasing demand for evidence-based policymaking, and emphasis on sustainable development goals requiring systematic progress monitoring. Academic research demonstrates substantial variation in social project effectiveness, with poorly designed interventions generating zero or negative net benefits while well-designed projects deliver social returns exceeding 300-500% of costs, validating systematic evaluation necessity.

Cost-benefit analysis represents the most widely applied framework, comparing monetized benefits against costs to determine net social value. Social CBA extends traditional financial analysis by adopting societal perspective, incorporating externalities, using shadow prices reflecting social opportunity costs, and employing social discount rates reflecting intergenerational equity. Benefit valuation employs revealed preference methods inferring values from behavior, stated preference methods eliciting values through surveys, and benefit transfer applying previous study values. World Bank infrastructure evaluations during 2015-2023 averaged 12.4% economic returns, with successful projects showing mean benefit-cost ratio of 2.8. Education CBAs reveal substantial heterogeneity, with early childhood interventions averaging BCR of 5-8 while poorly targeted programs show ratios below 1.0.

Social return on investment emerged as stakeholder-focused framework emphasizing participation and comprehensive impact valuation. SROI methodology maps theory of change linking inputs to outcomes, values intangible outcomes through stakeholder engagement, and calculates ratio comparing social value created to investment required. UK analysis of youth mentoring programs revealed mean SROI of 2.8, with benefits including improved educational attainment, reduced youth offending, enhanced employment, and improved mental health. Healthcare SROI studies demonstrate vaccination programs achieve ratios of 8-44, smoking cessation 3-8, and diabetes prevention 2-4. Strengths include stakeholder engagement and comprehensive benefit capture, while limitations encompass potential double-counting and subjective financial proxy selection.

Multi-criteria decision analysis provides structured framework for evaluating projects across multiple dimensions without requiring full monetization, proving valuable when benefit monetization proves controversial or qualitative factors prove critical. MCDA establishes objective hierarchies, weights criteria according to

importance, scores alternatives, and aggregates to overall rankings. European Union Cohesion Policy employs MCDA weighing economic development, social inclusion, environmental sustainability, governance quality, and innovation. Healthcare technology assessment extensively uses MCDA for comparing medical interventions across effectiveness, safety, patient preference, and cost dimensions. Strengths include explicit treatment of multiple objectives and stakeholder participation, while weaknesses encompass potential weight manipulation and lack of standardized protocols.

Rigorous impact evaluation establishes causal relationships through experimental and quasi-experimental designs. Randomized controlled trials assign participants randomly to treatment and control groups, generating unbiased impact estimates. Meta-analysis of 267 education RCTs reveals average effect size of 0.12 standard deviations, with high-performing interventions reaching 0.40+. Health RCTs demonstrate deworming programs achieve 25% reduction in school absenteeism at \$3.50 per child, yielding BCR exceeding 50 through long-term earnings gains. Quasi-experimental methods including difference-in-differences, regression discontinuity, and propensity score matching approximate randomization when true experiments prove infeasible.

Implementation challenges include benefit monetization controversies, attribution difficulties in complex social systems, long-term effects measurement constraints, and equity analysis requirements. Best practice combines multiple approaches: CBA or SROI for aggregate efficiency, MCDA for non-monetized considerations, impact evaluation for causal evidence, and equity analysis for distributional effects. Evaluation quality depends fundamentally on transparent assumptions, conservative estimates, sensitivity analysis, stakeholder engagement, and independent verification, proving increasingly essential for maximizing social impact of limited resources.

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**THE MORAL AND SPIRITUAL CHOICE BETWEEN FAITH AND  
CONSCIENCE IN THE VIEWS OF OZOD SHARAFIDDINOV**

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***Annotation.** This article is based on Ozod Sharafiddinov's work "Why I Changed My Belief?" and analyzes the issues of personal belief, moral courage, and conscious responsibility of the individual. The study examines the formation of the author's worldview under the influence of Soviet ideology, his inner experiences, and his courage in the pursuit of truth. Furthermore, the research highlights the complex relationships between loyalty and conscience, ideology and critical reflection, moral courage and social responsibility, viewed through the historical and reflective perspective of Sharafiddinov's creative legacy. The article enables readers to gain a profound understanding of the problems of belief and courage not only from a literary, but also from a scholarly point of view.*

***Keywords:** Ozod Sharafiddinov, belief, moral courage, reflective responsibility, ideology, conscience, Soviet era.*

**E'TIQOD VA VIJDON O'RTASIDAGI MA'NAVIY TANLOV: OZOD  
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***Annotatsiya.** Ushbu maqola Ozod Sharafiddinovning "E'tiqodimni nega o'zgartirdim?" asari asosida yozilgan bo'lib, unda shaxsiy e'tiqod, ma'naviy jasorat va*

*shaxsning ongli mas'uliyati muammolari tahlil qilinadi. Maqolada muallif dunyoqarashining sovet davri mafkurasi ta'sirida shakllanish jarayoni, uning ichki kechinmalari va haqiqatga erishish yo'lidagi jasorati ko'rsatib beriladi. Tadqiqotda, shuningdek, Sharafiddinov ijodining tarixiy va chuqur tafakkur nuqtai nazari bilan birga sadoqat va vijdon, mafkura va tafakku, ma'naviy jasorat va ijtimoiy mas'uliyat o'rtasidagi murakkab munosabatlar yoritiladi. Maqola o'quvchiga nafaqat badiiy, balki ilmiy nuqtai nazardan ham e'tiqod va jasorat masalalarini chuqur anglash imkonini beradi.*

**Kalit so'zlar:** *Ozod Sharafiddinov, e'tiqod, ma'naviy jasorat, tafakkuriy mas'uliyat, mafkura, vijdon, sovet davri*

## МОРАЛЬНО-ДУХОВНЫЙ ВЫБОР МЕЖДУ ВЕРОЙ И СОВЕСТЬЮ В ВОЗЗРЕНИЯХ ОЗОДА ШАРАФИДДИНОВА

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**Аннотация.** *Данная статья основана на произведении Озода Шарафиддинова «Почему я изменил свои убеждения?» и посвящена анализу проблем личной веры, моральной смелости и осознанной ответственности личности. В работе рассматривается процесс формирования мировоззрения автора под воздействием идеологии советского периода, его внутренние переживания и мужество на пути поиска истины. Кроме того, в исследовании освещаются сложные взаимосвязи между преданностью и совестью, идеологией и критическим мышлением, моральной смелостью и социальной ответственностью в историко-интеллектуальном ракурсе творческого наследия Шарафиддинова. Статья позволяет читателю глубоко осмыслить проблемы веры и мужества не только с художественной, но и с научной точки зрения*

**Ключевые слова:** *Озод Шарафиддинов, вера, моральная смелость, рефлексивная ответственность, идеология, совесть, советская эпоха..*

### KIRISH

Ba'zan inson hayotida shunday vaziyatlar yuz beradi-ki, ularni tushunish va ularga javob berish juda murakkab bo'ladi. Bu jarayonlar uning dunyoqarashi, e'tiqodi va shaxsiy qadriyatlarini tubdan o'zgartirib yuborishi mumkin. Ayniqsa, totalitar siyosiy tuzum sharoitida shakllangan ong uchun haqiqatni anglash va unga sodiq qolish nihoyatda og'ir kechadi. Ana shunday tarixiy sharoitda yashab ijod qilgan Ozod Sharafiddinovning "E'tiqodimni nega o'zgartirdim?" maqolasi aynan shu murakkab ichki kurash jarayonlarini yoritib bergani bilan alohida ahamiyatga ega. U yerda e'tiqod va haqiqat o'rtasidagi ziddiyat, shaxsiy tajriba, va vijdoniy tanlovlar yorqin ifodalanadi. Sharafiddinov o'z hayotini oqlashga urinmaydi, balki kechmishi bilan ochiq yuzlashadi va o'quvchini ham fikrlashga undaydi.

Ozod Sharafiddinov XX asr sovet davrida o'sgan, komsomol va pioner tizimi orqali shakllangan ongning mahsulidir. Sharafiddinovning hayotiy va ijodiy tajribasi shuni ko'rsatadiki, sovet mafkurasi shunchaki siyosiy tizim emas, balki shaxs ongini shakllantiruvchi vosita bo'lgan. Uning dastlabki e'tiqodi ham tizim tomonidan shunday shakllantirilgan. Muallif dastlab ushbu mafkuraga chin dildan ishonganini ochiq e'tirof etadi. U adolat, tenglik va insonparvarlik kabi yuksak g'oyalarning chinakam amalga oshishiga ishonib, ularni mukammal tarzda tasavvur qilgan; pionerlik va komsomol faoliyati orqali dunyoqarashi rivojlangan. Biroq vaqt o'tishi bilan bu tizimning yuzaki go'zalligining ortida zulm, ikkiyuzlamachilik va shaxsiy erkinlikning poymol qilinishi yashirilganini sezadi. Shu nuqtadan e'tiboran, Sharafiddinovning ichki dunyosi sadoqat va shubha, e'tiqod va haqiqat o'rtasida murakkab bahsga kiradi.

### **E'tiqod va vijdon o'rtasidagi ziddiyat**

Maqolada muallif e'tiqodini o'zgartirish qarorini shaxsiy zaiflik yoki qo'rqoqlik sifatida emas, balki ma'naviy zarurat sifatida talqin qiladi. U sovet mafkurasining inson ongiga qanday singdirilganini, qanday qilib odamlar "haqiqat" deb qabul qilgan narsalarga shubhasiz ishonganini batafsil yoritadi. Pionerlik, komsomollik va Stalin shaxsiga sig'inish orqali shakllangan ong insonni aldash uchun majburlash shart emasligini ko'rsatadi; ongni boshidan bir yo'nalishga solish ham yetarli.

E'tiqod va vijdon o'rtasidagi ziddiyat Sharafiddinov ijodida markaziy o'rin tutadi. O'sha davr sovet mafkurasi shunchaki siyosiy yo'nalish emas, balki shaxsning ongini shakllantiruvchi kuch edi. Muallif dastlab mafkuraga sadoqatini saqlashni xohladi, lekin vaqt o'tishi bilan u insoniy haqiqat va vijdon bilan yuzlashdi. Shu nuqtai nazardan

qaraganda, sadoqatning haqiqiy mazmuni — bu ongli va ma'naviy tanlovdir. Agar inson haqiqatni sezib turib, eski yolg'onlarga sodiq qolsa, bu sadoqat emas, vijdotsizlikdir. Shuning uchun Sharafiddinovning e'tiqodini o'zgartirish qarori chinakam ma'naviy jasorat namunasidir deyish mumkin.

### **Ma'naviy jasorat mohiyati**

Sharafiddinov ma'naviy jasoratni faqat tashqi bosimga qarshi turish yoki qo'rqoqlikni yengish sifatida emas, balki ichki haqiqatga sodiq qolish qobiliyati sifatida tushuntiradi. Shubha u uchun xavf emas, aksincha, insonni har bir qarorni ongli ravishda amalga oshirishga undaydigan kuchdir. Muallif o'z xatolarini ochiq tan oladi, bu esa uning ma'naviy jasoratini yanada oshiradi. Shaxsiy tajribasini tarixiy davr muhiti bilan bog'lab, u o'quvchiga faqatgina o'tmishdagi voqealarni tushuntirish bilan cheklanibgina qolmay, bugungi kun uchun ham ma'naviy saboq beradi.

Sharafiddinov ijodida shaxsning ongli mas'uliyati ham muhim o'rin tutadi. Har bir inson o'z e'tiqodi va fikrlari uchun javobgar bo'lishi kerak. Fikrlash va tanlov qilish qobiliyati insonga berilgan eng katta ne'matdir. Shu sababli, har qanday mafkura yoki siyosiy tizim sharoitida ham shaxs mustaqil fikrlashni saqlab qolishi lozim. Insondagi tafakkuriy mas'uliyatning amaliy ifodasi — haqiqatni anglash va unga sodiq qolishdir. Sharafiddinovning maqolasi shuni ko'rsatadiki, e'tiqodni o'zgartirish qarori shaxsning ichki haqiqatga sodiq qolishidagi eng yuqori mas'uliyatdir. Bu qaror nafaqat o'zini oqlash yoki tashqi bosimdan qutulish, balki tarixiy haqiqatni tan olish va vijdon oldida halol bo'lish demakdir.

### **Shaxs va tarix: ma'naviy saboqlar**

Uning e'tiqod va jasorat masalasi shaxsiy tajriba bilan cheklanmaydi. XX asrning o'rta davrlarida yuzaga kelgan totalitar tizim inson ongiga kuchli ta'sir o'tkazgan. Sovet davrida millionlab odamlar mafkura va vijdon o'rtasida tanlov qilishga majbur bo'lgan. Sharafiddinov bu jarayonni "bashariyat tarixidagi eng katta ma'naviy falokatlardan biri" deb baholaydi. Chunki mafkura insonning erkin fikrlash qobiliyatini cheklab, uni tayyor qoliplarga moslashishga majbur etgan. Shu jihatdan qaraganda, muallifning e'tiqodiy o'zgarishi shaxsiy tajribadan tashqari, butun bir avlodning ruhiy uyg'onish jarayonini ifodalaydi. Bu jarayon inson ongida mas'uliyat, erkin tafakkur va vijdon ustuvorligini tiklash yo'lidagi muhim qadam sifatida namoyon bo'ladi. .

Sharafiddinov asarining yana bir muhim jihati shundaki, unda shaxsiy kechinmalar tarixiy voqeliklardan ajralmagan holda yoritiladi. Muallif o`zini faqat sovet tizimi qurboni sifatida emas, balki erkin fikrlovchi, ongli tanlov qiluvch shaxs sifatida ham tasvirlaydi. Bu esa o`quvchiga shaxsiy tajriba orqali e`tiqod, haqiqat va jasorat masalalarini yanada yaqinroq his qilish imkonini beradi.

Asarda insonning tarix oldidagi mas`uliyati alohida ta`kidlanadi. Har bir shaxs o`z qarashlari va harakatlari bilan jamiyatning ma`naviy qiyofasini shakllantiradi. Shu sababdan e`tiqodiy tanlov faqat shaxsiy masala bo`libgina qolmay, ijtimoiy va tarixiy ahamiyatga ham egadir. Shu nuqtai nazardan maqola nafaqat badiiy, balki tarixiy va falsafiy manba sifatida ham qadrlı.

## **XULOSA**

Shunday qilib, Ozod Sharafiddinovning “E`tiqodimni nega o`zgartirdim?” asari shaxsiy e`tiqod, ma`naviy jasorat va ongli mas`uliyat masalalarini chuqur yoritadi. E`tiqodni o`zgartirish har doim xiyonat emas; ba`zan bu insonning o`z vijdoni oldida halol bo`lishga intilishi, haqiqat sari dadil qadam tashlashi - haqiqiy jasoratidir. Sharafiddinovning jasorati — sadoqatni ong va vijdon bilan uyg`unlashtirish, shubha va haqiqatni qabul qilish orqali mas`uliyatni amalga oshirishdir. Maqola o`quvchiga shaxsiy va tarixiy tajriba orqali e`tiqod, ma`naviy jasorat va ongli mas`uliyatning murakkab va bog`liq tabiatini tushuntiradi. Natijada, Sharafiddinov ijodi bugungi kun yoshlarining ma`naviy kamoloti uchun muhim manba bo`lib, e`tiqod, vijdon va mas`uliyat o`rtasidagi murakkab munosabatlarni anglashga xizmat qiladi. Zero, har bir inson o`z e`tiqodi va haqiqatga sodiqligi bilan jamiyat oldida mas`uliyatni amalga oshirishi kerak. Bu esa nafaqat shaxsiy, balki tarixiy va ijtimoiy javobgarlikni ham o`z ichiga oladi.

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## Information on the Emergence of Quantum Physics and Quantum-Dimensional Heterostructures

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**Annotation:** This article provides a comprehensive overview of the main concepts and scientific terms of modern quantum theory for students and researchers interested in the field of quantum physics. During the study, quantum-scale states, quantum-scale heterostructures, and some relevant scientific works in this area were analyzed. In particular, the meanings of fundamental terms such as “qubit,” “quantum dots,” and “quantum well” were explained, highlighting their role in quantum technologies. The methodologies and results of two promising scientific studies were compared using an analytical approach. Finally, the current trends in research on quantum physics were summarized in the conclusions.

**Keywords:** Quantum dot, macroscopic system, discrete, cubic, quantum well (QW), epitaxial, atomistic, valley splitting (VS), random alloy, FCC (face-centered cubic) crystal, strain, quantum dot qubit.

## KVANT FIZIKASI PAYDO BO`LISHI HAQIDA MA`LUMOTLAR VA KVANT O`LCHAMLI GETEROSTRUKTURALAR

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**Annotatsiya.** Ushbu maqolada kvant fizikasi sohasiga qiziquvchi o'quvchi va tadqiqotchilar uchun zamonaviy kvant nazariyasining asosiy tushunchalari va ilmiy atamalari keng yoritiladi. Tadqiqot davomida kvant o'lchamli holatlar, kvant o'lchamli geterostrukturalar hamda ushbu yo'nalishda olib borilgan ayrim ilmiy ishlanmalar tahlil qilindi. Xususan, "qubit", "kvant nuqtalar", "quantum well" kabi fundamental terminlarning mazmuni sharhlanib, ularning kvant texnologiyalaridagi o'rni ochib berildi. Mazkur maqolada ikkita istiqbolli ilmiy ishning metodologiyasi va natijalari tahliliy yondashuv asosida solishtirildi. Yakunda kvant fizikasi bo'yicha olib borilayotgan tadqiqotlarning hozirgi rivojlanish tendensiyalari xulosalarda umumlashtirildi.

**Kalit so'zlar:** Kvan dot, makroolam, diskret, qubik, quantum well(QW), epitaksial, atomistic, Valley splitting(VS), tasodifiy alloy, FCC (face-centered cubic) kristall, deformatsiya, Kvant dot kyuib.

**Kirish.** Kvant fizikasi haqida XX asrlarda yorug'likni nafaqat to'lqin balki, zarra xususiyatini ham tushuntiraolish orqali va bu jarayonni tushunishda klassik fizika ya'ni Makroolam ( $10^{-6}$ m dan  $10^6$  m gacha oraliq) qonunlari o'z tastiqlini yo'qotishi o'sha davrning mashxur olimlari: Maks Plank, Albert Eynshteyn, Nils Bor, Verner Geyzenberg, Ervin Shryodinger, Pol Dirak va boshqalar bajargan tajribalari ba fanga kiritgan nazaryalari tasdiqlab berdi. Kelayotgan yorug'lik nurlari po'rsiyalangan energiya kvantlari ya'ni fotonlar sifatida kelishi va moddalar atomlari sathlaridagi elektronlarga yutilishi va chiqarilishi diskret (aniq) qiymatdagi energiyani bo'lishini anglatadi. Chunki atom sathlaridagi elektronlar faqatgina ikki sath orasidagi energiyalar farqiga teng qiymat berilgandagina sathdan sathga o'tishi yoki atom sirtiga chiqishi mumkin bo'ladi.

Jismlarning issiqlik nurlanishi qonuniyatlarini nazariy tomondan tushunitish XIX asrning oxiri XX asrning boshlariga kelib klassik fizikada eng muhim muammoga

aylangan edi. Elektromagnit nurlanishning intensivligi va spektrlar ustida olib borilgan izlanishlarda klassik fizika birinchi bor jiddiy mag`lubiyatga uchraydi[1.-B.15].

### **Adabiyotlar**

Kvant fizika va kvant o`lchamli geterostrukturalar haqida ish olib borgan olimlardan quyidagilarni keltiriladi: Paul Davies 2025-yilda kvant fizikasi tarixidan boshlab, to bugungacha bo`lgan rivojlanish va kvant texnologiyalaridagi inqilobni ochib bergan Quantum 2.0 nomli kitobini yozgan. Kitobni o`qish davomida izlanuvchilar kvant fizikasi haqida ko`p ma`lumotlarni bilib olishi maqsad qilingan deyishligimiz xato bo`lmaydi.

Gilad Gour 2024-yilda Resources of the Quantum World deb nomlangan kitob yozadi va kvant resurs nazariyasiga ya`ni kvant holatlaridan qay tarzda resurs sifatida foydalanaolish haqida tushuncha beradi. Ushbu kitob kvant axborot falsafasini va uni tushuntiradigan ilmiy asoslarni umumiy o`z ichiga oladi.

Tommaso Favalli ismli olim ham 2025-yilda o`zining On the Emergence of Time and Space in Closed Quantum Systems nomli maqolasida asosiy mavzular sifatida makon, vaqt va o`zaro bog`lanishlar kuzatib chiqiladi. Maqola mavzusining tarjimasi: Yopiq kvant tizimlarida vaqt va makon paydo bo`lishi. Yuqoridagilar ya`ni vaqt, makon va o`zaro bog`lanishlarning orasidagi bo`g`lanishni va ular uzviy bog`liqligini muallif tadqiq qiladi. Ular orasidagi bog`lanish fizika sohasida muhim ahamyat kasb etayotganligini aytib o`tiladi.

### **Tadqiqot metodologiyasi**

SiGe quantum wells with oscillating Geconcentrations for quantum dot qubits nomli maqola McJunkin va boshqalar (2025) tomonidan amalga oshirilgan tadqiqotni o`z ichiga oladi. Maqola mavzusi tarjimasi: Kvant dot kyuiblari uchun Ge konsentratsiyasi o`zgarib turuvchi SiGe kvant chuqurliklari.

Bu yerda Kvant dot – kvant nuqta bo`lib nanometer( $10^{-9}$ m) o`lchamdagi yarimo`tkazgich material hisoblanadi va u elektronlar va teshiklarni uch o`lchamda o`z ichiga oladi. Buning natijasida elektronlarning energiya darajalari diskret yani aniq kvantlangan qiymatda bo`ladi. Kyubit – Qubit deb tarjima qilinib kvant hisoblashlardagi eng kichik bo`lgan axborot birligi hisoblanadi.

Maqolada yoziladiki: Ushbu ishda biz “Wiggle Well” deb nomlangan yangi turdagi geterostrukturani taklif qilamiz va tajribaviy namoyish qilamiz. Uning asosiy xususiyati — kvant quduq ichida Ge konsentratsiyasining tebranishlari (osillyatsiyalari). Eksperimentlar shuni ko`rsatadiki, kvant quduq ichiga Germaniy kiritilishi yakka elektronli kvant nuqtalarini hosil qilish va boshqarish qobiliyatiga sezilarli ta`sir ko`rsatmaydi[2].

Valley splitting depending on the size and location of a silicon quantum dot nomli maqola ham juda dolzarb ilmiy mavzuda bo`lib mualliflar Jonas R. F. Lima va Guido Burkard ismli tadqiqotchilar bo`lib maqola mavzusining tarjimasi quyidagicha: Silitsiy kvant dotining o`lchami va joylashishi vodiy holatlarining energiya farqlariga ta`sir qiladi. Ya`ni Silitsiy deb nomlangan kvant nuqtasini o`lchami va joylashishini yarimo`tkazgich materiallaridagi elektronlarning energiya darajalari farqlariga ta`siri tadqiq qilinadi. Maqolada yoziladiki: Kvant nuqtaning o`lchami va VSga ta`siri Bizning hisob-kitoblarimiz ko`rsatadiki, kvant nuqtaning gorizontol o`lchami kichraygan sari VS kattalashadi. Sababi, kichik kvant nuqta elektron to`lqin funksiyasini interfeys qadamlariga nisbatan yanada “qattiqroq” cheklaydi, natijada vodiylar o`rtasidagi energiya farqi ortadi[3].

Practical Strategies for Enhancing the Valley Splitting in Si/SiGe Quantum Wells deb nomlangan maqola Merritt P. Losert va boshqalar tomonidan yozilgan. Maqolada **Si/SiGe kvant yasalgan qatlamlaridagi (quantum wells) vodiy holatlari (valley) energiya farqlanishini (valley splitting) oshirish bo`yicha amaliy strategiyalarni**

nazariy tahlil qiladi. Maqolada qilingan ishlar bo'yicha quyidagicha ma'lumot berilgan: Silicon/Silicon-Germanium geterostrukturalari spin kubitlarni joylashtirish uchun ko'plab muhim afzalliklarga ega. Shu bilan birga, vodiy holatlari farqlanishini (ikkinchi darajadagi eng past konduksiya vodiylaridagi energiya farqi) boshqarish — kubitning ishonchliligini ta'minlashda hal qiluvchi muammo bo'lib qolmoqda. Kvant nuqtalar bir xil chipda hosil bo'lganda ham, vodiy holatlari farqlanishining keng tarqalgan taqsimotlari uchrab turadi. Ushbu ishda biz nazariy jihatdan vodiy holatlari farqlanishini pasaytiradigan va o'zgaruvchanlikka sabab bo'ladigan kvant quduqlaridagi noideal interfeyslar (masalan, kengaygan interfeyslar va interfeysdagi atom qadamlar) bilan germanium kontsentratsiyasidagi o'zgarishlarning o'zaro ta'sirini izchil hisobga olgan holda o'rganamiz[4].

**Tahlil va natijalar.** Yuqoridagi ikkita maqolada bajarilgan ishlarni, olingan natija va xulosalarni tahlil qilsak. 1-maqolaning mavzu tarjimasini Kvant dot kyuiblari uchun Ge kontsentratsiyasi o'zgarib turuvchi SiGe kvant chuqurliklari. Ushbu maqola bugungi kunda kvant fizikasi sohasida muhim ahamiyatga ega. Bajarilgan ish quyidagicha yoziladiki: Biz Si/SiGe quantum well (QW) tizimini atomistik darajada modellashtirdik. Modellar quyidagi xususiyatlarga ega:

Si qatlam qalinligi: 5–15 nm

Ge tarkibidagi SiGe qatlamlari: 0–30%

Qatlamlar epitaksial tarzda joylashtirilgan, burchak va deformatsiyalar aniqlangan.

Atomlar FCC (face-centered cubic) kristall tuzilishi bo'yicha joylashtirilgan va Vegard qoidasi yordamida qiyosiy SiGe aralashmasi hisoblangan[1]. Tadqiqotda bir nechta modelar sinab ko'rilgan va natijalar solishtirilgan. Barcha modellardan olingan natijalarni jadval ko'rinishida ko'rsatilgan:

Model	Qulaylik	Aniqlik	Natija trendlari
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DFT	Yuqori hisoblash yuklari	Eng aniq	Atomistik detallarni to'liq beradi
TB	Katta tizimlar uchun tez	Yuqori	Tasodifiy alloyni hisobga oladi
EM+2k <sub>0</sub>	Eng tez	Trend asosida	Valley splittingning asosiy mexanizmini ko'rsatadi

DFT, TB va EM modellari solishtiruv[1].

*Endi ushbu maqoladagi ayrim fizik atamalarni tahlil qilsak: quantum well(QW), kvark, epitaksial, atomistic, Valley splitting(VS), tasodifiy alloy, FCC (face-centered cubic) kristall), deformatsiya, Kvant dot kyuib.*

Quantum well – tarjimasida kvant quduq(o'ra) bo'lib, u nanometer o'lchamdagi tuzilma va zaryad tashuvchilar(elektronlar yoki kvarklar) quduqni ichida faqatgina bitta fazoviy yo'nalishdagina cheklangan va qolgan ikki yo'nalishda erkin harakatlana oladi.

Kvark – fundamental ya'ni elementar zarracha bo'lib, bu moddaning asosiy tarkibiy qisimlaridan biri hisoblanadi. Kvarklardan proton va neytronlar hosil bo'lishi bilan bu zarrachalar atom yadrosini tashkil qiladi.

Epitaksial – bu atama kristall o'sish jarayonini anglatadi va yupqa kristall qatlami Kristal modda ustida o'stiriladi va bundan hosil bo'lgan modda oldingi moddaning kristall tuzilishi bilan birga bunga bog'liq yo'nalishga mos holda shakllanadi.

Atomistic – bu o'lcham bo'lib atom oralig'idagi ma'nosini anglatadi.

Valley splitting(VS) - yarimo'tkazgich materiallaridagi elektronlarning energiya darajalaridir.

Tasodifiy alloy - ushbu atamani tarjimasida tasodifiy aralashma degan ma'noni beradi.

FCC (face-centered cubic) kristall) – ma’nosi quyidagicha; yuzasi markazlashgan kubik shakldagi kristall.

Deformatsiya – moddalarga tashqi tomondan ta’sir qiladigan turli xil mexanik ta’sirlar. Misol uchun: bukilish, cho`zilish va boshqalar.

Kvant dot kyuib – Kyubit bu Qubit deb tarjima qilinib kvant hisoblashlardagi eng kichik bo`lgan axborot birligi hisoblanadi bundan kelib chiqib kvant dot kyuib esa kvant nuqta kubi degan ma’no keltirish mumkin. Ilmiy ma’nosi: yarimo`tkazgichli kvant nuqtada fazoviy cheklangan zaryad tashuvchining spini yoki energetik holatlari asosida axborotni saqlovchi hamda qayta ishlovchi ikki darajali kvant tizimdir.

Ikkinchi maqola mavzusi: Valley splitting depending on the size and location of a silicon quantum dot. Mavzuning tarjimasi quyidagicha: Silitsiy kvant dotining o`lchami va joylashishi vodiylar holatlarining energiya farqlariga ta’sir qiladi. Ya’ni Silitsiy deb nomlangan kvant nuqtasini o`lchami va joylashishini yarimo`tkazgich materiallaridagi elektronlarning energiya darajalari farqlariga ta’siri tadqiq qilinadi. Maqolada yozilishicha: Bizning hisob-kitoblarimiz ko`rsatadiki, kvant nuqtaning gorizontall o`lchami kichraygan sari VS kattalashadi. Sababi, kichik kvant nuqta elektron to`lqin funksiyasini interfeys qadamlariga nisbatan yanada “qattiqroq” cheklaydi, natijada vodiylar o`rtasidagi energiya farqi ortadi. Izoh: Elektron kichik kvant nuqtada yanada “siqilgan” bo`ladi, shuning uchun interfeysdagi qadamlar bilan to`lqinning faza farqi kuchayadi va VS ortadi[2]. Tadqiqotda bajarilgan ishlar orqali yarimo`tkazgich materiallaridagi elektronlarning energiya darajalari orasidagi farq o`zgarishi tekshiriladi. Bu maqola ham kvant fizikasi sohasida bugungi kunda dolzarb bo`lib umumiy xulosa sifatida quyidagicha yozilgan: Umumiy xulosa: VSni oshirish va barqaror qilish uchun: kvant nuqtaning kichik va silliq interfeysga ega bo`lishi, shuningdek elektrostatik boshqaruv orqali siljishni nazorat qilish muhimdir. Bu natijalar kvant bitlar (qubits) yaratishda muhim ahamiyatga ega.

**Xulosa.** Bugungi rivojlanayotgan davrda kvant fizikasida olib borilayotgan tadqiqotlar o'zining dolzarbligi va fundamental ahamiyati bilan zamonaviy ilm-fan taraqqiyotida alohida o'rin tutadi.. Ushbu soha klassik fizika doirasida tushuntirib bo'lmaydigan hodisalarni izohlash bilan birga, ilm-fanda yangi yondashuvlar, konsepsiyalar va texnologik yechimlarning shakllanishiga mustahkam asos bo'lib xizmat qilmoqda. Ushbu manbalarni tahlil qilish jarayonida biz uchun dastlab noma'lum bo'lgan tushuncha va atamalar nafaqat lug'aviy ma'noda, balki ilmiy-nazariy jihatdan ham to'liq anglanadi. Bu esa tadqiqotchining ilmiy dunyoqarashini kengaytirib, murakkab fizik hodisalarni to'g'ri talqin qilishga yordam beradi. Ayniqsa, kvant o'lchamli geterostrukturalar sohasida olib borilayotgan tadqiqotlar hali to'liq o'rganilmagan bo'lib, bu yo'nalishda kelgusida bajarilishi lozim bo'lgan ilmiy izlanishlar salmog'i juda katta. Bunday tuzilmalar nanometr miqyosida yaratilgani sababli, ularning fizik xossalarini bevosita tajribaviy usullar bilan tadqiq etish ko'plab texnik murakkabliklarni keltirib chiqaradi. Shu sababli, zamonaviy kvant tadqiqotlarida hisoblash va modellashtirish usullari alohida ahamiyat kasb etadi. Modellashtirish orqali olingan natijalar nafaqat jarayonlarning fizik mohiyatini chuqurroq tushunishga xizmat qiladi, balki kvant qurilmalarini loyihalash va ularning samaradorligini oshirish uchun ham muhim asos bo'lib xizmat qiladi.

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## Enhancing Product Competitiveness and Managerial Leadership Styles

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**Abstract:** This article analyzes the role and significance of managerial leadership styles in enhancing product competitiveness. In a market economy, the success of enterprises depends not only on product quality and price but also on management effectiveness. The study examines how transformational, transactional, and democratic leadership styles influence product innovation, marketing strategies, quality management, and employee performance. It also highlights the importance of effective human resource utilization, motivation systems, and internal organizational communication in improving competitiveness. Analytical, comparative, and empirical observation methods were used in the research. The findings indicate that effective leadership plays a crucial role in improving product quality, increasing production efficiency, and achieving sustainable competitive advantage in the market. In particular, innovation-oriented transformational leadership was found to produce the highest performance outcomes.

**Keywords:** Product competitiveness, management, leadership styles, transformational leadership, marketing strategy, product quality, innovation, market competition, quality management, production efficiency

**Annotatsiya:** Mazkur maqolada tovar raqobatbardoshligini oshirishda menejerning rahbarlik uslublarining o‘rni va ahamiyati tahlil qilinadi. Bozor iqtisodiyoti sharoitida korxonalar muvaffaqiyati nafaqat mahsulot sifati va narxiga, balki boshqaruv samaradorligiga ham bevosita bog‘liqdir. Tadqiqotda menejerning transformatsion, tranzaksion va demokratik rahbarlik uslublarining mahsulot innovatsiyasi, marketing strategiyasi, sifat menejmenti va xodimlar samaradorligiga ta’siri o‘rganildi. Shuningdek, raqobatbardoshlikni oshirishda inson resurslaridan samarali foydalanish, motivatsiya tizimi va tashkilot ichidagi kommunikatsiyaning ahamiyati yoritildi. Tadqiqot metodlari sifatida tahlil, taqqoslash va empirik kuzatuv usullaridan foydalanildi. Natijalar samarali rahbarlik mahsulot sifatini yaxshilash, ishlab chiqarish samaradorligini oshirish va bozorda barqaror ustunlikka erishishda muhim omil ekanini ko‘rsatdi. Ayniqsa, innovatsiyaga yo‘naltirilgan transformatsion liderlik eng yuqori natijadorlikni ta’minlashi aniqlandi.

**Kalit so‘zlar:** Tovar raqobatbardoshligi, menejment, rahbarlik uslublari, transformatsion liderlik, marketing strategiyasi, mahsulot sifati, innovatsiya, bozor raqobati, sifat menejmenti, ishlab chiqarish samaradorligi

### KIRISH

Bozor iqtisodiyoti sharoitida korxonalar faoliyatining muvaffaqiyati ko‘p jihatdan ishlab chiqarilayotgan tovarlarning raqobatbardoshligiga bog‘liq. Raqobatbardoshlik — bu mahsulotning sifat, narx, funksional imkoniyatlar, xizmat ko‘rsatish darajasi va iste’molchilar talabiga mosligi kabi omillar majmui orqali bozorda ustunlikka erishish qobiliyatidir. Globallashuv jarayonlari kuchayib borayotgan hozirgi davrda mahalliy korxonalar nafaqat ichki bozorda, balki xalqaro bozorlarda ham kuchli raqobat sharoitida faoliyat yuritmoqda. Shu sababli tovar raqobatbardoshligini oshirish korxonalar uchun strategik vazifaga aylangan [1].

Raqobatbardoshlikni ta'minlashda mahsulot sifati, innovatsion yangiliklar va marketing strategiyalari muhim rol o'ynasa-da, ushbu omillarni samarali boshqarish bevosita menejerning rahbarlik uslubiga bog'liq. Samarali rahbar korxonalar resurslarini optimal taqsimlaydi, xodimlarni umumiy maqsad sari safarbar etadi va innovatsiyalarni joriy etish uchun qulay muhit yaratadi. Shu bois zamonaviy menejment nazariyasida rahbarlik uslubi tashkilotning raqobatbardoshligini belgilovchi muhim omil sifatida qaraladi.

Ilmiy adabiyotlarda tovar raqobatbardoshligi tushunchasi ko'pincha M. Porterning raqobat ustunligi nazariyasi bilan bog'liq holda izohlanadi. Porter ga ko'ra, korxonalar raqobat ustunligiga ikki asosiy yo'l — xarajatlar bo'yicha yetakchilik va differensiallash orqali erishishi mumkin. Differensiallash strategiyasi mahsulotning noyob xususiyatlarini yaratishga qaratilgan bo'lsa, xarajatlar strategiyasi ishlab chiqarish samaradorligini oshirish orqali narx ustunligini ta'minlaydi. Har ikki strategiyaning muvaffaqiyati esa samarali boshqaruv va liderlikka bog'liq.

Rahbarlik uslublari tovar yaratish jarayonining barcha bosqichlariga — tadqiqot va ishlanmalar, ishlab chiqarish, marketing hamda sotuvdan keyingi xizmat ko'rsatishga ta'sir ko'rsatadi. Masalan, transformatsion liderlik innovatsion faoliyatni rag'batlantirib, yangi mahsulotlar ishlab chiqishga yordam beradi. Tranzaksion liderlik esa ishlab chiqarish jarayonida tartib-intizom va samaradorlikni ta'minlashda muhim ahamiyatga ega. Demokratik rahbarlik uslubi esa jamoaviy qaror qabul qilish orqali mahsulot sifatini yaxshilash va xatoliklarni kamaytirishga xizmat qiladi.

Zamonaviy tadqiqotlar shuni ko'rsatadiki, yuqori raqobat sharoitida faqat texnik va iqtisodiy omillar yetarli emas, balki inson omili ham hal qiluvchi rol o'ynaydi. Xodimlarning bilim va ko'nikmalari, tashabbuskorligi hamda motivatsiyasi mahsulot sifatiga bevosita ta'sir qiladi. Shu sababli menejerning rahbarlik uslubi xodimlarning

samarali ishlashi, innovatsiyalarni qo'llab-quvvatlash va korxonada ichida ijobiy tashkiliy madaniyatni shakllantirishda muhim vosita hisoblanadi.

Bundan tashqari, marketing faoliyatining muvaffaqiyati ham rahbarning strategik qarorlariga bog'liq. Bozor talablarini to'g'ri tahlil qilish, maqsadli segmentlarni aniqlash va raqobatchilar strategiyasini hisobga olish menejerning analitik va strategik fikrlash qobiliyatini talab etadi. Samarali lider bozor o'zgarishlariga tez moslashadi va korxonani innovatsion rivojlanish yo'liga yo'naltira oladi.

Bugungi kunda korxonalar oldida turgan asosiy vazifalardan biri — barqaror raqobat ustunligini yaratishdir. Bu esa qisqa muddatli natijalardan ko'ra uzoq muddatli strategik yondashuvni talab qiladi. Raqobatbardosh mahsulot yaratish uchun sifat menejmenti tizimini joriy etish, zamonaviy texnologiyalardan foydalanish va inson resurslarini samarali boshqarish zarur. Ushbu jarayonlarda menejerning professional kompetensiyasi va rahbarlik uslubi hal qiluvchi omil bo'lib xizmat qiladi.

Mazkur tadqiqotning maqsadi — tovar raqobatbardoshligini oshirishda menejerning turli rahbarlik uslublarining ta'sirini aniqlash hamda samarali boshqaruv yondashuvlarini asoslashdan iborat. Tadqiqot doirasida rahbarlik uslublarining mahsulot sifati, innovatsion faoliyat, marketing samaradorligi va xodimlar unumdorligiga ta'siri tahlil qilinadi.

### **ADABIYOTLAR TAHLILI VA METODLAR**

Tovar raqobatbardoshligini oshirish muammosi iqtisodiyot, menejment va marketing sohalarida keng o'rganilgan ilmiy yo'nalishlardan biridir. Ilmiy adabiyotlarda raqobatbardoshlik korxonaning bozorda barqaror faoliyat yuritishi, iste'molchilar talabini qondira olishi va raqobatchilarga nisbatan ustunlikka ega bo'lish qobiliyati sifatida talqin etiladi. P. Kotler marketing nuqtai nazaridan raqobatbardoshlikni mahsulotning qiymat taklifi, sifat darajasi va iste'molchi ehtiyojlariga mosligi bilan

izohlaydi. Uning fikricha, korxonada bozorda muvaffaqiyat qozonishi uchun iste'molchiga yuqori qiymat yaratishi zarur

M. Porter raqobatbardoshlikni korxonaning strategik ustunligi bilan bog'laydi va uni ta'minlash uchun xarajatlar bo'yicha yetakchilik, differentsiallashtirish va fokuslash strategiyalarini taklif etadi. Porter nazariyasiga ko'ra, raqobat ustunligi samarali boshqaruv qarorlari, innovatsiyalar va ishlab chiqarish samaradorligi orqali shakllanadi [2]. Bu esa menejerning strategik fikrlash darajasi va rahbarlik uslubining muhimligini ko'rsatadi

Rahbarlik uslublari masalasi menejment nazariyasida alohida o'rin egallaydi. S. Robbins va M. Coulter rahbarlikni tashkilot maqsadlariga erishish uchun insonlarni boshqarish va ularga ta'sir ko'rsatish jarayoni sifatida tavsiflaydi. Ularning fikricha, samarali rahbarlik xodimlarning motivatsiyasi, ish unumdorligi va tashkilot natijalariga bevosita ta'sir ko'rsatadi [3]. P. Northouse esa transformatsion, tranzaksion va laissez-faire rahbarlik uslublarini ajratib ko'rsatadi hamda transformatsion liderlik innovatsiyalarni qo'llab-quvvatlashda eng samarali model ekanini ta'kidlaydi [4].

Inson resurslarini boshqarish sohasidagi tadqiqotlar ham rahbarlik va raqobatbardoshlik o'rtasidagi bog'liqlikni tasdiqlaydi. M. Armstrongning ta'kidlashicha, xodimlarning malakasi, motivatsiyasi va tashkilotga sodiqligi mahsulot sifati hamda ishlab chiqarish samaradorligiga bevosita ta'sir qiladi. Shu sababli zamonaviy korxonalarda inson kapitalini rivojlantirish strategik ustuvor yo'nalish hisoblanadi [5].

Sifat menejmenti bo'yicha ilmiy tadqiqotlar ham raqobatbardoshlikni oshirishda boshqaruv tizimining rolini alohida qayd etadi. J. Oakland umumiy sifat menejmenti (TQM) konsepsiyasi asosida rahbarning faol ishtiroki va jamoani sifatni oshirish jarayoniga jalb etishi muhimligini ta'kidlaydi. Uning fikricha, sifatni doimiy yaxshilash orqali korxonada bozorda uzoq muddatli ustunlikka erishadi [6].

### Tadqiqot metodologiyasi

Mazkur tadqiqotda tovar raqobatbardoshligini oshirishda menejerning rahbarlik uslublarining ta'sirini aniqlash maqsadida aralash (miqdoriy va sifat) tadqiqot yondashuvi qo'llanildi. Miqdoriy ma'lumotlar so'rovnoma usuli orqali, sifat ma'lumotlari esa ekspert intervyulari va kuzatuv usuli yordamida yig'ildi.

So'rovnoma savollari xodimlarning rahbar faoliyatiga bahosi, mahsulot sifati, innovatsion faoliyat, marketing samaradorligi va ichki boshqaruv jarayonlariga oid fikrlarini aniqlashga qaratildi. Tadqiqot tanlanmasi ishlab chiqarish va xizmat ko'rsatish sohalarida faoliyat yurituvchi korxonalar xodimlaridan iborat bo'lib, jami 120 nafar respondent qamrab olindi. Respondentlar orasida menejerlar, mutaxassislar va texnik xodimlar mavjud bo'lib, bu natijalarning umumlashtirilish darajasini oshiradi.

Ma'lumotlarni tahlil qilishda statistik usullar — foizli taqsimot, o'rtacha qiymat, taqqoslash tahlili va korrelyatsiya usullaridan foydalanildi. Sifat ma'lumotlari esa mazmuniy tahlil (content analysis) yordamida qayta ishlanib, asosiy tendensiyalar va muammolar aniqlashtirildi. Tadqiqot davomida respondentlarning shaxsiy ma'lumotlari maxfiyligi ta'minlandi va natijalar faqat ilmiy maqsadlarda qo'llanildi.

Ushbu metodologiya menejerning rahbarlik usublari bilan tovar raqobatbardoshligi o'rtasidagi bog'liqlikni kompleks tarzda o'rganish, turli omillarning ta'sir darajasini aniqlash hamda amaliy xulosalar chiqarish imkonini berdi.

### **NATIJALAR**

Tadqiqot davomida 120 nafar respondent o'rtasida o'tkazilgan so'rovnoma natijalari menejerning rahbarlik uslubi tovar raqobatbardoshligiga bevosita va bilvosita ta'sir ko'rsatishini tasdiqladi. Respondentlarning 71 foizi rahbarning innovatsiyani qo'llab-quvvatlovchi va xodimlarni rag'batlantiruvchi uslubi mahsulot sifatini oshirishga xizmat qilishini ta'kidladi. 64 foiz respondent esa samarali boshqaruv ishlab

chiqarish samaradorligini oshirish orqali mahsulot tannarxini kamaytirishga yordam berishini bildirdi.

Transformatsion rahbarlik uslubi qo'llaniladigan korxonalarda ishlayotgan respondentlarning 76 foizi korxonada mahsulotlari bozorda raqobatbardosh ekanini qayd etdi. Ushbu korxonalarda innovatsion mahsulotlar ulushi ham yuqori bo'lib, xodimlarning 68 foizi yangi g'oyalar qo'llab-quvvatlanishini ta'kidladi. Tranzaksion rahbarlik ustun bo'lgan korxonalarda esa asosiy e'tibor ishlab chiqarish hajmi va tartib-intizomga qaratilgan bo'lib, respondentlarning 55 foizi mahsulot sifati barqaror, biroq innovatsion daraja past ekanini ma'lum qildi

Demokratik rahbarlik uslubi mavjud jamoalarda xodimlarning qaror qabul qilish jarayonida ishtiroki yuqori bo'lib, respondentlarning 62 foizi bu holat mahsulot sifatini yaxshilash va nuqsonlarni kamaytirishga yordam berishini ta'kidladi. Bundan tashqari, respondentlarning 70 foizi ochiq kommunikatsiya va jamoaviy muhokamalar marketing strategiyalarining samaradorligini oshirishga ijobiy ta'sir ko'rsatishini bildirdi.

So'rov natijalari shuningdek, raqobatbardoshlik faqat mahsulot sifati bilan emas, balki servis darajasi, brend imiji va iste'molchilar bilan aloqalar sifati bilan ham bog'liq ekanini ko'rsatdi. Respondentlarning 67 foizi rahbarning mijozlarga yo'naltirilgan strategiyasi bozor ulushini oshirishga yordam berishini qayd etdi. Bu esa marketing boshqaruvi va rahbarlik o'rtasidagi o'zaro bog'liqlikni tasdiqlaydi

## **MUHOKAMA**

Olingan natijalar menejerning rahbarlik uslubi tovar raqobatbardoshligining muhim determinantlaridan biri ekanini ko'rsatdi. Ayniqsa, transformatsion rahbarlik innovatsiyalarni joriy etish, xodimlarning ijodiy faolligini oshirish va uzoq muddatli strategik ustunlikni ta'minlashda eng samarali model sifatida namoyon bo'ldi. Bu natijalar Northouse hamda zamonaviy liderlik nazariyalarining asosiy xulosalari bilan mos keladi

Tranzaksion rahbarlik uslubi esa ishlab chiqarish jarayonining barqarorligini ta'minlashda muhim bo'lsa-da, bozorda differensial ustunlik yaratishda yetarli darajada samarali emasligi aniqlandi. Mukofot va jazoga asoslangan boshqaruv modeli xodimlarning qisqa muddatli samaradorligini oshirishi mumkin, biroq innovatsion rivojlanishni cheklashi ehtimoli mavjud

Demokratik rahbarlik uslubi jamoada ijobiy psixologik muhitni shakllantirish, xodimlarning tashkilot maqsadlariga sodiqligini oshirish va mahsulot sifatini yaxshilashda muhim rol o'ynashi aniqlandi. Qaror qabul qilish jarayoniga xodimlarni jalb etish ularning mas'uliyat hissini kuchaytiradi hamda ishlab chiqarishdagi xatoliklarni kamaytiradi. Bu esa umumiy sifat menejmenti tamoyillariga mos keladi

Natijalar shuni ham ko'rsatdiki, raqobatbardosh mahsulot yaratish uchun menejer strategik fikrlash, marketing tahlili va inson resurslarini boshqarish ko'nikmalariga ega bo'lishi zarur. Bozor talablariga moslashuvchanlik, innovatsion yondashuv va sifatni doimiy takomillashtirish rahbar faoliyatining ustuvor yo'nalishlari bo'lishi kerak

## **XULOSA**

Mazkur tadqiqot tovar raqobatbardoshligini oshirishda menejering rahbarlik uslublari hal qiluvchi ahamiyatga ega ekanini ilmiy jihatdan asoslab berdi. Tadqiqot natijalariga ko'ra, samarali rahbarlik mahsulot sifati, innovatsion faollik, marketing samaradorligi va ishlab chiqarish unumdorligini oshirish orqali korxonaning bozordagi mavqeini mustahkamlaydi. Transformatsion rahbarlik uslubi eng yuqori samaradorlikni ta'minlab, korxonaga uzoq muddatli raqobat ustunligini yaratish imkonini beradi. Demokratik boshqaruv elementlari esa jamoaviy hamkorlikni kuchaytirib, sifatni oshirishga xizmat qiladi. Tranzaksion rahbarlik esa tartib-intizom va barqaror ishlab chiqarishni ta'minlashda muhim, biroq innovatsion rivojlanish uchun yetarli emas.

Shuningdek, raqobatbardoshlikni oshirish faqat texnik va iqtisodiy omillar bilan emas, balki inson omili bilan ham chambarchas bog'liq ekani aniqlandi. Shu sababli

korxonalarda zamonaviy menejment yondashuvlarini joriy etish, xodimlarni rivojlantirish va innovatsiyalarni qo‘llab-quvvatlash strategik ustuvor vazifa bo‘lib qoladi.

Tadqiqot natijalari korxonalar rahbarlari, menejerlar hamda iqtisodiy siyosat ishlab chiquvchilar uchun amaliy ahamiyatga ega bo‘lib, mahsulot raqobatbardoshligini oshirishga qaratilgan samarali boshqaruv qarorlarini qabul qilishda qo‘llanishi mumkin.

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**PEDAGOGICAL FOUNDATIONS OF FORMING NATIONAL  
PRIDE AND PATRIOTISM AMONG PRIMARY SCHOOL  
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**Abstract.** This article analyzes the issues of forming national pride and feelings of patriotism in students, their pedagogical foundations, their importance in the educational process, and effective pedagogical approaches. The article studies the scientific and theoretical aspects of national values, patriotic education, and raising the spirituality of youth.

**Keywords:** national pride, patriotism, education, pedagogical foundations, national values, young generation, spirituality.

**MAVZU: BOSHLANG‘ICH SINFI O‘QUVCHILARIDA MILLIY  
G‘URUR VA VATANPARVARLIK TUYG‘ULARINI  
SHAKLLANTIRISHNING PEDAGOGIK ASOSLARI**

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**Annotatsiya.** Ushbu maqolada o‘quvchilarning shaxsida milliy g‘urur va vatanparvarlik tuyg‘ularini shakllantirish masalalari, ularning pedagogik asoslari, tal‘im-tarbiya jarayonidagi ahamiyati hamda samarali pedagogik yondashuvlar tahlil

gilingan. Maqolada milliy qadriyatlar, vatanparvarlik tarbiyasi va yoshlar ma'naviyatini yuksaltirishning ilmiy-nazariy jihatlari o'rganilgan.

**Kalit so'zlar:** milliy g'urur, vatanparvarlik, tarbiya, pedagogik asoslar, milliy qadriyatlar, yosh avlod, ma'naviyat.

### KIRISH

Bugungi kunda mustaqil O'zbekiston yoshlarini milliy g'urur va vatanparvarlik ruhida tarbiyalash davlat siyosatining ustuvor yo'nalishlaridan biriga ayatlanmoqda.

O'zbekiston Respublikasi Prezidenti Shavkat Mirziyoyevning ta'kidlashicha, Biz Vatanimiz ravnaqi va taraqqiyoti, xalqimiz farovonligi uchun o'z hissasini qo'shayotgan yuksak ma'naviyatli, zamonaviy bilimli, har tomonlama kamol topgan yoshlarni tarbiyalashimiz zarur. Shu munosabat bilan ta'lim tizimida milliy g'urur va vatanparvarlik tuyg'ularini shakllantirish pedagogikaning dolzarb vazifalaridan biri hisoblanadi. Milliy g'urur bu shaxsning o'z xalqi, millati, tarixi va madaniyatiga nisbatan ijobiy munosabati, ularni qadrlay bilish va himoya qilishga tayyorlik hissidir. Vatanparvarlik esa insonning o'z Vataniga muhabbati, unga sodiqlik va fidokorlik ko'rsatishi, uning manfaatlarini o'z manfaatlaridan ustun qo'yishidir. Bu ikkala tushuncha bir-biri bilan uzviy bog'liq bo'lib, yosh avlodni tarbiyalashda hal qiluvchi ahamiyat kasb etadi.

1. Milliy g'urur va vatanparvarlik tarbiyasining nazariy asoslari Klassik pedagogika tarixida milliy tarbiya masalalariga katta e'tibor berilgan.

Rus pedagogi K.D.Ushinskiy o'zining "Odam pedagogikasi" asarida shunday yozgan edi: "Har bir xalqning o'z milliy tarbiya tizimi mavjud bo'lib, u xalqning tarixiy tajribasi va milliy xususiyatlariga asoslanadi". Ushinskiy milliy tarbiyani shaxs shakllanishining asosi deb hisoblagan. Haqiqatdan ham shunday. Inson o'zining aql-idroki, fahm-farosati, tarbiyasi va tafakkuri bilan boshqa mavjudotlardan farqlanadi. Inson shakllanishining asosi esa uning tarbiyasi, uni komillik sari yetaklovchi tarbiya

esa milliy tarbiya hisoblanadi. O‘zbek pedagoglari ham bu masalaga katta ahamiyat berganlar.

Professor S.Usmonov Milliy g‘oya va ma’naviyat asoslari asarida ta’kidlaganidek, milliy qadriyatlar yoshlarning shaxsiy sifatlarini shakllantirishda, ularni ma’naviy-axloqiy jihatdan yetuklashtirishda muhim pedagogik vosita hisoblanadi. Olim milliy qadriyatlarni o‘rgatishni pedagogik jarayonning markaziga qo‘yishni taklif etgan. Sovet davri pedagogi V.A.Suxomlinskiy “Vatanga muhabbat, milliy g‘urur, ona tili bularning barchasi tug‘ilganidan boshlab bolaning qalbiga singdirilishi kerak”, degan fikrni ilgari surgan. U tarbiyada milliy an’analar va qadriyatlarning rolini alohida ta’kidlagan.

2. Milliy g‘urur va vatanparvarlik tuyg‘ularini shakllantirishda quyidagi pedagogik tamoyillar muhim ahamiyat kasb etadi: Milliylik va umuminsoniylik tamoyili.

Professor G.Nishonova o‘z tadqiqotlarida milliy va umuminsoniy qadriyatlarning uyg‘unligini ta’minlash zarurligini ta’kidlaydi. Milliy tarbiya umuminsoniy qadriyatlarga zid emas, balki ularni boyitadi va o‘z milliy rangi bilan to‘ldiradi, deb yozgan olim. Tarixiylik va zamonaviylik tamoyili. Akademik E.Goziev

takidlaganidek, milliy tarbiya tarixiy tajribaga tayanishi va hozirgi zamon talablariga javob berishi kerak. Bu tamoyil o‘tmish merosini hurmat qilish bilan birga, zamonaviy qarashlarni shakllantirishni nazarda tutadi. Izchillik va uzluksizlik tamoyili. A.S.Makarenko pedagogik ta’sirning tizimlilikini ta’kidlab, Tarbiya jarayoni bir martalik harakatlar bilan emas, balki doimiy va izchil ta’sir ko‘rsatish orqali amalga oshiriladi degan xulosaga kelgan.

3. Milliy g‘urur va vatanparvarlikni shakllantirishning pedagogik usullari Ta’lim-tarbiya jarayonida milliy g‘urur va vatanparvarlik tuyg‘ularini shakllantirishning turli pedagogik usullaridan foydalaniladi: Og‘zaki usullar: suhbat, hikoya qilish, tushuntirish, maruza. Professor M.Qo‘shanov ta’kidlaganidek, o‘qituvchining jonli so‘zi, milliy qahramonlar haqidagi hikoyalar o‘quvchilar qalbiga chuqur ta’sir qiladi. Amaliy

usullar: milliy bayramlarni nishonlash, tarixiy joylarga sayohatlar uyushtirish, vatanparvarlik mazmunidagi tadbirlar o'tkazish. Bu usullar o'quvchilarda amaliy ko'nikmalar shakllantirishga yordam beradi. N'muna ko'rsatish usuli: milliy qahramonlar, buyuk ajdodlar, zamonaviy namunali shaxslar hayoti va faoliyatini o'rganish. V.A.Suxomlinskiy Na'muna eng kuchli tarbiya vositasi deb ta'kidlagan.

### XULOSA

O'quvchilarda milliy g'urur va vatanparvarlik tuyg'ularini shakllantirish bu ko'p qirrali va murakkab pedagogik jarayon bo'lib, u ta'lim tizimining barcha bo'g'inlarida amalga oshirilishi lozim. Tahlillar shuni ko'rsatdiki: Birinchidan, milliy g'urur va vatanparvarlik tarbiyasi mustahkam nazariy- metodologik asosga ega bo'lib, u klassik va zamonaviy pedagogika yutug'i hisoblanadi.

K.D.Ushinskiy, V.A.Suxomlinskiy, A.S.Makarenko kabi buyuk pedagoglarning g'oyalari bugungi kunda ham o'z ahamiyatini yo'qotmagan. Ikkinchidan, o'zbek pedagoglari S.Usmonov, G.Nishonova, E.G'oziyev, M.Qo'shanov kabi olimlarning tadqiqotlari milliy tarbiya nazariyasini yanada boyitib, uning amaliy tatbiqini ta'minlaydi.

Uchinchidan, milliy gurur va vatanparvarlik tuyg'ularini shakllantirishning samaradorligi pedagogik tamoyillar (milliylik va umuminsoniylik, tarixiylik va zamonaviylik, izchillik va uzluksizlik)ga rioya qilishga bogliq.

To'rtinchidan, turli pedagogik usullar (og'zaki, amaliy, namuna ko'rsatish)ning kamol toptirish, ularning shaxsiy va fuqarolik sifatlarini rivojlantirishning muhim pedagogik vositasi hisoblanadi. Bu jarayon ta'lim muassasalari, oila va jamiyatning birgalikdagi sa'y-harakatlari natijasida amalga oshirilishi kerak. Majmuaviy qo'llanilishi tarbiya samaradorligini oshiradi. Shunday qilib, milliy g'urur va vatanparvarlik tuyg'ularini shakllantirish yosh avlodni kamol toptirish, ularning shaxsiy va fuqarolik sifatlarini rivojlantirishning muhim pedagogik vositasi hisoblanadi. Bu

jarayon ta'lim muassasalari, oila va jamiyatning birgalikdagi sa'y -harakatlari natijasida amalga oshirilishi kerak.

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**THE STATE OF WATER RESOURCES AND WATER SUPPLY  
SYSTEMS IN THE CONTEXT OF GLOBAL CHALLENGES AND  
UZBEKISTAN'S NATIONAL STRATEGY**

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**Abstract.** Water security in the XXI st century has transformed from an environmental issue into a key factor in global macroeconomic stability, directly affecting national security. Today, access to clean drinking water is fundamental to life, supporting food systems, economic growth, and the health of nations and ecosystems. However, anthropogenic pressures and climate change have led to a crisis in the global water sector. In particular, in the Republic of Uzbekistan, located in an arid zone (an area dominated by deserts and semi-deserts, author's note) with limited water resources, issues of rational water use and modernisation of water supply infrastructure are of existential importance.

Access to safe drinking water and sanitation remains a pressing issue for billions of people around the world. This is not just a matter of inconvenience – it is a matter of

life and death. Speaking at a meeting of the Human Rights Council, UN Deputy High Commissioner for Human Rights Nada Al-Nashif reminded us of this, emphasising that. There is nothing more fundamental than water, she said. «And yet more than 2 billion people do not have access to safe drinking water, and 3.4 billion do not have adequate sanitation».

Global trends and implementation The Sustainable Development Goals adopted in 2015 identified 17 pressing global goals that contribute to solving many problems. In particular, Sustainable Development Goal 6 addresses the issue of ‘Clean Water and Sanitation’ as a fundamental imperative aimed at ensuring universal access to water resources and their rational use. Water is seen not simply as a natural resource, but as the basis of life, a critical factor for the functioning of food systems, economic growth and the maintenance of the planet's biosphere. However, current dynamics indicate the existence of deep structural imbalances and risks.

Despite the progress achieved between 1990 and 2015, the proportion of the population with access to improved sources rose from 76% to 90%, absolute deprivation rates remain high.

Here are some facts: more than 2 billion people still do not have access to safe drinking water supplies. In Central Asia, for example, this figure stands at 9.9 million people, or 13.5% of the population; the sanitation situation is even more critical. Around 3.6 billion people live without access to adequate sanitation services, and 2.4 billion do not even have basic sanitation facilities. This has serious medical and demographic consequences: every day, around 1,000 children die from diarrhoeal diseases caused by water supply and sanitation problems, and the annual child mortality rate for these reasons reaches 400,000 cases; the problem of water scarcity is highly geographical in nature. More than 40% of the world's population lives in regions experiencing water

shortages, and this situation is expected to worsen. By 2050, water shortages are expected in 33% of the world's river sub-basins due to climatic factors and pollution.

Below are facts from the official website 'Sustainable Development Goals'. Access to safe water and sanitation and the rational use of freshwater ecosystems are of paramount importance for human health, environmental sustainability and economic prosperity.

Three out of ten people worldwide do not have access to safe managed drinking water sources, and six out of ten do not have access to sanitation services.

At least 892 million people worldwide continue to practise open defecation.

Women and girls are responsible for collecting water in 80 per cent of households without access to water.

Between 1990 and 2015, the proportion of the global population using improved drinking water sources increased from 76 per cent to 90 per cent.

More than 40 per cent of the world's population faces water scarcity, which is projected to worsen. Currently, more than 1.7 billion people live in river basins where water consumption exceeds the capacity to replenish water supplies.

2.4 billion people do not have access to basic sanitation services such as toilets or equipped cesspools.

More than 80 per cent of wastewater generated by human activity is discharged into rivers or seas without any treatment.

Every day, around 1,000 children die from preventable diarrhoeal diseases caused by problems with water supply and sanitation.

In the modern period, the Republic of Uzbekistan is in a zone of high water stress, which is due to its arid climate, the transboundary nature of its main waterways, and intensive demographic growth. The current situation is characterised by a growing imbalance between water supply and water consumption, exacerbated by infrastructure

degradation. The data presented indicate a critical trend in the country's water balance. In particular, according to World Bank forecast models, a 'convergence of supply and demand' is expected by 2050. Water demand is projected to increase from the current 59 km<sup>3</sup> to 62–63 km<sup>3</sup> per year. This is due not only to population growth, but also to the needs of irrigated agriculture, which remains the dominant consumer of water resources in the region. Available water resources are expected to decline from 57 km<sup>3</sup> to 52–53 km<sup>3</sup> per year. The main drivers of this process are climate change (melting of the Tien Shan and Pamir glaciers, changes in precipitation patterns) and anthropogenic pressure in the countries of the upper Amu Darya and Syr Darya rivers. A comparison of forecast values indicates a potential fivefold increase in water scarcity by 2050. This poses existential risks to food security and requires a transition from an extensive water use model to an intensive one based on the principles of integrated water resources management.

In the context of growing water scarcity, exacerbated by climate change, with warming in the region occurring at a rate exceeding the global average, the Republic of Uzbekistan is implementing a systematic transformation of the water sector. This transformation is enshrined in Presidential Decree No. PP-436 and the Uzbekistan 2030 Strategy, representing a transition from extensive water consumption to an intensive model based on digitalisation and resource conservation.

Today, agriculture remains the main consumer of water resources in the region, so improving irrigation efficiency is a national security imperative. In particular, according to the state programme, the priority goal is to introduce water-saving technologies on an area of up to 1 million hectares. The dynamics of the process show exponential growth: since 2021, the area covered by drip irrigation systems has already tripled. The transition to drip irrigation and sprinkler irrigation makes it possible to mitigate the risks associated with the projected reduction in available water resources

from 57 to 52–53 km<sup>3</sup> by 2050, while demand continues to grow. It also contributes to higher yields and lower production costs through the rational use of fertilisers and fertigation.

It should be noted that the set of measures being implemented in Uzbekistan indicates the formation of a new water use model based on the synergy of state regulation (introduction of standards, tariff setting), international cooperation (transfer of technologies and standards) and private initiative (start-ups, innovations). The success of this strategy by 2030 will depend on the pace of infrastructure renewal and the depth of digital technology penetration in the agricultural sector.

The analysis confirms the scientific validity of the theses presented in the text. The global water crisis is systemic in nature and is caused by a combination of climate change, population growth and chronic underfunding of infrastructure. Overcoming these imbalances requires a paradigm shift in management, from ‘supply management’ to ‘demand management’ and the attraction of private capital through public-private partnership mechanisms.

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**Analysis of traditional methods of treating patients with infected  
pancreatonecrosis in the presence of diabetes mellitus**

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**ANNOTATION:** In this scientific thesis, the authors analyze the traditional methods of treating patients with PPI against the background of diabetes mellitus. The immediate results of treatment were assessed based on the structure and severity of postoperative complications (POC) using the classification Clavien - Dindo. Complications of I, III, IV a, and IV b degrees, as well as fatal outcomes, were recorded. The control group consisted of 62 (33%) patients with IPN against a background of diabetes mellitus, and the comparison group included 62 (33%) patients without a diabetic background. The authors conclude that with the same principles of surgical tactics, the postoperative period in patients with IPN against the background of diabetes mellitus proceeded more unfavorably with a high frequency of severe complications compared to patients without diabetes mellitus.

**KEY WORDS:** Infected pancreatic necrosis, diabetes mellitus, postoperative sweating.

**Анализ традиционных методов лечения больных с инфицированным  
панкреонекрозом на фоне сахарного диабета**

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**АННОТАЦИЯ:** В данном научном тезисе авторы анализируют традиционные методы лечения больных с инфицированным панкреонекрозом (ИПН) на фоне сахарного диабета (СД). Непосредственные результаты лечения оценивали на основании структуры и степени выраженности послеоперационных осложнений (ПОО) с использованием классификации Clavien - Dindo. Регистрировались осложнения I, III, IV а, и IV б степени, а также летальные исходы. Клинические исследования проводились у 124 больных с ИПН. В контрольную группу составили 62 (33 %) больных с ИПН на фоне сахарного диабета, а сравнительную были включены 62 (33 %) при отсутствии диабетического фона. Авторы делают заключение о том, что при одинаковых принципах хирургической тактики у больных с ИПН на фоне СД послеоперационный период протекал более неблагоприятно с высокой частотой тяжелых осложнений по сравнению с больными без сахарного диабета.

**КЛЮЧЕВЫЕ СЛОВА:** Инфицированный панкреанекроз, сахарный диабет, послеоперационные осложнения.

**Актуальность.** Современное состояние проблемы инфицированного панкреонекроза (ИПН) продолжает привлекать пристальное внимание клиницистов и исследователей в связи с сохраняющейся высокой летальностью, значительной частотой тяжелых осложнений и отсутствием универсальных решений в вопросах диагностики и хирургического лечения. Несмотря на внедрение современных методов визуализации, развитие интенсивной терапии и эволюцию хирургических подходов, ИПН остается одной из наиболее сложных форм острого панкреатита, характеризующейся выраженной клинικο-морфологической неоднородностью и непредсказуемым течением.

**Целью исследования явилось:** оценить неудовлетворительные результаты традиционных методов лечения больных с инфицированным панкреанекрозом на фоне сахарного диабета.

### **МАТЕРИАЛ И МЕТОДЫ ИССЛЕДОВАНИЯ**

Клинический материал исследования сформирован на основе наблюдений 124 больных с ИПН, находившихся на лечении в период с 2012 по 2018 годы. Исследование проводилось в РНЦЭМП Андижанского филиала. В зависимости от периода наблюдения и наличия сахарного диабета (СД) все включенные в исследование больные были распределены на 2 группы. Контрольную группу составили 62 (33%) больных с ИПН на фоне СД, проходившие лечение в 2012-2018 годах, когда ведение данной категории пациентов осуществлялось в рамках традиционных клинико-инструментальных подходов. Сравнительная группа была представлена 62 (33%) больными с ИПН без СД, лечившимися в тот же временной период и служившими референсной моделью течения заболевания при отсутствии диабетического фона.

Комплексное применение лабораторных и инструментальных методов обеспечивало объективную оценку глубины и распространенности ИПН, позволяло отслеживать динамику патологического процесса и служило основой для сопоставления инструментальных данных с клиническими и лабораторными показателями на различных этапах лечения.

### **Методика оценки эффективности результатов лечения**

Непосредственные результаты лечения оценивали на основании структуры и степени выраженности послеоперационных осложнений (ПОО) с использованием классификации Clavien-Dindo. Регистрировались осложнения I, II, IIIa, IIIb, IVa и IVb степени, а также летальные исходы, соответствующие V степени. Отдельно выделялась группа тяжелых осложнений, включавшая

осложнения IIIb-V степени, как отражение клинически значимого неблагоприятного течения ПОП. Такой способ оценки позволял унифицировать регистрацию осложнений и обеспечить сопоставимость данных между группами.

### Результаты и их обсуждение.

Распределение осложнений по классификации Clavien-Dindo показало, что у всех больных контрольной и сравнительной групп имелись послеоперационные неблагоприятные события, однако тяжесть их существенно различалась. При анализе учитывали максимальную степень осложнения у каждого пациента, что позволило оценить истинную выраженность неблагоприятного течения после вмешательства. В контрольной группе легкие осложнения I-II степени отмечались сравнительно редко, суммарно у 10 пациентов, что составило 16,2%. В сравнительной группе доля больных с осложнениями данной степени была выше (у 26 больных) и достигала 41,9% ( $\chi^2=2,9$ ;  $p=0,089$ ; OR=0,36; 95% ДИ: 0,11-1,21 для I степени ПОО и  $\chi^2=5,53$ ;  $p=0,019$ ; OR=0,31; 95% ДИ: 0,11-0,85 для II степени ПОО). Такая структура говорит о том, что у пациентов с ИПН без СД течение ПОО чаще ограничивалось легкими и среднетяжелыми нарушениями, которые корректировались консервативно и не требовали агрессивных вмешательств.

Осложнения IIIa степени, предполагающие необходимость инвазивных процедур без повторной анестезии, встречались у 6 (9,7%) больных контрольной группы и у 12 (9,4%) пациентов сравнительной группы ( $\chi^2=2,34$ ;  $p=0,126$ ; OR=0,45; 95% ДИ: 0,16-1,28). В совокупности блок I-IIIa степеней формировал более чем 1/2 часть осложнений в сравнительной группе больных и менее 1/3 в контрольной группе больных. Условие такого распределения указывает на то, что у больных СД динамика послеоперационного периода ИПН чаще переходила

границы контролируемого течения и смещалась в сторону тяжелых категорий ПОО по классификации Clavien-Dindo.

Более выраженные различия касались тяжелых осложнений IIIb-IVb степеней, которые в контрольной группе были зарегистрированы нами у 28 (45,2%) пациентов, тогда как в сравнительной группе тяжелые осложнения зафиксированы у 16 больных, что составило 25,8% ( $\chi^2=1,99$ ;  $p=0,158$ ;  $OR=1,97$ ; 95% ДИ: 0,76-5,1 для IIIb степени послеоперационных осложнений (ПОО);  $\chi^2=0,32$ ;  $p=0,57$ ;  $OR=1,38$ ; 95% ДИ: 0,45-4,25 для IVa степени ПОО и  $\chi^2=2,14$ ;  $p=0,144$ ;  $OR=3,21$ ; 95% ДИ: 0,62-16,59 для IVb степени ПОО).

Таким образом, вероятность развития тяжелых неблагоприятных исходов у больных СД была в 1,75 раза выше.

В контрольной группе умерли 18 (29%) пациентов, тогда как в сравнительной группе летальный исход зарегистрирован у 8 (12,9%) больных ( $\chi^2=4,87$ ;  $p=0,027$ ;  $OR=2,76$ ; 95% ДИ: 1,1-6,95). Такое соотношение вписывается в общую картину более тяжелого течения ИПН у больных СД и подтверждает, что высокий удельный вес осложнений IIIb-IVb степени сопровождается значимой летальностью, несмотря на максимально возможный объем лечебных мероприятий.

**Заключение.** Таким образом, структура осложнений по Clavien-Dindo демонстрирует смещение распределения в контрольной группе в сторону тяжелых категорий при меньшей доле легких и среднетяжелых форм. Данное обстоятельство подчеркивает, что при одинаковых принципах хирургической тактики и стандартной интенсивной терапии у больных с ИПН на фоне СД послеоперационный период протекал более неблагоприятно и ассоциировался с высокой частотой тяжелых осложнений и летальных исходов по сравнению с пациентами без сахарного диабета.

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