ACTUAL PROBLEMS OF MODERN SCIENCE, EDUCATION AND TRAINING

KHOREZMSCIENCE.UZ

CONTENTS

UDC:332.1

EXPERIENCE OF COUNTRIES WORLDWIDE IN ATTRACTING FOREIGN INVESTMENTS

Boltayeva Mohichexra Jamshid qizi
PhD, Associate professor of Jizzakh branch of the National University of Uzbekistan named after Mirzo Ulugbek
Boltaeva_M@gmail.com

Annotatsiya: To‘g‘ridan-to‘g‘ri xorijiy investitsiyalar (TDI) jahon iqtisodiyotining ajralmas tarkibiy qismi bo‘lib, mezbon mamlakatlarda iqtisodiy o‘sishni, texnologiya transferini va ish o‘rinlarini yaratishni rag‘batlantiradi. Ushbu ilmiy maqolada jahon davlatlarining xorijiy investitsiyalarni jalb qilish bo‘yicha turli tajribalari o‘rganiladi. Biz to'g'ridan-to'g'ri investitsiyalar oqimiga ta'sir etuvchi omillarni, xorijiy kapitalni jalb qilish bo'yicha davlatlar tomonidan qo'llaniladigan strategiyalarni va bu investitsiyalarning iqtisodiy rivojlanishga ta'sirini tahlil qilamiz.

Kalit so'zlar; To‘g‘ridan-to‘g‘ri xorijiy investitsiyalar (TDI), Investitsiyalarni rag‘batlantirish agentliklari (IPA), Iqtisodiy barqarorlik, huquqiy va me’yoriy asoslar, infratuzilmani rivojlantirish, bozor hajmi, siyosiy barqarorlik, soliq imtiyozlari, maxsus iqtisodiy zonalar (SEZ), ikki tomonlama va ko‘p tomonlama kelishuvlar, malakali ishchi kuchi, texnologiya transfer, ish o'rinlarini yaratish.

Аннотация: Прямые иностранные инвестиции (ПИИ) стали неотъемлемым компонентом мировой экономики, стимулируя экономический рост, передачу технологий и создание рабочих мест в принимающих странах. В данной научной статье исследуется разнообразный опыт стран мира в привлечении иностранных инвестиций. Мы анализируем факторы, которые влияют на приток прямых иностранных инвестиций, стратегии, используемые странами для привлечения иностранного капитала, и влияние этих инвестиций на экономическое развитие.

Ключевые слова; Прямые иностранные инвестиции (ПИИ), Агентства по продвижению инвестиций (АПИ), Экономическая стабильность, Нормативно-правовая база, Развитие инфраструктуры, Размер рынка, Политическая стабильность, Налоговые льготы, Особые экономические зоны (СЭЗ), Двусторонние и многосторонние соглашения, Квалифицированная рабочая сила, Технологии Перевод, создание рабочих мест.

Abstract: Foreign direct investment (FDI) has become an integral component of the global economy, driving economic growth, technology transfer, and job creation in host countries. This scientific article explores the diverse experiences of countries around the world in attracting foreign investments. We analyze the factors that influence FDI inflows, the strategies employed by nations to attract foreign capital, and the impact of these investments on economic development.

Key words; Foreign Direct Investment (FDI), Investment Promotion Agencies (IPAs), Economic Stability, Legal and Regulatory Framework, Infrastructure Development, Market Size, Political Stability, Tax Incentives, Special Economic

Zones (SEZs), Bilateral and Multilateral Agreements, Skilled Workforce, Technology Transfer, Job Creation.

Introduction. Foreign Direct Investment (FDI) has emerged as a pivotal force in the contemporary global economic landscape. It entails investments made by entities from one country in the economy of another with the intent of establishing a long-term interest. The significance of FDI lies in its multifaceted impact on host countries, spanning economic growth, technology dissemination, job generation, and enhanced competitiveness. This article embarks on a comprehensive exploration of the experiences of countries worldwide in their quest to attract foreign investments. By delving into the dynamics that influence the flow of FDI, the strategies employed to entice foreign capital, and the resulting impact on economic development, we aim to shed light on the intricacies of this global phenomenon.

Foreign direct investment is more than just the infusion of capital; it is a conduit for the transfer of knowledge, expertise, and resources from one nation to another. Consequently, it holds the potential to foster not only economic growth but also socio-economic development, transforming the trajectory of nations. As the global economy becomes increasingly interconnected, FDI plays a central role in shaping the destinies of nations, influencing their economic performance, and altering the competitive landscapes of industries[1].

The experiences of countries in attracting foreign investments are as diverse as the global community itself. From the economic powerhouses of the West to the emerging markets of the East, each nation has its unique story to tell. To better understand the significance of FDI on a global scale, we must first explore the fundamental factors that influence foreign investors' decisions. These encompass the economic stability of the host country, the legal and regulatory framework, the quality of infrastructure, the size of the domestic market, and the level of political stability[2].

Additionally, countries employ a wide array of strategies to attract foreign investments, often through Investment Promotion Agencies (IPAs), tax incentives, the creation of Special Economic Zones (SEZs), and the negotiation of bilateral and multilateral agreements. Understanding the effectiveness of these strategies and their implementation is essential in deciphering the success of FDI attraction policies[3].

The impact of FDI on economic development is equally compelling. It ranges from job creation, technology transfer, and economic growth to the diversification of industries and the development of essential infrastructure. Each of these impacts is integral to the overall development of host countries and contributes to their economic well-being.

This article will provide insight into the real-world experiences of countries, highlighting their successes and challenges in attracting foreign investments. It aims to be a valuable resource for policymakers, business leaders, and researchers, shedding light on the intricacies of FDI attraction strategies and their outcomes in a rapidly evolving global economic landscape[4].

Factors Influencing FDI Inflows

Foreign Direct Investment (FDI) inflows into a country are influenced by a myriad of factors, and understanding these determinants is essential for countries

seeking to attract foreign capital. The following factors play a significant role in shaping the investment landscape:

2.1. Economic Stability: Economic stability is a cornerstone for attracting FDI. Foreign investors seek predictability and low risk. Key indicators include low inflation, fiscal discipline, and a stable exchange rate. Countries with robust economic stability are more likely to attract FDI, as investors are confident their investments will maintain their value.

2.2. Legal and Regulatory Framework: A transparent, efficient, and well-defined legal and regulatory framework is essential. Protecting property rights, enforcing contracts, and providing a secure environment for foreign investors are crucial. Legal systems that provide fair and efficient dispute resolution processes and protect intellectual property rights are particularly attractive to investors.

2.3. Infrastructure: Adequate infrastructure is a vital consideration for foreign investors. Reliable transportation, communication networks, energy supply, and access to modern utilities are crucial for business operations. A deficiency in infrastructure can deter potential investors, as it can increase operational costs and reduce efficiency.

2.4. Market Size and Potential: The size of a country's domestic market can significantly influence FDI. A large and growing market offers substantial revenue potential, which is an attractive prospect for foreign investors. They seek opportunities to tap into a substantial consumer base or a dynamic business ecosystem.

2.5. Political Stability: Political stability is a fundamental factor in attracting FDI. A consistent, peaceful, and predictable political environment reduces risks associated with investments. Frequent political upheavals, instability, or sudden policy changes can deter investors, as they fear the potential disruption of their operations.

2.6. Access to Natural Resources: Countries rich in natural resources often attract FDI in resource-based industries, such as mining or energy. Access to these resources can be a major incentive for investors, who are looking for a reliable supply of raw materials.

2.7. Labor Force and Workforce Skills: A skilled and well-educated labor force is an attractive asset for FDI. Foreign investors often seek countries with a pool of talent that can meet their specific needs, from technical skills to managerial expertise. The availability of a skilled workforce can significantly enhance a country's appeal.

2.8. Quality of Life: The quality of life for employees and their families is another consideration. Factors like healthcare, education, and overall living conditions can influence the decision of foreign investors to establish operations in a particular location.

2.9. Taxation and Incentives: Tax policies can significantly impact FDI. Lower corporate tax rates, tax holidays, or tax incentives for specific industries can make a country more attractive to investors. These incentives can reduce the cost of doing business and increase the returns on investment.

2.10. Trade Agreements: Countries that have favorable trade agreements, whether bilateral or multilateral, often attract more FDI. These agreements provide a level of security and predictability for foreign investors, making it easier for them to access not only the host country's market but also the broader global market.

Understanding how these factors interact and influence each other is crucial for countries aiming to develop effective strategies for attracting FDI. Tailoring policies and creating an enabling environment that addresses these factors can significantly enhance a nation's ability to attract foreign capital and promote economic growth[5].

Strategies for Attracting Foreign Investments

Countries worldwide employ a diverse range of strategies to attract foreign investments and compete in the global FDI landscape. Effective policies and practices in this regard can significantly enhance a nation's attractiveness to foreign investors. The following are key strategies often utilized to attract foreign investments:

3.1. Investment Promotion Agencies (IPAs): Many countries establish IPAs as specialized government entities responsible for promoting investment opportunities. These agencies act as a one-stop shop for foreign investors, providing information, assistance in navigating regulatory processes, and facilitating the establishment of businesses. They also engage in marketing campaigns to raise awareness of investment opportunities.

3.2. Tax Incentives: Offering tax incentives is a common strategy to attract FDI. These incentives may include reduced corporate tax rates, tax holidays (a period during which no taxes are levied), or exemptions on certain types of income or activities. Lowering the tax burden on foreign investors can make a host country more attractive.

3.3. Special Economic Zones (SEZs): SEZs are designated areas within a country that offer favorable conditions for businesses. These conditions often include reduced regulations, tax benefits, streamlined bureaucratic procedures, and sometimes access to necessary infrastructure. The establishment of SEZs can create concentrated areas of economic activity that attract FDI. A prime example is China's success with its SEZs, such as Shenzhen.

3.4. Bilateral and Multilateral Agreements: Negotiating bilateral investment treaties (BITs) or participating in regional trade agreements can provide a level of legal and regulatory security for foreign investors. These agreements typically include provisions for dispute resolution, the protection of property rights, and non-discrimination, creating a more predictable investment environment.

3.5. Infrastructure Development: Countries that invest in infrastructure development can attract FDI by offering a better business environment. Well-developed transportation networks, reliable energy and communication systems, and access to modern utilities make it easier for foreign investors to establish and operate their businesses.

3.6. Skilled Workforce Development: Investment in education and workforce development is essential. A well-educated and skilled workforce is a significant draw for foreign investors looking to expand their operations or set up new ventures. Developing partnerships with educational institutions and vocational training programs can help supply the necessary talent.

3.7. Sector-Specific Incentives: Tailoring incentives to specific industries can attract FDI in targeted areas. For instance, providing research and development grants for technology companies, or subsidies for renewable energy projects, can attract investors looking to participate in those sectors.

3.8. Streamlined Regulations: Simplifying and streamlining regulatory processes can reduce bureaucratic hurdles for foreign investors. Reducing administrative burdens and increasing transparency can make a country more attractive for investment.

3.9. Promotion of Innovation and Research: Countries that foster innovation through research and development incentives, intellectual property protection, and technology parks can attract tech-driven FDI. Innovation hubs create an environment that is appealing to companies seeking to tap into cutting-edge technologies and talent.

3.10. Sustainable and Responsible Practices: Embracing sustainable and responsible business practices can be an attractive feature for foreign investors. Promoting corporate social responsibility, environmental sustainability, and ethical business conduct can appeal to companies that prioritize these values.

The effectiveness of these strategies depends on various factors, including the country's specific economic and political context, the industry sectors targeted, and the competitive landscape. Successful FDI attraction often requires a combination of these strategies and continuous efforts to create an enabling environment for foreign investors[6].

Impact of FDI on Economic Development

Foreign Direct Investment (FDI) is a transformative force that can significantly shape the economic development of host countries. The impact of FDI is multifaceted and extends beyond the initial capital injection. Understanding the various dimensions of this impact is essential for evaluating its role in a nation's economic growth and development. The following are key ways in which FDI influences economic development:

4.1. Job Creation: FDI often leads to the creation of jobs in the host country. Foreign investors establish or expand their operations, requiring a workforce to manage and operate their businesses. This results in reduced unemployment rates and increased income levels for the local population. Additionally, it may lead to the transfer of skills and knowledge to the local labor force, enhancing employability.

4.2. Technology Transfer: Foreign investors frequently bring advanced technologies, managerial expertise, and best practices to the host country. This technology transfer has a profound impact on local industries. It can increase productivity, efficiency, and competitiveness, leading to overall economic development. Local firms that partner with or supply to foreign investors often benefit from these technological advancements.

4.3. Economic Growth: FDI contributes to economic growth by boosting production and exports. When foreign companies invest in local operations, it leads to increased output and higher revenues, thus contributing to the overall growth of the economy. FDI can stimulate economic activity in related industries and sectors, creating a multiplier effect.

4.4. Diversification of Industries: FDI can promote diversification in the host country's industries. Instead of being overly reliant on one sector, such as agriculture or natural resources, FDI can lead to the development of new industries and services. Diversification reduces the country's vulnerability to economic shocks in any single sector.

4.5. Infrastructure Development: FDI can lead to significant improvements in infrastructure. Foreign investors may invest in transportation networks, energy supply, and communication systems, not only to support their operations but also to enhance the broader business environment. This infrastructure development benefits the host country's businesses and overall development.

4.6. Increased Exports: Foreign companies often use their local operations as export hubs. This boosts a country's exports, leading to a positive trade balance and increased foreign exchange reserves. An expansion of export-oriented industries can lead to further economic development, as it generates additional revenue for the country.

4.7. Access to Global Markets: FDI can provide host countries with access to global markets through the distribution networks and supply chains of foreign investors. This access allows local companies to reach a broader customer base and participate in international trade, facilitating economic development.

4.8. R&D and Innovation: Foreign companies with substantial FDI may invest in research and development (R&D) activities in the host country. This stimulates innovation and knowledge creation, benefiting the local economy and potentially leading to the emergence of new industries.

4.9. Financial Inflows: FDI brings capital inflows into the host country. This can enhance the country's financial stability and provide resources for further investment in infrastructure, education, and healthcare, all of which contribute to economic development.

4.10. Improved Business Practices: FDI often introduces improved corporate governance and management practices. This can result in higher levels of transparency, ethical business conduct, and adherence to international standards, which contribute to a more stable and conducive business environment.

It's important to note that the impact of FDI on economic development can vary depending on the specific circumstances of each host country and the nature of the investment. While FDI has the potential to generate numerous positive effects, it may also bring challenges, such as potential environmental concerns, income inequality, and the risk of over-dependence on foreign companies.

Conclusions

Foreign Direct Investment (FDI) is a dynamic and influential force in the global economy, with the capacity to shape the economic destiny of host countries. The experiences of countries worldwide in attracting FDI are diverse and multifaceted, reflecting the intricate interplay of economic, political, and social factors. In conclusion, several key takeaways emerge from the discussion of FDI's role in economic development:

Influence of Economic Stability: Economic stability is a fundamental prerequisite for attracting FDI. Countries that maintain low inflation, fiscal discipline, stable exchange rates, and robust financial systems are more likely to attract foreign investors.

Policy Matters: Establishing a transparent and investor-friendly legal and regulatory framework is crucial. Legal systems that protect property rights, enforce

contracts, and secure intellectual property are essential for creating a conducive investment environment.

Infrastructure Matters: Adequate infrastructure, including transportation, communication, and energy networks, is pivotal. Countries that invest in infrastructure development can significantly enhance their appeal to foreign investors.

Market Size and Potential: The size and growth potential of the domestic market play a crucial role in attracting FDI. Larger markets offer more significant revenue potential, making them attractive to foreign investors.

Political Stability Reduces Risk: Political stability reduces risks associated with FDI. A consistent, peaceful, and predictable political environment is an attractive feature for investors.

Effective Investment Promotion: Investment Promotion Agencies (IPAs) can streamline the process of attracting FDI by providing information, facilitating administrative procedures, and promoting investment opportunities.

Tax Incentives Can Attract Capital: Tax incentives, including reduced corporate tax rates and tax holidays, can make a country more appealing to foreign investors.

Special Economic Zones Create Concentrated Activity: Special Economic Zones (SEZs) can create concentrated areas of economic activity with favorable conditions, drawing FDI and stimulating development.

Global Agreements Provide Security: Bilateral and multilateral agreements can provide legal and regulatory security for foreign investors, making the investment environment more predictable.

Impact on Economic Development: FDI has a profound impact on economic development. It contributes to job creation, technology transfer, economic growth, industrial diversification, infrastructure development, and increased exports.

REFERENCES

[1]. Dunning, J. H. (2013). "The Globalization of Business." Routledge.

[2]. Blomström, M., Lipsey, R. E., & Zejan, M. (1994). "What explains developing country growth?" NBER working paper, No. 4132.

[3]. UNCTAD. (2021). "World Investment Report: Investment and New Industrial Policies." United Nations Conference on Trade and Development.

[4]. Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). "How does foreign direct investment affect economic growth?" Journal of International Economics, 45(1), 115-135.

[5]. Moran, T. H. (2011). "Foreign Direct Investment and Development: Launching a Second Generation of Policy Research: Avoiding the Mistakes of the First, Reevaluating Policies for Developed and Developing Countries." Peter G. Peterson Institute for International Economics.

[6]. Globerman, S., & Shapiro, D. (2003). "Global foreign direct investment flows: The role of governance infrastructure." World Development, 31(11), 1899-1919.

UDK: 332.1

PRIORITIES FOR USING EUROPEAN EXPERIENCE IN IMPROVING DIGITAL TAX SERVICE MANAGEMENT

Ashurov Sherzod Rakhimovich
An independent researcher of
Bukhara State University
ashurovsherzod@gmail.com

Annotatsiya – Tadqiqot mavzusi xorijiy ma'muriyatlarning raqamli soliq nazorati vositalarini joriy etish va soliq organlarining xizmat ko'rsatish funksiyasini rivojlantirish tajribasidan iborat. Xorijiy ma'muriyatlarning tajribasi soliq organlarining raqamlashtirish ko'rinishlariga munosabatining bir qismi sifatida ko'rib chiqiladi, shu jumladan, yangi daromad manbalari va mehnat bozorida o'zaro munosabatlarning yangi usullari paydo bo'lishida ifodalanadi.

Kalit so'zlar: raqamlashtirish, xorijiy soliq ma'muriyatlari, soliq nazorati, kriptovalyuta, frilanser platformasi, soliq nazorati vositalari, yagona hisobot standarti, soliq qonunchiligi, avtomatlashtirilgan nazorat tizimlari, soliqlar.

Аннотация – Предметом исследования является опыт иностранных администраций по внедрению инструментов цифрового налогового контроля и развитию сервисной функции налоговых органов. Опыт зарубежных администраций рассматривается как часть реакции налоговых органов на проявления цифровизации, выражающейся, в том числе, в появлении новых источников доходов и новых способов взаимодействия на рынке труда.

Ключевые слова: цифровизация, зарубежные налоговые администрации, налоговый контроль, криптовалюта, фриланс-платформа, инструменты налогового контроля, единый стандарт отчетности, налоговое законодательство, автоматизированные системы контроля, налоги.

Abstract – The subject of the study is the experience of foreign administrations in implementing digital tax control tools and developing the service function of tax authorities. The experience of foreign administrations is considered as part of the response of tax authorities to manifestations of digitalization, expressed, among other things, in the emergence of new sources of income and new ways of interaction in the labor market.

Key words: digitalization, foreign tax administrations, tax control, cryptocurrency, freelance platform, tax control tools, unified reporting standard, tax legislation, automated control systems, taxes.

Introduction. The relevance of the study is determined by the digital transformation of the economy, as a result of which new types of relationships between taxpayers emerge that need to be regulated by tax administrations by expanding the capabilities and methods of exercising tax control, as well as the trend towards client-oriented tax authorities. The author conducts a detailed review of the experience of Western countries in modernizing tax administration and analyzes statistical data to confirm conclusions about the positivity of such experience. When conducting the research, methods of systemic, logical, comparative analysis, and the method of analogy were used. Based on the analysis, the author provides recommendations for

the implementation of foreign experience in the Russian tax system. The purpose of the study is to analyze the experience of countries in the use of digital technologies in the field of taxation, to highlight the most successful examples of digitalization and to assess the possibility of using foreign experience by Russian tax authorities. The novelty of the study lies in the author's proposal for new aspects of simplifying the tax system, introducing new tax control tools and expanding the range of taxable transactions based on the experience of foreign tax administrations. The main conclusion of this work is that the implementation of the practices discussed in the article makes it possible to simplify the tax system, implement digital tax control tools and expand the tax base in various sectors of the economy.

Literature review. Now, the world economy is in a permanent state of transformation. One of the main factors of transformation is digitalization, which affects almost all areas of the economy. To effectively regulate new ways of managing markets, ways of selling goods and providing services, it is necessary to transform government bodies, including tax authorities. The Federal Tax Service of Russia is actively pursuing a digitalization policy, focusing on improving both control functions and customer focus. The Russian Federation occupies quite high positions in the Doing Business ranking, but according to the "taxation" criterion, Russia ranks 58th as of May 2019. The methodology for assessing this criterion includes [1]: ease of filing documents, paying taxes, confirming and receiving VAT deductions, customer-oriented tax administrations, and the use of information technology.

Analysis. The development of tax control in the digital economy is a hot topic; a significant number of modern scientific studies are devoted to it. Every year there are changes associated with the transformation of the economy, and new tax control tools appear.

Scientists have studied issues related to the tasks of digitalization of tax control, assessing its effectiveness, and others. In particular, R. A. Petukhova highlights the tasks of digitalization of tax administration, forms the problems of this area of activity, and also suggests possible directions for the development of tax administration within the framework of the digital economy [2]. E. E. Smirnova offers indicators for assessing the effectiveness of the use of digital technologies in the activities of tax authorities and assessing the effectiveness of the activities of tax authorities in the context of digitalization. Also, various authors offer an analysis of the effectiveness of the use of information technology in tax control. However, in the scientific community, studies of foreign experience in modernizing tax administrations in the digital economy are presented in small volumes. For example, O.A. Shirinova describes the experience of foreign administrations, but the author does not make proposals for the implementation of this experience in Russian practice. Studying the experience of foreign administrations in terms of their response to the challenges arising from the digital transformation of the economy seems extremely relevant. An analysis of the practice of foreign administrations in terms of simplifying the tax system, improving the tax climate and implementing new tax control tools can become the basis for further improvement of the tax control system in our country. The research was carried out through the use of methods of systemic, logical, comparative analysis, as well as the method of analogy. This made it possible to identify successful tax administration

practices of foreign countries in the context of digitalization and develop proposals for their application in the realities of the Russian tax system.

Discussion. One of the manifestations of the digitalization of the economy is the emergence of cryptocurrencies or digital assets. In recent years, they have been gaining increasing popularity, which is facilitated by the growing number of countries introducing them into the legal field. However, the increase in the number of transactions with cryptocurrencies, their weaving into financial chains and their use as a means of payment or investment entails the need to control income from transactions with cryptocurrencies within the framework of tax legislation. At the moment, proposals to introduce appropriate amendments to the Tax Code of the Russian Federation are being discussed and considered in the Russian Federation. Let's consider two different approaches to tax control over cryptocurrencies that have developed in foreign practice [3].

The Australian tax administration has made significant progress in implementing tax controls over cryptocurrency transactions over the past few years. First of all, mandatory registration was introduced for individuals and legal entities who organize cryptocurrency trading with the Australian tax authorities. Also, as part of tax control, an automated control system “Data Matching” was introduced, which allows tracking the turnover of cryptocurrencies. It is worth noting that this program is used by the Australian Tax Service to collect and analyze data to monitor compliance with tax laws. In particular, an automated control system can accumulate an array of data from cryptocurrency trading organizers to confirm the completeness of taxes paid by traders. Also, according to representatives of the Australian tax administration, this automated system will collect data from various third-party sources. The data ranges from the status of a taxpayer's financial account, its connection to wallets used for cryptocurrency transactions, to social media accounts. Data Matching for cryptocurrencies was introduced in April 2019 [4].

It is also planned that "Data Matching" will be used to pre-fill tax returns in order to simplify this exercise for the taxpayer. Data will be collected on individuals and legal entities who have been involved in trading since July 1, 2014. It is worth noting that as of 2020, there are 310 cryptocurrency exchanges registered with the Australian tax authorities, which submit data to the tax authorities about their clients. In the year of the introduction of this tax control tool, the Australian Tax Administration announced that it plans to collect $3 billion in additional income from cryptocurrency traders. Tax revenue from payroll taxes fell by 3.6% between 2019 and 2020, while taxes on other personal income increased by 0.2%, according to data provided by Statistical Australia [5]. Other income includes capital gains tax, which is imposed on cryptocurrencies. The difference in revenues, among other things, can be explained by the fact that it was in this financial year that the Australian tax administration introduced “Data Matching” in relation to cryptocurrencies. In this regard, the capital gains tax was able to ensure a positive trend in budget revenues from taxes on other income of individuals, even in the face of a downward trend. The US Internal Revenue Service, in terms of control over cryptocurrencies, has launched the “Operation Hidden Treasure” program. The purpose of this program is to identify violations of tax laws related to the circulation of cryptocurrencies. To implement this program, in

partnership with the criminal investigation department, it is planned to attract specialists who will track cases of tax offenses on the blockchain [6].

Conclusion. The Internal Revenue Service will also engage private firms that perform blockchain analytics to identify "anomalies" and evidence of tax violations. In particular, signs of fraud may include: 1. conducting transactions whose volumes are slightly below the level required for reporting; 2. the use of shell companies to hide funds, as well as to buy and sell cryptocurrencies. In other words, US tax authorities will use a risk-based approach to detect taxpayers who are hiding their tax base. To do this, unlike the decision of the Australian Tax Administration, the Internal Revenue Service will engage private contractors who will conduct analytical work to identify the most likely cases of concealment of income.

References:

[1]. ATO Expecting To Collect $3 Billion in Tax Fines From Australian Cryptocurrency Traders This Season [Электронный ресурс] // Intrado GlobeNewsWire URL: https://www.globenewswire.com/news-release/2019/09/30/1922813/0/en/ATO-Expecting-To-Collect-3-Billion-in-Tax-Fines-From-Australian-Cryptocurrency-Traders-This-Season.html (Дата обращения: 08.05.2021)

[2]. ATO receives cryptocurrency data to assist tax compliance [Электронный ресурс] // Australian Taxation Office URL: https://www.ato.gov.au/Media-centre/Media-releases/ATO-receives-cryptocurrency-data-to-assist-tax-compliance/ (Дата обращения: 26.04.2021)

[3]. Daisy Ogembo, Vili Lehdonvirta Taxing Earnings from the Platform Economy: An EU Digital Single Window for Income Data? // British Tax Review [2020](1): 82-101

[4]. Details of Tax Revenue - Estonia [Электронный ресурс] // OECD URL:iHe можете найти то, что вам нужно? Попробуйте сервис подбора литературы.https ://stats.oecd.org/Index.aspx?DataSetCode = REVEST (Дата обращения: 27.04.2021)

[5]. Ease of Doing Business гапктд[Электронный ресурс] // The World Bank URL:https://www.doingbusiness.org/en/rankings (Дата обращения: 26.04.2021)

[6]. Gig economy: Europe tells companies to negotiate with workers or face new laws [Электронный ресурс] // Fortune URL: https://fortune.com/2021/02/24/gig-economy-europe-worker-rights-eu/ (Дата обращения: 07.05.2021)

[7]. How Many Active Crypto Traders Are There Across The Globe? [Электронный ресурс] // CH&CO URL: https://www.chappuishalder.com/wp-content/uploads/2019/06/Publication_Crypto-traders-06-2019.pdf (Дата обращения: 07.05.2021)

[8]. Deloitte: SAF-T can close one sixth of Romania's massive VAT gap [Электронный ресурс] // Romania Insider URL: https://www.romania-insider.com/deloitte-saft-close-romania-vat-gap (дата обращения:22.05.2021)

UDC: 332.135+339.924

METHODS OF BUILDING RELATIONS OF DATABASE TABLES BASED ON RELATIONAL ALGEBRA OPERATIONS: APPLICATIONS IN THE HIGHER EDUCATION MANAGEMENT INFORMATION SYSTEM

Abdullayev Alisher
Director of Center for the Development of Digital Educational Technologies under the Ministry of higher education, science and innovations of the Republic of Uzbekistan
a.abdullayev@edu.uz

Sultanov Khurshid
Department for development of ICT. Ministry of higher education, science and innovations Tashkent, Uzbekistan
kh_sultanov@yahoo.com

Khamdamov Utkir
Department of Hardware and Software of Management Systems in Telecommunication TUIT named after Muhammad al-Khwarizmi Tashkent, Uzbekistan
utkir.hamdamov@mail.ru

Elov Jamshid
Department of Hardware and Software of Management Systems in Telecommunication TUIT named after Muhammad al-Khwarizmi Tashkent, Uzbekistan elov.jamshid@gmail.com

Annotatsiya: Ushbu maqolada ma'lumotlar modeli, ma'lumotlar modeli komponenti, relyatsion model va ma'lumotlar bazasidagi relyatsion algebra munosabatlarining nazariy asoslari keltirilgan. Ushbu nazariyalar asosida oliy ta’limni boshqarish axborot tizimining ma’lumotlar bazasi jadvallari munosabatlarini relyatsion algebra amallari asosida qurish usullari keltirilgan..

Kalit so‘zlar: ma’lumotlar bazasi, jadvallar, atribut, ma’lumotlar strukturasi, relyatsion algebra, relyatsion model, ma’lumotlar modeli, relyatsion bog‘lanish, universitet.

Аннотация: Исследование посвящено процессу создания базы данных информационных систем управления процессом высшего образования, созданию таблиц базы данных о деятельности преподавателей и студентов, а также образовательных программах. Это основные таблицы базы данных, которые заключаются в разработке связей и создании структуры данных на основе реляционной модели между таблицами..

Ключевые слова: база данных, таблицы, атрибут, структура данных, реляционная алгебра, реляционная модель, модель данных, реляционная связь, университет.

Abstract: This article presents the theoretical foundations of data model, data model component, relational model and relational algebra relations in database. On the basis of these theories, the methods of building relationships of the database tables of the higher education management information system for the based on relational algebra operations are presented.

Keywords: database, tables, attribute, data structure, relational algebra, relational model, data model, relational connection, university.

I. INTRODUCTION. Nowadays, social technologies are developing at a great pace. Many industries are implementing digital systems, including hospitals, restaurants, and educational institutions. The increase in the amount of data collected and analyzed in the higher education management process and making decisions through them causes many difficulties, and the use of digital technologies in solving this problem is one of the most important issues.

On October 8, 2019, the decree of the President of the Republic of Uzbekistan No. PF-5847 "On approval of the concept of development of the higher education system of the Republic of Uzbekistan until 2030" defined a number of tasks. In particular, a sharp reduction in the number of various reports and information received from higher education institutions, abandoning the paper form of their preparation, the gradual transition to the "Electronic University" platform, which ensures the electronicization of the management system and educational processes, library and document circulation, introduction of an electronic system for monitoring the effectiveness of the participants in the educational process and educational and methodological, regulatory and legal documents, statistical data in the field of higher education with the support of international financial organizations, as well as state launch of the "Higher Education Management Information System", a single information platform of higher education that includes information on the provision of interactive services and is regularly updated Urgent tasks such as considering the possibility of receiving applications online.

II. RELATED WORK. The higher education management system, which is being improved in accordance with social requirements, has a special place in the continuous education system that is developing in our republic. In order to find a solution to the problems arising in this regard, first of all, it is necessary to specify the introduction of modern technologies in the processes of digitalization of management, to create the necessary information infrastructure, as well as to develop an electronic system of management of the higher education.

I.A.Smolnikovoy, V.V.Leonteva, DSKuznesova carried out research on the creation and development of the model of integrated information systems of higher educational institutions through the modern trends of information systems design. In order to ensure the efficiency of the information system, it was studied in the scientific research works of scientists such as V.N.Burkov, D.A.Novikov, and A.M.Anokhina, V.A.Glotova, on the optimization of information flows according

to user requests.

N.V.Dneprovskaya, Y.A.Yankovskaya, I.V.Shevsova conducted research on such elements as smart-education, smart-university, smart-textbook. Scholars such as Uskov V.L., Bakken J.P., Howlett R.J., Jain L.C., Vytautas Stuikys, Burlea A.S., Burdescu D.D., Gerval J.P., Yann Le Roux developed the concept and technologies of the smart university.

Our republic, the creation, development and introduction of models and algorithms of information systems, data search, and ensuring security are mainly studied under the guidance of T. Bekmuradov, Kh. Igamberdiev, M. Aripov, R. Aloev, D. Mukhamadieva, S. Gaynazarov, A.Nishanov, A. Saidov, M. Narzullaev.

II. MAIN PART. A data model describes a set of general concepts and properties that all special databases managed by them must have if they are based on this model. Having a data model allows you to compare specific applications using one common language.

A relational model is a data set that consists of a set of two-dimensional tables. In set theory, a table corresponds to the term relation, its physical representation is a table, so the name of the model is relational. Accordingly, database construction theory is applied to data processing problems in such branches of mathematics as set theory and first-order logic. Compared to the hierarchical and network data model, the relational model has a higher level of data abstraction. The relational model is the convenient and most familiar form of data representation, so at present this model is the de facto standard of almost all modern commercial database managers. Relational databases are built on the basis of the relational data model [4,8].

In a database, relational algebra is a language for using relationships sequentially. Several syntax options have been created for relational algebra commands. Therefore, when working with data, it is possible to achieve a result by sequentially writing operations on certain order relations. Therefore, the language of relational algebra is a procedural language. By EFCodd, relational algebra operations are divided into two groups [4].

The first group includes traditional operations performed on relations: union (union ∪), intersection (intersection ∩), subtraction (Set difference –), Cartesian product (Cartesian product x).

The second group consists of special relational operations: selection or restriction (selection s), projection (projection ∏), connection (join ⋈), division (division ÷) [8].

The union operation takes the sum of relation sets obtained from the complete union of all tuples of relations R1 and R2 expressed in the form R ∪ S:

$$R\,1 \cup R\,2 = \{\, x \mid x \in R\,1 \cup x \in R\,2 \,\}$$

The concatenation operation returns a new relation consisting of tuples that belong to one and both of the two given relations. The resulting relation R consists of the set of tuples that belong to relation R 1, or that belong to relation R 2, or both.

TABLE 1. TABLE OF MANAGEMENT PERSONNEL (R1)

ID	SURNAME	FIRST NAME	MIDDLE NAME	POSITION
1	Salimov	Alijan	Solijonovich	Head of the department
2	Alimov	Vali	Solijonovich	Dean
3	Chariyev	Asqar	Aminovich	Vice Chancellor

TABLE 2. TABLE OF TEACHERS (R2)

ID	SURNAME	FIRST NAME	MIDDLE NAME	POSITION
1	Salimov	Alijan	Solijonovich	Head of the department
4	Zafarov	Husan	Hasan ugli	Head teacher
5	Kholov	Panji	Amin ugli	Assistant

When these tables are joined by a join operation, a new table is created as follows (R)

TABLE 3. STAFF SCHEDULE (R)

ID	SURNAME	FIRST NAME	MIDDLE NAME	POSITION
1	Salimov	Alijan	Solijonovich	Head of the department
2	Alimov	Vali	Solijonovich	Dean
3	Choriyev	Asqar	Aminovich	Vice
4	Zafarov	Husan	Hasan ugli	Head teacher

When a subtraction operation is performed on a relation, it returns a new relation consisting of tuples from both relations that belong only to the first. The set of tuples in the difference belongs to the relation R1, but the tuples belonging to the relation R2 are not taken [8].

When the intersection operation is performed on a relation, the tuples that are common to the relations R1 and R2 are obtained, and the intersection of sets or the common set is called R1 ∩ R2:

$$R1 \cap R2 = \{ x \mid x \in R1 \cap x \in R2 \}$$

Projection (Vertical part set). If X is a set of attributes, r[X] is the tuple of the relation R corresponding to the attribute X, then the projection of this relation R onto X is:

$$R[X] = \{ r[X] \mid r \in R \},$$

In the projection operation, some tuples from the given relation are removed and a new relation is formed from the remaining tuples. Simply put, projection is the act of extracting the desired columns from a relation. To see the projection process, we use the following table [8].

To be The partition of the relations R1(A,B,C) and R2(C) is the relation R(A,B) whose body contains tuples such that for all tuples in the relation R2 there is a tuple in the relation R1.

The syntax of the division operation is as follows

$$R = R1 \div R2 = \pi A, B(R1) - \pi A, B((R2 \times \pi A, B(R1)) - R1).$$

The resulting relation R consists of tuples of the relation R1 defined in the attribute set (A,B) corresponding to the combination of all tuples of the relation R2.

Dividing ratios is like dividing numbers by the remainder. R1 acts as a dividend, R2 acts as a divisor. Let's assume that the relationship "Project Performer" (R1) models a many-to-many relationship between the relationships "Employee" and "Project" (R2). The answer to the question of which employees participated in the work on all projects can be obtained using the division operation.

Selection or restriction. In the selection or restriction operation, the required columns in the relation are made satisfying certain conditions (constraints). A select operation produces the result as a horizontal select, selecting the rows of the relational table that satisfy the given condition. Given the variety of means of specifying

selection conditions, the selection operation is actually one of the most common operations on relational tables. It is expressed as follows[4,8].

List of tables and data structure of tables in the database of the higher education management information system for the Ministry of Higher and Secondary Specialized Education:

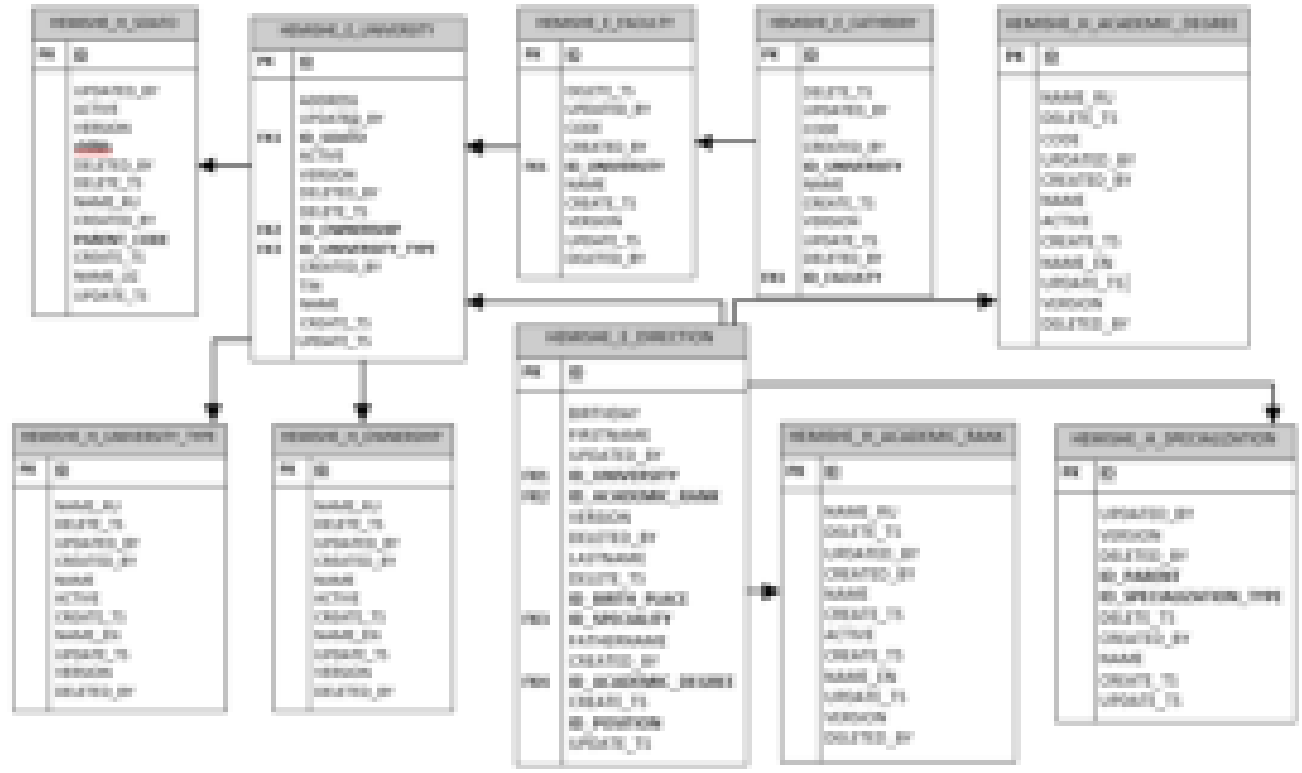


Figure 1. Relational connection scheme of information system database tables

Tables in the database of the higher education management information system for the Ministry of Higher and Secondary Specialized Education are defined in the form {*R1, R2,... Rn , }* . In table relationships, each relationship consists of at least one tuple and attributes. They are described as follows:

X i is a set of attributes, *r 1 [x i] is a* tuple of relation *R i* corresponding to attribute X *i*. The formation of tables in the database is described as follows [1]:

$$R1\ [\ Xi\ ] = \{\ r1\ [\ x1\ ]\ |r1 \in\ R1\ \}\ i=1,...n;\ (1)$$

A total of about 300 relationships in the database of the higher education management information system have been developed for the Ministry of Higher and Secondary Specialized Education. In this article, we will consider some of the main relationships.

hemishe_e_university – R 1 - OTM data table ;

The Hemis Ministry Information System database consists of a total of 248 tables and includes the following special characters [1]:

e - entity: main tables containing registration data;

h - helper: tables containing data of training classifiers; r - report: tables containing data for creating reports;

s - system: tables containing information for system management.

Below is the relational connection scheme of the database tables of the information system (Fig. 1).

hemishe_e_faculty – R 2 - faculty information table ; hemishe_e_cathedry – R 3 - table of information of departments

hemishe_e_direction – R 4 - section data table *hemishe_e_speciality* – R 4 - specialty table and table hemishe_h_hour – R 6 - table of the classifier of provinces and districts ;

hemishe_h_university_type – R7 _ - Table of classification of types of HEIs

hemishe_h_ownership – R 8 - classification table of forms of ownership

hemishe_h_academic_degree – R 9 - academic degree classification table ;

hemishe_h_academic_rank – R 10 - academic title classification table

R1 - The data table of HEIs has the following expression:

R1 [x 1 ,...,x 15] = {r 1 [x 1], ... ,r 1 [x 15] |r 1 ∈R 1 } (2) here:

r1 [x1] – INSTITUTION ID

r1 [x2] – INSTITUTION *Address* r1 [x3] – Last modified time

r1 [x4] –District identifier , it takes the value from the field r6 [x1]

r1 [x5] – *Status*

r1 [x6] – Line version. The version value is incremented when the field changes

r1 [x7] – If the row is deleted, the time it was deleted r1 [x8] – Changed by whom

r1 [x9] – Property form identifier it takes the value from the field r8 [x1] .

r1 [x10] – University type identifier it takes the value from the field r7 [x1] .

r1 [x11] – Creation time r1 [x12] – TIN

r1 [x13] is the name of INSTITUTION r1 [x14] – Creation time

r1 [x15] – Created by whom

next step , we will look at the relationships of the faculty table . Faculty will have a relationship with the following tables.

R2 – Faculty table has the following expression: *R*2 [*x*1 ,...,*x*11] = { *r*2 [*x*1], ... ,r2 [*x*11] |r2∈ *R*2 } (3) here:

*r*2 [*x*1] – Faculty id

r2 [x2] – If the row is deleted, the time when it was deleted *r*2 [*x*3] – Last modified by which user

*r*2 [*x*4] – Faculty code

*r*2 [*x*5] – Created by whom

*r*2 [*x* 6] – University ID it takes the value from the field *r*1 [*x*1] .

*r*2 [*x*7] – Faculty name

*r*2 [*x*8] – Created by whom

*r*2 [*x*9] – Line version. The version value is incremented when the field changes

*r*2 [*x*10] – Last modified time *r*2 [*x*11] - Changed by whom

tables in the database of the higher education management information system for the Ministry of Higher and Secondary Specialized Education are carried out based on the sequence mentioned above. Through this relationship, the connections between the tables can be perfectly understood[3].

The above links are the main links. Other links in the table are organized in this way and information exchange is organized.

IV. CONCLUSION. In conclusion, in this article, relationships based on relational algebra operations of the database tables of the higher education management information system for the Ministry of Higher and Secondary Specialized Education were developed. A database structure consisting of 248 tables was designed for the information system, and a database containing about 300 relational relationships was developed using relational algebra operations. The created database serves to manage and coordinate the processes of scientific training.

REFERENCE:

[1] Jamshid Elov, Utkir Khamdamov, Utkir Khamdamov. Development of a database of higher education process management information system based on the relational model , International Conference of Information science and communications technologies applications, trends and opportunities ICISCT 2021. 3-5 November, 2021. Tashkent, Uzbekistan, 5p

[2] Abdul-Hamid, H. (2014), "What Matters Most for Education Management Information Systems: A Framework Paper", Systems Approach for Better Education Results, *Saber working paper series no. 7, World Bank Group.*

[3] Khamdamov U., Abdullayev A., Elov J., Sultanov D. Conceptual Model of the Education Management Information System for Higher Education Institutions. International Journal of Advanced Trends in Computer Science and Engineering, 2020, Volume 9, No.5.

[4] EF Codd. Relational data model for large shared data banks [Electronic resource] / EF Codd; per. from English. MR Kogalovsky//DBMS. 1995. No. 1. Access mode: http://citforum.ru/database - /classics/codd/.

[5] Al-Mamary, YH, Shamsuddin, A., & Nor Aziati, AH (2014). The Relationship between System Quality, Information Quality, and Organizational Performance. *International Journal of Knowledge and Research in Management & E-Commerce, 4* (3), July .

[6] Sultanov, D. (2019). Strategies for Improving Education Services through Collective Value Creation (Doctoral dissertation, seouldaehaggyodaehag-won).

[7] Sultanov, D., Kim, K., & Altmann, J. (2018, September). Snooping Around a Fence: A Lesson from Education Sector in a Software Service Ecosystem. In International Conference on the Economics of Grids, Clouds, Systems, and Services (pp. 66-76). Springer, Cham.

[8] V. Yu. Kara-Ushanov, RELATIONAL DATA MODEL, Teaching materials, 64 p.

UDC: 04.738

VULNERABILITY ASSESSMENT AND PREVENTION TECHNIQUES

Mavlonov Alisher
PhD student at Urgench State University
mavlonosher@gmail.com
Hayitboyev Hamro
Teacher at Mamun University
furkat.hayitboyev@mail.ru

Annotasiya. Ushbu maqolada zaiflikni baholash bilan bog'liq muhim tushunchalar keltiriladi va raqamli ma'lumotlarni mustahkamlash uchun samarali oldini olish usullari taklif qilinadi. Zaiflikni keng qamrovli baholash orqali tashkilotlar ruxsat qilinmagan shaxslarning kirish nuqtalari haqida qimmatli ma'lumotlarga ega bo'lishlari va ekspluatatsiya sodir bo'lishidan oldin ularni oldini olishlari mumkin. Raqamli infratuzilmalarning sezgirligini baholash uchun foydalaniladigan turli xil zaifliklarni skanerlash vositalari, metodologiyalari va asoslarini muhokama qilamiz. Bundan tashqari, ushbu maqola zaifliklarning oldini olishning ajralmas qismi sifatida doimiy monitoring va javob berish imkoniyatlarini saqlab qolish muhimligini ta'kidlaydi. Kiberxavfsizlikning dinamik landshaftida tahdidlar tez sur'atlar bilan rivojlanib boradi va bu mumkin bo'lgan buzilishlarni tezda aniqlash va ularga javob berish uchun real vaqt rejimida monitoringni talab qiladi. Bundan tashqari, maqola texnik va insoniy jihatlarni hisobga olgan holda zaifliklarni boshqarishga yaxlit yondashuv zarurligini ta'kidlaydi.

Kalit so‘zlar: Hujumchi, kiberjinoyat, kiberfiribgarlik, zaiflik, zararli dastur, fishing, keylogger, veb-sayt, kiberjinoyatchi.

Аннотация. В статье рассмотрены аспекты использования некоторых видов методов оценки и предотвращения уязвимостей. Проводя комплексную оценку уязвимостей, организации могут получить ценную информацию о потенциальных точках входа для злоумышленников и упреждающе устранить их до того, как произойдет эксплуатация. Мы обсуждаем различные инструменты, методологии и структуры сканирования уязвимостей, используемые для оценки уязвимости цифровых инфраструктур. Кроме того, в этом документе подчеркивается важность поддержания возможностей непрерывного мониторинга и реагирования как неотъемлемой части предотвращения уязвимостей. В динамичной среде кибербезопасности угрозы быстро развиваются, что требует мониторинга в режиме реального времени для быстрого обнаружения и реагирования на потенциальные нарушения. Кроме того, в документе подчеркивается необходимость целостного подхода к управлению уязвимостями, учитывающего как технические, так и человеческие аспекты.

Ключевые слова: Злоумышленник, киберпреступность, кибермошенничество, уязвимость, вредоносное ПО, фишинг, кейлоггер, веб-сайт, киберпреступник.

Abstract. The paper considers aspects of the use of certain types of vulnerability assessment and prevention techniques. This paper delves into the essential concepts surrounding vulnerability assessment and suggests effective prevention techniques to fortify digital data. By conducting comprehensive vulnerability assessments, organizations can gain valuable insights into potential entry points for malicious actors and preemptively address them before exploitation occurs. We discuss various vulnerability scanning tools, methodologies, and frameworks employed to assess the susceptibility of digital infrastructures. Additionally, this paper highlights the importance of maintaining continuous monitoring and response capabilities as an integral part of vulnerability prevention. In the dynamic landscape of cybersecurity, threats evolve rapidly, necessitating real-time monitoring to detect and respond to potential breaches promptly. Furthermore, the paper emphasizes the need for a holistic approach to vulnerability management, considering both technical and human aspects.

Keywords: Attacker, cybercrime, cyber frauds, vulnerability, malware, phishing, keylogger, website, cybercriminal.

Introduction. In 1820, the first cybercrime was noted. So far, bearing in mind that electronic machines have come a long way, this is certainly not so scary. In an increasingly interconnected world where data flows like water and technology serves as the backbone of our daily lives, the security of our digital landscapes has never been more critical. With the rapid expansion of cyberspace and the relentless evolution of cyber threats, understanding and mitigating vulnerabilities in our digital infrastructure has become a paramount concern.

The internet, an intricate web of interconnected systems and devices, has woven itself into the very fabric of modern life. It has revolutionized communication, commerce, and countless aspects of daily existence. The Internet, which connects billions of people around the world, is the main pillar of the modern information society. In 2023, Northern Europe took first place among the world's regions in terms of the percentage of the population using the Internet. In Norway, Saudi Arabia, and the United Arab Emirates, 99 percent of the population currently uses the Internet. Internet users in China, India and the United States are ahead of others. Also, other developed and developing countries are recording very high growth in this regard. However, this digital marvel is far from invincible; it is, in fact, riddled with chinks in its virtual armor. These chinks, often referred to as vulnerabilities, have emerged as one of the most critical and defining aspects of today's internet landscape.

Technology, the driving force behind the rapid evolution of our modern world, stands as a double-edged sword, possessing the remarkable ability to serve both virtuous and sinister ends [1]. Attacker will use it for bad purpose. Devices available in IT are also no exceptions; like other tool, they are used as either prey of crime or means for committing a crime. In the contemporary era of the Internet and interconnected computer systems, criminal activities can easily transcend international boundaries, often cloaked in a deceptive shroud of anonymity. Unwittingly, we frequently divulge vast troves of personal information. The question that arises is whether we can be confident that this wealth of data will never fall into the wrong hands or be exploited for nefarious purposes.

One significant avenue through which cybercrime proliferates is by capitalizing on vulnerable or flawed software systems. In the intricate web of the digital world, attackers often pinpoint and manipulate weaknesses or imperfections within software applications, thereby gaining unauthorized access, compromising data, and unleashing potential devastation. These vulnerabilities can arise from various sources, including coding errors, outdated software, or even undisclosed "zero-day" vulnerabilities that hackers exploit before developers have a chance to patch them [2]. Cybercriminals frequently employ a wide array of techniques, such as malware injections, system breaches, or data breaches, to take advantage of these software vulnerabilities. “Fig. 1” gives us information about when Attackers target vulnerabilities.

Fig. 1. When Attackers Target Vulnerabilities.

Research and Methodology. There are diversified types of cybercrime recorded across the globe, and some of the noteworthy examples are credit card fraud, email fraud, deception fraud, fiscal fraud, crypto-virus attacks, cyber spying, identity theft, user interface redressing, and malware [3]. Let's explore how these criminal activities are carried out. This is shown in “Fig. 2”.

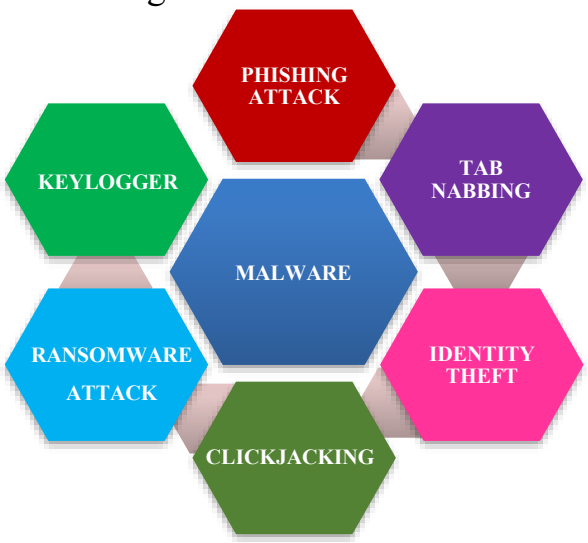


Fig. 2. Cyber frauds.

A. Phishing

Phishing involves fraudulent attempts to obtain sensitive information such as usernames, passwords, credit card details, and personal information by impersonating a trustworthy entity or organization.

Cybercriminals typically use various tactics, such as email, fake websites, or messages on social media, to trick individuals into believing they are interacting with a legitimate source [4]. These messages often contain urgent or enticing language to encourage recipients to click on malicious links, download malicious attachments, or disclose their confidential information. In “Fig. 3.” shows the definition of phishing attack.

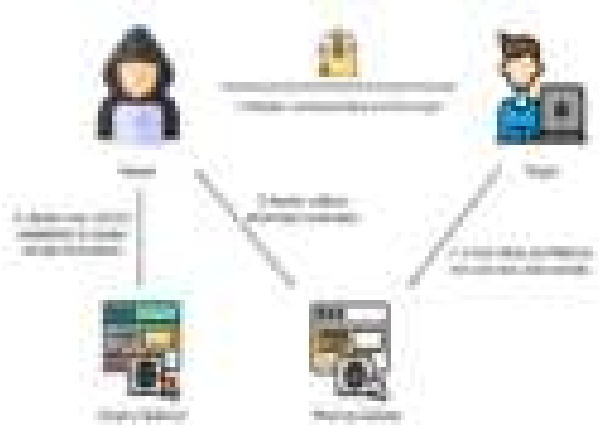


Fig. 3. Definition of phishing attack.

B. Misusing identity

Identity theft, the malicious act of misusing another individual's personal information for fraudulent purposes, has emerged as a significant threat in the digital age. Identity theft is a concept that can be categorized into two primary methods: Application fraud and account takeover. In the context of identity theft, attackers assume the identity of others and misuse it. They achieve this by exploiting applications, particularly those that request permission to access information from social networking sites. This implies that identity theft involves fraudulent activities where individuals or entities manipulate personal information, often obtained through these applications, for unauthorized and malicious purposes.

C. Keylogger

An electronic device or compact software application designed to track and record every keypress made by a user on a particular computer's keyboard. We investigate the different actors who may deploy keyloggers, including cybercriminals seeking financial gain, state-sponsored hackers engaged in cyber espionage, and disgruntled insiders seeking to leak sensitive information. Understanding these motivations is crucial for developing effective countermeasures and preventive strategies [5].

Result and Discussion. Remember that cybercriminals are constantly evolving their techniques, so maintaining a cautious and informed mindset is crucial to avoiding phishing attacks [6].

Here are some key steps to help you avoid falling victim to a phishing attack:

- Be Skeptical: Always approach unsolicited emails, messages, or requests for information with caution. Cybercriminals often impersonate trusted organizations or individuals to gain your trust.
- Think Before You Click: Do not click on links or download attachments in emails or messages unless you are absolutely certain of their legitimacy. Glide your cursor over hyperlinks to get a sneak peek of the URL prior to selecting.

- Verify the Sender: Check the sender's email address or phone number carefully. Be cautious if it seems unusual, misspelled, or doesn't match the organization it claims to be from.
- Check the URL: Examine the website's URL before entering any personal or financial information. Ensure it starts with "https://" for a secure connection and that the domain name matches the legitimate organization's domain.
- Beware of Urgent or Threatening Language: Phishing emails often create a sense of urgency or fear to manipulate you into taking quick action. Be cautious of emails claiming your account will be locked or deleted unless you act immediately.
- Double-Check Requests for Personal Information: Legitimate organizations usually won't ask you to provide sensitive information like passwords, Social Security numbers, or credit card details via email or text message.
- Avoid Pop-Up Windows: Be cautious of pop-up windows that ask for personal information or login credentials. These can be used to steal your data.
- Verify with the Source: If you receive an email or message requesting sensitive information or actions (e.g., transferring money), verify the request through a trusted channel. Contact the organization or individual directly using contact information you find independently (not from the email).
- Expand your understanding: Keep up-to-date on the most current phishing tactics and trends. Knowledge is your best defense.
- Use Email Filters: Enable spam filters in your email client to automatically detect and quarantine suspicious emails.
- Report Phishing: If you receive a phishing email, report it to your email provider and the appropriate authorities. Such action can aid in safeguarding others from becoming targets.
- Employee Training: If you're part of an organization, ensure that employees receive training on recognizing and reporting phishing attempts. Many successful attacks originate from phishing emails targeting employees.

A. How to Spot a Counterfeit Phishing Website [7]?

- Confirm the authority of the webpage's web address.
- Check the Padlock symbol.
- Establish the authenticity of the website by verifying its digital certificate.
- Perform a double-click action on the padlock icon located at either the top right or bottom corner of your browser window.

Examples of phishing websites:

- www.gmai1.com
- www.icici6ank.com
- www.bank0findia.com
- www.yah00.com

B. Identity thieves frequently seek the following types of data [8]:

- Passwords
- Details pertaining to bank accounts
- Credit card digits

- Data housed on a user's computer or mobile devices, such as contacts, videos, images, confidential documents, and more

Preventing identity misuse. Understanding the theoretical underpinnings of identity misuse is essential for developing effective preventive measures, fostering responsible digital citizenship, and promoting a safer online environment. As technology continues to advance, continuous research and interdisciplinary collaboration are critical to stay ahead of the evolving landscape of identity misuse.

Preventing identity misuse, the following must be observed:

- Safeguard Personal Information
- Protect your passwords
- Be credit/debit card smart
- Destroy/Shred receipts not required
- Review your records regularly
- Be cautious with Phishing Links
- Monitor your online accounts
- Be careful with public Wi-Fi

C. Common methods used by keyloggers. How to identify keyloggers

A keylogger possesses the capability to utilize virtually any means of communication for transmitting the data it has captured back to the malicious actor [9].

Here are some common methods employed by keyloggers for this purpose:

- FTP Upload: Keyloggers may opt to send data via FTP, a file transfer protocol.
- Email: Some keyloggers discreetly forward the gathered information through email.
- IRC (Internet Relay Chat): Communication can be facilitated through IRC channels.
- HTTP POST: Keyloggers can use HTTP POST requests to send data surreptitiously.
- Connect-back: In certain instances, the attacker initiates a connection to a service running on your compromised device.
- P2P Network: Keyloggers might leverage Peer-to-Peer (P2P) networks like Gnutella or BitTorrent for data transfer.
- Custom Protocols: Custom communication protocols operating over TCP or UDP can be employed to transmit data directly to the attacker.

It's crucial to understand that these services can be configured to operate on non-standard ports. This is done deliberately to evade detection, meaning an IRC server might run on port 50321 instead of the usual 6667, or an FTP server could operate on port 80 rather than the standard 21. This adaptability enables keyloggers to remain hidden and pose a more significant cybersecurity threat.

How to identify keyloggers:

- Employ up-to-date anti-spyware software.
- Execute a scan with your antivirus program, as it may potentially detect keyloggers on your system.
- Prevent yourself from keyloggers, Use Virtual key Board.

Conclusions. Cybercrime is a widespread issue with various forms, including phishing, identity theft, and keyloggers, posing significant threats in the digital age.

Phishing involves deceptive tactics to acquire sensitive information, while identity theft misuses personal data for fraudulent purposes. Keyloggers, on the other hand, silently record keystrokes, potentially enabling various malicious activities.

To protect yourself from these threats:

Phishing Awareness: Be skeptical of unsolicited messages and requests, think before clicking on links or downloading attachments, verify sender information, and avoid falling for urgent or threatening language.

Counterfeit Phishing Websites: Confirm the legitimacy of website addresses, check for the padlock symbol, verify digital certificates, and double-check the authenticity of websites.

Identity Theft Prevention: Safeguard personal information, protect passwords, monitor accounts, and exercise caution with public Wi-Fi.

Keylogger Detection: Utilize up-to-date anti-spyware and antivirus software to scan for keyloggers. Consider using a virtual keyboard for added security.

Additionally, staying informed about evolving cyber threats, phishing tactics, and trends is crucial in maintaining your digital safety [10]. Employing spam filters, reporting phishing attempts, and providing employee training in organizations are proactive measures to combat cyber threats effectively.

Overall, a cautious and informed approach, combined with cybersecurity best practices, is essential to protect yourself and your data from the ever-evolving landscape of cybercrime.

Precautions for using a public computer safely:

- Avoid storing your login details.
- Never leave the computer unattended when sensitive information is displayed.
- Turn off any password-saving features.
- Clear your digital footprint.
- Refrain from inputting banking information on a public computer.
- Request a computer equipped with the latest antivirus software from the Cyber Cafe Owner.

References

[1] G. Nina, B. Sunit, “CYBER SECURITY. Understanding Cyber Crimes, Computer Forensics and Legal Perspectives”, Wiley India Pvt. Ltd.,Ansari Road, New Delhi-110002, pp. 45-59, Reprint: 2023.

[2] A. Richard, K. Patrick, Y. Samuel, “Evaluation of Software Vulnerability Detection Methods and Tools: A Review”, International Journal of Computer Applications, Volume 169 – No.8, July 2017, pp. 22-27, doi:10.5120/ijca2017914750.

[3] B. Niryat, Rao Tula Ram M, “Cyber Crime Investigation manual”. Data security council of India. New Delhi – 110057, India. pp. 59-70, Published in March 2011.

[4] A. Mavlonov, A. Mavlanov, Sh. Mavlonova, “USB security and mechanism to ensure it,” in Science and innovation, Special Issue 3, 2023, pp. 536-539, doi:10.5281/zenodo.7857074

[5] Bruce Middleton “Cyber Crime Field Handbook”, Auerbach Publication, pp. 137-138. 2002 by CRC Press LLC.

[6] Sh. Saba, B. Adil, “Cyber Crime - Techniques, Prevention and Cyber Insurance”, in International Journal of Computing and Network Technology, pp. 23-26, March 2018.
[7] M. E. Pratiw, T. A. Lorosae, F. W. Wibowo, “Phishing Site Detection Analysis Using Artificial Neural Network”, Journal of Physics: Conference Series, Vol 1140, International Conference on Electrical, Electronic, Informatics and Vocational Education (ICE-ELINVO 2018)13 September 2018, Yogyakarta Special Province, Republic of Indonesia, doi: 10.1088/1742-6596/1140/1/012048.
[8] S. Ahmad, Mursidah, Aurora Fatimatuz Zahra, Fatham Mubina Iksir Gholi “ Employing Forensic Techniques in Proving and Prosecuting Cross-border Cyber-financial Crimes” International Journal of Cyber Criminology, Vol 17 Issue 1January–June2023 pp. 86-102
[9] Arjun Singh, Pushpa Choudhary, Akhilesh kumar singh, Dheerendra kumar Tyagi, “Keylogger Detection and Prevention”, Journal of Physics: Conference Series, 2021, doi:10.1088/1742-6596/2007/1/012005
[10] Kevin D. Mitnick, William L. Simon, Steve Wozniak "The Art of Deception: Controlling the Human Element of Security".

UDC:626.8

A STUDY OF THE FORCES AFFECTING THE MOVEMENT OF COTTON IN A PNEUMOTRANSPORT SHELL

Mukhametshina Elmira Talgatovna
assistant, doctoral student of the
Department “Natural Fibers and Fabric Processing”
Jizzakh Polytechnic Institute

Muradov Rustam Muradovich
professor of
Department “Natural Fibers and Fabric Processing”
Jizzakh Polytechnic Institute
murodovrustam@gmail.com

Annotatsiya: Ushbu maqolada pnevmotransport chig‘anog‘ida paxtaning harakatini ta’sir qiluvchi kuchlarni inobatga olgan holda o‘rganilgan. Taklif qilinayotgan qurilmada paxtani havo yordamida tushish jarayonida, quvur devorlariga urilish natijasida hosil bo‘ladigan zarba kuchini kamaytirish bo‘limi uchun quvur elastik elementga o‘rnatilgan va paxta oqimining harakati natijasida quvurning titrash sodir bo‘ladi natijada quvur devorlaridagi to‘rli setka orqali mayda iflosliklardan tozalashda, bundan tashqari elastik elementning asosiy vazifasi paxtani titish jarayonidagi chigitning shikastlanishini oldini olish va tozalash samaradorligini oshirishdagi xarakatini nazariy tahlil qilingan.

Kalit so‘zlar. Paxta, chigit, shikastlanish, modellashtirish, nazariy tahlil, tola shikastlanishi.

Abstract: In this article, the movement of cotton in a pneumotransport shell is studied, taking into account the forces affecting it. In the proposed device, the pipe is installed on an elastic element to reduce the shock force caused by the impact of the cotton on the pipe walls, and the vibration of the pipe occurs as a result of the movement of the cotton flow, resulting in the cleaning of small impurities through the mesh screen on the pipe walls, in addition, the main function of the elastic element is to clean the cotton theoretical analysis of its action in preventing damage to the seed and increasing the efficiency of cleaning during the milling process.

Keywords. Cotton, seed, damage, modeling, theoretical analysis, fiber damage.

Аннотация: В данной статье исследовано движение хлопка в пневмотранспортном трубопроводе с учетом действующих на него сил. В предлагаемом устройстве труба установлена на упругом элементе для уменьшения ударной силы, возникающей при ударе хлопка о стенки трубы, а вибрация трубы возникает в результате движения потока хлопка, в результате чего возникает очистка мелких примесей через сетчатую поверхность на стенках трубы, кроме того, основной функцией упругого элемента является очистка хлопка теоретический анализ действия по предотвращению повреждения семян в процессе джинирования и повышению эффективности очистки.

Ключевые слова. Хлопок, семена, повреждение, моделирование, теоретический анализ, повреждение волокна.

Introduction. One of the main requirements in the transportation of cotton is to preserve the natural properties of cotton. Therefore, many researchers involved in the study of pneumotransport focused on the study of seed damage. Because it affects the quality of the finished product, resulting in a deterioration of fiber spinning properties, and in transplanting the seed material, it reduces growth energy and seed germination [1].

One of the main elements of air transport equipment is the air pipe. An air pipe is a hollow, three-dimensional body of various shapes, made of solid and homogeneous material, which can be hermetically connected to each other to form a closed corridor of any length, and through it to move liquids and gases, as well as any material objects added to them, possible from one place to another [2,3].

A number of scientific researches have been carried out to improve the process of transporting cotton in air conveyors. Their direction is mainly to maintain the quality of the transported cotton, to reduce seed damage, electricity consumption and emission of dusty air into the atmosphere [4].

Experiment method. In the proposed device, the pipe is installed on an elastic element to reduce the shock force caused by hitting the pipe walls in the process of dropping cotton by air, and vibration of the pipe occurs as a result of the movement of the cotton flow, resulting in the cleaning of small impurities through the mesh screen on the pipe walls, in addition, the main function of the elastic element is to clean the cotton the action of preventing damage to the seed during the tilling process and increasing the efficiency of cleaning has been theoretically analyzed [5]. The movement of the cotton stream flowing through the device is presented in (Fig.1).

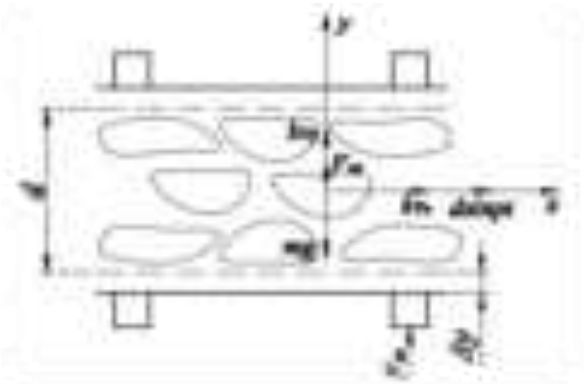


Figure 1. Flow pattern of cotton in a pipe with an improved elastic element

Analysis and results. We construct the differential equation of motion along the OY axis as a result of the external forces generated when the cotton stream is transmitted by air. $m\ddot{y} = P - k_1 V y - cy - c\Delta y$ (1)

where: $P = c\Delta y$

$$m\ddot{y} + k_1\dot{y} + cy = 0 \quad (2)$$

ҳосил қиламиз

$$\ddot{y} + \frac{k_1}{m}\dot{y} + \frac{c}{m}y = 0$$

enter the designations $\frac{k_1}{m} = 2n$, $\frac{c}{m} = k^2$

where: κ_1 – resistance coefficient; c – coefficient of unity.

$$\ddot{y} + 2n\dot{y} + k^2 y = 0$$

$$y = e^{\lambda t}; \quad \dot{y} = \lambda e^{\lambda t}; \quad \ddot{y} = \lambda^2 e^{\lambda t}$$

as a result $\lambda^2 + 2n\lambda + k^2 = 0$

$$\lambda_{1/2} - n \pm \sqrt{n^2 - k^2}$$

express the general solution as follows

$$y = e^{-nt}\left(c_1 \cos\sqrt{k^2 - n^2}\cdot t + c_2 \sin\sqrt{k^2 - n^2}\cdot z\right) \quad (3).$$

From the equation (3), we use the initial and limiting values to determine the constants c_1 and c_2

$$\dot{y} = e^{-nt}\left(-c_1\sqrt{k^2 - n^2}\sin\sqrt{k^2 - n^2}\cdot t + c_2\sqrt{k^2 - n^2}\cos\sqrt{k^2 - n^2}\cdot t\right) -$$
$$- ne^{-nt}\left(-c_1\cos\sqrt{k^2 - n^2}\cdot t + c_2\sin\sqrt{k^2 - n^2}\cdot t\right) \quad (4)$$

from the condition $t = 0 \quad y = y_0$ (3) we determine the constants c_1

$$y_0 = c_1$$

from the condition $t = 0 \quad \dot{y} = \dot{y}_0$ (4) we determine the constants c_2

$$\dot{y}_0 = c_2\sqrt{k^2 - n^2} - ny_0 \Rightarrow$$

$$\Rightarrow c_2 = \frac{v_0 + ny_0}{\sqrt{k^2 - n^2}}$$

put the determined constants c_1 and c_2 into the equation (3).

$$y = e^{-nt}\left(y_0\cos\sqrt{k^2 - n^2}\cdot t + \frac{v_0 + ny_0}{\sqrt{k^2 - n^2}}\sin\sqrt{k^2 - n^2}\cdot t\right) \quad (5)$$

$$y_0 = A\sin\alpha, \quad \frac{\dot{y}_0 + ny_0}{\sqrt{k^2 - n^2}} = A\cos\alpha$$

enter a designation

$$A^2\sin^2\alpha + A^2\cos^2\alpha = y_0^2 + \frac{(\dot{y}_0 + ny_0)^2}{k^2 - n^2}$$

$$A = \sqrt{y_0^2 + \frac{(\dot{y}_0 + ny_0)^2}{k^2 - n^2}} \tag{6}$$

$$tg\alpha = \frac{y_0\sqrt{k^2 - n^2}}{\dot{y}_0 + ny_0}$$

$$\alpha = arctg\frac{y_0\sqrt{k^2 - n^2}}{\dot{y}_0 + ny_0} \tag{7}$$

in that case, we obtain the equation (5) in the following form

$$y = Ae^{nt}\sin\left(\sqrt{k^2 - n^2} + \alpha\right) \tag{8}$$

Equation (8) was theoretically analyzed to reduce seed damage and improve cleaning efficiency by using different values of elastic elements to reduce the impact forces generated by hitting the walls during the vibration caused by the movement of the cotton stream with the help of air in the cleaning from small impurities in the proposed device (Fig. 2.) [6].

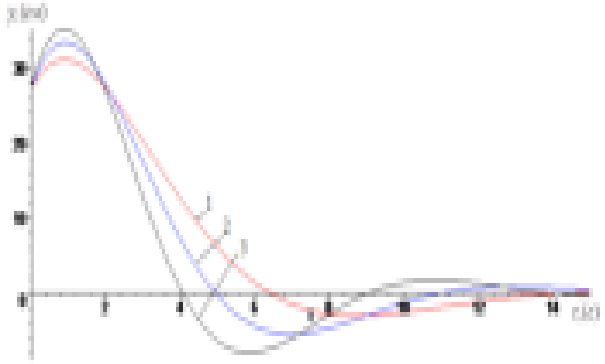


Figure 2. Time-dependent graph of the flow coefficient of cotton along the OY axis in a pipe with an elastic element at different $\kappa_1 = 0{,}9$ $\kappa_2 = 0{,}7$ $\kappa_3 = 0{,}5$ values

Construct the differential equation of motion along the OX axis when transferring the cotton stream using air flow

$$m\ddot{x} = -kVx + d\sin pt$$

$$m\ddot{x} + k\dot{x} = d\sin pt \tag{9}$$

Equation (9) is a second-order inhomogeneous differential equation consisting of a sum of x_1-general solutions and x_2-specific solutions

$$x = x_1 + x_2$$

We look for the general term as follows

$$x_1 = c_1e^{\lambda_1 t} + c_2e^{\lambda_2 t} \tag{10}$$

$$x = e^{\lambda t} \qquad \dot{x} = \lambda e^{\lambda t} \qquad \ddot{x} = \lambda^2 e^{\lambda t}$$

$m\lambda^2 + k\lambda = 0$ from this

$\lambda_1 = 0$ $\lambda_2 = -\frac{k}{m}$ we put the determined values into the equation (10).

$$x_1 = c_1 + c_2e^{-\frac{k}{m}t}$$

We will look for the private solution in the following form

$$x_2 = M\sin pt + N\cos pt \tag{11}$$

Substituting equation (11) into equation (9), we determine the values of M and N

$$\dot{x}_2 = Mp\cos pt - Np\sin pt;\quad \ddot{x} = -Mp^2\sin pt - Np^2\cos pt$$

$$-mMp^2\sin pt - mNp^2\cos pt + kMp\cos pt - kNp\sin pt = d\sin pt$$

$$\begin{cases} -mMp^2 - knp = d \\ -mNp^2 + kMp = 0 \end{cases}$$

$$\Delta = \begin{vmatrix} -mp^2 & -kp \\ -kp & -mp^2 \end{vmatrix} = m^2p^4 + k^2p^2$$

$$\Delta_M = \begin{vmatrix} d & -kp \\ kp & 0 \end{vmatrix} = k^2p^2$$

$$\Delta_N = \begin{vmatrix} -mp^2 & -d \\ kp & 0 \end{vmatrix} = -kpd$$

$$M = \frac{\Delta_M}{\Delta} = \frac{k^2p^2}{(m^2p^2+k^2)p^2} = \frac{k^2}{m^2p^2+k^2}$$

$$N = \frac{\Delta_N}{\Delta} = \frac{-kpd}{p^2(m^2p^2+k^2)} = \frac{kd}{p(m^2p^2+k^2)}$$

We put the values of M and N in equation (11).

$$x_2 = \frac{k^2}{m^2p^2+k^2}\sin pt - \frac{kd}{p(m^2p^2+k^2)}\cos pt$$

general solution $x = x_1 + x_2 =$

$$= c_1 + c_2e^{-\frac{k}{m}t} + \frac{k^2}{m^2p^2+k^2}\sin pt - \frac{kd}{p(m^2p^2+k^2)}\cos pt \tag{12}$$

We find the values of the constants c_1 and c_2 in the equation (12) using the initial coordinate.

from this $t = 0 \quad x = 0, \quad \dot{x} = 0$

$$\begin{cases} 0 = c_1 + c_2 - \dfrac{kd}{p(m^2p^2+k^2)} \\ 0 = -\dfrac{k}{m}c_2 + \dfrac{k^2p}{m^2p^2+k^2} = 0 \end{cases}$$

$$c_2 = \frac{k^2pm}{k(m^2p^2+k^2)} = \frac{kpm}{m^2p^2+k^2}$$

$$c_1 = \frac{kd}{p(m^2p^2+k^2)} - \frac{kpm}{m^2p^2+k^2} = \frac{k(d-p^2m)}{p(m^2p^2+k^2)}$$

We put the determined values of c_1 and c_2 into equation (12).

$$x = \frac{k(d-p^2m)}{p(m^2p^2+k^2)} + \frac{kpm}{m^2p^2+k^2}e^{-\frac{k}{m}t} + \frac{k^2}{m^2p^2+k^2}\sin pt - \frac{kd}{p(m^2p^2+k^2)}\cos pt \tag{13}$$

Equation (13) represents the flow of cotton in a pipe mounted on an elastic element. We analyze this equation graphically using the Maple program (Figure 3).

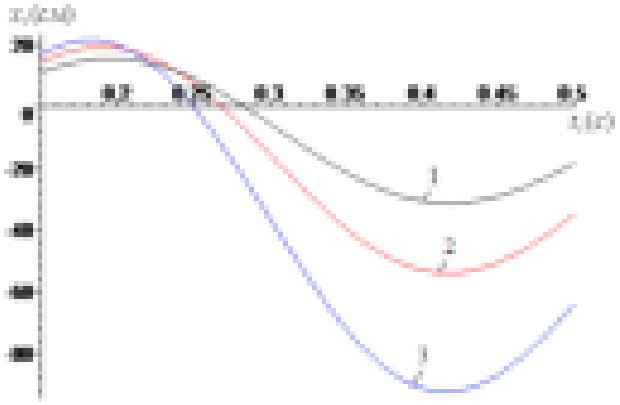


Figure 3. Time-dependent graph of the bicker coefficient $\kappa_1 = 0{,}9$ $\kappa_2 = 0{,}7$ $\kappa_3 = 0{,}5$ of the cotton flow along the OX axis in a pipe with an elastic element.

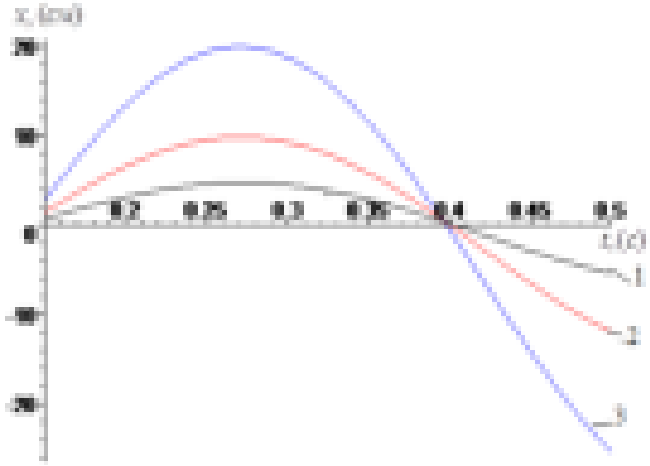


Figure 4. Time-dependent graph of the movement of the cotton flow along the OX axis in a pipe with an elastic element at different values $m_1 = 0{,}09\,гр$ $m_2 = 0{,}07\,гр$ $m_3 = 0{,}05\,гр$ of the cotton particle size.

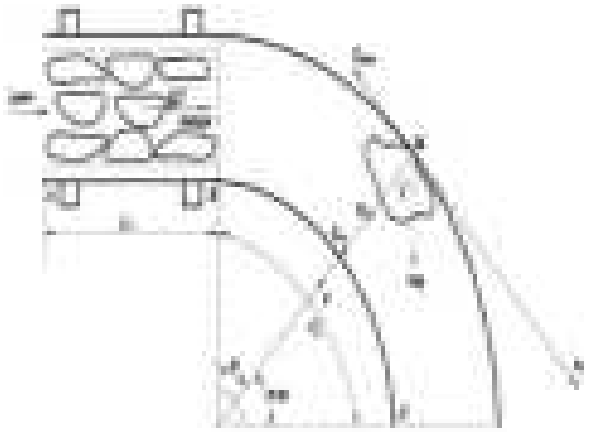


Figure 5. Scheme of movement of cotton flow along an arc in a pipe with an elastic element

I) We express the movement of the cotton flow in the pipe with an elastic element installed in the sections AB and BC of the differential equation. External forces acting on cotton bolls

$$\gamma = \frac{\pi}{2} - (\alpha - \varphi); v_\tau = R \cdot \dot{\varphi}; \overline{F}_{ишк} = f \cdot N$$

$$m\ddot{L} = k\dot{L}^2 + d\sin pt \qquad (14)$$

$$\dot{L}dL = \frac{d\dot{L}}{dt} \cdot dL = \dot{L}d\dot{L}$$

We integrate the differential equation (14).

$$\frac{\dot{L}d\dot{L}}{\frac{k}{m}\dot{L}^2 + \frac{d}{m}\sin pt} = dL$$

$$\frac{m}{2k}\ln\left(\frac{k}{m}\dot{L}^2+\frac{d}{m}\sin pt\right)=L+C_1 \tag{15}$$

From equality (15), we use the initial condition to determine the value of the constant C_1.

$$t=0 \quad L=0 \quad \dot{L}=0 \quad \Rightarrow C_1=\frac{m}{2k}\ln\left(\frac{d}{m}\sin pt\right)$$

we put the determined constant value in the equation (15).

$$\frac{m}{2k}\ln\left(\frac{k}{m}\dot{L}^2+\frac{d}{m}\sin pt\right)-L+\frac{m}{2k}\ln\left(\frac{d}{m}\sin pt\right)$$

$$\dot{L}^2=\frac{d}{k}\sin pt\left(e^{\frac{2k}{m}L}-1\right)$$

using the boundary condition $L=L_1 \quad \dot{L}=v_B$

$$v_B=\sqrt{\frac{d}{k}\sin pt\left(e^{\frac{2k}{m}L_1}-1\right)} \tag{16}$$

II) We express the differential equation of motion of cotton flow in a pipe with an elastic element along the arc BC

$$\begin{cases} m\dfrac{dv_\tau}{dt}=mg\cos\left(\dfrac{\pi}{2}-\gamma\right)-F_{ишк} \\ m\dfrac{v^2}{R}=N+F_{эл}+mg\cos\gamma \end{cases} \tag{17}$$

From the equation (17), we determine the pressure force normal to the cotton pieces on the pipe wall.

$$\begin{cases} mR\ddot{\varphi}=mg\sin\gamma-f\cdot N \\ m\dfrac{v^2}{R}=N+k\cdot\Delta l+mg\cos\gamma \end{cases} \tag{18}$$

From the equation (18), we determine the solution of the speed of the test using the flow of cotton moving along the test.

$$R\ddot{\varphi}=g\cos(\alpha-\varphi)-\frac{fN}{m}\Big/\cdot d\varphi$$

from this $\ddot{\varphi}d\varphi=\dfrac{d\dot{\varphi}}{dt}\cdot d\varphi=\dot{\varphi}d\dot{\varphi}$

$$\dot{\varphi}d\dot{\varphi}=\left(\frac{g}{R}\cos(\alpha-\varphi)-\frac{fN}{m}\right)\cdot d\varphi$$

$$\frac{\dot{\varphi}^2}{2}=\frac{g}{R}\sin(\alpha-\varphi)-\frac{fN}{m}\cdot\varphi+C_1 \tag{19}$$

we determine the value of the constant C_1 using the initial condition

$$\varphi=0 \quad \dot{\varphi}=\frac{v_B}{R}=\frac{1}{R}\sqrt{\frac{d}{k}\sin pt\cdot\left(e^{\frac{2kL_1}{m}}-1\right)}$$

(19) into the equation

$$\frac{d}{2R^2k}\sin pt\left(e^{\frac{2kL_1}{m}}-1\right)=\frac{g}{R}+L_1$$

$$C_1 = \frac{d}{2R^2k}\sin pt\left(e^{\frac{2kL_1}{m}} - 1\right) - \frac{g}{R}$$

$$\frac{\dot{\varphi}^2}{2} = \frac{g}{R}\sin(\alpha-\varphi) - \frac{tN}{m}\cdot\varphi + \frac{d}{2R^2k}\sin pt\left(e^{\frac{2kL_1}{m}} - 1\right) - \frac{g}{R}$$

$$v_\tau = R\cdot\dot{\varphi} = \sqrt{2gR\sin(\alpha-\varphi) - 2\cdot\frac{fN}{m}\cdot R^2\varphi + \frac{d}{k}\sin pt\left(e^{\frac{2kL_1}{m}} - 1\right) - 2gR} \qquad (20)$$

Equation (20) represents the average velocity along the BC arc of cotton flow in a pipe with an elastic element installed.

From the equation (15), we determine the normal compressive force along the BC are

$$N_1 = \frac{m}{R}v^2 - k\Delta l - mg\sin(\alpha-\varphi) \qquad (21)$$

(21) instead of the velocity v^2 in the equation, we determine the normal compressive force by putting the velocity of the elastic element at the point B in the cotton flow in the pipe

$$v_B = \sqrt{\frac{d}{k}\sin pt\left(e^{\frac{2kL_1}{m}} - 1\right)}$$

The equation of the dependence of the speed of the elastic element pipe at point B on the diameter of the pipe and the coefficient of uniformity and the mass of the cotton ball was analyzed graphically using the Maple program.

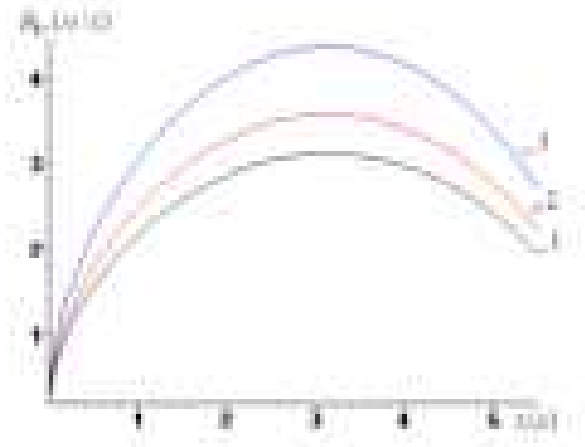


Figure 6. Time-dependent graph of the velocity of a piece of cotton in a pipe with an elastic element at different values $\kappa_1 = 0{,}9$ $\kappa_2 = 0{,}7$ of the coefficient of uniformity.

$$N_B = \frac{m}{R}\cdot\frac{d}{k}\sin pt\left(e^{\frac{2kL_1}{m}} - 1\right) - k\Delta l - mg\sin\alpha \qquad (22)$$

Equation (22) BC represents the pressure force of cotton flow in arc pipe at point B.

From the movement of the cotton stream along the arc, the pressure force at point M is determined as follows

$$N_M = \frac{m}{R}\cdot\left(2gR\sin(\alpha-\varphi) - \frac{fN}{m}R^2\varphi + \frac{d}{k}\sin pt\left(e^{\frac{2kL_1}{m}} - 1\right) - 2Rg\right) - k\Delta l - mg\sin(\alpha-\varphi) \qquad (23)$$

Equation (23) represents the compressive force from the point M of the cotton flow from the pipe with an elastic element installed along the arc BC.

Figure 7. A graph of the compressive force normal to the cotton piece versus time at different values $\kappa_1 = 0{,}9$ $\kappa_2 = 0{,}7$ $\kappa_3 = 0{,}5$ of the elasticity coefficient.

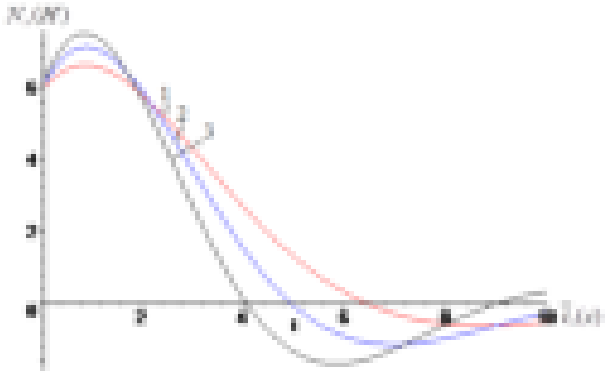


Figure 8. The elastic element shows the movement of cotton in the pipe as a function of time and speed in different values $\vartheta_1 = 10\frac{\text{M}}{\text{c}}$; $\vartheta_2 = 15\frac{\text{M}}{\text{c}}$; $\vartheta_3 = 20\frac{\text{M}}{\text{c}}$.

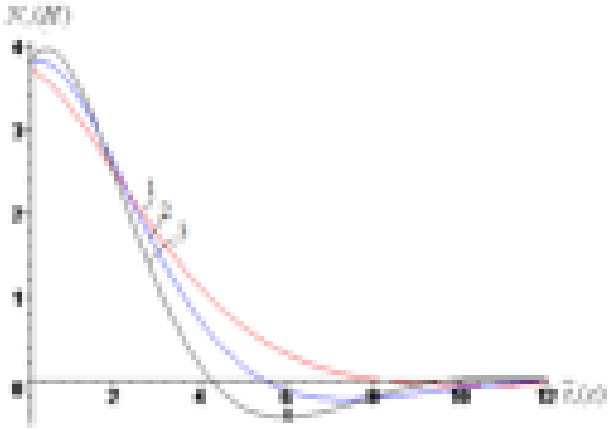


Figure 9. Time-dependent graph of the movement of the cotton flow along the OX axis in a pipe with an elastic element at different values $m_1 = 0{,}09 гр$ $m_2 = 0{,}07 гр$ $m_3 = 0{,}05 гр$ of the cotton particle size.

Conclusion. From the analysis of the above graphs, the change of the pressure force on the pipe wall depending on the movement of the cotton flow in the pipe with elastic elements, the speed of the pipe, the masses of the cotton particles and the coefficients of uniformity are presented in the graphs. It was possible to reduce the force of the impact caused by the impact of the cotton particles on the pipe walls, as a result, the damage to the seed was reduced and the cleaning efficiency was increased.

References:

[1]. Muradov R. M., Muxametshina E. T. Analiz issledovaniy po sovershenstvovaniyu elementov pnevmotransportnix ustanovok v selyax snijeniya povrejdennosti xlopkovix semyan //Universum: texnicheskaya nauka. – 2020. – №. 6-2 (75). – S. 40-44.

[2]. Maxkamov R.G. Issledovaniye poverxnostey rabochix organov xlopkoochistitelnix mashin i optimizatsiya ix parametrov s selyu povisheniya kachestva volokna. – Diss. dokt. texn. nauk. – M., 1974.
[3]. Xubanov X.I. Issledovaniye protsessa transportirovaniya xlopkovix semyan na xlopkoochistitelnix zavodax. – Diss. kand. texn. nauk. – Tashkent, 1973, s. 28.
[4]. R.Muradov “Paxtani havo yordamida tashuvchi qurilma samaradorligini oshirish asoslari ” monografiya, “Namangan” nashriyoti 2015-270 b.
[5]. G.Jabbarov va boshqalar “Chigitli paxtani dastlabki ishlash texnologiyasi” darslik, Toshkent, O‘qituvchi 1987-328 b.
[6]. A.Burxanov, “Sovershenstvovaniye rabochix elementov pnevmotransportnoy sistemi s selyu soxraneniya prirodnix svoystv semyan pererabativayemogo xlopka”, dissertatsiya k.t.n. Tashkent 1987-159 s

UDC: 626.8

MODELING OF THE PROCESS OF THE INFLUENCE OF A SAW CYLINDER WITH A STRAIGHT ELEMENT IN A MIXER IN SEED LINTERING ON A MOVING SEED LAYER

Norboev Utkir Akbaralievich
PhD , Department “Natural Fibers and Fabric Processing”
Jizzakh Polytechnic Institute

Sulaymonov Rustam Shennikovich
professor of JSC "Paxtasanoat ilmiy markazi"

Egamberdiyev Fazliddin Otakulovich
PhD, Department “Natural Fibers and Fabric Processing”
Jizzakh Polytechnic Institute

Salomov Abubakir Ahmadkulovich
PhD Department “Processing of textile products”
Jizzakh Polytechnic Institute
abubakirsalomov@gmail.com

Annotatsiya. Ushbu maqolada mahalliy va xorijiy paxta tozalash va yog‘-moy korxonalariga joriy etilgan linterlarning konstruksiyalari, avzallik va kamchiliklarini o‘rgangan holda ish unumdorlikni oshiradigan, chigit va momiq sifatini yaxshilaydigan, elektr energiya va ehtiyot qismlar sarfini tejaydigan takomillashtirilgan aralashtirgichga ega bo‘lgan linter ishchi kamerasini qayshqoq element bilan arrali silindrni harakatdagi chigitlar qatlamiga ta’siri jarayonini modellashtirish jarayoni keltirilgan.

Kalit so‘zlar. Paxta, chigit, linter, momiq, modellashtirish, aralashtirgich, rezina.

Аннотация. В данной статье после изучения конструкций, преимуществ и недостатков линта, внедренного на отечественных и зарубежных хлопкоочистительных и масложировых предприятиях, рабочая камера линта с усовершенствованным смесителем, что повышает производительность,

улучшает качество семян и пуха, экономит расход электроэнергии и запасных частей, а также пилит рабочую камеру линта с гибким элементом.Представлен процесс моделирования процесса воздействия цилиндра на семенной слой в движении.

Ключевые слова. Хлопок, семян, линтер, пух, лепка, миксер, резина.

Annotation. In this article, after studying the constructions, advantages and disadvantages of linters introduced in local and foreign cotton ginning and oil enterprises, the working chamber of the linter with the improved mixer, which increases the productivity, improves the quality of seed and lint, saves the consumption of electricity and spare parts, and saws the working chamber of the linter with a flexible element. The process of modeling the process of the impact of the cylinder on the seed layer in motion is presented.

Keywords. Cotton, seed, linter, lint, modeling, mixer, rubber.

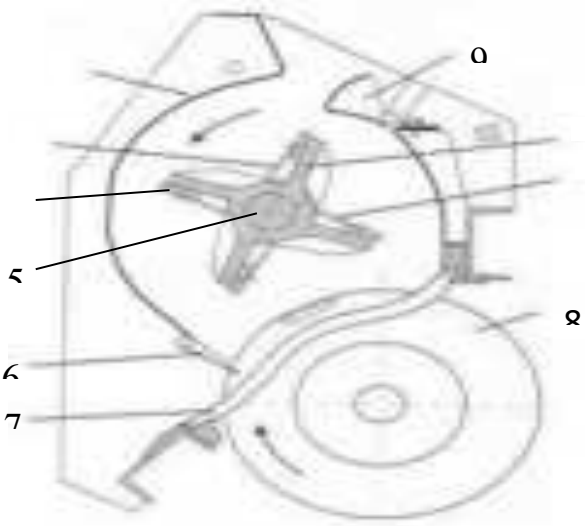
Introduction. In the world, cotton fiber is the main raw material of the textile industry, while cotton wool is the main raw material of the chemical and cellulose-paper industry. Particular attention is being paid to the introduction of modern resource-efficient techniques and technologies for quality production of fiber and cotton raw materials. Due to the fact that the textile industry is not well developed in many countries in the field of cotton, most of the cotton products are exported to the USA, China and India, which have large production [1]. In this regard, special attention is being paid to the creation of techniques and technologies that reduce the number of linters in the technology, reduce the number of linters in the lintering of the seed produced from cotton processing, ensure that the ecological environment in the enterprise is normal, and improve the quality of the produced seed and lint.

Complex measures are being implemented in our republic to develop the cotton-textile cluster system, to equip cotton ginning enterprises with modern local techniques and technologies, to increase the profitability of cotton processing enterprises and the competitiveness of manufactured products. In the development strategy of New Uzbekistan for 2022-2026, including "...increasing the production volume of industrial products by 1.4 times, increasing the production volume of textile industry products by 2 times, studying the impact of textile industries on production in joining the World Trade Organization... ” tasks are specified [2]. In the implementation of these tasks, one of the important tasks is the development of a new technique of lintering of seed, which will increase the efficiency of production and satisfy the needs of the consumer for seed and fluff.

Experiment method. Depending on the selective and industrial varieties of processed cotton, the content of the seed produced from the saw ginning of medium fiber cotton is on average from 11% to 17% compared to the initial mass of the seed, the content of the seed produced from the long fiber cotton on the roller ginning is on average from 2.4% to 5.0% fluff and short fluff remains [3]. A cellulose product is obtained from cotton wool in the chemical industry. Linters are used to scrape the required staple length from the surface of the seed.

Having studied the constructions, advantages and disadvantages of linters introduced in domestic and foreign cotton ginning and oil enterprises, a scheme of a linter working chamber with an improved mixer that increases productivity, improves

the quality of seed and fluff, saves electricity and spare parts was developed (Figure 1). On the basis of the developed scheme, we consider the model of compression and displacement of the layer of seeds moving between the saw teeth in the saw cylinder and rubber, which is a viscous element in the mixer, during the linting of the seed, from a theoretical point of view [4].



1- working chamber, 2- plate, 3- cross, 4- rubber, 5- shaft, 6- seed comb, 7- colosnik, 8- saw cylinder, 9- density valve

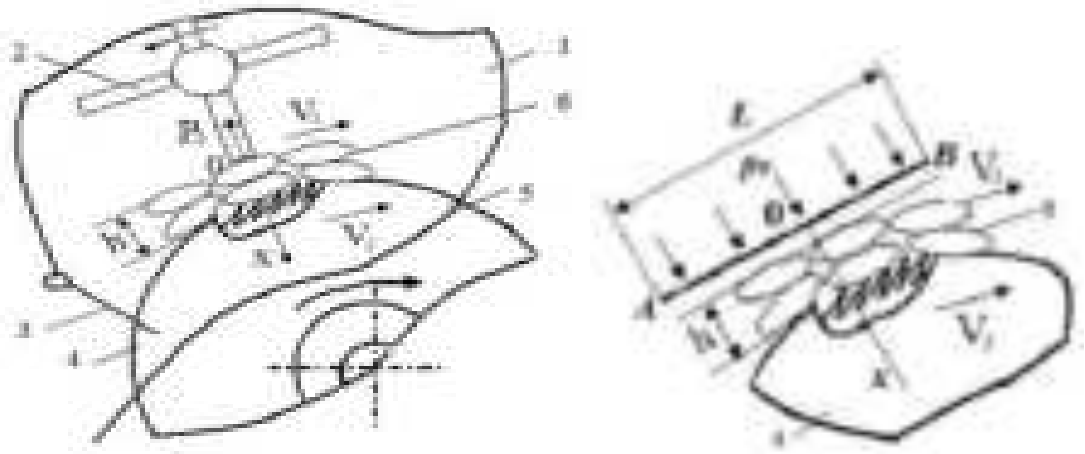
Figure 1. Schematic of a 5LP linter working chamber with an improved stirrer

To model the layer of seeds moving between the saw cylinder and the blade of the mixer, we consider the mass seed as a mechanical system in the form of a solid spherical body (Fig. 2, a).

We study the displacement of dense seed in one direction.

Consider a solid AB rubber of mass m, length L, and a seed layer with a thickness between the teeth of a saw cylinder.

a) b)



1- working chamber, 2- mixer, 3- seed comb,
4- saw cylinder, 5- colosnik grid, 6- seed layer

Figure 2. Scheme of the seed mass in motion in the zone of influence between the saw cylinder and the mixer blade

In this case, the rubber is affected by the same pressure force p_0 from the side and under this effect, it interacts with the elastic element rubber seed layer with the stiffness coefficient k (Fig. 2, b).

Analysis and results. Mass particles fill the layer and form a dense packing in it, i.e. such a packing, the volume concentration of particles in which cannot be reduced by infinitesimal displacements of their centers. They interact only through normal contact forces; friction forces are not taken into account in this condition. The particles of the lower boundary package do not leave the plate until a certain moment and move with it at a speed V_2 along the plane parallel to the layer boundary. In addition, we assume that the upper plate is elastically connected with the package particles moving at a constant speed V_1. Let's direct the axis ox perpendicular to the plane of the layer, and set the origin to the top plane of the layer. Consider the problem in the quasi-stationary formulation and denote by $u(x,t)$ и $v(x,t)$ respectively, the movement of the particles of the package along the axis and perpendicular to it. The medium under consideration, in contrast to a dense continuous medium, has special properties. First, when deformed from the initial state (dense packing), it cannot reduce its volume. Secondly, if an infinitesimal shift occurs in the medium, then, due to purely geometric reasons (particles from a close-packed state to a loosely packed state), the shear generates loosening of the medium, resulting in a decrease in volume in the compressed packing. Therefore, the relative change in volume $\varepsilon_{xx} = \dfrac{du}{dx}$ is a net shift function $\varepsilon_{xy} = \dfrac{dv}{dx}$, according to work, define dependency [5-7]:

$$\frac{du}{dx} = -\mu\left(\frac{dv}{dx}\right)^2 \tag{1}$$

where: μ - dimensionless coefficient of layer compression, depending on the volume concentration of close packing and the geometry of the seeds relative to each other.

The equations of equilibrium and state of the package are written in the form

$$\frac{d\sigma_x}{dx} + \rho g x = 0, \quad \frac{d\sigma_{xy}}{dx} = 0 \tag{2}$$

The dependences between stresses and strains have the form

$$\sigma_x = -p(1 - 2\mu\frac{du}{dx}) \quad \sigma_{xy} = 2\mu p\frac{dv}{dx} \tag{3}$$

Longitudinal stress, taking into account (1), takes the form

$$\sigma_x = -p[1 + 2\mu^2(\frac{dv}{dx})^2] \tag{4}$$

Equations (2), if dependence (1) is taken into account, contain two unknowns $p(x,t)$, $v(x,t)$ and are integrated under the following boundary conditions ($P_0 = p_o L$)

$$m\ddot{u}_0 = P_0 - k[u_0 + (\mu\frac{\partial v(0,t)}{\partial x})^2],\ v = V_1 t \ \text{ at } \ x = 0 \tag{5}$$

$$p = k(u_0 + (\mu\frac{\partial v(h,t)}{\partial x})^2],\ \ v = V_2 t \ \text{ at } \ x = h \tag{6}$$

Finding features $p(x,t)$, $v(x,t)$, satisfying equations (2) and boundary conditions (5) and (6) is difficult, and therefore we accept the following additional conditions

$$\mu^2(\frac{\partial v}{\partial x})^2 \approx 0,\ \rho g h \approx 0$$

Then the conditions (5) and (6) take the form

$$m\ddot{u}_0 = P_0 - ku_0],\ v = V_1 t \text{ at } \ x = 0 \tag{7}$$

$$p = ku_0,\ \ v = V_2 t \text{ at } \ x = h, \tag{8}$$

The solution of the first equation from (7) under zero initial conditions has the form

$$u_0 = \frac{P_0}{k}(1 - \cos\omega t)$$

The solution of the first equation from (2) satisfying condition (8) has the form

$$p = p_0(1 - \cos\omega t) \tag{9}$$

Deformation $\frac{\partial v}{\partial x}$ according to the second condition (2), we represent it in the form

$$v = \xi V_2 t + (1 - \xi)V_1 t \tag{10}$$

here $\xi = x/h$,

Shear stress σ_{xy} calculated by the formula

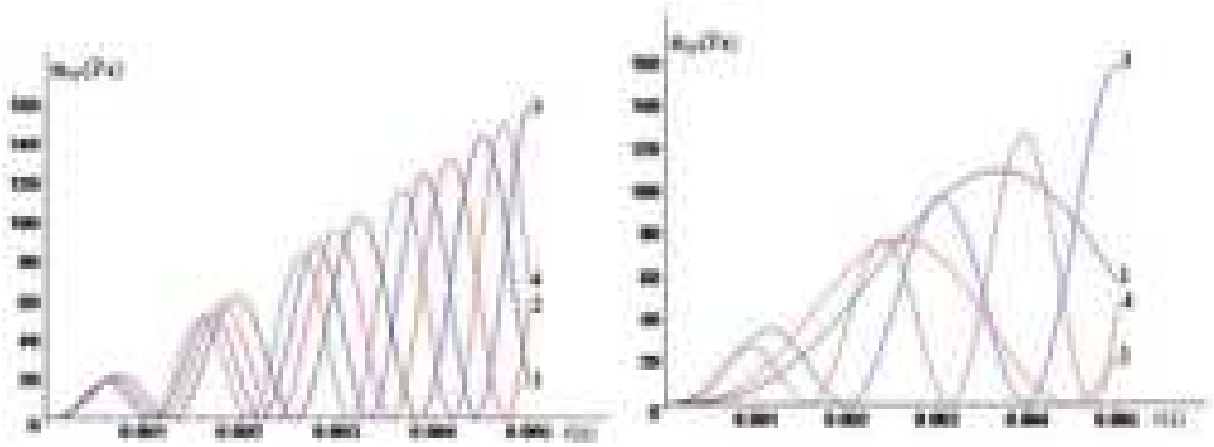
$$\sigma_{xy} = 2\mu p\frac{dv}{dx} = 2\mu p_0(1 - \cos\omega t)(V_2 - V_1)t$$

It is assumed in the calculations $L = 0.006$м, $h = 0.01м$, $V_1 = 8$м/с, $V_2 = 12$м/с, $p_0 = 100Па$, $m = 0.005кг$

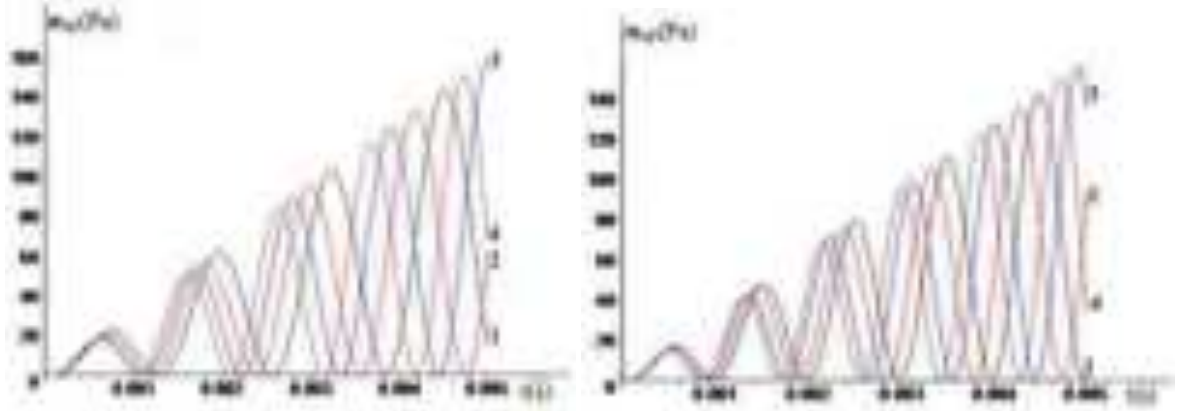
Time of passage of seeds through the teeth $t_0 = L/(V_2 - V_1) = 0.0015$сек

Figure 3 shows the dependencies of shear stress $\sigma_{xy}(Па)$ surface contact of seeds with saw teeth from time to time at different values of the coefficient of rigidity (N/m) of the rubber coating. An increase in this tension to the limit leads to an improvement in the scraping of the lint from the surface of the seeds.

It can be seen from the graphs that the highest value (160 Pa) this force is achieved at stiffness coefficients (curves 3) $k = 5\cdot10^3 Н/м$, $k = 10\cdot10^3 Н/м$, $k = 15\cdot10^3 Н/м$, $k = 25\cdot10^3 Н/м$. This pattern can be used when selecting the type of rubber.



$1-k=5*10^4,\ 2-k=10^4,\ 3-k=5*10^4,\ 1-k=8*10^4,\ 2-k=10^4,\ 3-k=10*10^4,$
$4-k=8*10^4\ \ 4-k=12*10^4$



$1-k=12*10^4,\ 2-k=13*10^4,\ 3-k=15*10^4,\ 1-k=20*10^4,\ 2-k=22*10^4,\ 3-k=25*10^4,$
$4-k=18*10^4\ \ 4-k=27*10^4$

Figure 3. A graph of yield stress $\sigma_{xy}(Pa)$ versus time

Conclusion. In seed linting, the interaction of rubber with the seed bed was studied by the pressure exerted on the rubber by the stirrer blade. Taking into account the rubber stiffness coefficient, the compression and displacement of the seed layer moving between the rubber mounted on the blades in the mixer and the saw teeth in the saw cylinder was modeled.

The height of the rubber sticking out of the mixer blades is 6 mm, the thickness of the rubber is 6 mm, and the stiffness coefficient is $k=5\cdot10^4 N/m$, $k=10\cdot10^4 N/m$, $k=15\cdot10^4 N/m$, $k=25\cdot10^4 N/m$. In this case, it was determined that the impact stress affecting the process should be equal to $\sigma_{xy}=160(Pa)$ for the process of scraping fluff from the surface of the seed to be effective.

References

[1]. International cotton advisory committee. Washington, From the Secretariat of the ICAC. https://icac.org/,emailsecretariat@icac.org. September 1, 2017.

[2]. O‘zbekiston Respublikasi Prezidentini 2022 yil 28 yanvardagi «2022- 2026 yillarga mo‘ljallangan yangi O‘zbekistonning taraqqiyot strategiyasi to‘g‘risida»gi PF-60-sonli Farmoni. Toshkent, 2022.

[3]. Sulaymonov R.Sh., Mardonov B.M., Lugachev A.Ye. Issledovaniye dvijeniye zernistoy sredi vnutri rabochey kameri lintera// Trudi mejd.nauch. konf.

«Raxmatulinskiye-Ormonbekovskiye chteniya».- g. Bishkek , 27-29 iyunya. 2013. –S. 111-113.
[4]. B.M. Mardonov, R.Sh. Sulaymonov, U.A. Norboyev. Ploskoye ustanovivsheyesya vrashatelnoye dvijeniye sloya zernistoy sredi v krugovom kolse. “Fan va ishlab chiqarish integratsiyalashuvi sharoitida to‘qimachilik va yengil sanoatdagi muammolar va ularni bartaraf etish yo‘llari” mavzusida o‘tkazilgan xalqaro ilmiy-amaliy anjumani. Maqolalar to‘plami. 1- tom. 5-6 may. 2022. Namangan. 204-207 b.
[5]. B.M. Mardonov, R.S. Sulaymonov, U.A. Norboev,G.N. Norboyeva. Study of the movement of seeds between the turner blades and the saw cylinder / Urganch davlat universitetining “Electronic journal of actual problems of modern science, education and training” jurnali, №9, 2022.(05.00.00; №26).
[6]. Sevostyanov A.G., Sevostyanov P.A. Modelirovaniye texnologicheskix protsessov. Moskva, Legkaya i pishevaya promishlennost, 1980.- 344 s.
[7]. Paxtani dastlabki ishlash bo‘yicha spravochnik. F.B. Omonovning umumiy taxriri ostida. “Paxtasanoat ilmiy markazi” AJ. Toshkent “Voris nashriyot”. 2008.- 413 b.

UDC: 626.5

STUDY OF THE FLOW OF SEED MOVING BETWEEN THE TWO BLADES OF THE SAW CYLINDER AND THE MIXER IN THE PROCESS OF LINTERING

Norboev Utkir Akbaralievich
PhD, Department “Natural Fibers and Fabric Processing”
Jizzakh Polytechnic Institute

Sulaymonov Rustam Shennikovich
Professor, JSC "Paxtasanoat ilmiy markazi"

Salomov Abubakir Ahmadkulovich
PhD, Department “Processing of textile products”

Sharopov Bobir Nabijon ugli
Assistant, Department “Natural Fibers and Fabric Processing”
Jizzakh Polytechnic Institute
sharapovbobur@gmail.com

Annotatsiya. Ushbu maqolada mahalliy linterlarning chigitlarni linterlash zonasida oqimdan ajratilgan qatlam harakatini statsionar deb olib, ishqalanish koeffitsiyentini inobatga olgan holda oqim tezligini va oqimga ta’sir etuvchi kuchlarni polyar burchakka bog‘liqligi o‘rganilgan. Bunga asosan chigitni linterlashda chigit shikastlanishi yuqori bo‘lmasligi uchun oqimga ta’sir etuvchi kuchlarning meyoriy chegaralari aniqlangan.

Kalit so‘zlar. Paxta, chigit, linter, momiq, oqim, qatlam, ishqalanish, kuch.

Аннотация. В данной работе исследована зависимость скорости потока и сил, действующих на поток, от полярного угла в зоне затравочного ворса

локальных линтов, считая движение разделительного слоя стационарным и учитывая коэффициент трения. Исходя из этого, определены нормативные пределы сил, воздействующих на поток, чтобы повреждение семени при распушивании семян было невелико.

Ключевые слова. Хлопок, семя, линт, пух, флюс, слой, трение, сила.

Annotation. In this paper, the dependence of the flow velocity and the forces acting on the flow on the polar angle is studied in the seed linting zone of local linters, considering the motion of the separation layer as stationary and taking into account the friction coefficient. Based on this, the normative limits of the forces affecting the flow have been determined so that the damage of the seed during linting of the seed is not high.

Keywords. Cotton, seed, linter, fluff, flux, layer, friction, force.

Introduction. In the world, extensive research and development works are being carried out within the framework of the production and introduction of scientifically based modern techniques and technologies in cotton processing. In this regard, it is important to increase the resource efficiency of the linter, which is one of the main equipment of cotton ginning enterprises, to automate the work process, to improve the productivity and the quality of the manufactured products. At the same time, it is necessary to develop a resource-saving improved mixer for linters, to justify its parameters, to increase efficiency by reducing the level of mechanical damage that negatively affects the yield of oil products from technical seeds, and in the process of linting technical and seed seeds.

Decree of the President of the Republic of Uzbekistan No. PF-60 dated January 28, 2022 "On the new development strategy of Uzbekistan for 2022-2026", PQ-4707 dated March 4, 2015 "Structural reforms, modernization and production for 2015-2019 Decision on the program of diversification measures [1], No. PQ-397 of June 22, 2020 "Decision of the Cabinet of Ministers of the Republic of Uzbekistan on the establishment of the association "Uzbekistan cotton textile clusters" [2] and other regulations related to this activity This research works to a certain extent to fulfill the task defined in the legal documents.

Experiment method. A number of scientists in the direction of improvement of linter working parts in cotton seed linting, improvement of seed linter technology, improvement of resource efficiency, impact on production processes of cotton seed linter and quality and quantity indicators of extracted seed and fluff: D.Michael, W. Stanley, Jr. Mangialardi, A.C Griffin, S.B. Armijo, S.E. Hugs, S.E. Anthony J Price, and others conducted scientific research.

A number of scientists in our country are trying to solve the fundamental and practical issues of improving the process of seed linting and the quality of manufactured products: B.A. Levkovich, S.P. Ivanov, I.I. Khokhlov, K.K. Iskanderov, V.V. D'yachkov, Q. Sabirov, B. Ya. Kushakeev, R.Sh. Sulaymanov, E.K. Nuraliev, M.M. Ochilov and others made significant contributions to the development of the field.

However, the problem of creating a linter equipment that improves the quality of the product by increasing the productivity of the linter, reducing the mechanical damage of the seed, reducing the level of dirtiness of the lint, and accelerating the

removal of fluff from the surface of the seed during the linting of the seed has not been sufficiently studied.

The degree of lint removal during the linting process is a function of several factors. One of them is the pressure exerted on the flow of seeds circulating between the surface of the saw cylinder and the blades of the mixer [3]. Due to a defect in the construction of the mixer, a part of the seed flow passes through the gap between the mixer blades and the shaft in the linting zone the surface is not given the required amount of pressure by the flow of seeds.

In order to create the necessary pressure on the saw cylinder by the flow of seeds moving between the two blades while scraping the fluff from the surface of the seed in the lintering zone, the gap between the blades in the mixer and the shaft was closed with a metal sheet.

We will theoretically study the interaction between the seed mass in the layer and the saw cylinder.

We introduce the polar system of coordinates with the center at point O and consider the interaction between the saw cylinder and the layer of seeds in the range ABCD (Fig. 1). We separate the element $ds = Rd\alpha$ from the layer and construct the Euler equation with respect to the pressure, taking the motion of the layer as stationary

$$\rho\upsilon\frac{dv}{ds} = -\frac{dp}{ds} + \rho g(\sin\alpha - f\cdot\cos\alpha) - f\frac{v^2}{R}\rho\ 0 < \alpha < \pi/2 \qquad (1)$$

here α – polar angle between horizons, f – coefficient of friction between the seed roller and the apron at the point of view, for the solution of equation (1), we assume the following case:

1. In the stationary state of the flow

$$\rho\cdot v\cdot h\cdot L = \rho_0\cdot v_0\cdot h\cdot L = Q \qquad (2)$$

here ρ_0, v_0 – Density and speed of flow in the AB segment, L- length of saw cylinder.

2. We model the flow of seeds, taking into account the equation that determines the relationship between density and pressure.

$$\rho = \rho_0[1 + A(p - p_0)] \qquad (3)$$

$A(p - p_0) << 1$ and from equations (2) and (3) we get the following:

$$v = \frac{v_0}{1 + A(p - p_0)} \qquad (4)$$

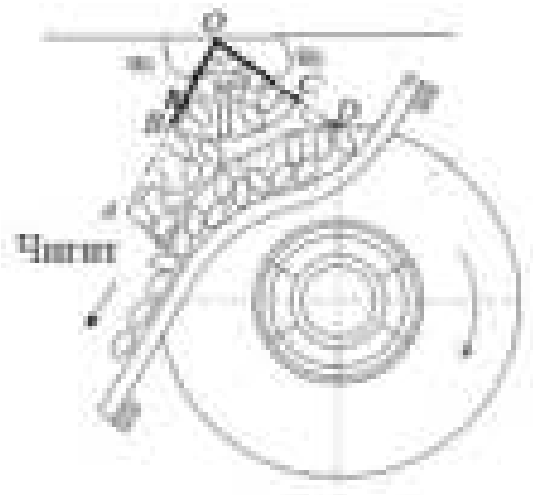


Figure 1. The scheme of the interaction of the saw cylinder with the layered seed mass

here p_0 - Pressure in the AB segment, A- model against seed compaction $K = 1/A$. Using equations (2) and (3), we write equation (1) with respect to the flow rate as follows [4]:

$$\frac{d\bar{v}}{d\alpha} = \frac{gR}{c^2}\frac{v(\sin\alpha - f\cdot q\cdot\cos\alpha)}{(\bar{v}^2-1)} - \frac{f\cdot\bar{v}^3}{\bar{v}^2-1} \tag{5}$$

here $\bar{v} = v/c$, $c = \sqrt{\frac{1}{\rho_0 A}} = \sqrt{\frac{K}{\rho_0}}$

Equation (5) is nonlinear with respect $v(\alpha)$. In beam AB, we call the seed velocity in the layer $v_{AB} = v_0$ and consider it equal to $v/c \ll 1$. In this case, we make the equation (5) linear:

$$\frac{d\bar{v}}{d\alpha} = -\bar{v}a(\sin\alpha - f\cos\alpha) \tag{6}$$

The solution of this equation gives the following which satisfies condition $\bar{v}(\alpha_0) = \bar{v}_0 = v_0/c$

$$\bar{v} = \bar{v}_0 \exp[a(1-\cos\alpha) - f\sin\alpha)] \tag{7}$$

We determine the flow density and pressure from equation (2), which represents the speed of the flow:

$$\rho = \rho_0 v_0 / v,\ p = p_0 + K(v_0/v - 1)$$

Analysis and results. Figure 2 shows the dependence of the seed flow rate $v(\mathrm{m}/s)$ (Fig. 2a) and the forces affecting the flow $P = Sp(H)$ (Fig. 2b) on the polar angle α. Here $S = 4\pi R_c^2$, $R_c = \sqrt[3]{3V/4}$, $p_0 = \rho_0\omega^2 R$, $V = 3.14abc$.

a) b)

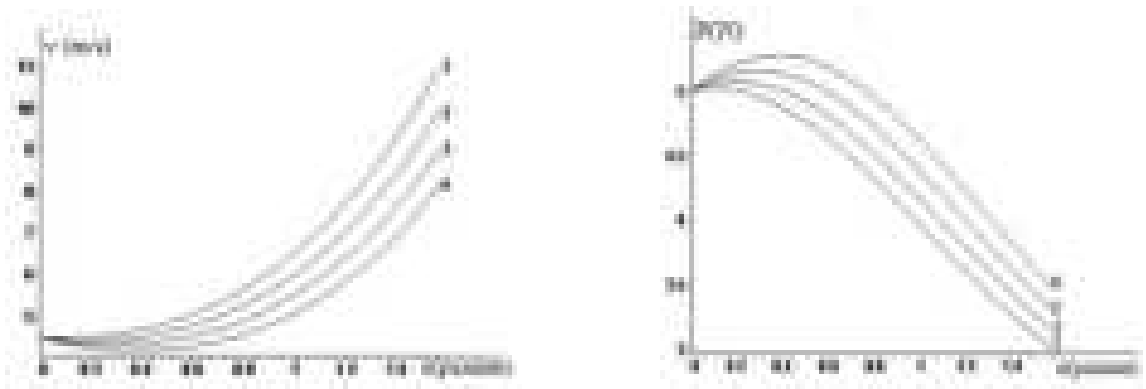


Figure 2. Graph of the dependence of the seed flow rate $v(\mathrm{m}/s)$ (Fig. 2a) and the forces affecting the flow $P = Sp(N)$ (Fig. 2b) on the polar angle α at the values of the friction coefficient $1-f = 0.1$, $2-f = 0.2$, $3-f = 0.3$, $4-f = 0.4$.

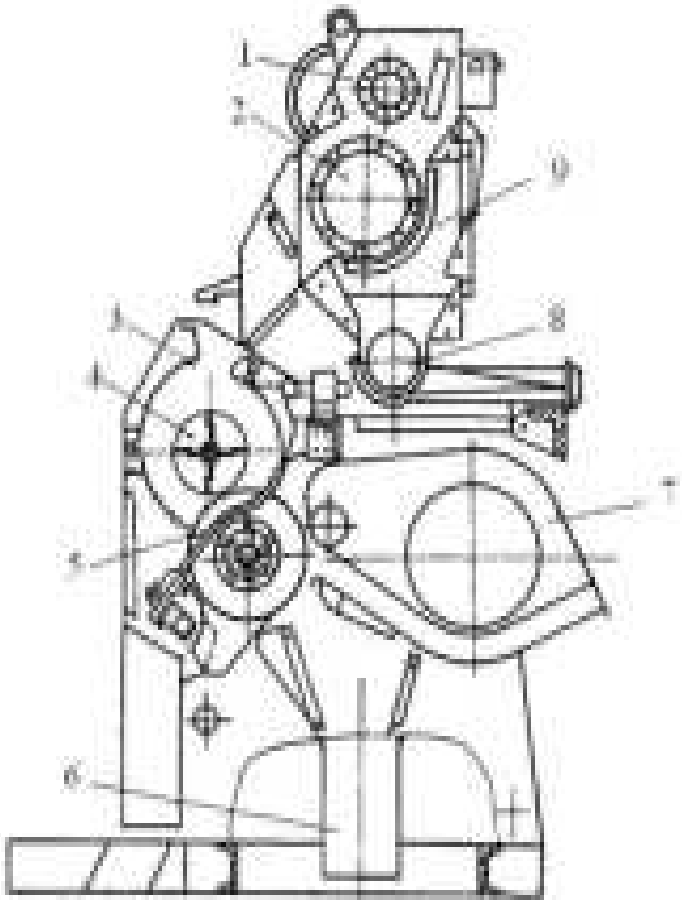
Ҳисоблаш ишларида қуйидаги катталиклар олинди: $K = 12000Pa$, $v_0 = 4.47m/\mathrm{s}$, $\rho_0 = 80kg/\mathrm{m}^3$, $a = c = 0.003\mathrm{m}$, $b = 0.005m$, $\omega = 50s^{-1}$, $R = 0.089\mathrm{m}$.

From the analysis of the graphs presented in Fig. 2 (a, b), it can be seen that increasing the friction coefficient reduces the process of scraping the fluff from the surface of the seed in the flow along the arc between the blades, and the force acting

on the seed increases. At the selected values, the force acting on the seed satisfies the required $P = 4 \div 6N$ condition without exceeding $6N$ [5].

Today, 5LP type linters are mainly used in cotton ginning enterprises in the cotton-textile cluster system in our Republic (Fig. 3). In order to study the effectiveness of linter in production, pilot-research works were carried out at the Boka cotton ginning enterprise of Tashkent region. Before starting the experiment, one of the linters in the technological system was selected. Experiments were carried out in technical seeds produced from S-6524 selection II grade 2 cotton, with initial moisture content of 9.6% and fluffiness of 11.1%. Experiments were carried out on new saws with an outer diameter of 320 mm and used for 4 hours.

During the period of research work, samples of 5LP before linter and linter produced seed, fluff after linter were taken and analyzed in laboratory conditions. Samples were replicated 9 times to ensure accurate results. The performance of the 5LP linter on the seed was determined by the timing method. Every 3 minutes, the seeds coming out of the working chamber of the linter were collected and weighed on an electronic scale in the pressing section. In order to determine the performance of fluff, the rest of the linters in the technology were temporarily stopped, and the fluff falling into the press bag was collected every 3 minutes after the use of the linter set aside for the experiment. In order for the results to be clear, the experiments were repeated 9 times and the average value of the result was obtained.



1- supply roller, 2- leveling-cleaning drum, 3- working chamber, 4- mixer, 5- saw cylinder, 6- top tube, 7- air chamber, 8- exhaust auger, 9- mesh surface

Figure 3. Schematic diagram of the 5LP type linter

As a result, the productivity of the 5LP linter was 724 kg/h on seed and 23.8 kg/h on lint. The hairiness of the produced seed was on average 8.4%, damage was on average 4.7%. It was determined that the mass percentage of dirty mixtures and whole seeds in the fluff is 9.1% on average, the length of the staple is 6/7 mm, according to the state standard UzDst 645:2016 "Cotton fluff", it belongs to the B type "Iflos" class according to the technical conditions.

Experimental work on the working condition of the 5LP linter and the quality index of the produced seed and lint showed that the actual working efficiency of the equipment on the seed was on average 54% less on the seed and on average 21% on the lint than the work efficiency in its technical characteristics, and the damage of the seed and the entire fluff in the lint showed that the quality indicator is low due to the high mass fraction of seed and dirty mixtures [6].

It is known that in 5LP linters, the most impact of the saw tooth on the seed occurs when it passes through the surface connecting the centers of the saw cylinder with the agitator of the seed. In this case, since the stirrer blade and the saw tooth are metal, the saw with linear velocities of 12.3 m/s and the blade at 4.47 m/s will cause increased seed damage. In addition, the presence of a gap between the blades of the mixer and the shaft does not allow the seed mass between the two blades to be pressed against the saw cylinder with the necessary pressure for a certain period of time. This, in turn, does not remove the necessary amount of fluff from the surface of the seeds. Due to the fact that the fluff is not removed from the surface of the seed in time, it increases the time of the seeds remaining in the working chamber and causes the damage of the seeds due to their repeated contact with the saw teeth. The retention of lintered seeds in the chamber without leaving the chamber in time leads to an increase in the density of the seed roller. As a result, the speed of the seed roller decreases, the supply of seeds from the supply system to the working chamber is reduced. All this causes a decrease in the productivity of the linter, a decrease in the quality of the produced seed and lint [7].

Conclusion. Due to the low productivity of the 5LP linter, in order to prevent the accumulation of seeds in the linter section with timely transfer of the seeds produced by the technology of cotton ginning today, according to "Coordinated technology of cotton preliminary processing" - PDI70-2017, two rows of 6 in each row, a total of 12 pieces 5LP linters are installed. The large number of linters in technology, on the one hand, causes a large consumption of electricity and spare parts, and on the other hand, a large amount of dust is released during the linting of the seed, causing damage to the ecological environment and human health in the linter workshop.

All this shows that for the cotton-textile cluster cotton ginning enterprises, it is necessary to develop and introduce into production localized linter equipment that works with high productivity, improves the quality of seed and fluff, and improves the ecological environment in the workshop.

References:

[1]. O‘zbekiston Respublikasi Prezidentining 2015 yil 4 martdagi «2015-2019 yillar uchun tarkibiy islohotlar, modernizatsiya qilish va ishlab chiqarishni diversifikatsiya qilishga doir chora-tadbirlari dasturi to‘g‘risida»gi PQ-4707-sonli Qarori. Toshkent 2015.

[2]. «O‘zbekiston Respublikasi Vazirlar Mahkamasining «O‘zbekiston paxta to‘qimachilik klasteri» uyushmasini tashkil etish to‘g‘risidagi 2020 yil 22 iyundagi PQ-397-sonli qarori. Toshkent. 2020.
[3]. A.Ye. Lyav. Matematicheskaya teoriya uprugosti. ONTI. 1994, 675 s.
[4]. A.Z. Mamatov, A.K. Usmankulov, I.Z. Abbazov, U.A. Norboyev, E.T. Mukhametshina. Determination of Temperature of Components of Cotton-RawMaterial in a Drum Dryer with a Constant / IOP Conference Series: Earth and Environmental Science 939 (2021) 012052. doi:10.1088/1755-1315/939/1/012052.
[5]. Miroshnichenko G.I. Osnovi proyektirovaniya mashin pervichnoy obrabotki xlopka. Moskva. «Mashinostroyeniye». 1972. 486 s.
[6]. R.Sh. Sulaymonov, U.A. Norboev. RESEARCH ON THE EFFECTIVENESS OF 5LP LINTER. Actual problems of modern science, education and training. Khorezmscience.uz. 2022. Pp. 78-84.
[7]. R.Sh. Sulaymonov, O‘.A. Norboyev, M.S. Xudoyqulov. 5LP linter ishchi kamerasining asosiy ishchi qismini takomillashtirish. Zamonaviy tadqiqotlar, innovatsiyalar, texnika va texnologiyalarning dolzarb muammolari va rivojlanish tendensiyalari. Ilmiy-texnik anjuman materiallari. 1-qism. Jizzax, 8-9 aprel, 2022.- 89-92 b.

UDC: 621.1

WAYS TO INCREASE THE EFFICIENCY OF THE SEED LINTING PROCESS

Norboev Utkir Akbaralievich
PhD, Department “Natural Fibers and Fabric Processing”
Jizzakh Polytechnic Institute

Sulaymonov Rustam Shennikovich
Professor, JSC "Paxtasanoat ilmiy markazi"

Sharopov Bobir assistant of the Department “Natural Fibers and Fabric Processing”
Jizzakh Polytechnic Institute
bobirsharapov@gmail.com

Annotasiya. Mahalliy va xorijiy linterlarning hozirgi holati o‘rganildi. Paxta chigitlarini lindirlashda mahalliy 5LP linterlar paxta-to‘qimachilik klasterlaridagi paxta tozalash zavodlarining oshirilgan talablariga javob bermasligi aniqlangan. Seriyali 5LP linterlarini ishlatish amaliyoti shuni ko‘rsatadiki, 5LP linterning haqiqiy ishlashi pasportda ko‘rsatilganidan o‘rtacha 50% ni tashkil qiladi. Ma'lum bo‘lishicha, linter samaradorligining pasayishining asosiy sabablaridan biri tokarning ishchi organining mukammalligi emas.

Kalit so‘zlar. Paxta, chigit, linter, momiq, oqim, qatlam, ishqalanish, kuch.

Аннотация. Изучено современное состояние отечественных и зарубежных линтеров. Установлено, что местные линты 5ЛП при линтинге семян хлопчатника не отвечают повышенным требованиям хлопкоочистительных заводов хлопкотекстильных кластеров. Практика эксплуатации серийных линтеров 5ЛП показывает, что реальная производительность линтера 5ЛП в среднем составляет 50% от заявленной в паспорте. Выявлено, что одной из основных причин снижения эффективности линтера является не совершенствование рабочего органа-токара.

Ключевые слова. Хлопок, семян, линтер, пух, поток, слой, трение, сила.

Annotation. The current state of local and foreign linters has been studied. It has been determined that local 5LP linters when linting cotton seeds do not meet the increased requirements of ginneries in cotton-textile clusters. The practice of operating serial 5LP linters shows that the actual performance of a 5LP linter is on average 50% of that stated in the passport. It was revealed that one of the main reasons for the decrease in the efficiency of the linter is not the perfection of the working body-turner.

Keywords. Cotton, seed, linter, lint, flow, layer, friction, force.

Introduction. In modern conditions, the most important indicator of the production activity of an enterprise is the competitiveness of its products, which should be determined by the minimum production costs and high quality, carried out using modern equipment and technology.

Reducing the cost of manufacturing products can be achieved through many factors, such as ensuring the safety of the properties of the feedstock, the economical use of all types of material and labor resources, energy savings, etc.

In this regard, ginneries in cotton-textile clusters are faced with the task of increasing the level of profitability with a decrease in production costs. The linter farm at the cotton plant is the only technological line equipped with a large number of equipment [1-3].

In a regulated technological process, after ginning, a short fiber is left on the seeds, which is called lint. According to average statistics, lint remains on the seeds, which in the total volume is about 10-15% of the initial fiber content of raw cotton, and therefore, the ginneries provide for a technological operation - linting of cotton seeds in order to obtain this product [4-6].

The removal of linters from cotton seeds is carried out on linter machines installed in batteries. Lint is a valuable product for the textile, chemical and paper industries.

Under the conditions of state financing, the costs of lint production were attributed to the cost of cotton fiber and their impact on the selling price was not so significant. In modern conditions of self-financing, this problem requires a revision of selling prices for products, which should take into account the corresponding production costs and the level of profitability. Therefore, linter farming at cotton plants has become unprofitable in the production of lint due to the low productivity of machines for lint.

Among the factors that most significantly affect the reduction of production costs are throughput and removal of linters, as well as reducing the cost of the main parts, by using them economically in the linting process. However, the throughput of the

operating saw linters does not meet the requirements of modern technology for the primary processing of cotton, and besides, they are not highly reliable in operation. Therefore, in the technological process of linting, machines must be installed that meet the requirements of conjugation in terms of throughput and lint removal, as well as high reliability with lower production costs in operation [7-9].

Experiment method. Currently, linters of the 5LP brand are used to implement the technological process of seed linting [10-11]. The lintering process on this machine is carried out by the interaction of the saws on the seed roller in the working chamber of the linter. Under the influence of the agitator and saw cylinder rotating in the working chamber, the seeds form a dense rotating seed roller (Fig. 1, 2). The saw teeth, penetrating into the mass of the seed roller, scrape off the fibrous cover-lint from the surface of the seeds and take it out of the grate. Seeds, as the lint is removed from them and exposed, stand out from the mass of the seed roller and are dropped onto the grate, along which they roll down and are removed from the working chamber [12].

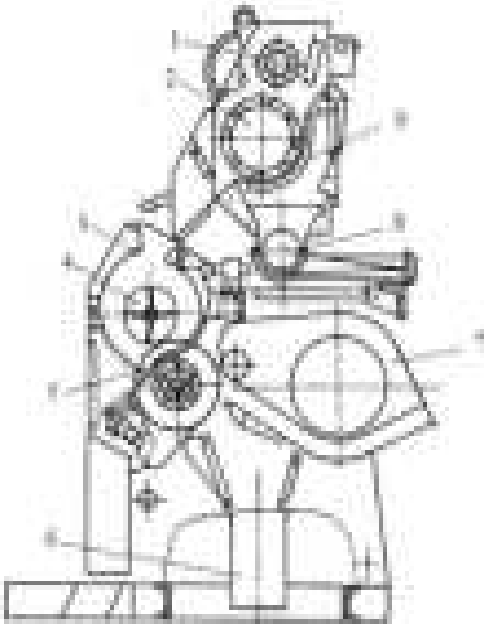


Figure 1. Scheme of saw linter 5LP

1 - feed roller, 2 - screeding drum, 3 - working chamber, 4 - agitator, 5 - saw cylinder, 6 - plenum chamber, 7 - air chamber, 8 - waste auger, 9 - perforated mesh.

The practice of operating serial 5LP linters shows that the actual performance of a 5LP linter is on average 50% of that stated in the passport [13].

Due to the low seed throughput and lint productivity at ginneries, according to the regulations (PDI 70-2017), two rows of linters are installed in the production line, each of which consists of 6 machines (a total of 12 machines) of the 5LP type, which is unprofitable for its processing [14].

One of the main working bodies that determine the performance of the linter is the agitator. Due to the imperfect design of the agitator, lintered seeds do not leave the working chamber in a timely manner. At the same time, the density of the roller increases, and the productivity of the linter decreases.

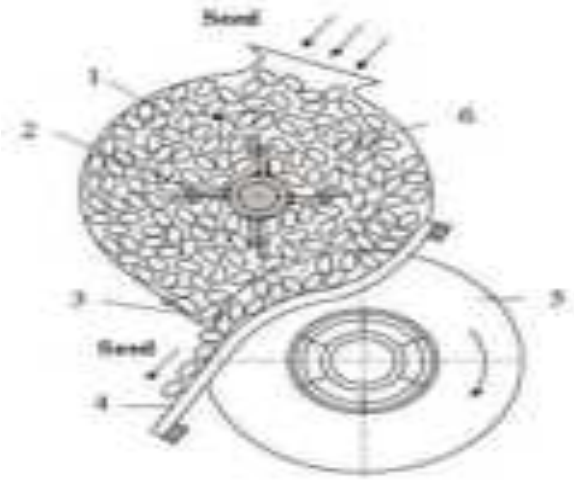


Figure 2. Linter working chamber 5LP
1 - working chamber, 2 - agitator, 3 - seed comb, 4 - grate, 5 - saw cylinder, 6 - seed roller

In developed cotton-growing countries such as China, the USA, Turkey and India, linter machines are used for linting cotton seeds [15, 16]. By design, they are similar to local linters. But an increase in the throughput of foreign linters is achieved mainly by increasing the speed of the saw cylinder, and the intensity of scraping of the linter from the surface of the seeds is achieved due to the height of the saw teeth and the angle of inclination.

The Chinese-made linters of the MR-160-11C brand used in the Djuma cotton plant in the Samarkand region showed an increase in the dust content of the air in the workshop due to the absence of a cleaning section for cleaning seeds in the feed system [17, 18]. The increase in mechanical damage to seeds in the machine is 1.5-2.5% and the clogging of the lint is 2.5-3.5% higher than recommended by the regulations. Due to the increase in seed damage, such linters were not used for the processing of sowing seeds (Fig. 3). An increase in the degree of clogging of the lint and an increase in the amount of lint with a short staple length in its composition sharply reduced the quality of the lint. When linting, the productivity of machines for seeds decreased by an average of 50-60%, for linting by 25-35% compared to passport data. Due to the lack of air consumption for removing the lint from the saw cylinder and for transporting it along the lint outlet to the condenser, air is dusted and the lint is lost [19].

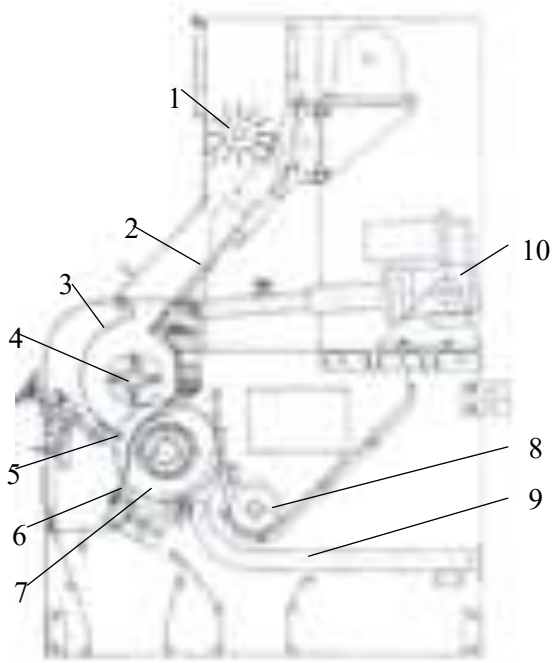


Figure 3. Scheme of the linter MR160-11C

1 - feed roller, 2 - patch, 3 - working chamber, 4 - agitator, 5 - seed comb, 6 - grate, 7 - saw cylinder, 8 - weed auger, 9 - linter channel, 10 - mechanism for raising and lowering the chamber .

Due to the above shortcomings, local 5LP linters were installed in the place of Chinese linters at local ginneries. Speaking about the seed throughput of the linter, it should be noted that the process is associated with a slight scraping of the linter from the surface of the seeds. One of the reasons for this is the imperfection of the agitator design, in connection with which this is associated with a decrease in seed throughput and lint removal. The solution to the problem of increasing the throughput of the linter and removing the lint can be achieved on the basis of fundamentally new approaches to the linting process. One of the ways to solve this problem is to modernize the main unit of the linter 5 LP with its length unchanged by simultaneously solving the problem of intensifying the seed throughput and removing the lint due to the effective participation of the working parts of the agitator in the linting process.

Analysis and results. In the process of seed linting, the degree of linter removal depends on many factors, one of them is the pressure of the generated rotating flow of seeds located between the two bars of the agitator and the surface of the saw cylinder. But due to the design flaws of the agitator in the linting zone, the necessary pressure on the surface of the saw cylinder is not sufficiently carried out, due to the departure of part of the seed flow in the area between the slats and the agitator shaft. In addition, due to the absence of deformation on the driving seeds from the side of the agitator, there is an increase in damage to the seeds during the passage of seed molasses between the metal blade of the agitator and the saw teeth of the saw cylinder during linting.

The need to increase the productivity of linters, improve the quality of manufactured products, save energy and material costs in the production of linters and seeds, requires further improvement in the technique and technology of lintering.

In this regard, research has been carried out to improve the process of linting cotton seeds by modernizing the turner providing the necessary pressure on groups of seeds in the linting zone.

To create the necessary pressure from the side of the moving flow of seeds located between the two bars of the agitator on the surface of the saw cylinder in the process of scraping the lint from the surface of the seeds in the linting zone, the gaps between the bars and the shaft were closed with leaves (Fig. 4). To reduce damage to seeds in the linting zone, rubber nozzles are installed on the agitator bars [20].

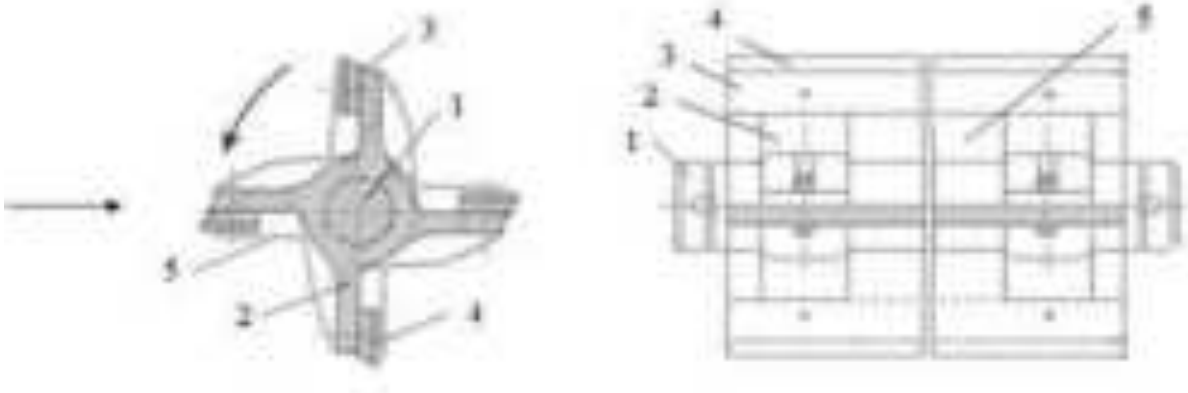


Figure 4. Scheme of the upgraded 5LP linter agitator
1- shaft, 2- cross, 3- metal blade, 4- rubber, 5- sheet

Theoretically, algorithmic solutions were studied and obtained for the influence of the stiffness coefficient over the thickness of the rubber, the height of the rubber protrusion from the metal bar at the intensity of scraping the lint from the driving mass of seeds in the zone between the saw teeth of the saw cylinder and the rubber mounted on the metal bar [21].

According to laboratory studies, the optimal gap between the saw cylinder and the rubber bar is 10 mm, the height of the rubber protrusion from the metal bar is 6 mm, the rubber stiffness coefficient is $-15 \cdot 10^4 N/m^2$.

To determine the performance of the upgraded turner and its effectiveness with a serial turner, the proposed turner is installed on a 30 saw linter 5LP located in the technological laboratory of “Paxtasanoat ilmiy markazi” JSC (Fig. 5). A comparative experimental study was carried out with a 5LP linter with an existing agitator in the production line (Fig. 6 and 7).

Figure 5. Working chamber 30 saw linter 5LP

The research was carried out by changing the distance between the agitator blades and the saw cylinder by 9-12 mm. Experimental work was carried out on cotton seeds of the 1st grade of selection C-6524 with an initial pubescence of 10.28%, damage of 3.21%. When seeds were lintered in a 5LP linter with a serial agitator, seed pubescence was 6.81% and 8.53%, seed damage was 6.28% and 4.76% with a gap between the saw cylinder and the agitator bar in the range of 8–12 mm [22, 23]. The mass fraction of weed impurities and whole seeds in the linter produced by the linter averaged 6.48% and 6.16%. At the same time, the lint was obtained with a staple length of 6/7 mm, which corresponded to grade I of the “Iflos” class, type B, according to GOST O’zDst 645:2016.

Figure 6. Working chamber 30 of the saw linter with a serial turner

1 - working chamber, 2 - blade, 3 - cross, 4 - shaft, 5 - saw cylinder.

When lintering seeds in a 30-saw 5LP linter with a serial feeder, its productivity for seeds averaged 157 kg/h and 128 kg/h, for linter - 5.96 kg/h and 4.93 kg/h.

These figures for the 30 saw 5LP linter with a modernized agitator, seed pubescence after the linter averaged 6.76% and 8.21%, damage averaged 6% and 4.26% with a gap between the saw cylinder and the rubber bar in the range 8-12 mm, that the degree of pubescence and damage is lower than that of seeds from a 5 LP linter with a agitator of the existing design, and the quality of seeds improved by an average of 0.28 (abs)% and 0.5 (abs)% (Fig. 8).

Figure 7. Working chamber 30 of the saw linter with a modernized agitator
1 - working chamber, 2 - blade, 3 - cross, 4 - shaft, 5 - sheet

At the same time, in the gap between the saw teeth of the saw cylinder and the rubber blade of the agitator, at a value of 12 mm, the pubescence averaged 8.21%, the damage was 4.26%, which corresponded to the technological requirement of the 5LP linter when linting seed and industrial seeds.

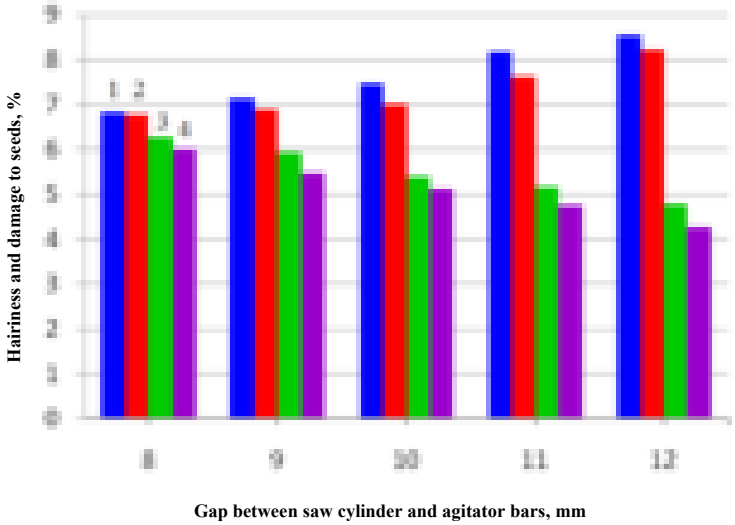


Figure 8. Histogram of the dependence of the gap between the saw cylinder and the agitator on the degree of pubescence and damage to the seeds after 30 saw linter 5LP
1, 3 - in the existing agitator; 2, 4 - in the modernized agitator

The mass fraction of weed impurities and whole seeds in the lint averaged 5.96% and 5.38%, which is 0.52 (abs)% and 0.78 (abs)% lower than the contamination of the lint obtained from the 5LP linter with serial turner (Fig. 9). At the same time, the quality of the lint improved, and an increase by one class was achieved, which corresponded to grade I, class "Urta" type B according to GOST O'zDst 645:2016 [24].

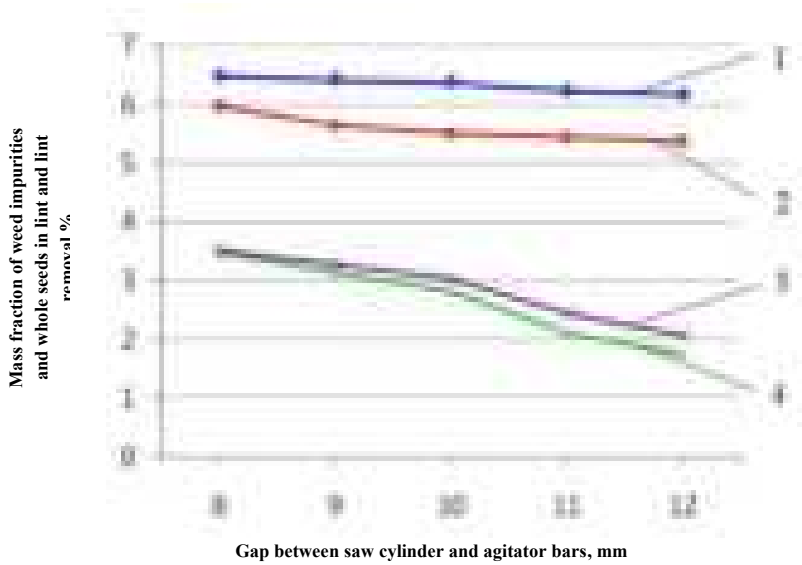


Figure 9. Dependences of the teeth gap of the saw cylinder with a turner on the removal of the linter and on the mass fraction of weeds and whole seeds in the linter 1, 4 - in the existing agitator; 2, 3 - in the modernized agitator

In the modernized 5LP linter, when lintering technical seeds of the 1st grade, the productivity of the linter for seeds averaged 185 kg/h and 138 kg/h, for lint 6.35 kg/h and 5.28 kg/h, which is 28 kg/h higher and 10 kg/h for seeds and 0.39 kg/h and 0.35 kg/h for linters compared to a 5LP linter with a conventional agitator design. In the process of lintering seeds in the 5LP linter with a modernized agitator, the exit of seeds from the working chamber was accelerated, the supply of new pubescent seeds from the feeder to the working chamber was increased, and an effective process of seed linting was carried out compared to the 5LP linter of the existing design [25].

Conclusion. Having studied the advantages and disadvantages of linters operated at local and foreign cotton-cleaning and fat-and-oil enterprises, a new design agitator for the 5LP linter was developed that increases the productivity of the linter, improves the quality of the linter and seeds while saving electricity and spare parts. On the basis of theoretical and experimental studies, the optimal gap between the saw cylinder and the rubber bar is 10 mm, the height of the rubber protrusion from the metal bar is 6 mm, and the rubber stiffness coefficient is $15 \cdot 10^4 N/m^2$ of the modernized linter 5LP.

When lintering seeds of the I variety of selection C-6524 under laboratory conditions, the degree of pubescence and damage to seeds obtained from 30 saw linter 5LP with a modernized agitator was lower than that of seeds from 30 saw linter 5LP with an agitator of the existing design, and the quality of seeds improved by 0.28 (abs)% and 0.5 (abs)%. The mass fraction of weed impurities and whole seeds in the linter after the upgraded linter was lower by 0.52 (abs)% and 0.78 (abs)% than the contamination of the linter obtained from the 5LP linter with a serial agitator. At the same time, the quality of the lint improved, and corresponded to the I grade class "Urta" type B according to GOST O'zDst 645:2016. At the same time, the productivity of the linter in the proposed linter was higher for seeds by 28 kg/h and 10 kg/h, for lint by 0.39 kg/h and 0.35 kg/h compared to the 5LP linter with a conventional agitator. In the process of lintering seeds in the 5LP linter with a modernized agitator, the exit of seeds

from the working chamber was accelerated, the supply of new pubescent seeds from the feeder to the working chamber was increased, and an effective process of seed linting was carried out compared to the 5LP linter of the existing design.

References:

[1]. R. Sulaymonov, U. Norboev. Investigation of the Effect of Linter Mixer Blade on Seed Lintering Process / International journal on orange technology Volume: 4 Issue: 7 |Jul P. 70-76. 2022

[2]. Novruzov, S., Djuraev, A., Abbazov, I., ...Toshpulatov, N., Aripov, K. 2023 Friction force determination between the inclined piles of the cotton gin drum from small impurities and seed of the fiber, E3S Web of Conferences, 377, 03015

[3]. Abbazov, I., Usmankulov, A., Sharopov, B. 2023 Investigation of local resistance and air velocity in narrowing pipes for the transport of fibrous materials, IOP Conference Series: Earth and Environmental Sciencethis link is disabled, 1142(1), 012093

[4]. Sulaymonov R. Sh., Egamberdiev F.O., Norboev O‘.A. Linter ishchi kamerasining asosiy ishchi qismini takomillashtirish / Buxoro muxandislik texnologiyalari instituti, “Fan va texnologiyalar taraqqiyoti” Ilmiy – texnikaviy jurnal №3 B. 251-256. 2022.

[5]. Abbazov, I., Khodjiev, M., Salimov, A., Egamberdiyev, F. 2023 Investigation of air velocity in expanding and contracting pipes for the transport of fibrous materials, IOP Conference Series: Earth and Environmental Sciencethis link is disabled, 1142(1), 012101

[6]. Usmankulov, A., Salomov, A., Abbazov, I., Egamberdiev, F. 2023 Creation of improved UXK equipment for cleaning cotton from large impurities, IOP Conference Series: Earth and Environmental Sciencethis link is disabled, 1142(1), 012080

[7]. R.Sh. Sulaymonov, U.A. Norboev. Research on the effectiveness of 5lp linter / Urganch davlat universitetining “Electronic journal of actual problems of modern science, education and training” jurnali, №12/1, Б. 78-84. 2021.

[8]. Egamberdiev, F., Jumaniyazov, K., Abbazov, I., Yodgorova, H. 2023 Theoretical study of the effect of improving cleaning efficiency and fiber quality from a double-drum fiber cleaner, IOP Conference Series: Earth and Environmental Sciencethis link is disabled, 1142(1), 012088

[9]. Mamatov, A.Z., Usmankulov, A.K., Abbazov, I.Z., Norboyev, U.A., Mukhametshina, E.T. 2021 Determination of Temperature of Components of Cotton-Raw Material in a Drum Dryer with a Constant, IOP Conference Series: Earth and Environmental Sciencethis link is disabled, 939(1), 012052

[10]. Паспорт пильного линтера 5ЛП.-Ташкент: ТГСКБ по хлопкоочистке, 1981.-18 с

[11]. Norboyev, U., Sulaymonov, R., Sharopov, B. 2023 Trial results for the production of the improved 5LP linter, IOP Conference Series: Earth and Environmental Sciencethis link is disabled, 1142(1), 012096

[12]. R.Sh. Sulaymonov. Sovershenstvovanie bazovix zven'ev pil'nogo lintera i yego osvoenie v proizvodstve. Otchet OA “Papxtasanoat ilmiy markazi”. Tashkent. 2016. – 51 s

[13]. R.Sulaymonov, U.A.Norboev, J.N.Jabborkulov. 5LP linterning samaradorligini oshirish bo‘yicha izlanishlar/ «Zamonaviy tadqiqotlar, innovatsiyalar, texnika va

texnologiyalarning dolzarb muammolari va rivojlanish tendensiyalari» ilmiy-texnik anjuman.B. 139-143 2022 yil, Jizzax
[14]. Paxtani dastlabki ishlashning muvofiqlashtirilgan texnologiyasi (PDI 70-2017). “Paxtasanoat ilmiy markazi” AJ. Toshkent. 2017.- 90 b
[15]. Byler R.K. 2006. Historical Review on the effect of moisture content and the addition of moisture to seed cotton before ginning on fiber length. Journal of Cotton Science. 10: C.300-310. Available at http:// www.cotton.org./journal/2006-10/3/145.cfm
[16]. Shan'dunskaya mashinostroitel'naya kompaniya po proizvodstvu xlopkopererabativayushego oborudovaniya «Lebed'» KNR g. Szinan', 2002 g. Instruksiya po ekspluatasii. Pil'niy djin MY – 171. Instruksiya po ekspluatasii. Pnevmaticheskiy voloknoochistitel' MQPQ-3000. Instruksiya po ekspluatasii. Pil'chatiy voloknoochistitel' MQP 600x300. Instruksiya po ekspluatasii. Pil'niy linter MR160-11C
[17]. Pasport pil'nogo lintera MR160-11C. Shan'dunskaya kompaniya «Hongrun»-Kitay. 2008.- 31 s.
[18]. R.Sh.Sulaymonov, U.K.Karimov, B.X.Marufxanov. Izuchenie texnologiy i oborudovaniya zarubejnogo proizvodstva po djinirovaniyu xlopka-sirsa, linterovaniyu semyan, ochistki volokna i linta, ekspluatiruemogo na otechestvennix xlopkozavodax s vidachey rekomendasiy. Otchet o NIR. AO “Paxtasanoat ilmiy markazi”. Tashkent, 2016.-28 s
[19]. R.Sh. Sulaymonov, X. S. Usmanov, S.T. Tuxtabaev, F.O. Egamberdiyev, U.A. Norboev. Improvement of the main unit of the linter working chamber/ UNIVERSUM texnicheskienauki № 3(96), S. 5-10. 2022
[20]. B.M.Mardonov, R.Sh.Sulaymonov, U.A.Norboev. Ploskoe ustanovivsheesya vrashatel'noe dvijenie sloya zernistoy sredi v krugovom kol'se/“Fan va ishlab chiqarish integratsiyalashuvi sharoitida to‘qimachilik va yengil sanoatdagi muammolar va ularni bartaraf etish yol1ari” mavzusida o‘tkazilgan xalqaro ilmiy-amaliy anjumani. Namangan muhandislik-texnologiya instituti, 2022 yil, 5-6 may, 1-tom. B.204-207.2022 yil, Namangan [21]. B.M. Mardonov, R.S. Sulaymonov, U.A. Norboev,G.N. Norboyeva. Study of the movement of seeds between the turner blades and the saw cylinder / Urganch davlat universitetining “Electronic journal of actual problems of modern science, education and training” jurnali, №9, 2022
[22]. O’zDst 601:2016. Paxtaning texnik chigiti, Texnik shartlari. Tukdorlikni aniqlash usullari. Toshkent, 2016.- 11 b
[23]. O’zDst 597:2016. Paxtaning texnik chigiti, Texnik shartlari. Chigitdagi nuqsonlar massaviy ulushini aniqlash usullari. Toshkent, 2011.- 16 b
[24]. O’zDst 662:2011. Paxt momig‘i, Texnik shartlari. Iflos aralashmalar va butun chigitlarning massaviy ulushi. Toshkent, 2011.- 12 b

UDC: 687.01

STUDYING THE EXPLOITATION PECULIARITIES OF SPECIAL CLOTHING

Rasulova Mastura Kabilovna
DSc, Department "Construction technology of sewing products"
Tashkent Institute of Textile and Light Industry

Mamasoliyeva Shohista Lutfullayevna
PhD, Department "Technological education"
Uzbekistan-Finland Pedagogical Institute

Norboeva Gulasal Narzullayevna
Assistant, Department "Natural fibers and fabric processing"
Jizzakh Polytechnic Institute
gulasalnorboeva@gmail.com

Annotatsiya. Ushbu maqolada maxsus kiyim ishlab chiqarishda choklarning mustahkamligini oshirish usullaridan biri tadqiq qilingan. Olib borilgan amaliy tadqiqot natijalari nazariy tadqiqot natijalari bilan qiyosiy solishtirilgan. O'rnatilgan texnologik rejimlar bo'yicha yangi assortimentdagi maxsus kiyim yaratilgan va ishlab chiqarish uchun tavsiya etilgan.

Kalit so'zlar: maxsus kiyim, choklarning yemirilish uchastkalari, choklarning mustaxkamligi, choklarning uzish kuchi, tikuv ipining uzish kuchi, biriktirma chok, "qulf chok".

Аннотация. В данной статье изучен один из способов повышения прочности швов при производстве специальной одежды. Результаты проведенного практического исследования сравниваются с результатами теоретического исследования. По установленным технологическим режимам создан и рекомендован к производству новый ассортимент специальной одежды.

Ключевые слова. специальная одежда, зоны разрушения швов, прочность швов, разрывная прочность швов, разрывная прочность швейной нити, прикрепительный шов, «замковый шов».

Annotation. This article examines one of the ways to increase the strength of seams in the production of special clothing. The results of the practical study are compared with the results of the theoretical study. According to established technological regimes, a new range of special clothing has been created and recommended for production.

Keywords. special clothing, seam failure zones, seam strength, seam tensile strength, sewing thread tensile strength, attachment seam, "lock seam".

Indroduction. When consuming special clothing, maintaining the appearance and reliability of the item is of great importance. Special clothing is used in different conditions. Therefore, the strength of the entire product and the design of individual components are influenced by various factors. Factors influencing the fastening of sewing parts are varied in nature. They all have different effects on factors such as means of attachment. For example, dust not only contaminates clothing, but also allows it to penetrate into the places where parts are attached. Dust caused by cyclic loads acting on the product causes erosion of fasteners due to abrasive action. Exposure to

thermal factors leads to wear and structural changes in the materials connecting the parts - the polymer of sewing threads, glue in adhesive joints and the polymer of the base material in welded joints [1]. All of the above factors cause a decrease in the strength of the connection of parts, and these effects occur during or under the influence of external and sometimes internal stresses.

Materials and Methods. During the formation of bahia, the quality of thread connections when constructing a sewing unit is influenced by various factors based on the structure and type of seam, the type of fabric and thread and their properties, seam sewing parameters and technological modes [2]. The strength of a weld is characterized by its tensile strength.

Chemical reagents: acids, alkalis, organic solvents, etc. also affect the strength of the connection of parts, increase their wear rate, and partially dissolve them. Therefore, when choosing a fastening method when designing garments, it is important to take into account the operating conditions [3].

To do this, based on an analysis of the existing design of the seams of special clothing, the direction of the loads coming on the parts and assemblies of special clothing during operation was determined [4] and the erosion topography of the seams connecting the parts of special clothing was studied (Figure 1).

Based on research, it has been established that existing conditions and standard requirements are not met during the technological processing of parts of special clothing [5] during the work of workers; the following seams in parts of special clothing are subject to heavy loads. stress: the very side seam, the very shoulder seam, the center line seam of the overalls, etc.

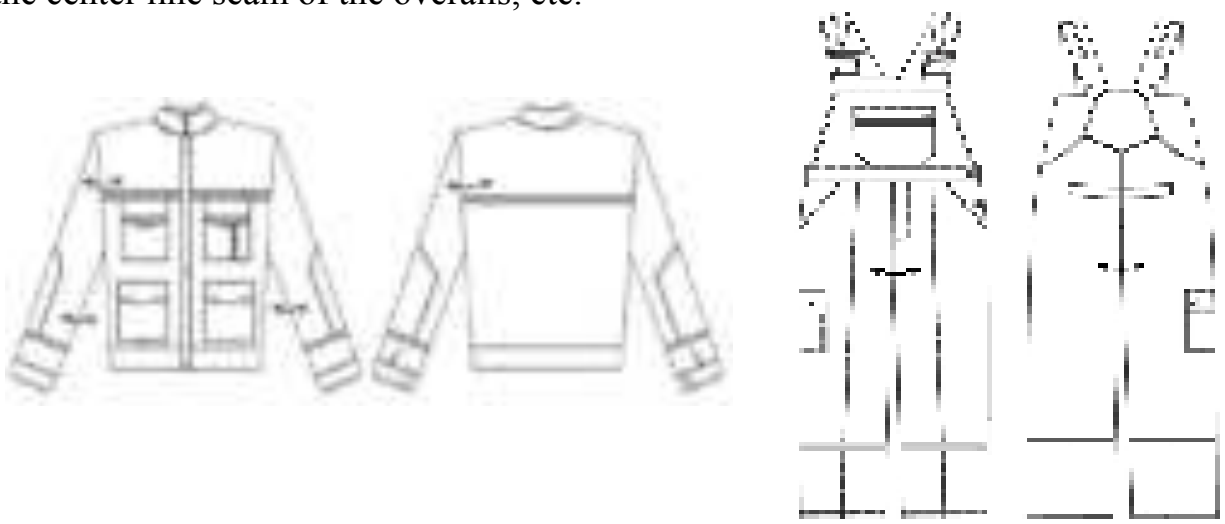


Figure 1. Erosion plots of seams in special clothing.

As a result of studies of the topography of erosion of welds, it was concluded that for the most eroded areas of the weld, the use of a butt weld is recommended instead of the conventional butt weld. Because the design of the seam used in sewing current special clothing does not fully meet the requirements, and the loads on the seam are not taken into account [6].

Tensile strength research was carried out on a "STATIMAT C" (Shimadzu-Japan) breaking machine according to standard methods [7]. Samples of 5x20 cm were

prepared from the new structured fabric. The samples were stitched using 40 PE thread, 45 LX thread, and 50 LL thread and №100 needles.

A study to determine the strength of the welding seam [8] is presented in Table 1.

Table 1

Characteristics of the strength of special clothing thread connections (joint seam)

Fabric type	Sewing thread number	The size of the bahia, mm	Breaking strength , N							
			Fiber content of fabric, %							
			Option 1 XB+M 50+50		Option 2 XB+M 20+80		Option 3 XB+M 80+20		Control 100 % cotton	
			Warp	Weft	Warp	Weft	Warp	Weft	Warp	Weft
Special clothing fabric	40	2,5	175	187	178	194	171	183	152	161
	45		178	195	181	199	174	191	153	164
	50		185	206	186	210	181	203	151	166
	40	3,0	172	186	174	190	171	181	148	160
	45		176	192	180	198	173	189	150	166
	50		180	198	182	205	178	196	154	170
	40	3,5	168	184	165	186	163	180	146	158
	45		175	188	176	192	172	185	150	160
	50		179	196	178	201	178	192	152	166

Results and discussion. As can be seen from the table, the strength of the joint seam made using 50 number LL sewing thread in cotton + modal 50/50 gauze sample with a thickness of 2.5 mm is 7 N more in the warp and 16 N more in the yarn compared to the joint seam sewn with 40 number PE fiber thread. to power; 45 LX fiber thread has 4 N more force on the warp and 8 N more force on the hem than the seam; when the size of the thread is 3 mm, the LL sewing thread is 12 N more than the PE thread, and 12 N more than the PE thread; Compared to the LX thread, 4 N more force on the warp, and 6 N more force on the rope; when the size of the bag is 3.5 mm, the LL sewing thread is 11 N more than the PE thread, and 12 N more than the PE thread; Compared to the LX yarn, 4 N more force was obtained in the warp and 8 N more force in the weft.

The strength of the joint seam made with the 50 number LL sewing thread on cotton + modal 20/80 gauze sample with a size of 2.5 bahia is 5 N more in the warp, and 14 N more in the thread than the joint seam sewn with the number 40 PE fiber thread; 45 numbered LX thread has 2 N more force on the warp and 9 N more force on the hem than the seam; when the size of the thread is 3 mm, LL sewing thread is 8 N more than PE thread, and 15 N more than PE thread; LX yarn has 2 N more force on the warp and 7 N more force on the yarn; when the size of the bag is 3.5 mm, LL suture thread is 13 N more than PE thread, 15 N more than PE thread; Compared to the LX thread, 2 N more force was obtained in the warp and 9 N more force in the weft.

The strength of the joint seam made with the 50 number LL sewing thread on cotton + modal 80/20 gauze sample with a size of 2.5 bags is 8 N more in the warp and 17 N in the hem compared to the joint seam sewn with the number 40 PE fiber thread; 45 numbered PE fiber thread has 5 N more force on the warp and 9 N more force on the hem than the seam; when the size of the thread is 3 mm, LL sewing thread is 7 N more than PE thread, and 15 N more than PE thread; Compared to LX yarn, 5 N more force in the warp, and 7 N more force in the yarn; when the size of the bag is 3.5 mm,

LL sewing thread is 15 N more than PE thread, and 8 N more than PE thread; Compared to the LX yarn, 6 N more force was obtained in the warp and 7 N more force in the yarn.

At present, sewing enterprises mainly use 40S/2 numbered PE sewing thread to attach special clothing details. In this case, the seam allowance is adjusted. It is known from the literature [1] that 13 m of thread is needed to sew a 1 m long seam. In order to reduce thread consumption and increase the strength of the seam, it is advisable to use a lock seam when joining details. For this reason, the strength of lock seams, which is recommended for attaching special clothing details, has been determined. The obtained results are presented in Table 2.

Table 2

Characteristics of the strength of special clothing thread connections ("lock" stitch)

Fabric type	Sewing ипининг	Bahja йириклиги, мм	Breaking strength, N							
			Fiber content of fabric, %							
			Option 1 XB+M 50+50		Option 2 XB+M 20+80		3-вариант XB+M 80+20		Назорат 100 % cotton	
			Warp	Weft	Warp	Weft	Warp	Weft	Warp	Weft
Special clothing fabric	40	2,5	183	196	186	202	178	191	158	170
	45		187	204	190	208	181	199	160	172
	50		193	212	200	219	187	210	163	176
	40	3,0	179	194	182	199	179	190	155	168
	45		184	201	187	206	181	198	157	173
	50		190	209	193	214	187	205	162	178
	40	3,5	176	192	174	195	171	188	153	165
	45		182	197	186	203	180	193	158	168
	50		188	205	188	211	185	201	161	174

As can be seen from the table, the strength of the joint seam made with 50 number LL sewing thread on cotton + modal 50/50 gauze sample with a thickness of 2.5 mm is 10 N more on the warp and 16 N more on the hem than the joint seam made with 40 number PE fiber thread. to power; 45 numbered LX fiber thread has 6 N more force on the warp and 8 N more force on the hem than the seam; when the size of the thread is 3 mm, LL sewing thread is 11 N more than PE thread, and 15 N more than PE thread; Compared to the LX thread, 14 N more in the warp, and 8 N more in the yarn; when the size of the bag is 3.5 mm, the LL sewing thread is 12 N more than the PE thread, and 13 N more than the PE thread; Compared to the LX thread, 6 N more force was obtained in the warp and 8 N more force in the weft.

The strength of the joint seam made with 50 number LL sewing thread on cotton + modal 20/80 gauze sample with a size of 2.5 bahia is 14 N more than the joint seam made with 40 number PE fiber thread. 45 numbered LX fiber thread has 10 N more force on the warp and 11 N more force on the hem than the joint stitch; when the size of the thread is 3 mm, LL sewing thread is 11 N more than PE thread, and 15 N more than PE thread; Compared to the LX yarn, 6 N more force in the warp, and 8 N more force in the yarn; when the size of the bag is 3.5 mm, LL suture thread is 14 N more than PE thread, 16 N more than PE thread; Compared to the LX yarn, 2 N more force was obtained in the warp and 8 N more force in the weft.

The strength of the joint seam made using 50 number LL sewing thread on cotton + modal 80/20 gauze sample with a size of 2.5 bahia is 9 N and 19 N higher in strength than the joint seam sewn with 40 number PE fiber thread; 45 numbered LL fiber thread has 6 N more force on the warp and 11 N more force on the hem than the seam; when the size of the thread is 3 mm, LL sewing thread is 8 N more than PE thread, and 15 N more than PE thread; Compared to the LX yarn, 6 N more force in the warp, and 7 N more force in the yarn; when the size of the bag is 3.5 mm, the LL sewing thread is 14 N more than the PE thread, and 13 N more than the PE thread; Compared to the LX thread, 5 N more force was obtained in the warp and 7 N more force in the weft.

The results of the case study presented above were compared with theoretical studies. This formula was used to determine the shear strength of a 50 mm long fabric tube to conduct theoretical research [9,10]:

$$P=5mQ\eta_1$$

m - the number of stitches in 10 mm of the seam;

Q - thread strength before sewing;

η - a correction factor for the decrease in strength of the needle thread after threading: η_1-(0,8-1,2); η_1= 1;

on the LX thread: P=5*3*12*1=180

P=5*4*12*1=240

By polyester thread: P=5*3*9*1=135

P=5*4*9*1=180

on the LL thread: P=5*3*14*1=210

P=5*4*14*1=280

The obtained results are presented in Table 3.

Table 3

Tensile strength of the shuttlecock

Fiber composition of yarn	The number of bahia in 10 mm (m)	The strength of the sewing thread before sewing (Q)	Breaking strength (P)
LX	3	12	180
	4	12	240
PE	3	9	135
	4	9	180
LL	3	14	210
	4	14	280

The following results were obtained when the experimental studies on seam strength were compared with the theoretical study (Figures 2-3):

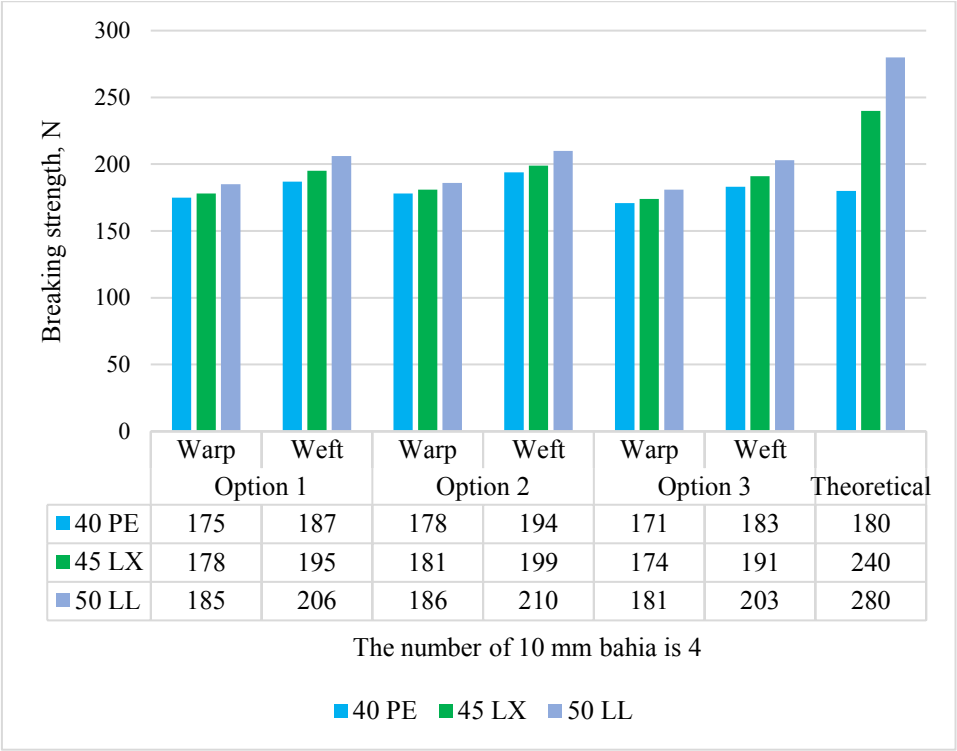


Figure 2. Seam strength indicators when the number of 10 mm beads is 4

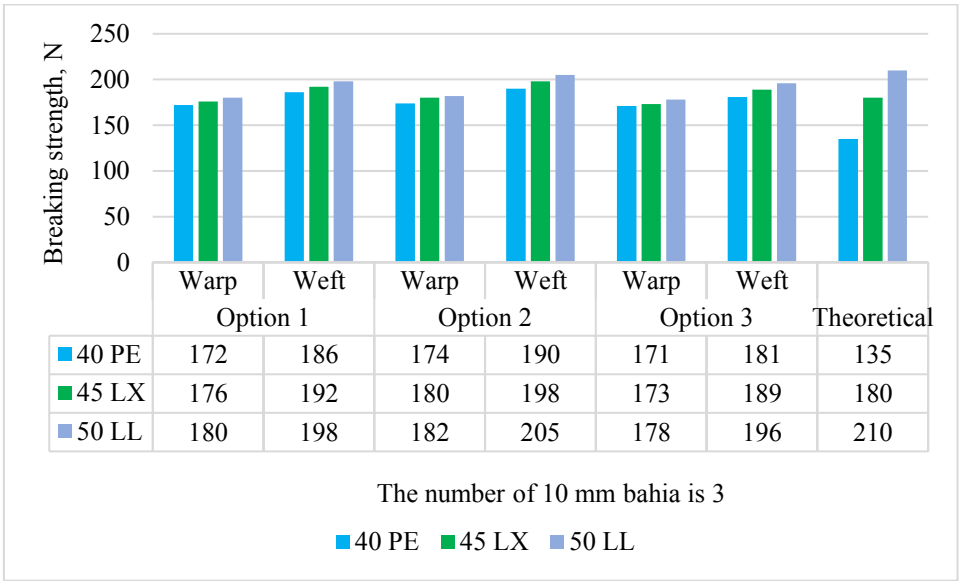


Figure 3. Seam strength indicators when the number of beads in 10 mm is 3

As can be seen from Figures 2-3, the indicators of experimental and theoretical research results are proportional to each other.

In order to increase the hygienic properties of special clothing, the task of using ventilation elements in some sections and analyzing the methods of threading it was also carried out. 100% polyester, 60% viscose + 40% polyester, 60% HB + 40% polyester nets were used as a ventilation element, and pilot studies of their connection with the main fabric and pressure seam were carried out.

A sample of gauze was taken in the size of 200*50, and the width of the bag was set to 3.0 mm according to the requirements of GOST. 100% Polyester sewing thread was used to join the details. Experimental research was carried out in the SENTEX.UZ

certification laboratory. The results of the study to determine the strength of the connecting and pressing seam for a special garment gasket are presented in Table 4.

Table 4

Strength indicators of special clothes thread connections (joint and press seam)

№	Fabric samples	Press seam				Joint seam			
		1	2	3	Average	1	2	3	Average
1	100% polyester	42	40	38	40,0	33	31	28	30,6
2	60% viscose + 40% polyester	47	45	42	44,6	38	36	33	35,6
3	60% HB + 40% polyester	38	35	34	35,6	29	27	25	27,0

The results of the research show that in the sample with 60% viscose + 40% polyester fiber, the attachment seam is 44.6 N, and the pressing seam is 35.6 N, in the sample with 100% polyester fiber, the attachment seam is 40.0 N, and the pressing seam is 30.6 N, in the sample with 60% HB+40% polyester fiber, the attachment seam had 35.6 N, and the compression seam had 27.0 N. This showed that the strength of the pressed seam in the 60% viscose + 40% polyester fiber sample was 1.3 times higher than that of the attached seam sample. Taking into account the above, it is recommended to use a new assortment of cotton/polyester+viscose mixed fiber gauze as a lining in the special clothing of automobile industry workers, 60% viscose+40% polyester fiber mesh as a ventilation element, and a press seam when connecting the fabric and mesh details.

Conclusion. According to the results of the conducted theoretical and experimental research, 50 number LL sewing thread and 2.5-3 mm width were recommended to increase the strength of the seam in production, and based on the established technological regimes, a new range of special clothing samples was created for the workers of the automobile industry.

In order to increase the hygienic performance of special clothing, it was found that the result of using the compression seam in the connection of 60% viscose + 40% polyester fiber mesh, which was used as a ventilation element, was 1.3 times higher than that of the connection seam sample.

Reference:

[1]. Koketkin P.P. Odejda: texnologiya-texnika, prosessi-kachestvo. - M.: MGUDT, 2001. - 560 s.

[2]. Jixarev A.P. Praktikum po materialovedeniyu v proizvodstve izdeliy legkoy promishlennosti. – M.: Akademiya, 2004. - 464 s.

[3]. Sh. L. Mamasolieva, M. K. Rasulova, G. N. Norboeva. Development of special clothes with high hygienic properties. Monograph. Published by Novateur Publication 466, Sadashiv Peth, M.S.India-411030. ISBN: 978-93-86594-65-2. www.novateurpublication.org. 101 pages

[4]. M. Tulaganova, M. Rasulova, Sh. Mamasolieva. Issledovanie prochnosti xlopchatobumajnoy tkani, obrabotannoy texnologicheskim rastvorom, dlya izgotovlenie odejdi. “Paxta tozalash, to’qimachilik, yengil sanoat, matbaa ishlab chiqarish texnika-texnologiyalarni modernizatsiyalash sharoitida iqtidorli yoshlarning

innovatsion g'oyalari va ishlanmalari" ilmiy-amaliy anjuman maqolalar to'plami (2018 yil 12-13 dekabr, Toshkent). 150-152-betlar
[5]. Tashpulatov Salih, Rasulova Mastura, Mamasolieva Shohista, Kadirov Tulkin, Mammadova Khadija. Development of a Method for Providing Low-Shrink Textile Materials and Sewing Products. JOURNAL OF OPTOELECTRONICS LASER. Volume 41 Issue 4, 2022. ISSN:1005-0086. DOI: 10050086.2022.04.60
[6]. M. Tulaganova, M. Rasulova, M. Umarova, Sh. Mamasolieva. Issledovanie prochnosti shva pri soedinenii detaley spesodejdi. "Molodoy uchyoniy" mejdunarodniy nauchniy jurnal. 2018 god 48-vipusk. 48-50 str.
[7]. GOST 28073-89. Izdeliya shveynie. Metodi opredeleniya razrivnoy nagruzki, udlineniya nitochnix shvov, razdvigaemosti nitey tkani v shvax.
[8]. Rasulova M.K., Mamasolieva SH.L., Babadzhanova M.A., Norboeva G.N. Selection of sewing thread for connecting details of workwear from fabrics of new structures // AIP Conference Proceedings 2430, 030007 (2022); https://doi.org/10.1063/5.0076965. Published Online: 24 January 2022. Rr.1-9
[9]. Rasulova M.K., Tashpulatov S.Sh., Mamasolieva Sh.L. Razrabotka spesialьnoy odejdi s visokimi gigienicheskimi svoystvami. Innovasii i texnologii k razvitiyu teorii sovremennoy modi «Moda (Materiali. Odejda. Dizayn. Aksessuari)» sbornik materialov II mejdunarodnoy nauchno-prakticheskoy konferensii. Moskva RGU im. A.N. Kosigina, 2022.
[10]. M.Rasulova, Sh.Mamasolieva, G.Norboyeva. Development of Special Clothing With High Hygienic Properties. Gongcheng Kexue Yu Jishu/Advanced Engineering Science. Journal ID: AES-09-12-2022-527. http://advancedengineeringscience.com/article/527.html. Pp 5633-5638.

UDC:004.4

MONITORING ALGORITHMS USING IoT TECHNOLOGIES

Abdurakhmanov Ravshan
associate professor of the Jizzakh branch of the National University, a doctor of philosophy (PhD) in technical sciences.

Annotatsiya: Internet of Things (IoT) texnologiyalarining monitoring algoritmlari bilan integratsiyalashuvi ma'lumotlarni yig'ish, tahlil qilish va qaror qabul qilish manzarasini qayta belgilab berdi. Ushbu maqola ushbu sinergiyaning turli sohalarga transformativ ta'sirini o'rganadi. Unda IoT real vaqt rejimida ma'lumotlarni yig'ish imkoniyatlarini qanday oshirishi, monitoring algoritmlari ushbu ma'lumotlarni qanday tahlil qilishi va natijada bashoratli texnik xizmat ko'rsatish, masofaviy monitoring va nazorat qilish tizimlarining afzalliklari muhokama qilinadi. Biroq, bu texnologiyaga asoslangan ushbu landshaftda ma'lumotlar xavfsizligi va maxfiylik muammolarini hal qilish muhimligini ta'kidlaydi.

Kalit so'zlar; IoT (Internet of Things), Monitoring algoritmlari, Ma’lumotlar yig‘ish, Real vaqtda ma’lumotlar, Sensorlar, Ma’lumotlarni tahlil qilish, Bashoratli texnik xizmat ko‘rsatish, Masofadan monitoring

Аннотция: Интеграция технологий Интернета вещей (IoT) с алгоритмами мониторинга изменила ландшафт сбора, анализа и принятия решений. В этой статье исследуется преобразующее влияние этой синергии на различные отрасли. В нем обсуждается, как Интернет вещей расширяет возможности сбора данных в режиме реального времени, как алгоритмы мониторинга анализируют эти данные и вытекающие из этого преимущества в системах прогнозного обслуживания, удаленного мониторинга и управления. Однако это также подчеркивает важность решения проблем безопасности и конфиденциальности данных в этой технологической среде.

Ключевые слова; IoT (Интернет вещей), Алгоритмы мониторинга, Сбор данных, Данные в реальном времени, Датчики, Анализ данных, Прогнозное обслуживание, Удаленный мониторинг

Abstract: The integration of Internet of Things (IoT) technologies with monitoring algorithms has redefined the landscape of data collection, analysis, and decision-making. This article explores the transformative impact of this synergy on various industries. It discusses how IoT empowers real-time data collection, how monitoring algorithms analyze this data, and the resulting benefits in predictive maintenance, remote monitoring, and control systems. However, it also underscores the importance of addressing data security and privacy concerns in this technology-driven landscape.

Key words; IoT (Internet of Things), Monitoring algorithms, Data collection, Real-time data, Sensors, Data analysis, Predictive maintenance, Remote monitoring

Introduction. The Internet of Things (IoT) has ushered in a new era of data-driven decision-making and automation across various sectors, transcending the boundaries of traditional monitoring and control systems. This transformative technology has given rise to a synergy between IoT and monitoring algorithms, offering unprecedented capabilities to collect, analyze, and respond to real-time data. In this article, we delve into the dynamic world of "Monitoring Algorithms Using IoT Technologies," exploring how this convergence has revolutionized industries, improved efficiency, and introduced innovative ways to address real-world challenges. The Internet of Things (IoT) has transformed the way we collect, process, and utilize data in various domains, from healthcare and agriculture to industrial automation and smart cities. One of the most significant applications of IoT is in the realm of monitoring and control, where it has enabled the development of sophisticated algorithms to gather, analyze, and respond to real-time data. In this article, we will explore how IoT technologies have revolutionized monitoring algorithms, offering unprecedented insights, efficiency, and control across a wide range of industries.

What is IoT and Monitoring Algorithms?

Before delving into the integration of IoT and monitoring algorithms, let's briefly define both terms:

IoT: The Internet of Things is a network of interconnected physical devices, sensors, and software that enable them to collect and exchange data. These devices can range from simple temperature sensors to complex machinery and autonomous vehicles.

Monitoring Algorithms: These are computer programs designed to track, analyze, and interpret data generated by various sensors and devices. They can provide insights into the performance, health, or status of the monitored systems and can trigger actions based on the data collected.

IoT-Powered Data Collection

IoT technologies play a pivotal role in collecting real-time data for monitoring algorithms. By integrating sensors, cameras, and other data-generating devices into the IoT ecosystem, organizations can continuously gather data from their environment. This data may include temperature, humidity, air quality, location, motion, and much more, depending on the application.

For example, in agriculture, IoT sensors can measure soil moisture levels, temperature, and sunlight exposure, allowing farmers to make data-driven decisions about irrigation and crop health. In industrial settings, IoT-enabled machinery can collect information about their operating conditions, helping identify potential maintenance issues before they result in costly downtime.

Data Analysis and Monitoring

Once data is collected through IoT devices, monitoring algorithms come into play. These algorithms are designed to process and analyze the incoming data in real time. They can identify patterns, anomalies, and trends, and make decisions based on predefined rules or machine learning models.

For instance, in healthcare, wearable IoT devices can continuously monitor a patient's vital signs, sending data to monitoring algorithms that can alert medical professionals if any values fall outside of acceptable ranges. In smart buildings, IoT sensors can detect unauthorized access or fire hazards, triggering immediate notifications to security personnel or emergency services.

Predictive Maintenance

One of the most significant advantages of IoT-powered monitoring algorithms is their ability to predict and prevent failures in various systems. In manufacturing, for example, predictive maintenance algorithms can analyze the data from IoT sensors attached to machinery. By detecting subtle changes in performance or wear and tear, they can schedule maintenance before a catastrophic breakdown occurs, saving time and money.

Remote Monitoring and Control. IoT technologies also enable remote monitoring and control, allowing operators to oversee and manage processes and systems from virtually anywhere. This is especially valuable in industries such as energy, where remote monitoring of power grids and oil rigs can optimize operations and reduce downtime. In smart cities, traffic monitoring algorithms use IoT data to adjust traffic signals in real time to alleviate congestion. In agriculture, farmers can remotely control irrigation systems based on the data collected by IoT sensors, conserving water resources and improving crop yields.

Data Security and Privacy. While IoT technologies offer numerous benefits, they also bring concerns related to data security and privacy. Protecting the vast amount of data

collected and transmitted through IoT devices is crucial. Monitoring algorithms must be designed with robust security measures to safeguard sensitive information.

The integration of IoT technologies and monitoring algorithms has revolutionized the way we collect, analyze, and respond to data across various domains. It has enhanced efficiency, reduced operational costs, and improved decision-making in industries as diverse as healthcare, agriculture, manufacturing, and smart cities. However, with these advancements come the responsibility of addressing data security and privacy concerns to ensure that the benefits of IoT-powered monitoring algorithms can be realized safely and responsibly. As technology continues to evolve, the synergy between IoT and monitoring algorithms will continue to shape our world in unprecedented ways.

Literature Review: IoT and Its Evolution: The concept of the Internet of Things (IoT) has evolved significantly in recent years. Early IoT deployments were often limited to basic data collection through sensors, but with advancements in hardware and connectivity, the scope has broadened. This evolution is discussed in the works of Atzori, et al. (2010), and Gubbi, et al. (2013), who have highlighted the growth from simple data collection to a complex ecosystem of interconnected devices.

Monitoring Algorithms and Machine Learning:

The integration of monitoring algorithms with IoT devices has been instrumental in extracting actionable insights from the generated data. Works by Zhang, et al. (2018) and Sharma, et al. (2019) discuss the application of machine learning techniques in monitoring algorithms. These algorithms can detect patterns and anomalies in real-time, making them essential in various domains, from healthcare to industrial systems.

Predictive Maintenance: A significant application of IoT and monitoring algorithms is predictive maintenance. Research by Janssen, et al. (2017) and Ding, et al. (2020) has shown how these technologies are transforming the way industries approach maintenance. By analyzing data from IoT sensors, organizations can predict when equipment is likely to fail and schedule maintenance proactively, thus reducing downtime and costs.

Remote Monitoring and Control: The capability of IoT to facilitate remote monitoring and control has been widely studied. In the field of energy management, Farhangi (2010) discusses the potential for real-time control of power grids, while in smart cities, Zheng, et al. (2014) highlight the use of IoT data for optimizing traffic signals. These studies underscore the value of IoT-enabled control systems in improving efficiency and resource allocation.

Data Security and Privacy Concerns: The vast amount of data generated by IoT devices has raised concerns about data security and privacy. The works of Roman, et al. (2013) and Alaba, et al. (2017) emphasize the need for robust security measures to safeguard sensitive information. Ensuring data privacy is a crucial aspect of the integration of IoT and monitoring algorithms.

Conclusion. The literature on the integration of IoT technologies with monitoring algorithms demonstrates the significant impact of this synergy across various industries. It has evolved from basic data collection to complex data analysis and decision-making. Predictive maintenance and remote monitoring have become key applications, offering increased efficiency and cost savings. However, addressing data

security and privacy concerns remains paramount as these technologies continue to shape our data-driven future.

Recommendations: To fully leverage the benefits of IoT-powered monitoring algorithms, organizations should invest in robust IoT infrastructure. This includes upgrading sensors, connectivity, and data storage capabilities. It's essential to ensure that the IoT ecosystem is well-maintained and up to date for reliable data collection and analysis.

Implement Advanced Data Analytics:

Incorporate advanced data analytics and machine learning algorithms to enhance the capabilities of monitoring systems. By continuously improving the algorithms, organizations can gain deeper insights from the data, improving predictive maintenance, anomaly detection, and decision-making.

Prioritize Data Security and Privacy:

Given the sensitivity of data collected through IoT, it's imperative to prioritize data security and privacy. Organizations should implement encryption, access controls, and data anonymization techniques to safeguard the data. Compliance with data protection regulations and standards is also critical.

Cross-Industry Knowledge Sharing:

Encourage knowledge sharing and collaboration across different industries. Many of the challenges and solutions related to IoT and monitoring algorithms are transferable between sectors. Sharing best practices and lessons learned can accelerate innovation and problem-solving.

Human-Machine Collaboration:

While IoT and monitoring algorithms automate many processes, human expertise remains invaluable. Promote human-machine collaboration by training personnel to interpret the insights generated by monitoring algorithms and act upon them effectively. This combination of human intuition and machine precision can lead to better decision-making.

Regular System Audits:

Implement regular system audits and maintenance checks. As IoT devices and algorithms are continuously evolving, it's crucial to ensure that they remain in optimal working condition. Regular audits can identify and address issues proactively.

Scalability and Flexibility:

Design IoT systems and monitoring algorithms to be scalable and flexible. Businesses evolve, and so should their IoT capabilities. Ensure that the infrastructure can adapt to changing needs and accommodate new devices and sensors seamlessly.

Environmental Sustainability:

Consider the environmental impact of IoT devices and monitoring algorithms. Opt for energy-efficient sensors and devices, and ensure that the data generated contributes to sustainability efforts, such as optimizing resource usage in agriculture or reducing energy consumption in buildings.

Collaboration with Regulatory Authorities:

Engage with regulatory authorities and industry standards organizations to help shape guidelines and standards for IoT data collection, storage, and usage. Being proactive in establishing ethical and legal frameworks can prevent future compliance issues.

Monitor Emerging Technologies:

Stay abreast of emerging technologies in the IoT and monitoring algorithm space. The field is constantly evolving, and new technologies can offer even more efficient and secure solutions. Being early adopters of beneficial technologies can provide a competitive edge.

In conclusion, the integration of IoT technologies with monitoring algorithms holds immense potential for transforming various industries. By following these recommendations, organizations can harness this potential while mitigating risks and ensuring the responsible and effective use of IoT-powered monitoring systems.

References

[1]. Atzori, L., Iera, A., & Morabito, G. (2010). The Internet of Things: A survey. Computer Networks, 54(15), 2787-2805.

[2]. Gubbi, J., Buyya, R., Marusic, S., & Palaniswami, M. (2013). Internet of Things (IoT): A vision, architectural elements, and future directions. Future Generation Computer Systems, 29(7), 1645-1660.

[3]. Zhang, C., Wu, Y., Zhu, Y., & Deng, S. (2018). IoT-based intelligent perception and analytics system for agriculture big data. IEEE Internet of Things Journal, 5(2), 933-940.

[4]. Sharma, N., Singh, M., & Rana, A. (2019). A survey of Internet of Things architectures. Journal of King Saud University-Computer and Information Sciences.

[5]. Janssen, M., & Lim, A. (2017). An integrated predictive maintenance framework with adaptive Bayesian networks for complex dynamic systems. Computers in Industry, 88, 54-67.

[6]. Ding, S., & Hao, H. (2020). Data-driven prognostics of energy-efficient predictive maintenance for cyber-physical systems in Industry 4.0. IEEE Transactions on Industrial Informatics, 16(3), 2124-2133.

[7]. Farhangi, H. (2010). The path of the smart grid. IEEE Power and Energy Magazine, 8(1), 18-28.

UDC: 629.01

ANALYSIS OF PRACTICAL CALCULATION METHODS OF EXTERNAL SPEED CHARACTERISTICS OF TRANSPORT VEHICLES ENGINE

Umirov Ilkhom Iskandar ugli
Jizzakh Polytechnic Institute, PhD,
Acting Associate Professor
umirovilhom150@gmail.com

Annotatsiya: Ushbu maqola texnika oliy ta’lim muassasalarida “Avtomobillar konstruktsiyasi” fanini o‘qitishda dvigatelning tashqi tezlik xarakteristikasini qurish avtomobil sohasida ta’lim oluvchi talabalar va mustaqil o‘rganuvchilar uchun sodda va tushunarli usulda bajarilgan. Dvigatelning tashqi tezlik xarakteristikasini qurishda ushbu usuldan foydalanish orqali fan bo‘yicha loyihalash konstruktorlik masalalarini bajarishda, fanni o‘qitish jarayonida samarali natijalarga erishish mumkin. Bugungi kunga kelib avtomobil transporti kundalik hayotimizning ajralmas qismiga aylandi desak, mubolag‘a bo‘lmaydi. Respublikamizda avtomobil sanoatining jadal rivojlanib

bormoqda. Endilikdagi vazifa avtomobil sohasida yetuk mutaxassislarni tayyorlash, qayta tayyorlash va malakasini oshirishdan iboratdir.

Dvigatel parametrlari haqida to‘liq ma’lumot olish uchun tashqi tezlik xarakteristikasidan foydalaniladi. Tashqi tezlik xarakteristikasi dvigatel quvvati va burovchi momentning tirsakli val aylanishlar chastotasi yoki burchak tezligiga bog‘liqlik grafigi hisoblanadi.

Kalit so‘zlar: avtomobil, dvigatel, g‘ildirak, shina, to‘la massa, burovchi moment, quvvat, tirsakli val, aylanishlar chastotasi, transmissiyaning foydali ish koeffitsienti, suyrilik koeffitsienti, g‘ildirashga qarshilik koeffitsienti.

Аннотация. В данной статье описана разработка внешней скоростной характеристики двигателя для преподавания предмета «Машиностроение» в технических вузах. И это легко объяснить бакалаврам или независимым студентам в области автомобилей. Используя этот метод (приведен выше). Проектирование внешней скорости двигателя, решение строительных задач и преподавание по предмету позволяют получить хороший результат. Современные конструкции автомобилей обладают высокой надежностью с возможностью автоматической адаптации к конкретным условиям эксплуатации. Анализ уровня использования конструктивного потенциала большегрузных автомобилей, находящихся в эксплуатации, показывает, что имеется значительный резерв для их совершенствования. Внешняя скоростная характеристика используется для получения полной информации о параметрах двигателя. Внешняя скоростная характеристика представляет собой график зависимости мощности и крутящего момента двигателя от частоты вращения коленчатого вала или угловой скорости.

Ключевые слова: автомобильный двигатель, колесо, шина, общая масса, крутящий момент, мощность, коленчатый вал, частота вращения, КПД трансмиссии, коэффициент трения, коэффициент сопротивления качению.

Abstract. This article describes developing an external speed of the engine characteristics for teaching the subject of “vehicle construction” at technical higher education institutions. And it is explained easily for bachelor or independent learners in the field of automobiles. By using this method (given above). Projecting the external speed of the engine, solving the construction problems, and teaching based on the subject is able to get a good result. Modern designs of cars have high reliability with the ability to automatically adapt to specific operating conditions. The analysis of the level of use of the constructive potential of heavy vehicles in operation shows that there is a significant reserve for their improvement. The external speed characteristic is used to obtain complete information about the engine parameters. The external speed characteristic is a graph of the dependence of engine power and torque on the frequency of crankshaft revolution or angular speed.

Keywords: automobile engine, wheel, tire, whole mass, torque, power, crankshaft, rotation frequency, efficiency of transmission, coefficient of friction, coefficient of rolling resistance.

Introduction. According to several decrees of the President of the Republic of Uzbekistan based on transportation and its operations, develops the transportation field in Uzbekistan. Nowadays, transport is considered an essential part of our life. The

automobile industry is developing rapidly last few years in Uzbekistan. The current task is to train, retrain, and improve the skills of mature specialists in the automotive industry. Modern constructions of cars have high reliability with the possibility of automatic adaptation to specific operational conditions. The analysis of the level of use of the constructive potential of trucks in operation shows that there is a large reserve for their improvement. The development of motor transport enterprises, the development of modern technology and economy expands the scope of activities of specialists, increasing the requirements for justifying the decisions and evaluating their economic, social and technical consequences. The main ideas of the development of the education system in our country, the "Strategy of Actions for the Further Development of the Republic of Uzbekistan" developed under the leadership of the President of the Republic of Uzbekistan, became the scientific methodological basis for this study.

Literature revue. I.Askarov [2, 3, 4] and independent researchers B.Begmatov [5] and I.Umirov [6, 7] are conducting research on the development of students' technical creativity and development of their professional competences.

Issues of reforming the education system, enriching the content of academic subjects, introducing advanced technologies in teaching, ensuring cooperation between educational and production enterprises, equipping specialist personnel with modern knowledge and ensuring their employment. studied in detail by scientists. The factor of development largely depends on the mental capacity and labor skills of the personnel, which determine the rate of growth in production, while the research in this area is observed to expand its direction and network.

Results and Discussion. Choosing the weight and geometrical parameters is considered the first step of designing an automobile. In this step, by analyzing the technical characteristics of the vehicle to be set up several parts of the automobile such as weight, geometrical size, composition, and characteristics of the engine and transmission. It consists of full mass m_a, the number of axles and distribution of mass to the axles, tire sizes, efficiency of transmission η_{tr}, and creep coefficient k_b.

- For light vehicle.

$$m_a = m_{av} + m_0 \cdot n + m_b \cdot n = 969 + 75 \cdot 5 + 10 \cdot 5 = 1394$$

Here, m_{av} – laden mass of the vehicle; m_0 – Human mass, average mass is taken 75 kg; n – the number of seats in the car cabin, with the driver; m_b – Luggage mass, 10 kg for every person in a light vehicle including a driver, for heavy vehicles 5 kg for the driver and each person in that.

Brief technical characteristics of some models of domestic and foreign cars accepted as prototypes are given in the list of literature [3]. The types and sizes of tires are determined depending on the weight that falls on one wheel (the type and geometric dimensions of tires can be obtained from the technical characteristics of the car during course work).

For calculations, the total resistance coefficient of the road ψ is approximately determined by the following formula:

- For light vehicles:

$$\psi = f_0 + 0{,}46 \cdot 10^{-6} \cdot v_{\max}^2 = 0{,}015 + 0{,}46 \cdot 10^{-6} \cdot 163^2 = 0{,}02722$$

Here, f_0 – coefficient of rolling resistance, for light vehicle is $f_0 = 0{,}015$, $v_{\max}$ – The maximum speed of the vehicle, km/hour.

Creep coefficient k_b ($\frac{H \cdot c^2}{м^4}$) depending on the type of the vehicle body, it is taken in the range of 0.15-0.35 for light vehicles.

Front side (area) of the vehicle is calculated by following formula:

$$F_a = a \cdot B \cdot H = 0{,}78 \cdot 1{,}662 \cdot 1{,}393 = 1{,}80583$$

Here, a – space filling coefficient ($a = 0{,}78 - 0{,}8$ – for light vehicles); B – vehicle width, H – vehicle height.

The efficiency of the transmission η_{tr} depends on the construction of the power transmission. For calculation, the value of η_{tr} is taken as follows:

For light vehicle $\eta_{tr} = 0{,}90 - 0{,}95$.

The turning radius is determined as follows:

r_c –static radius: the distance from the center of the fixed wheel loaded with normal gravity to the road surface;

The static radius of a car wheel is determined as follows:

$$r_c = 0{,}0254 \cdot \frac{d}{2} + \frac{B}{1000} \cdot \frac{\Delta}{100} \cdot \lambda_{ш} \qquad (1)$$

$\lambda_{ш}$ – radial deformation coefficient of the tire.

$\lambda_{ш} = 080 \div 0{,}85$ for radial tires;

$\lambda_{ш} = 085 \div 0{,}90$ for diagonal tires;

$$r_c = 0{,}0254 \cdot \frac{14}{2} + \frac{185}{1000} \cdot \frac{60}{100} \cdot 0{,}83 = 0{,}26993$$

Discussion:

Selection of engine characteristics. Engine power (kW) is found by the following formula:

$$N_e = \frac{1}{3{,}6\eta_{tr}} \left(G_a \psi v_{\max} + \frac{k_b F_a v_{\max}^3}{12{,}96} \right) \cdot 10^{-3}, \qquad (2)$$

Here, $G_a = m_a \cdot g$ – full weight of the vehicle, N; ψ – total road resistance coefficient; $v_{\max}$ – the maximum speed of the vehicle, km/hour; k_b – creep coefficient, $\frac{H \cdot c^2}{м^4}$; $F_a = aBH$ – front side (area) of the vehicle, m^2.

$$N_e = \frac{1}{3{,}6 \cdot 0{,}92} \left(1394 \cdot 9{,}81 \cdot 0{,}02722 \cdot 163 + \frac{0{,}22 \cdot 1{,}80583 \cdot 163^3}{12{,}96} \right) \cdot 10^{-3} = 58{,}40328$$

The external speed characteristic is used to obtain complete information about the engine parameters. The external speed characteristic is a graph of engine power and torque as a function of crankshaft rotation frequency (rpm) or angular velocity (s-1).

The dependence of engine power on the frequency of crankshaft revolutions is calculated using S.R. Leiderman's empirical formula as follows:

$$N_{ei} = N_e\left[a\left(\frac{n_i}{n_N}\right)+b\left(\frac{n_i}{n_N}\right)^2-c\left(\frac{n_i}{n_N}\right)^3\right], \quad (3)$$

Here, n_N – the nominal frequency of rotations of the crankshaft corresponding to the maximum power of the engine, rpm;

n_i – the frequency of crankshaft rotations at the current time; a, b, c – the empirical coefficient depending on the engine type is selected from the table below (Table-1).

TABLE-1. Empirical coefficient depending on the engine type

Coefficients	Engine			
	Carburetors	Diesel		
		Direct	Front chamber	vortex chamber
a	1	0,5	0,7	0,6
v	1	1,5	1,3	1,4
s	1	1	1	1

When calculating the external speed characteristic, it is recommended to take the values of the minimum rotation frequency $n_{\min}$ of the crankshaft as follows:

$n_{\min} = 700-900$ rpm – for gasoline engines.

The frequency of crankshaft revolutions n_N corresponding to the maximum power of the engine is selected from table 2;

When constructing a graph of the relationship between engine torque $M_e = f(n)$ and the frequency of crankshaft revolutions, it is found from the following formula.

$$M_{ei} = 9{,}554\cdot 10^3 \cdot \frac{N_{ei}}{n_i} \quad (4)$$

TABLE 2. The nominal frequency of rotations of the engine crankshaft

Engine type	n_N, rpm
Light vehicle engines	5200-5600

Values of the graph of the dependence of the engine power on the frequency of crankshaft revolutions $N_e = f(n)$ for carburetor and diesel engines are calculated using the formula (2) and a graph is constructed. The graph of the relationship between the torque and the frequency of crankshaft revolutions $M_e = f(n)$ is built based on the data calculated using the formula (4) for carburetor and diesel engines.

The calculation results are summarized in Table 3, where $\omega = \frac{\pi n}{30}$ the angular velocity of the crankshaft. The number of calculations should not be less than 10 to obtain a high-resolution graph.

TABLE 3. The results of the calculation of the external speed characteristic of the engine

Current values of n_i, rpm	$n_{\min}$	...	...	...	...	...	...	n_N	$n_{\max}$
	900	1500	2100	2700	3300	3900	4500	5100	5700
N_i, kVt	11,1	19,5	28,1	36,5	44,2	50,6	55,4	58,1	58,1
M_i, Nm	117,7	124,1	127,9	129,2	127,9	124,1	117,7	108,8	97,3

Based on the data of Table 3: $N_e = f(n)$ va $M_e = f(n)$ or $N_e = f(\omega)$ va $M_e = f(\omega)$ these graph are constructed, from this, the number of revolutions corresponding to maximum power can be determined, and the number of crankshaft revolutions corresponding to maximum torque (or the angular velocity of the crankshaft) can be determined.

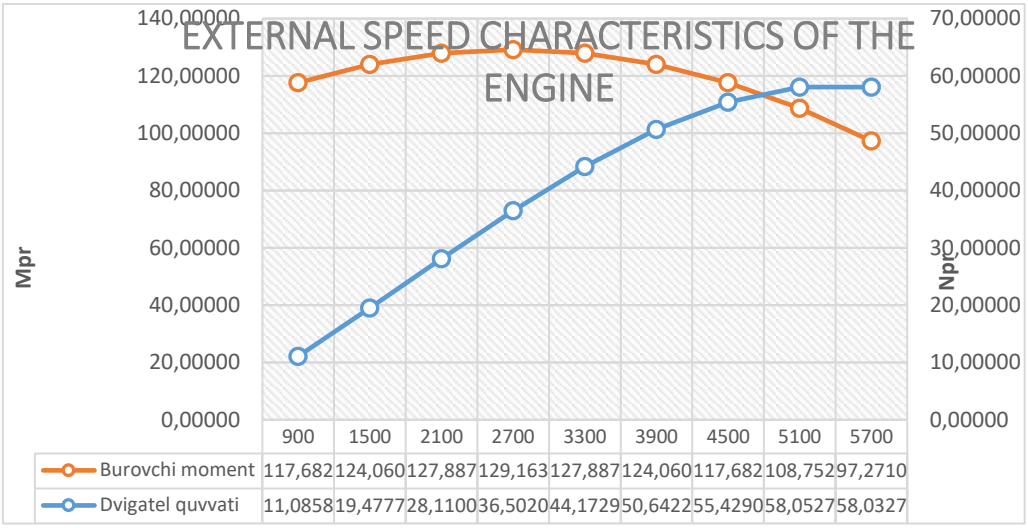


Figure 1. External speed characteristic of the engine

The maximum torque M_{max} is selected for the next stages of performing transmission calculations.

Conclusion. In conclusion, it should be noted that in order to ensure the quality of training of specialists, it is necessary that to increase the interest of students in science, to study the technical characteristics of internal combustion engines in the education of students of the automotive field within technical higher education institutions. In this article, the technical characteristics of internal combustion engines are explained in a simple and understandable way for students and users. It can be used in the formation of knowledge, skills and abilities of students in science.

References.

[1]. Decree of the President of the Republic of Uzbekistan "On measures to further expand the participation of economic sectors and sectors in improving the quality of training of highly educated specialists" 07.27.2017, PQ-3151, Collection of legal documents of the Republic of Uzbekistan, 2017, No. 30, Article 729.

[2]. Askarov, I. B. (2016). Preparation for research activities of the future teacher of vocational training. In Teaching Excellence (pp. 39-42).

[3]. Askarov, I. B. (2017). Basic approaches and principles of preparing future teachers of vocational training for research activities. Current Research in the Modern World, (2-6), 25-32.

[4]. Askarov, I. B. (2017). Management and planning of the process of formation of research skills and abilities of future teachers of vocational education. School of the Future,(2), 10-15.

[5]. Begmatov, B. Y. (2020). A study of student practice in technical higher education institutions. Academic research in educational sciences, (3).

UDK 1(09) (584.4) (100)

THE PRIMARY DIRECTIONS FOR MODERNIZING UZBEKISTAN'S EDUCATION SYSTEM

Inoqov Qudrat Qadirjanovich
Doctor of Philosophy (PhD)
Khojiev Tunis Nurkosimovich,
Doctor of Philosophy (PhD) National University of Uzbekistan named after Mirzo Ulugbek
karfagen_87@mail.ru

Annotatsiya. Ushbu maqolada, “Ta’limni modernizatsiya qilish yoki zamonaviy oliy ta’lim”, “ta’lim strategiyasi”, “oliy ta’limni xalqarolashtirish”, “bilimlar jamiyati”, “ta’lim siyosati”, “zamonaviy mutaxassis”, “ta’lim eksporti”, “xalq ta’limi” kabi tushuncha va kategoriyalar , “virtual ta’lim”, “bir umrlik ta’lim” global ta’lim tizimi modernizatsiya qilinar ekan, ijtimoiy-falsafiy tadqiqotlarning asosiy yo‘nalishi bo‘lib qolmoqda. Zamonaviy oliy ta’lim tizimi jahon oliy ta’lim tizimini modernizatsiya qilish qonuniyatlarini bevosita o‘zgartirayotgan ijtimoiy-madaniy va intellektual maydondagi muammolarni o‘rganish yanada globallashgan o‘zbek jamiyatida zarur. Ushbu insho ta'lim tizimini modernizatsiya qilish va ta'limning ijtimoiy modernizatsiyaga qanday hissa qo'shishini ko'rib chiqadi. Chet elda, xususan, Yaponiyada yashash tajribasi katta e'tiborga olindi. Shuningdek, Yaponiya va mamlakatimizda ishlab chiqilgan ta’lim modelining tarkibiy qismlari o‘zaro bog‘liqligini ko‘rsatadi.

Kalit so‘zlar: Yapon mo‘jizasi, o‘zbek ta’lim modeli, terakoa trimestri, qo‘shimcha ta’lim, sodo va xayku ta’lim modellariga misol bo‘la oladi.

Аннотация. В этой статье, такие понятия и категории, как «модернизация образования или современное высшее образование», «стратегия образования», «интернационализация высшего образования», «общество знаний», «политика образования», «современный специалист», «экспорт образования», «народное образование», «виртуальное образование» и «обучение на протяжении всей жизни» продолжают оставаться в центре внимания социально-философских исследований по мере модернизации глобальной системы образования. Изучение вопросов на социокультурной и интеллектуальной арене, где современная система высшего образования напрямую меняет закономерности модернизации мировой системы высшего образования, необходимо в условиях все более глобализированного узбекского общества. В этом эссе рассматривается модернизация системы образования и то, как образование способствует социальной модернизации. Значительное внимание уделялось опыту жизни за границей, особенно в Японии. Также будет продемонстрировано, как взаимосвязаны компоненты образовательной модели, разработанной в Японии и нашей стране.

Ключевые слова: японское чудо, узбекская модель образования, триместр теракоа, дополнительное образование, содо и хайку — вот некоторые примеры образовательных моделей.

Annotation. In this article, concepts and categories like “modernization of education or modern higher education”, “education strategy”, “internationalization of higher education”, “knowledge society”, “education policy”, “modern specialist”, “education export”, “public education”, “virtual education”, and “lifelong learning” continue to be the main focus of socio-philosophical research as the global education system is modernized. Studying the issues in the sociocultural and intellectual arena, where the modern higher education system is directly changing the patterns of modernization of the global higher education system, is necessary in the more globalized Uzbek society. This essay examines the modernization of the educational system and how education contributes to social modernization. The experience of living abroad, particularly in Japan, received significant consideration. It will also demonstrate how the components of the educational model developed in Japan and our country are interrelated.

Keywords: Japanese miracle, Uzbek education model, teracoa trimester, extra education, sodo, and haiku are some examples of educational models.

Introduction. Every nation that has no regard for its own present or future views the educational system as more than just a passing spiritual value. The fact that the state has given significant attention to the creation and structure of the educational system throughout the history of numerous nations might serve as a shining example of our viewpoint. In every industrialized nation, the government has always maintained close control over the educational system, continually modifying it to reflect new developments and the needs of the times.

The Republic of Uzbekistan has many potential to update and modernize all facets of social and political life now that it has achieved freedom. These possibilities open the door for the implementation of policies aimed at gradually deepening the democratic reform process and creating a new society in Uzbekistan. In fact, it is only natural for a society to achieve sustainable development if it has sustained the process of renewal and modernization in accordance with the demands of the times. It is no accident that the President of the Republic of Uzbekistan, Shavkat Mirziyoyev, stated in his address to the Oliy Majlis on December 29, 2020 that we have steadfastly pursued reforms in all areas in accordance with the State Program “Development of Science, Enlightenment, and Digital Economy”.

Literature review. Studies and research on the modernization of higher education, healthy and equal education, global education, transnational education, Wei U, J. Bartholomew, Z. Bauman, S. Chinamai, P. Scott, M. De Martino, and others have been conducted by A. Appadurai, M. Waters, D. Hell, D. Goldblatt, E. McGrew, H. Harutunyan, D. Roberts, R. Robertson, S. Huntington, P. CIS researchers like V.V. Ilin, B.S. Gershunskiy, A.A. Gryakalov, A.P. Valitskaya, A.A. Korolkov, A.S. Zapesotskiy, V.V. Kraevskiy, V.M. Rozin, B.C. Stepin, M.G. Zaborskaya, and V.M. Bid-Bam have examined topics including national education issues, internationalization. In the writings and scholarly investigations of people like S.Otamurodov, J.S.Ramatov, N.Shermuhamedova, A.Kadirov, I.Ergashev, F.A.

Musaev, sociologists T.B.Matibaev, A.J Kholbekov, J.D. Matkarimova, H.Khidirov, legal scholars H.T. Odilkoriev, Z.M. Islamov, in the field of pedagogy scholars such as N.Sh. Erkaboeva, T.A. Egamberdiev, BA Talapov, M.H. Saidova, and O.Sh. Urolov.

Research methodology. The current study uses system analysis, comparative analysis, objectivity, abstraction, concrete techniques, historical method, and other general and philosophical methodologies.

Analysis and results The findings show that in order to train individuals who fulfill contemporary needs, we have switched to a new type of content education today. A wholly new approach to the educational system has been instrumental in many industrialized nations, including Japan, Malaysia, Singapore, and South Korea. The question of learning from these nations while receiving instruction in fields with significant market demand is one that today's development raises for us. Today's global market has given rise to professions and trades that are educated in the majority of cases in just one year in regular training facilities rather than three years in universities or colleges. For instance, education is prioritized for economic growth in Singapore. Interaction with the American educational system has helped to solve issues with the growth of the education sector. Singaporeans have started to pay special attention to different manufacturing training courses targeted at professional development in addition to 10-year schooling, even though the education system is not free (schooling in Uzbekistan is free). In Singapore's polytechnic schools and colleges, in addition to technical knowledge, the fundamentals of graphics and design as well as architecture were taught. Production and education go hand in hand, with a strong emphasis on practice. Most of the time is spent in practical or production settings by students, young people, and professionals in the vocational field. Additionally, additional laboratory and seminar sessions supervised by skilled instructors enable individuals to acquire excellent information and freely put their theoretical knowledge into practice after graduation. The government has also chosen to invite seasoned experts from a range of professions, including engineers, managers, attorneys, and others, to offer lectures at universities. Such experts would elevate the learning process to a new standard of excellence by enhancing it with information known to the practitioner rather than the theory. As a result, the graduate from yesterday who entered the workforce was able to quickly grasp the economic concepts of "quality, dependability, and precision" in the actual labor process.

Staff training in Malaysia also results from jobs in businesses with foreign investors entering the nation. The entry of foreign and domestic businesses into Malaysia resulted in a continuous effort to produce and apply innovative technology as well as train and retrain highly competent individuals. For the purpose of educating their staff, the businesses have established academies, schools, and specific training programs.

The biggest importance for the Japanese continues to be education. In Japan, it used to be customary to reduce spending on needs in order to fund children's education. The Japanese strove to give their children knowledge rather than money and material prosperity by paying for their education with the money that should have been left to them, giving them the chance to become financially independent in the future. This

ensured that they would have jobs in the public sector and enjoy a high social standing. The modern education system being implemented in Japan is so far-reaching that it may act as a model for the entire globe. Similar to our nation, Japan has implemented compulsory education, which encompasses elementary and secondary education and is attended by nearly all Japanese children. Ninety-six percent of them are doing secondary school courses. 60% of kids who complete the second stage go on to college, a technical institute, or a vocational school to further their education.

The idea of moral education is integrally related to the educational system in the contemporary Japanese educational system. Schools started emphasizing practical ethics in the Middle Ages. These institutions provided instruction on how to handle a family connection practically for the employer and officials. The school system started to be considered as a way of establishing moral and spiritual perfection and, on this basis, cultivating the characteristic of stringent discipline, both of which were influenced by Confucian views and Buddhist traditions.

Because of this, we have every reason to think that one of the most important concerns in today's training is the President's plan to restore 11 years of schooling and the requirement to create a training and vocational enterprise under it. In addition, our children receive education that meets at least international standards over the course of 11 years, and they also acquire a vocation or occupation at the same time at the same school in accordance with the needs of their region. The South Korean organization KOICA has been preparing young people in our nation for technical vocations for a number of years. The opening of such institutions in every province was just announced. Given that foreign investors are already making an active effort to penetrate our nation's economy, it stands to reason that, as their needs change, they will develop training programs or schools that specialize in particular new professions and crafts in the future. The outcome will be the year-long investment made by our young people to become authorities in a certain subject.

In conclusion, President Shavkat Mirziyoyev’s viewpoint on the restoration of the 11-year school system and the actual work done by the administration have a solid foundation, and experience from other nations can attest to this.

One of the key and determining aspects in the modernisation of practically all facets of social life and, consequently, in raising the welfare and standard of living of the populace, is the reform of the educational system. It is well recognized that the contribution of experienced innovators and knowledgeable professionals has been crucial in helping Japan join the world’s industrialized nations. This in turn is a direct outcome of the nation’s long-standing, effective educational system. This industry, which is a key part of the so-called “Japanese miracle” modernization model, has played a significant role in the population's high degree of socio-political mobilization.

The modern education system being implemented in Japan is so far-reaching that it may act as a model for the entire globe. Like in our nation, all Japanese children must complete nine years of obligatory education, which includes both elementary and secondary education. 96% of them are in their second year of college. 60% of kids who complete the second stage go on to college, institutes, or vocational institutions to continue their studies.

The educational process has its own social, historical, cultural, and natural basis, as does the high level modern educational system. This evolution is reflected in this process, which in many ways paves the way for a more thorough examination and comprehension of contemporary life and society in Japan as a whole. Just to refresh your memory, Japan has long been known as a place that specializes in rice cultivation. The lives and lifestyles of the people have been entwined with this profession, and there has even been a unique labor company called yui (literally translated as "communication"). Japanese attitudes toward education reflect a variety of traits that set them apart from other cultures, including religious tolerance and a sense of community.

It is important to reiterate that a country that cares about its own future and destiny does not see the educational system as just a passing spiritual value. A brilliant illustration of our viewpoint is the fact that throughout Japan's history, the state has placed a high priority on the growth and structure of the educational system. The government has always maintained close control over the education system, regularly modifying it to reflect changes and advances in response to societal and historical demands. The biggest importance for the Japanese continues to be education. In the past, it was customary in Japan to spend less on basics of life in order to fund children's education. By using the money that should be given to the children for their contemporary education and so giving them the ability to make money on their own, the Japanese strove to more specifically pass on knowledge to their children rather than money and tangible prosperity. This ensured that they would have jobs in the public sector and enjoy a high social standing.

It is generally known that the effective execution of the Japanese modernization process has been greatly attributed to the capacity of the Japanese people to adapt to the circumstances of other civilizations at a time required for success. The education system has been created on the basis of foreign (mostly Chinese) experience in order to identify the practical issues of state and society creation, its function in society, and the attitude of the state government toward it.

The laws of "Taykhoryo" (702), which arose in the second part of the VII century and represent the processes of socio-political changes and systematization of legal relations at that time, have a special item on education in Chapter 1. For instance, the High School Management article contains the topic names and staffing charts. Public schools are discussed throughout the whole document, including the first statute on education. The term "uncultured" person is defined as "uneducated person" in the context of Article 44 of this statute [1, p. 243].

The public and private sectors made up the first two blocks of the educational system. Buddhist monks were taught in the private sector while government officials were schooled in the public education system. Ideas for running the government and teaching the populace are included in the course material that covers bureaucratic management.

In summary, national traditions and educational systems that have served as significant educational and role models for millennia have evolved. The fundamental ideas and characteristics of education were:

1. The ultimate authority's central position

2. Consistency with moral instruction and manners throughout the school process.

3. The character of education is ongoing, progressive, and practical. [2, p. 182]

The education system was established on the basis of this idea and is completely consistent with the social structure of society as a whole, including the privileged strata. The direction of education at the institutions and places that prepared students for public service was wrapped in a layer of samurai up to the middle of the nineteenth century. As historian S. Ch. Lim correctly notes, "from the time of Meiji, a strong basis was established for the acquisition of scientific knowledge and Western achievements not only in basic and secondary, but also in higher education" in the educational institutions of the ruling elite. [3, p. 61]

The 10,000 private schools (teracoa) that Buddhist temples created for commoners eventually grew apart from the temples and started to constitute the lowest level of instruction.

Due to the increased economic significance of urbanization, this process changed. State authority allowed the terracotta to progressively lose its religious overtones as secularism gained popularity. At this point, education was starting to take an autonomous role in the nation's monetary and commodities relations.

The concept of moral education, which is closely tied with the educational system, was by this point developing in Japanese pedagogy. Schools started emphasizing practical ethics in the Middle Ages. These institutions provided instruction on how to handle a family connection practically for the employer and officials. The school system started to be considered as a way of establishing moral and spiritual perfection and, on this basis, cultivating the characteristic of stringent discipline, both of which were influenced by Confucian views and Buddhist traditions.

Early in the Meiji era, 15% of women and half of the male population were systematically educated (nearly all samurai were literate). The study of Confucian texts and the fundamentals of mathematics comprised the core of this education. Japan, which prioritized reading religious texts, varied from European nations with its relatively economically oriented educational system while having a somewhat developed secular education system. Books and diaries written and signed by farmers and filled with details on agriculture can be used to learn more about this topic. The literacy percentage of the Japanese people in the 1870s was greater than that of several industrialized European nations in the twentieth century, according to historian R. P. Dora. [4, p. 291]

It was important to fast educate the populace, or more specifically, to understand the triumphs of European scientific advancement, in order to implement the Meiji period maxim that a wealthy country is a powerful army, and to drastically change the educational system. It would not have been feasible to genuinely compare with Western civilisation without a major reform of the educational system and the escalation of the Enlightenment movement. Since then, efforts have been made to align the goals of the educational system with those of the socioeconomic environment. Following the restoration era, Meiji was entrusted with implementing the European educational system in its entirety. Japan was able to learn everything from the

foreigners and vanquish them at home, according to Okuma Sigenobu, one of the leaders of the restoration [5, p. 69].

Around this time, the nation started to create a comprehensive national education system to meet the needs of a modernizing society. The Meiji period's intellectuals successfully utilized the educational system to further the country's goals. The procedure was strict as usual. "At that time, Japanese leaders were in an experimental situation since they lacked a model that would guide their actions. Despite the lack of well-established external relations, the education system evolved as a result of a number of factors, such as nationalism, the selective adoption of Western civilization's cultural aspects, gradual pragmatism, government control over the populace, and finally the restriction of public participation in education policy [6, p. 18]. The Japanese population was prepared for modernity because of their swift psychological response to political and technical advancements. However, the education system continued to be a crucial requirement for societal advancement.

Additionally, a number of Western and Eastern studies have shown that the following elements affect how successful schooling is in Japan:

Next comes knowledge, then conduct. In Japan, students are only allowed to take modest independent assessments until they are 10 years old, or fourth grade. In this country, the first three years of education are not as critical for acquiring academic information. The primary focus is on upbringing; kids are taught respect for others, tolerance, compassion, honesty, self-control, and concern for the environment [7]. This component is consistent with the legal idea of the harmony of education and raising, which was significant in the history of our nation.

The beginning of the academic year is April 1. One of nature's most stunning displays, the blooming of the sakura, occurs in Japan at the start of the year (a favorite fruit tree in Japan, a cherry-like fruit). Three trimesters—April 1 to July 20, September 1 to December 26, and January 7 to March 25—make up the academic year. As a result, Japanese students get a six-week summer break and two-week breaks in the winter and summer [8].

The students themselves maintain cleanliness in Japanese schools instead of having cleaners. Every classroom alternates cleaning the restrooms, corridors, and cabinets. Children are taught to support one another and operate as a team in this way starting at a young age. Additionally, students that put a lot of time and effort into cleaning will endeavor to keep the building as clean as they can [9].

Children share standardized meals that are prepared and served at schools. Children in primary and secondary schools receive a special meal that is provided by both school chefs and medical professionals. When preparing meals for pupils, particular consideration is given to how they will affect the child's health and physical development. Together with their instructors, the students have breakfast in the classroom.

Students in Japan have a strong need for supplementary education. Children start going to private and preparatory schools in a certain region as early as elementary school, which enables them to continue their education in primary and secondary schools that offer superior education. Since these schools often have their sessions in the evenings, it is normal in Japan for young children heading home from after-school

activities to fill the public transit system by 9 p.m. Additional lessons continue every day for 6 to 8 hours, including weekends and holidays.

Poetry and calligraphy are taught to students. The basic idea behind Japanese calligraphy is to write hieroglyphs on rice paper using a bamboo brush that has been dipped in ink. Joy is almost as much appreciated in Japan as art. Haiku, a form of national poetry, succinctly portrays the harmony between nature and man. Students are taught to respect their own culture and customs in these sessions.

Every student at the school must wear a uniform. All pupils are expected to wear a certain uniform starting in high school. Despite the fact that many schools have their own uniforms, guys often wear military attire while girls ride in sailors. This guideline is a component of moral instruction. A professional atmosphere is also created by the attire.

There is 99,99% student attendance at schools. It's difficult to recall someone in Japan who never missed a class, but that's the rule there. Japanese students also practically never arrive late for class. 91% of pupils always pay attention to their teachers in class.

The outcome of one final exam determines everything. Students take a single exam after finishing the upper grades, and the outcome of that examination determines who gets into the university. The graduate has the freedom to select just one university, and that decision will have an impact on his future earnings and way of life. There is a lot of rivalry because 76% of graduates continue their studies beyond high school.

You'll always look back on your time in college as the finest vacation of your life. It is only natural for young people to desire to take a vacation after achieving a specific goal after years of diligent work and preparation. This period also corresponds with the university years because of the aforementioned features of the Japanese educational system. The lightest and most stressful time in any Japanese person's life is during their university years, which serves as an example of a vacation taken before beginning employment. After all, the Japanese are encouraged to approach their profession with tremendous responsibility and passion from an early age.

Conclusion and suggestions. In the early years of our independence, the primary requirement for the modernization of society in Uzbekistan was thought to be a reform of the educational system. A model of the national education system based on international educational standards was designed and is now being updated in 1997 with the adoption of the National Program of Personnel Training and the Law of the Republic of Uzbekistan “On Education” No. LRU-637 of September 23, 2020. Further advancement in this field may result from wise use of the expertise of the currently most successful educational system in the world, that of Japan. After all, the Japanese educational system, like the educational system in our nation, is founded on the ideas of universal and national values, education and parenting, and instructing young people in the spirit of patriotism.

References:

[1]. Prasol A. F. Stanovlenie obrazovaniya v Yaponii. Vladivostok. 2001. B- 243.
[2]. Prasol A. F. Stanovlenie obrazovaniya v Yaponii. Vladivostok. 2001. B-182.
[3]. Lim S. Ch. Istoriya obrazovaniya Yaponii. Kones XIX - pervaya polovina XX veka. M., 2000, B-61.

[4]. Dore R. P. Education in Tokugawa Japan. London, 1965, p. 291.
[5]. Istoriya Yaponii. M., 1998. T. P., s. 69.
[6]. Makoto Aso, Ikuo Amano. Obrazovanie i modernizasiya Yaponii. Problemi sovremennoy Yaponii. Vip. XI. Obrazovanie v Yaponii. Ref. Sb. M., 1974, s. 18. [7]. http://www.examen.ru/add/manual/higher-education-abroad/sistema-obrazovanija-v-japonii/
[8]. https://www.tofugu.com/japan/japanese-education/
[9]. https://novakdjokovicfoundation.org/interesting-facts-about-japanese-school-system/
[10]. http://www.psychologos.ru/articles/view/yaponskaya_sistema_obrazovaniya

UDK:301.323:654.9:9(58)(575.1)

THE SOCIO-POLITICAL ADVERTISEMENT AS A FACTOR OF STABILITY OF THE MODERN POLITICAL SYSTEMS

Isanova Gulbakhor Takhirovna,
Doctor of Philosophy (PhD)
Khojiev Tunis Nurkosimovich,
Doctor of Philosophy (PhD)
National University of Uzbekistan named after Mirzo Ulugbek
karfagen_87@mail.ru

Annotatsiya: Ushbu maqolada imijning siyosatdagi ahamiyati va saylov jarayonlarida imidj shakllanishi tahlil qilinadi. Shuningdek, maqolada saylov jarayonlarida imidjni shakllantirishda ijtimoiy-siyosiy reklamaning ahamiyati haqida umumiy xulosalar berilgan.

Kalit so‘zlar: obraz, siyosiy imidj, saylov, saylov jarayoni, jamoatchilik bilan aloqalar, saylovoldi kurash, ijtimoiy-siyosiy reklama.

Аннотация. В данной статье анализируется значение имиджа в политике и формирование имиджа в избирательных процессах. Также в статье даются общие выводы о значении общественно-политической рекламы в формировании имиджа в избирательных процессах.

Ключевые слова: имидж, политический имидж, выборы, избирательный процесс, связи с общественностью, предвыборная борьба, общественно-политическая реклама.

Annotation. This article analyzes the significance of the image in politics and the image formation in electoral processes. The article also gives general conclusions on the importance of socio-political advertising in the formation of the image in the electoral processes.

Keywords: image, political image, election, electoral process, public relations, pre-election struggle, socio-political advertisement.

Introduction. In the 21st century human development has come to a qualitatively new level. In recent times, new ways of mastering the social space, including its technology, are gaining popularity against the background of unprecedented

innovations in the world. In this context, both social relations and political processes are becoming the object of technologization. The purpose of the use of political technology is to ensure that policy actors effectively fulfill their tasks and responsibilities. It is quite known that as a result of the growth of mass literacy, the development of the internet and the advent of smartphones, citizens are demanding that the government fully perform its functions and not sidestep their responsibility. In many cases, public scrutiny and pressure are causing the political groups and interest groups to change their positions. While the use of socio-political advertising as a technology in influencing political processes allows to actively influence social life, the use of technology to create the image of a politician serves to realize the potential of political actors.

Literature review. Although, the problems of socio-political advertisement have not extensively been touched by the intellectuals of Uzbekistan, the works, monographs and articles of researchers such as B. Mustafoev, A. Yukubov, E. Sultonova, F. Muminov, O. Khusanov, I.Ergashev, A. Holbekov, R. Jumaev, N. Umarova, M. Kirgizboev, N. Juraev, N.Abduazizova and others discuss the problems of electoral process, election rights, the organizational-legal aspects and principles of the processes of election, the facilitation of competitive environment in elections, and pre-election propaganda measurements. Yazdonov Ulugbek Toshmurotovich conducted research on “The Functional Integration Characteristics of the Institutions of the Formation of Public Opinion in the Conditions of Globalization”, but it focuses on the formation of public opinion and it does not analyze the socio-political advertisements. Our research focuses on the role of socio-political advertisements in the formation of public opinion.

Research methodology. The present research employs such general and philosophical methods as the historical method, objectivity, abstraction, concrete methods, system analysis, and comparative analysis.

Analysis and results. Given the role of the image in politics professionals working in this field are constantly trying to form a political image and maintain a positive image. The image is an important form of political capital of political subjects, as well as a mechanism for its reproduction. Initially, the term "image" in the present sense was used to distinguish a type of product in commercial advertising. In the 1960s, with the development of new methods of organizing election campaigns, this concept began to be widely used in the US to differentiate political leaders. As a result, the image shifted from an economic category to a political category. An image of a product helps to sell products in the economy, attracts customers in banking, and it serves to form a positive attitude to this or that politician in politics.

The product image is the essence of advertising creativity. Advertising is important in the implementation of socio-political to create the image of the candidate and his reflection in advertising. Because the image is "materialized" only when it is made public, and the image that is not made public is not materialized, therefore not available. The role of the image in the election victory of the candidate, in ensuring the legitimacy of the government in crisis situations, in popularizing the political leader increasingly growing in importance. According to experts, "the efforts of image makers can provide an average of 15-20% of the vote to a competent candidate" [1].

Subject-object relations in socio-political advertising have their own characteristics. The candidate's communication with voters has often an indirect nature. On the one hand, this is due to the need to influence a large number of people (using the media for this), and, on the other hand, to the inability of an individual to express his whole human nature and qualities in public. Therefore, a certain image, which contains the real qualities of the candidate and the ideal qualities that reflect the interests of the electorate, is lost and separated from him. The image serves as a mediator between the leader and the public, inspiring people, expressing people's aspirations. Qualities related to the leader's attitude to a particular policy, worldview, biography and appearance are expressed in the image as a whole, based on the wishes of the electorate.

Indeed, given that most voters do not have the opportunity to communicate directly with the leader immediately and directly, we understand that the choice depends more on his or her image than on the candidate. In this case, more important than the identity of the candidate is what image he is presented to the voter. In this regard, in 1968, the organizers of Richard Nixon's election campaign explained their strategy of action in the following manner: "We must change not his person, but the impression about him" [2].

In the language of modern communication, image is interpreted as a multifaceted phenomenon. In this context, there are numerous definitions and classifications of image.

The image is defined as "a purposefully designed and promoted impression of a candidate" [3]. Uzbek scholar U. Karabaev wrote: "Image is formed on the basis of a crystallized impression of the person around. More precisely, a person's merits, abilities, and products of his activity appear after he is recognized by many" [4]. In connection with the process of implementation of socio-political advertising, image is "a visual representation of reality that embodies the idea of advertising in an impressive, memorable and symbolic way. In this case, sound, image and verbal symbols reveal the suggestive functions of the advertising product" [5].

"Creating an image in politics is the process of forming an image of a political subject that attracts people's attention in order to achieve a political goal" [6]. In other words, an image is a collection of perceptions formed about people about a political figure on the basis of the information obtained. The image also captures the impression gained from the leader's policy documents, statements, and decisions. In creating an image in politics, a treasure trove of different means and methods of targeted influence on the audience is used, based on the interests of an individual or group seeking public recognition.

To summarize, we can argue that the image is defined as "a set of qualities that remind people of a particular person", "an image capable of endowing a person with qualities that are not unique to him", "his/her perception by others", "the overall picture of his/her personality in the eyes of others", Based on research on the image, some of its features and characteristics can be distinguished in the following manner:

- The image represents a simplified portrait of its object. Dominance is a characteristic of the image - it is an abbreviated message, a large amount of information about the object is converted into a limited set of symbols through the image;

- The image emphasizes the originality and uniqueness of the object, so that the image is radically different from the stereotype that generalizes events;
- The image is clear but subject to change; it is in constant change, adapting to the requirements of the current situation, the wishes of the audience; the recipient's exposure to the information is controlled;
- It is feedback communication. Messages are created taking into account the expected exposure from the population;
- The image corresponds to the advertised object to a certain extent and at the same time idealizes it, thereby exaggerating its useful, acceptable features or "enriching" the object with additional social, ideological, psychological values that meet the expectations of consumers of advertising;
- The image is governed by its own laws even if it is associated with the appearance of its object;
- The image combines object-specific features with the imagination of the audience;
- The image is between the real and the desired, between the perception and the imagination" [7].

The image performs several social functions: *a)* identification, due to which the image of the candidate will be easily recognizable; *b)* idealization, the image created by the candidate as a result of this task is far from his real qualities; *c)* comparison, which allows the task to be distinguished from other images" [8]. In addition, scientific sources distinguish the communicative, nominative, aesthetic and targeted functions of the image [9]. The communicative task primarily assumes that the image serves to facilitate the audience's perception of policy information. In addition, the communicative function of the image is to create a favorable and acceptable environment for the candidate to be accepted by the people as a result of conveying to the audience the qualities that are acceptable to the electorate. As a special type of communication, the image serves as a kind of "reflection mirror" for its protagonist.

The image helps to distinguish the candidate from other people, to demonstrate his / her unique qualities, to focus on his / her advantages and that can be called the nominative function of the image. The candidate's appearance, attractiveness, and the way of dressing also play an important role in creating a leader's image. This is how the aesthetic function of the image manifests itself. The targeting function implies that there is a connection between the image and its target audience.

It is worthwhile to cite the classifications of the image from a number of sources. When approached from the perspective of political communications, it is important to distinguish between objective, subjective, ideal, and modeled images. An objective or objective image is defined as "the impression that voters have on a particular candidate" [10]. The objective image is not permanent, but changes as a result of changes in the political situation, as well as the efforts of the creators of the political campaign strategy. An example of a subjective image is "the perception of a candidate and his or her team of how voters perceive a candidate" [11].

An ideal image is "a set of qualities of a supposed candidate that best respond to a particular election situation" [12]. These are the perceptions of electoral groups about

any desired leadership qualities. Admittedly, man is not perfect. Therefore, attempts to determine the ideal image of a candidate will naturally arouse mistrust in people. Thus, the implementation of socio-political advertising requires the creation of an image close to reality, based on the objective qualities of the candidate. Solving this task requires creating a modeled image. “A simulated (strategic) image is an image that a candidate team and the professionals involved try to create” [13]. The modeled image is transmitted to the audience. Strengthening the modeled image in the minds of voters ensures the effectiveness of socio-political advertising. This is because the most optimal case for an advertising strategy is the transformation of the modeled image into an objective image, that is, an image that took hold in the minds of voters.

According to another classification, the primary and secondary images are distinguished. “The primary image of a political leader formed in the minds of voters as a result of his first acquaintance with him, describing him as a person, a subject of political activity” [14]. That is called the primary image. The primary image includes the main features of the ideal image, but differs from the ideal in a number of features. During the election campaign, the primary image changes: while its main features are preserved, new qualities are added that reflect the specific features of the emerging election situation. The new image that appears is called the secondary image.

The image has a complex structure. Sources distinguish three groups of qualities that are included in the image. These are personality-related, i.e., personal qualities, social qualities, and symbolic qualities [15]. Personal qualities include: physical, psychophysiological characteristics of the politician, his character, personality, decision-making style, charisma. Qualities such as appearance, enthusiasm, biography, popularity of the candidate also play an important role. Unifying and mobilizing ideas are promoted and proclaimed using social attributes. The social qualities of a leader also include his status (not only a certain official position, but also his origin, etc.). Symbolic qualities represent the leader as a carrier of a certain ideology, provide some guarantees for a certain perspective, ensure that his actions have a certain direction.

D. Whitnzer, one of the experts in the field of socio-political advertising, argues that “a candidate should have one or more qualities that inspire us, he should be active, passionate, victorious, self-sacrificing, sincere, self-confident and determined” [16]. In addition, leadership must be accepted as someone who knows how to succeed and win. In creating the image of a leader, it is also advisable to show that he is ready to take responsibility for the affairs of the country, government, territory.

In order for a candidate to fit the image of a true leader, it is important to cover not only his present but also his past accordingly. Therefore, the genre of biography has a special place in socio-political advertising. Biographical information used in socio-political advertising is sorted in terms of whether it meets the ideals of the audience. Unwanted information in the leader's biography is removed, “forgotten” or interpreted as necessary.

It is necessary to consider not only their positive qualities, but also their negative ones in creating the image of a candidate. The presence of some insignificant negative qualities in the image of the candidate does not weaken the image, but further enriches it. This brings the politician's image closer to the public, enriches it with pure human qualities, in return for which the candidate receives a “credit of trust”.

The image of the future proposed by the candidate is important in the formation of the image. Therefore, in order to win the election, it is necessary to develop a thorough program or focus on editing the existing program in accordance with the wishes of interest groups. Socio-political advertising certainly simplifies this task, as it turns the conflict between political programs into a confrontation between alternative ideas. But it is precisely because of this that socio-political advertising becomes an effective tool of the beneficial movement.

In the analysis of socio-political advertising as a means of shaping the image of political actors, it is necessary to focus on other subjects of politics. After all, in addition to individual citizens involved in political activity, socio-political advertising also includes advertising of political parties (associations), public administration bodies and public organizations. The image of a party is also created through socio-political advertising, and its propaganda serves to attract supporters, attract new members, disseminate the ideas and principles of the new party to the general public, or encourage members of society to participate in a particular political event.

In expressing the party's image through socio-political advertising, attention should be paid to the following:

- the image of social groups;
- propaganda (political, economic, social ideas), values, morals;
- goals from ideologies (in order to achieve them, the party seeks to gain power);
- Ways (means) to achieve the set goals;
- the generalized description of the members of the social group, socio-demographic portrait of the group (representatives of the social and demographic strata of the group, their social status, age, income, etc.);
- group history, its reputation;
- Organizational characteristics of the social group or stratum (publicity of the group, the number of members, the number of local structures, activity, development of infrastructure, including the development of party media, the presence of youth, sources of funding, etc.);
- the role of the group in the relationship "power - opposition", as well as its proximity or distance to other groups, social strata, groups;
- group participation in regional processes and events;
- support of the group by independent, influential people;
- Symbols - emblem, colors, logo, the flag, colors, etc. [17].

The image of the politician is remembered, the image of the party takes root in the public consciousness as a result of frequent display and promotion of the image of a political subject through socio-political advertising, which in turn encourages citizens to support these policy subjects. In this regard, all the actions of the subject of propaganda in connection with propaganda should be subordinated to the task of disclosing his image. At the same time, politicians are forced to act in accordance with their image because of the image that has been instilled in the minds of the masses by the media.

Conclusions and recommendations. One of the most widely used methods in shaping an image is to give an opinion of a famous person about the candidate. In this

case, the psychological law of copying the qualities of a famous person begins to apply, more precisely, the qualities of a famous person are transferred to the subject of advertising, thereby instilling confidence in him. Such support allows a third party to talk about the candidate, i.e. the person supporting the candidate will be able to say things that the candidate is uncomfortable talking about themselves.

On a concluding note, we can state that the effective implementation of such tasks as increasing the prestige of the political subject, creating an attractive image in the public mind, expanding the number of its supporters, influencing political opponents, forming electoral tendencies, mobilizing the public to support certain political forces requires application. In order to increase the effectiveness of the advertising of a political entity, the requirement is the serious work on the creation of its image, the rational use of mechanisms that serve to create a leading image. In this respect, a special and scientific analysis of the issue of creating the image of political actors through socio-political advertising facilitates the study of the problem of the image in detailed composition.

References:

[1]. Malishevskiy N.N. Texnologiya i organizasiya viborov. — Mn.: Xarvest, 2003, - S. 46.
[2]. Pochepsov G.G. Imidjelogiya. – M.: Refl-buk, - K.: Vakler. 2000, -S. 546.
[3]. Malishevskiy N.N. Texnologiya i organizasiya viborov. — Mn.: Xarvest, 2003, - S. 42.
[4]. Qoraboev U. Imij va imijelogiya // Jamiyat va boshqaruv, 1999, 1-2-son, - B. 47.
[5]. Uchenova V.V., Starix N.V. Kak rodilasь reklama. — M., 1992, -S. 5.
[6]. Solovev A.I. Politologiya: Politicheskaya teoriya, politicheskie texnologii: Uchebnik dlya studentov vuzov / A.I.Solovev. — M.: Aspekt Press, 2006, - S. 519.
[7]. Grinberg T.N. Politicheskie texnologii: PR i reklama: ucheb. posobie dlya studentov vuzov / T.E.Grinberg. — M.: Aspekt Press, 2005, - S. 160-161.
[8]. Politiko-administrativnoe upravlenie: uchebnik / Pod obsh.red. V.S.Komarovskogo, L.V.Smorgunova.— M.: Izd-vo RAGS, 2004, - S. 447.
[9]. Grinberg T.N. Politicheskie texnologii: PR i reklama: ucheb. posobie dlya studentov vuzov / T.E.Grinberg. — M.: Aspekt Press, 2005, - S. 161.
[10]. Ilyasov F.N. Politicheskiy marketing. Iskusstvo i nauka pobejdatь na viborax. – M.: Izdatelstvo “IMA-press”, 2000, - S. 52.
[11]. Grinberg T.N. Politicheskie texnologii: PR i reklama: ucheb. posobie dlya studentov vuzov / T.E.Grinberg. — M.: Aspekt Press, 2005, - S. 162.
[12]. Malishevskiy N.N. Texnologiya i organizasiya viborov. — Mn.: Xarvest, 2003, - S. 43.
[13]. Ilьyasov F.N. Politicheskiy marketing. Iskusstvo i nauka pobejdatь na viborax. – M.: Izdatelstvo “IMA-press”, 2000, - S. 53.
[14]. Grinberg T.N. Politicheskie texnologii: PR i reklama: ucheb. posobie dlya studentov vuzov / T.E.Grinberg. — M.: Aspekt Press, 2005, - S. 162.
[15]. Lisovskiy S.F. Politicheskaya reklama. Glava 1. http://evartist.narod.ru/text7/03.htm#_ftn11
[16]. Lisovskiy S.F. Politicheskaya reklama. Glava 1. http://evartist.narod.ru/text7/03.htm#_ftn 11

UDK:091.2

THE PHILOSOPHICAL ESSENCE OF SOCIAL VIEWS ON THE IDEOLOGICAL PRINCIPLES OF THE DEVELOPMENT OF CIVIL SOCIETY.

Teshaev Nutfullo Nasrulloevich
candidate of philosophy, associate professor
Bukhara State University
teshaev_nutfullo@mail.ru

Annotatsiya: mazkur maqolada yurtimizda fuqarolik jamiyati rivojlanishining mafkuraviy tamoillariga doir ijtimoiy -manaviy qarashlar, g‘oyalar ularning ma'no mazmuni va falsafiy mohiyati har tomonlama ilmiy-nazariy jihatdan tahlil qilinadi.

Kalit so‘zlar: “mafkuraviy tamoyil”, “g‘oya”, “mafkuraviy soha”, “mafkuraviy jarayon”, “falsafiy tafakkur”, “umumbashariyat”, “turkiy bitiklar”, “Vatan”, “yurt”, “xalq”, “millat”, “urf-odat”, “boshqarish”, “ilm”.

Аннотация: в данной статье социально-духовные взгляды, идеи, их смысл и философская сущность анализируются с научной и теоретической точки зрения.

Ключевые слова: «идеологический принцип», «идея», «идеологическое поле», «идеологический процесс», «философское мышление», «универсальность», «турецкие писания», «Родина», «страна», «народ», «нация», “традиция", "управление", "наука".

Annotation: in this article, socio-spiritual views, ideas, their meaning and philosophical essence on the ideological principles of the development of civil society in our country are analyzed from a scientific and theoretical point of view.

Key words: "ideological principle", "idea", "ideological sphere", "ideological process", "philosophical thinking", "universality", "Turkish scriptures", "Motherland", "country", "people", "nation", "tradition", "management", "science".

Introduction: In our country, it is known that the history and analysis of the earliest mythological myths, religious and theological ideas, theological views and opinions expressed in this regard, related to the understanding and interpretation of the ideological context of the society, begins with the reference to scholars and thinkers who were born and raised in the territory of our country. It is not without reason that the opinions and information about the level of study of many topics and problems related to this field in the dissertations of contemporary scientists and researchers turn to these sources. After all, we should emphasize that the foundations of scientific knowledge and theoretical views about many factors and principles that ensure not only the image of the society of the distant past, but also the dynamics of today's ideological world are laid in the teachings, ideas and teachings of our wise scholars and thinker grandfathers.From this point of view, we should emphasize that ideas related to the ideological environment and the incon factor, religious-educational processes, the needs, interests and demands of the people and their people, starting from the "Avecto" books, found their reflection in the creative career of the representatives of Eastern and Western socio-philosophical thinking. The monuments of ancient peoples, the history of Micr and China, Turan and Iran, Hindicton and Central Asia, the ideological roots of society and incon cohaci

reflected in the works of thinkers who lived in these regions have not lost their importance even today.

Methodology. In this respect, "Ancient Turkic writings" is an extremely important source, an important component of the invaluable heritage of one of the world's oldest and universally important cultures, sciences, thinking, and civilizations. Although these writings belong to the centuries before Christ, they contain the imagination, thinking, lifestyle, dreams and aspirations, values and traditions, social-political, philosophical-ethical, religious and artistic views of our people for three thousand years of history, the historical and spiritual memory of which is reflected. They were found by many researchers in the 18th, 19th and 20th centuries along the banks of the Syrdarya, Amudarya, Orkhun-Enesey, Selenga, Talas, Norin, Danube, Don rivers and other places. Tonyuquq, Kul Tegin, Bilga Hakan, Ungin, Moyun Chur, Uyuq Tarlak, Uyuq Turan, Elegesh, Begra, Chakol, Achur, Oltinkol, Uybat and Irq inscriptions are among them. The Turkish version of the Sanskrit text "Irq Bitigi" and "Suvarnaprabhasa" has reached us in the form of "Golden Light" written on paper. M. Isakov, N. According to the information of experts such as Rakhmanov, A.Zohidov, K.Sodikov, B.Abulgoziev, these writings reflect the worldview of our people at that time, and the love of the Motherland and the spirit of loyalty to the Motherland are the priority in them. The primary and reliable sources of ancient culture, science, philosophy, customs and values of our people are reflected in murals, stone inscriptions and rare manuscripts.

Pay attention to the following words of Oguz Khan (Afrosiyab) that came down to us through the Chinese palace chronicles through such writings: "...I will not despise my country for the thief of my love!.. The country is not only our property! Our ancestors lying in the grave and our future generations have rights on this blessed soil! No one has the right to give land, even if it is a little, even a centimeter... Land is the basis of the state; how can you make it difficult and give it away?!..” (Sima Tsian. From Shi-tzu. Mil. BC. 150-80y.)[1]

For the same purpose, Kul Tegin Hakhan (died in 731) carved the national spirit, sincerity, and gullibility of our people, which played a tragic role in his fate, on a stone: Because of this, you went everywhere without taking the word of the teacher who raised you, you disappeared there completely, you went without a name. Because of God's blessing, I became your teacher. No, I raised the poor people well. I made poor people rich. I increased a small nation. Is there a lie in my words?! Wait, people, listen to this! I have written in stone here that you will keep the people together. I also wrote here that you got lost. Whatever I have to say, I have written it forever in stone. Look at him and find out, people!»[2]

Although the inscriptions of Kul Tigin, Tunyuquq, and Bilga Hakhan were created in relatively later periods - 715-716, 731, 735 years, they contain natural information about the history, lifestyle, spiritual values, traditions of statehood, legal traditions and ceremonies of the Turkic peoples. scientific, philosophical views, teachings, thinking style are clearly expressed.

In ancient Turkish writings, we see the original philosophical, legal, ideological concept that although the state and political power is given by the Blue God, the construction, administration and management of the state depends on human intelligence, potential and purpose. In building the new state, as in the pamphlet, the

public, the individual, especially the Turkish representatives blessed by the Blue God - khakons, tarkhans, and beks - have a decisive role in the construction of the new state. Khakans, tarkhans, beks who gained power - 1) with knowledge and wisdom; 2) with wisdom and generosity; 3) prosperity, peace and stability, tyranny, enmity, just settlement of conflicts are the main duties. The Blue God does not control them by sending laws. Perhaps, the khans established the doctrine of the need to establish social justice on the representatives of the ruling dynasties by establishing fair laws and regulations.After all, it is firmly stated that the citizens respect, recognize and obey the law depends on the extent to which the representatives of the ruling dynasty respect, recognize and observe the law.

Results and discussion. So, through ancient Turkish writings, the people's way of life, mentality, spiritual values, philosophical views and teachings, Turkish ways of thinking have come down to us in writing. There is no doubt that they played an important role in the development of science, culture, and philosophy of our country before the advent of Islam. At the same time, these writings are a source that can provide information about our written socio-philosophical, political, statehood, legislation, religious-moral beliefs, traditions, and traditions based on clear scientific and historical evidence.

Abu Rayhan Beruni's work "India" creatively developed the advanced traditions of Central Asian, ancient Greek and Indian thinkers about the development of society and man, and on the other hand, the issue of the "cause of causes" - the emergence of man and human society - was raised. According to him, "the oldest and most famous of the ancient histories is the beginning of humanity".[3]

Here we see that Beruni stands in the position of rationalism about the emergence of individual society. When Beruni spoke about the existence of tawafut between people, he was thinking only about external differences. But the internal structure and organization of people, in his opinion, is common to all.

In his work, Beruni analyzed the differences between the customs of Muslims and Hindus and put forward the idea that they depend on the geographical conditions. According to him, "The reason for the diversity of languages is that people are separated into groups and stay away from each other." The author of the work admits that social life is structured on the basis of a special "contract": "A person understands his needs and begins to realize the necessity of living together with people similar to him. Therefore, they begin to draw up a "contract" of mutual agreement. The cohabitation of people does not bring a person to real power, to satisfy his needs, for this it is also necessary to work." Continuing this idea, he wrote that "the dignity of a person consists in fulfilling his duty at an excellent level: therefore, the main duty and place of a person is defined by work, a person achieves his desire due to work",[4]he wrote.

It is said in "India" that the leaders should serve the society in the management of the society: "The essence of administration and management is to protect the rights of those who have suffered from the oppressors, to lose their own peace for the sake of the peace of others.It consists in not being afraid of fatigue in order to protect and protect their family, their life and property".[5]

Extremely responsible for issues related to the life of the outside community looked at, paid special attention to the problems from a scientific and theoretical point of view. The following opinion in the work clearly shows the poor attitude towards

science and scientists of that time and the scholar's position in relation to it: "There are many sciences, they are the result of the times, and if different thoughts and memories are added to them, they will increase even more. People's encouragement of science and respect for science and people of knowledge is a sign of that iqbal. Especially, the respect of the people of knowledge by the ruling people is the reason for the increase of various sciences. Because the ruler does this, it frees people's hearts, which are busy with the daily necessities of the world, to engage in various sciences".[6]

According to Beruni, the appearance of a person is a gift of nature, there is no way to change it. However, changing the moral image is in one's own hands. So, the possibilities of turning it from bad behavior to good qualities are endless. For this, a person must control his behavior and emotions, educate his soul, treat it with moral surgery, and get rid of his shortcomings by the methods mentioned in books on ethics. Only then, he will be free from his negative habits and become the owner of high moral qualities.Undoubtedly, the scholars of the ancient Islamic religion and our ancestors also had a role in the ideological development of our people and the improvement of the social principles of the development of our society. It is not without reason that today there is a growing need for research and studies that allow for the deep study of the ideas and views of such famous thinkers and scholars and the wide dissemination of their thoughts and views. At the same time, such a historical-retrospective study of the topic we have chosen. Although it allows to analyze, determining the factors and principles that ensure the dynamics of changes in the ideological sphere of today's society, it certainly does not allow to analyze the general laws and national characteristics in detail.

Conclusion. In this regard, it is worth noting that the formation of national republics as a result of the disintegration of the former union put on the agenda the task of seriously studying the processes of social development and ideological elevation of the people. As a result of this, the need for scientific research and extensive research devoted to the study of the dynamic processes of the ideological development of society has increased. The methodological aspects of this problem, the analysis of theoretical-methodological, scientific-philosophical, social-political, ideological-ethical and legal aspects began to be given great importance.

Reference:

[1] A. Kayumov. Monuments of antiquity. T. 1972, 122 pages
[2] Nasim Khan Rahman. Turkish khanate. T. 1993, 77 pages
[3] Abu Raikhan Beruni India. T. "Science", 1966, 78 pages.
[4] Abu Raikhan Beruni India. T. "Science", 1966, 82 pages.
[5] That work is 95 pages.
[6] Abu Raykhan Beruni Monuments from ancient peoples.T. "Science", 1989, 40 pages.

UDC: 930.01

THE IDEA OF HUMAN PERFECTION IN "KITAB AL-MIRAJ" BY KUSHAYRI

Kodirov Davronbek Khashimovich
Associate Professor
Bukhara State University
deviekhan@mail.ru

Annotatsiya: Ushbu maqolada X-XI asrlarda yashagan mutasavvif Abulqosim Qushayriyning "Kitob ul-me'roj" asarida bayon qilgan inson kamolotining yuksalishi to'g'risidagi falsafiy qarashlari bayon qilinadi. Shuningdek, mutafakkirning so'fiylar uruji, ya'ni ma'naviy yuksalishiga doir tasavvuri tahlil etiladi.

Kalit so'zlar: me'roj, tasavvuf, uruj, yuksalish, komillik, sayr, makon, suluk.

Annotation: This article discusses the philosophical views of the mystic Abulqasim Kushayri, who lived in the X-XI centuries, about the rise of human perfection, which are described in his work "Kitab al-Miraj". It also analyzes the thinker's views on the Sufi Uruj, i.e. spiritual ascent.

Key words: Miraj, Sufism, urudj, ascension, perfection, sair, space, suluk.

Аннотация: В данной статье рассматриваются философские взгляды мистика Абулкасима Кушайри, жившего в X-XI веках, о возвышении человеческого совершенства, которые описаны в его произведении «Китаб аль-Мирадж». А также анализируется воззрения мыслителя о суфийском урудже, т.е. духовном восхождении.

Ключевые слова: Мирадж, суфизм, урудж, вознесение, совершенство, сайр, пространство, сулук.

Introduction. The topic of research on human maturity and rise in the stages of perfection is within the framework of Islamic mysticism, and the Sufis also interpreted the miraj phenomenon in their own way. A consideration of the essence of faith based on the principle of miraj explains the difference between the fundamental heritage and the esoteric view of this matter, and sheds light on the most important factors that influenced the development of some of the main beliefs in Sufism.

Abul Qasim Qushayri's work "Kitab ul-Me'raj" or "Al-Me'raj" is the basis for researching this issue. Qushayri's life and experiences, as well as the religious and political situation of that time played an important role in the creation of this work. Nishapur was an important cultural center during Qushayri's time, and the intellectual environment around it, the thoughts and views that prevailed at that time influenced the development of the thinker's ideas.

Based on this, it is important to examine the beliefs of the Sufis in the matter of miraj, based on the works of the Sufis themselves, and to study the legacy of this idea within the framework of the history of Eastern philosophy. In general, it can be seen that the idea of uruj reflected in Sufism literature is similar to Jewish, Christian, Futuhi and other related faith traditions in many external aspects.

Discussion. Qushayri began to analyze the ideas systematically formed in the Islamic heritage before illuminating the Miraj. He connected the Sufis together and the

Prophet s.a.w. ending with "silsilatu an-nasab as-sufi" - Hasan Basri, Rabia Adaviyya and their predecessors and contemporaries from the Sufi lineage chain.

The work "Kitab ul-Me'raj" was prepared by the Egyptian scientist Ali Hasan Abdul Qadir as a book of hadiths and published in Cairo in 1964. In the preface of the book, the researcher explains the purpose of publishing the work by providing information about the significance of the Miraj miracle in Sufism, the author's life and work. In the last two pages of the introduction, he describes the copies of the work on which he based his research.[1] He does not ignore the translation of verses and hadiths in the work.

According to the content of the work, it cites the dictionary interpretations of the concept of miraj, explains the opinions of Sufism scholars about isra and miraj, and also discloses the narrations about whether miraj happened physically or spiritually. In the work, Qushayri describes the miraj of Idris, Ibrahim, Ilyas, Moses, Jesus (a.s.) and talks about the miraj of saints. At the end of the book, the thinker Bayazid Bistomi gives a narration about the Miraj. He also points out that scholars are divided into two categories regarding miraj. The first category of them are those who deny miraj and claim that it is intellectually impossible, and the second are those who say that miraj was seen as a vision.

In the work, Qushayri also describes the views of the people who claimed to have seen the Miraj and their interpretations. In the miraj, which is interpreted in different ways, Muhammad s.a.v. The question of whether he saw the truth or not is discussed. At the same time, the work also describes the views of some Sufis about Miraj.

The miraj of the Sufis is the prophet s.a.v. is the inheritance of the tax, which occurs in the journey of the tax in the leech. A walk is a journey of a person in the careers of existence. This journey begins with the human being, the spiritual ascension to the Truth, i.e. uruj or miraj, and then returns to the world again. That is, there is a reduction or reduction of the tax. In Sufism, the terms uruj (ascension) and nuzul (descent) have an essentially figurative meaning. After all, Allah is purer than direction and space. These terms are used because they are not comprehensive and have a narrow meaning. In fact, it would be correct to call Miraj a miraculous "transition to another dimension". Ascensions of the Prophet, may God bless him and grant him peace, are also a journey to another world. The idea of the path of Sufism (at-tariq us-sufi) originally meant the path leading to the Truth, but with the service of Qusayri, it became a universally recognized concept at that time.

In Sufi works, many Sufis have given information about their miraj. However, according to the Sufis, the Prophet ascended in both body and soul and ascended to Miraj; and Sufis make this journey only with their souls.

Bayazid Bistomi describes one of his mirajs - that he transcended the world of malakut, that he was shown heaven and hell, but he never paid attention to them. He says that he greeted all the prophets he saw in the world, but he did not see the prophet. He says that the reason for this is that there is a veil of a thousand lights around his soul. He claims that the rays from it were strong enough to burn almost everything.[2] Bayazid passes through the worlds of Malakut and Jabarut and reaches Kursi. Light

passes through the seas and reaches Arshi Rahman, the greatest of seas. God calls to him: Come to me! Come to me! Sit on the holy bed and see the latoif in my art.

Alouddawla Simnani, describing his miraj in Sirbal ul-bol li-zaviya-l-hal (The Secret of the Mind of the Possessors), says that his soul first traveled to earth, air, water and fire, and then began to travel through the planets. When he came to the Moon and asked him about his condition, the Moon replied: "I take my light from the Sun and I send that light to the Earth." Simnani: "Why are you sometimes in the form of a crescent, and sometimes in the form of a full moon?" When asked, the Moon replies: "The Earth sometimes comes between me and the Sun and blocks the light, and I cannot partake of the Sun's light (at this time I look like a crescent moon)".[3]

According to Imam Rabbani Ahmad Sirhindi, it is possible to leave the universe in a walk, that is, in a spiritual miraj. Prophet s.a.v. In Miraj, he left the universe and got rid of the limits of time and space (time and space) of this world. When Jonah was in the belly of the fish, when Noah was going through the flood, he saw the people of Paradise entering Paradise and the people of Hell entering Hell. On this journey, Imam Rabbani himself says that he saw the moment when the angels worshiped Adam, freed from the limits of time and space.

Imam Rabbani describes his rise and fall during a walk, with the help of Ali's spirituality, he rose from the divine names to the name of his tutor, and from there, with the help of the priesthood of Bahauddin Naqshband, he reached the position of Haqiqati Muhammadiya, then Umar, Alauddin Attar, Abdul Qadir Jailani and the Prophet, peace be upon him. says that he rose to high status with the help of his clergy. Then he descends and benefits from the status of Chishtiyya, Kubraviya and Suhrawardiya mashayikhs, and when he reaches the final point of descent, the soul, before finding tamkin there, he ascends to a higher level than before, and then descends to the soul and attains tamkin.

Each tax has three increases:

1. Mabdai to taayyun, that is, to the shadow of the divine name with which it is associated;

2. To the root of the divine name to which it is connected;

3. From the essence of the divine name to the higher ones.

It is no coincidence that the narration of Miraj is very popular among Sufis. Sufism theorist Abul Qasim Qushayri collected various versions of Miraj stories and commentaries of famous Sufism sheikhs on relevant verses of the Qur'an. Qushayri's work "Kitab ul-Me'raj" contains the judgment of the scholars about Isra and the Miraj, the disagreements of the scholars in this regard, the false narrations about the Miraj, the sects of the scholars regarding the reality of the Miraj, the analysis of its realization by the soul and the body, the study of the period of the Miraj, the fact that the Miraj is above God. not testifying, the difference of opinion about the occurrence of miraj in people other than the prophet, the miraj of the guardians, the characteristics of the prophet on the night of the miraj, the news about the miraj of the prophets Idris, Ibrahim, Ilyas, Moses and Jesus, the secret of the miraj starting from Baitul Muqaddas, not Mecca, the Sufi sheikhs His words on this matter, the interpretation of the first verses of Surah Najm, authentic and fabricated hadiths about miraj and Abu Yazid Bistami's miraj.

Qushayriy claims that Haq nullifies all objections to mi'raj by using the word "asra" - "night journey" instead of the word "sara" - "night walk". After all, one cannot be surprised by the divine power and Godliness, and one cannot be surprised by it. Among the Sufis, Nuri says, "Truth looked at the hearts and did not see a single soul that wanted him more than the heart of Muhammad (peace be upon him). And in the desire to see him (ru'yat) and talk with him (mukolamat) as soon as possible, he treated him with Miraj."[4]

When Wasiti was asked about the wisdom of miraj, God said that he wanted to raise the status of his beloved from the place of ubudiyat, that is, the place of servitude, to the place of eternity, and from the place of eternity to the place of rabbinism. From this it can be seen that Qushayri divides the miraj into three places:

1. Oblivion;
2. Azaliat;
3. Rububiyat.

God wanted to demonstrate the manners of servitude to the ummah in the abode of eternity through the prophet's power, and then to transfer it to the abode of eternity, so that the person in that position would behave with him (li-yataaddaba bihi). After that, God moved the prophet to the position of rabbinate. This is the Miraj in which Haqqah performed the night journey. In this journey, the concept of maqam and rusum (symbols) was taken away from him (disappeared) and he was transformed into a creation of affinity and qurabt. So, in the status of rabbinate, which is the last abode, the concept of status in the Sufi disappears, he attains qurabt, and this status is considered the highest.

Results. Sufis use the parable of Miraj to illustrate the philosophy of Sufism and the path to ascension through struggle with the ego. In this way Sufis attain the highest status. There are also spiritual-barzakhic insistences of the saints, who observe the meanings in the images they observe with the help of the sense organs that serve for the imagination. Knowledge is imparted through the meanings embodied in these images. Guardians have their isra on the earth and in the air, but they have no perceptible status in the sky. Just as the isra of the Prophet s.a.w. is physical and can travel the heavens and the heavens, it is also possible for his spiritual successors. The miraj of the saints is the elevation of their souls, the vision of their hearts, barzah pictures and meanings with form.

Conclusion. Miraj actually describes the teachings of Sufism on the path of Truth. He raises the tax from one status to another, and in facing the Truth, he reflects the correctness of his will, his separation from others, the way to achieve divinity, and the status of a witness.

References:

[1]. Qushayri. The Book of Mi'raj. Cairo, Dar al-Kutub al-Haditha, 1964. 3-21 am.
[2]. İmâm-ı Rabbânî Ahmed Sirhindî, Mebde’ ve Me‘âd, Karaçi 1968, s. 63.
[3]. Rukn al-Din Alaa al-Dawla al-Sammani. A message of the serbal of mind to those who are in a situation. Cairo, Dar Al-Maaref, 1987. 247 p.
[4]. Abu al-Qasim al-Qushayri. The Book of Mi'raj. Beirut, Dar Al-Warraq, 2016. 199 p

UDC: 314.1

DEMOGRAPHIC TRENDS OF THE DEVELOPMENT REPUBLIC OF UZBEKISTAN

Abduramanov Khamid Khudaybergenovich
Deputy Director of the Research Institute
"Family and Women", Tashkent city, Uzbekistan
khamid.abduramanov@bk.ru

Annotasiya. Ushbu maqolada O‘zbekiston Respublikasidagi zamonaviy demografik vaziyatga baho berilgan, aholi soni va yosh-jins tarkibi tahlil qilingan, mamlakat aholisining yosh-jins piramidasi tuzilgan, hududlar aholining keksayish darajasi bo‘yicha guruhlangan, demografik salohiyatdan samarali foydalanish bo‘yicha taklif va tavsiyalar ishlab chiqilgan.

Kalit so‘zlar: aholi soni, aholi zichligi, aholining keksayishi, aholi tarkibi, demografik vaziyat, demografik bosim, keksalik salohiyati, yosh-jins piramida, migrasiya.

Аннотация. В данной статье дана оценка современной демографической ситуации в Республике Узбекистан, проанализирована численность населения и половозрастная структура, создана половозрастная пирамида населения страны, сгруппированы регионы по уровню старения населения, разработаны предложения и рекомендации по эффективнму использованию демографического потенциала.

Ключевые слова: население, плотность населения, старение населения, состав населения, демографическая ситуация, демографическая нагрузка, потенциал старения, половозрастная пирамида, миграция.

Annotation. This article assesses the current demographic situation in the Republic of Uzbekistan, analyzes the population and age and sex structure, creates a gender and age pyramid of the country's population, groups the regions according to the level of population aging, develops proposals and recommendations for the effective use of demographic potential.

Keywords: population, population density, population aging, population composition, demographic situation, demographic load, aging potential, sex and age pyramid, migration.

Introduction. Uzbekistan is a young and dynamically developing country with a high demographic potential. In this regard, the President of our country Sh. Mirziyoyev, in his address to the Oliy Majlis and the people of Uzbekistan, touched upon the demographic situation in the country and noted the following: “.....this year, our population has exceeded 36 million people. About 900,000 new generations join our ranks every year. “We are constantly looking for ways to create the necessary conditions for each member of a large and friendly family called Uzbekistan to live a peaceful and prosperous life” [1].

The characteristic features of the demographic situation in our country are a relatively high birth rate, low mortality, a slightly negative balance of external migration, an increase in the proportion of older people in the age structure of the

population, at the same time, it is characterized by an increase in the middle-aged population and an intensification of the urbanization process.

Methodology and Literature Review. This article uses systematic analysis, absolute, relative and average quantities, grouping, complex assessment, logical and comparative analysis methods.

Often in the scientific literature one can find the definition of the demographic situation as "a vivid manifestation of general trends in the development of the population, patterns of alternation of demographic conditions, expression of the main patterns of population regeneration"[2] A similar definition was given by the famous demographer A.L. Kvasha: “The demographic situation is the state of demographic processes, the structure of the population and its distribution in a certain period, often in a certain year, which shows the stage of a long-term trend in the development of the population. Usually it is considered in relation to the whole country or its individual parts”[3]. It should be noted that this is not the only definition of this concept, since researchers describe the demographic situation by studying its components (population reproduction processes, population size, population composition, etc.)[4].

The famous geographer A.I.Alekseev gives a slightly different definition, without taking into account the trends of the past and possible options for future development: "The demographic situation is the birth, death that occurred in a given area, which creates a specific age –sex composition of the population and the dynamics of its number at the moment and the ratio of migration mobility" [5].

Based on the above, we can say that demographic processes are understood as changes in the number and quality of the population of a given region under the influence of natural and mechanical influences, as well as socio-economic factors of regional development.

Analysis And Results. Uzbekistan is considered a country with the highest demographic potential in the CIS, and in 2021 our country accounted for 11.9% of the population of the region and 46.7% of the Central Asian region. In terms of population, Uzbekistan ranks 41st among 234 countries, 3rd after Russia and Ukraine among the CIS countries.

In the Republic of Uzbekistan, natural growth ensures high rates of population growth (Figure 1).

Figure 1. Change in the number of resident population and the average annual rate of its growth in the Republic of Uzbekistan[1]

[1] Prepared by the author on the basis of the data of the statistical agency under the president of the Republic of Uzbekistan.

As can be seen from Figure 1, the number of permanent residents in Uzbekistan increased from 21,106.3 thousand people in 1991 to 36,024.9 thousand people in 2022, or by 70.7 percent. During this period, the growth rates of the permanent population were Surkhandarya (2.0 times), Kashkadarya (98.7%), Namangan (87.6%), Samarkand (82.5%), Andijan (81.3%), Jizzakh (80.2%), Khorezm (78.4%) and Ferghana (75.1%) regions were higher than on average in the country, and in other regions it is lower.

More than half of the population of the republic (57.9%) lives in Samarkand (11.4%), Fergana (11.0%), Kashkadarya (9.7%), Andijan (9.2%), Namangan (8.3%) and Tashkent (8.3%) regions.

During the years of independence, the population of the republic grew unevenly, in waves, which is connected with the emergence of new trends in demographic processes. For example, in the early 1990s, the average annual growth rate was 2.3-2.4%, but by the end of the decade it decreased to 1.4-1.5%. This decelerating trend continued until the mid-2000s, when the growth rate decreased to 1.1-1.2%. In recent years, an acceleration of population growth was noted, and the growth rate in 2022 was 2.1%.

The average annual population of the republic increased from 593,100 in 1991, 391,900 in 2000, and 496,400 in 2010. By 2022, this indicator will reach 760,100 people. In our country, the migration decrease of the population increased until 2005, and then it decreased regularly in the following years. That is, in 1991 - 30.3, in 2005 - 101.6 thousand people decreased, and in 2022 this indicator was 6.5 thousand people.

In the first years of independence, the population increased by 400-450 people per year on average, in 2000 it increased by 300,000 people, and today the average annual growth is 750,000 people.

Population density is also increasing, in particular, in 1991 there were 46.1 inhabitants per 1 km^2 of land area, and by 2022 this indicator was equal to 80.2 people. Population density is high in Andijan (772.7 people), Fergana (584.8 people) and Namangan (405.1 people) regions.

During the years of independence, the number of urban residents in the republic increased by 2.2 times, and the number of rural residents increased by 39.5 percent. Today (2022), the level of urbanization of the population in Uzbekistan was 51.0 percent.

According to statistical data, the change in the number of urban and rural population during the years 1991-2022 did not pass at the same rate. In particular, in 1991, the share of the urban population, i.e., the level of urbanization, was 40.0 percent, and by 2022, this indicator reached 51.0 percent. During this period, the share of the rural population was 60.7 and 49.0 percent, respectively. It shows that the number and share of the rural population has been decreasing since 2009. This situation is explained by administrative changes, that is, according to the decision of the Cabinet of Ministers of the Republic of Uzbekistan dated March 13, 2009 No. 68 "On measures to improve the administrative-territorial structure of settlements of the Republic of Uzbekistan", 965 rural settlements in the republic were given the status of urban settlements [6].

In the sex composition of the population of the republic, men make up 50.3 percent, women make up 49.7 percent (2022). In other words, there are 1013 men for

every 1000 women. It can be seen that there is a predominance of men in the sexual composition of the population. This situation is explained by the fact that more men are born than women. In particular, in 2022, 482,368 boys and 449,849 girls were born in the republic. That is, boys were born more than 32519 people.

In the sex composition of the population, the predominance of men remains until the age of 40. According to statistics, in 2022, for every 1,000 men in the 0-4 age group - 927, 5-9 years - 925, 10-14 years - 937, 15-19 years - 947, 20-24 years - 953, 25-29 years - 957, aged 30-34 - 971, aged 35-39 - 992 women.

From the 40-44 age group, the predominance of women begins, and as age increases, the difference in the ratio between the sexes increases. In particular, there are 1,003 women in the 40-44 age group, 1,104 women in the 55-59 age group, 1,158 women in the 65-69 age group, and 1,362 women in the 75-79 year age group.

The problem of male death rate being higher than that of women has not been studied enough. Only in the process of analysis it is connected with the result of biological, genetic, social factors and economic conditions.

In recent years, the demographic trends of families have had an impact on the age structure of the population. The share of children (population aged 0-15) in the population decreased in 1991-2014, and increased in 2015. According to statistical data, the age structure of the population has changed towards an increase in the share of the population under the working age (up to 31.7%) and the population over the working age (up to 11.5%) and a decrease in the share of the population of the working age (up to 56.8%). .

During the years of independence, the number of people under working age increased from 9117.7 thousand people to 11437.4 thousand people or 25.4 percent. The population below the working age, which makes up one third of the population of the Republic, will provide the opportunity to receive a "demographic dividend" due to the transition to the population of working age in 2030-2050.

The majority of the working age population in Uzbekistan is 10,352,900 people in 1991, but by 2022, it will reach 20,505,300 people or an increase of 98.1%.

According to demographic indicators, Uzbekistan is among the countries belonging to the "first demographic dividend" stage. According to the research conducted by the UN on the topic of "World Population Prospects", by 2048 the largest part of the population of Uzbekistan (27.6 million people) will be working-age citizens (15-64 years old).

Due to the transition of the population born during the high birth period of 1950-1965 to the ranks of the elderly, the number of the working-age population is growing at a faster rate than other age groups.

In the age structure of the population, the number of people of working age is growing by 0.8% per year on average, those below working age are growing by 0.3%, and those of working age are increasing by 5.7%.

In the years of independence, the number of people older than working age increased from 1,635,700 to 4,082,200 or 2.5 times, and their share in the total population increased from 7.7% to 11.3%, respectively.

Changes in the age-sex composition of the population can be clearly visualized from the age-sex pyramid (Fig. 2).

As can be seen from Figure 2, in 1991, the age-sex pyramid of the population of the Republic of Uzbekistan had a high number of people in the 0-4, 5-9, 10-14, 15-19 age groups. As can be seen in the age-sex pyramid of 2000, by this year the number of people in the 0-4 age group, in the age-sex pyramid of 2010, the number of people in the 5-9 and 10-14 age groups has decreased. On the contrary, the number of people in the 15-19, 20-24 and 25-29 age groups has increased.

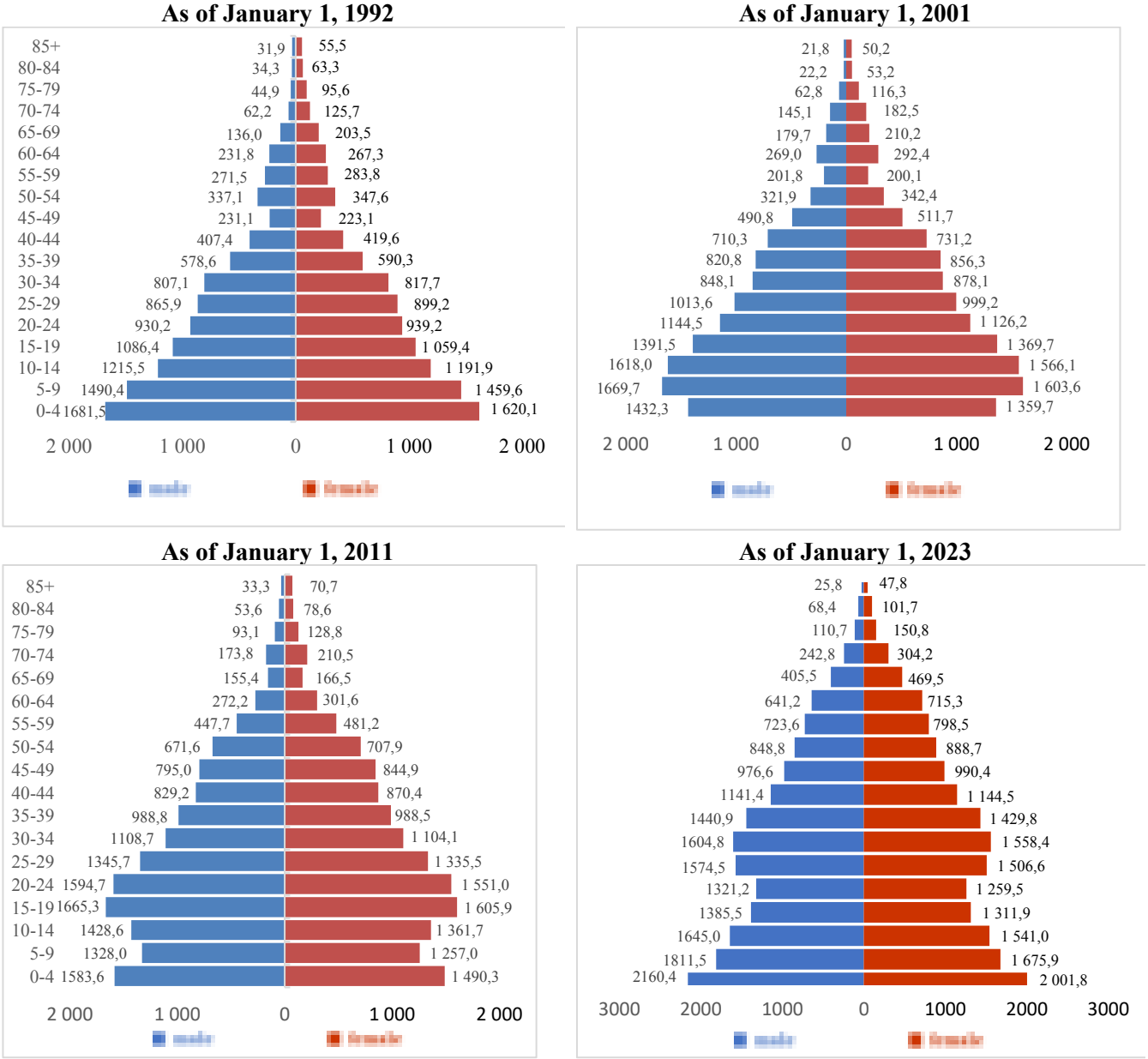


Figure 2. Population age-sex pyramid in Uzbekistan, thousand people [2]

In the age-sex pyramid of 2022, due to the increase in the number of births, the number of 0-4, 5-9 years, as well as 30-34, 35-39, 40-44 and 45-49 age groups has increased.

UN demographers have developed a three-stage criterion to assess the aging process. According to it, if the share of the population aged 65 and older is less than 4.0 percent - demographic age, if it is 4.0-7.0 percent - on the threshold of old age, if it

[2]Prepared by the author on the basis of the data of the statistical agency under the president of the Republic of Uzbekistan.

exceeds 7.0 percent, the population of the region is considered demographically old [7].

In 2022, the share of people aged 65 and over in the age structure of the population of the Republic of Uzbekistan was 5.3%. Therefore, our country is among the countries "on the threshold of demographic aging" according to international criteria.

The population of the regions (percentage of 65 years and older) was divided into three groups according to the criterion of aging (Table 1).

Table 1

Grouping of the population of the regions of the Republic of Uzbekistan according to the level of aging[3]

Population aging rate	2000	2010	2022
Demographic young (up to 4%).	Republic of Karakalpakstan, Andijan, Bukhara, Jizzakh, Navoi, Kashkadarya, Namangan, Samarkand, Surkhandarya, Syrdarya and Khorezm regions	Republic of Karakalpakstan, Andijan, Jizzakh, Navoi, Kashkadarya, Namangan, Samarkand, Surkhandarya, Syrdarya and Khorezm regions	
On the verge of demographic aging (4-7%)	Tashkent, Fergana regions and Tashkent city	Bukhara, Tashkent, Fergana regions and Tashkent city	Republic of Karakalpakstan, Andijan, Bukhara, Jizzakh, Kashkadarya, Navoi, Namangan, Samarkand, Surkhandarya, Syrdarya region, Tashkent, Fergana and Khorezm regions
Demographic older (over 7%)	-	-	Tashkent city

As can be seen from Table 1, in 2000, the population of 11 regions of the republic was "demographic age", and the population of the remaining 3 regions (Tashkent, Fergana regions and the city of Tashkent) was "on the threshold of demographic aging". In 2022, the number of regions that crossed the threshold of demographic aging reached 13.

According to statistics, the share of people aged 60 and over in the population of the republic was 6.5% in 2000, 6.0% in 2010, and 8.8% in 2021. According to the criterion of demographic aging proposed by the French demographers Jacqueline Beaujot-Garnet and E. Rosset, Uzbekistan was among the countries of "demographic age" in 2000 and 2010, and "on the threshold of aging" in 2022.

It is known that the further development of the population aging process mainly depends on its reserve, that is, the amount of the population at the age of maturity (40-59 years). It should be noted that the rapid growth of the population in the 40-59 age group in Uzbekistan leads to an increase in the coefficient of the population's old age potential (Table 2).

[3] Prepared by the author on the basis of the data of the statistical agency under the president of the Republic of Uzbekistan.

Table 2

Changes in the coefficient of old age potential in the Republic of Uzbekistan[4] (percentage)

Areas	Years			2022 compared to 2000 (+,-)
	2000	2010	2022	
Republic of Uzbekistan	**14,1**	**19,4**	**20,9**	**6,8**
Republic of Karakalpakstan	13,1	17,8	21,3	8,2
***regions*:**				
Andijan	14,0	20,1	21,6	7,6
Bukhara	14,2	20,8	22,7	8,5
Jizzakh	13,1	17,6	18,3	5,2
Kashkadarya	12,1	17,2	18,7	6,6
Navoi	14,7	20,4	21,7	7,0
Namangan	13,2	19,0	20,9	7,7
Samarkand	13,3	18,4	19,0	5,7
Surkhandarya	11,5	17,2	18,7	7,2
Syrdarya	13,7	17,9	19,8	6,1
Tashkent	16,2	21,2	21,7	5,5
Ferghana	14,0	20,1	21,7	7,7
Khorezm	12,6	17,7	21,8	9,2
Tashkent city	20,7	24,1	24,1	3,4

It can be seen from Table 2 that the coefficient of old age potential increased from 14.1 percent to 20.9 percent in the considered period. Such a growth trend was noted in all regions of the republic. The coefficient of old age potential is especially high in Tashkent city (24.1%), Bukhara (22.7%), Tashkent (21.7%) and Fergana (21.7%) regions.

In recent years, the increase in the proportion of children and the elderly in the age structure of the population of the Republic of Uzbekistan, on the contrary, the decrease in the proportion of the working-age population ensures an increase in demographic pressure (Table 3).

Table 3

Changes in demographic pressure in the Republic of Uzbekistan
(at the beginning of the year)[5]

Years	General	*from which:*	
		up to working age	older than working age
1991	1038,7	880,7	158,0

[4] Prepared by the author on the basis of the data of the statistical agency under the president of the Republic of Uzbekistan.

[5] Prepared by the author on the basis of the data of the statistical agency under the president of the Republic of Uzbekistan.

1995	1016,9	862,7	154,2
2000	887,9	750,5	137,4
2005	726,4	604,7	121,7
2010	651,6	529,9	121,8
2015	629,0	487,4	141,6
2020	699,4	521,3	178,1
2021	716,4	531,4	185,0
2022	737,5	545,1	192,4
2023	756,9	557,8	199,1

As can be seen from Table 3, according to our calculations, in 1991 the number of disabled people per 1000 people of working age was 1038.7, and by 2022 this figure was 756.9. In other words, in 1991 there was 1 working-age population, and in 2022 - 0.7 people of working age. This is definitely a positive situation. Such a demographic situation in Uzbekistan requires an increase in the efficiency of the use of labor resources.

An analysis of the change in the dependency ratio over the years shows that in 1991-2015. it decreased and then increased in the subsequent period.

Conclusion

Based on the analysis of demographic processes in Uzbekistan, the following conclusions were made:

1. Ensure alignment of monitoring of demographic processes in Uzbekistan and improvement of the statistical system with the goals and objectives in the field of sustainable development. The Sustainable Development Goals [8] of the UN Global Agenda 2030, approved in accordance with Resolution No. 70 adopted at the UN General Assembly's Summit on Sustainable Development in September 2015, include ambitious goals that put humanity on the path to sustainability.

2. Ensure regular (at least once every ten years) census activities. In almost all countries, the census is the only source of data on population age and sex, marital status, education level, occupation, ethnicity, migratory status, housing composition, housing characteristics and other relevant socio-demographic characteristics.

3. Introduction of a mechanism for making forecasts of demographic growth and changes in the demographic composition and their full use in regional and network programs. For this, it is desirable to create a demographic database, strengthen the capacity of employees in the field of demographic forecasting, and create a functional basis for demographic forecasting.

4. The demographic dividend is a source of increasing real incomes of the population and reducing poverty in the current economic conditions of the Republic of Uzbekistan. Given the high percentage of the working-age population in the age structure of the population, it is desirable to increase the opportunities for obtaining a demographic dividend. To this end, it is recommended to invest in human capital, including vocational and technical education, to develop industries with high labor intensity (light industry, food, chemical and building materials industries), and to increase mobility in the labor market.

References:

[1]. O‘zbekiston Respublikasi Prezidenti Shavkat Mirziyoevning Oliy Majlis va O‘zbekiston xalqiga Murojaatnomasi // https://president.uz/uz/lists/view/5774.

[2]. Narodonaselenie. Ensiklopedicheskiy slovar. – M.: Bolshaya rossiyskaya ensiklopediya, 1994. – S.104.

[3]. Demograficheskiy ensiklopedicheskiy slovar. – M.: Sovetskaya ensiklopediya, 1985. – S.40.

[4]. Xarchenko L.P. Glinskiy V.V., Yakovenko L.I. Balans trudovix resursov s osnovami demografii. – Novosibirsk, 2019. – S.49.

[5]. Alekseev A.I. Sosialno-ekonomicheskaya geografiya Rossii. – M.: Noviy xronograf, 2013. – S.73. [6]. O‘zbekiston Respublikasi Vazirlar Mahkamasining 2009 yil 13 martdagi “O‘zbekiston Respublikasi aholi punktlarining ma’muriy-hududiy tuzilishini takomillashtirishga doir chora-tadbirlari to‘g‘risida”gi 68-sonli qarori // O‘zbekiston Respublikasi qonun hujjatlari to‘plami, 2009 й., 12-сон, 130-модда.

[7]. Abdurahmonov Q.X., Zokirova N.Q. va boshqalar. Demografiya. Darslik. – T.: “IQTISODIYOT”, 2014. -134б.

[8]. https://www.un.org/sustainabledevelopment/ru/about/development-agenda.

UDC: 305

GENDER EQUALITY: WOMEN'S RIGHTS AND FREEDOMS

Ortiqova Nodira Mamajonovna
Researcher Fergana Institute
of Public Health Medicine
ortiqovanodira@mail.ru

Annotatsiya: Ushbu maqolada hozirgi kunda ko‘plab muammolar va muhokamalarga sabab bo‘layotgan gender tenglik tushunchasi mohiyati va jamiyat hayotidagi tutgan o‘rni haqida qisqacha bayon keltirib o‘tilgan.

Kalit so‘zlar: gender tenglik, ijtimoiy, xotin-qizlar va erkaklar, muammo, muhokama.

Аннотация: В данной статье приводится краткое изложение сущности понятия гендерного равенства и его роли в жизни общества, которое в настоящее время вызывает множество проблем и дискуссий.

Ключевые слова: гендерное равенство, социальные, женские и мужские проблемы, обсуждение.

Annotation: This article summarizes the essence of the concept of Gender equality, which is currently causing many problems and discussions, and its role in the life of society.

Keywords: gender equality, social, Women and men, problem, discussion.

Introduction. One of the important issues that are causing many discussions today is the issue of gender equality. What is Gender equality itself and what is the reason why it is the basis for so many discussions? What does Gender equality mean? This is the concept of developed states, the placement of the ideology of a man or woman, the right to the same social rights and opportunities. The principle of Gender equality consists in the study and elimination of all social barriers that prevent a person

from emerging as a person, as well as the creation of equal social opportunities for understanding the personality of men and women in all spheres of life. This principle is also expressed in the Constitution of our main body. "Women and men are equal [1]. Particular attention has also been paid to Gender equality issues in Uzbekistan. The law “on equal rights and guarantees of opportunities for women and men”, adopted by the legislature on August 23, 2019, provided for the development of this sphere in our country. [2]

The state guarantees women and men equal rights in the exercise of personal, political, economic, social and cultural rights.

The state guarantees women and men equal participation in the management of society and Public Affairs, equal participation in the electoral process, equal rights and opportunities in the areas of Health, Education, Science, Culture, labor and social protection, as well as in the state and other spheres of public life.

Temporary special measures will be taken to ensure the implementation of gender policy by the state in order to achieve real equality between women and men, expand their participation in all spheres of society's life, eliminate direct and indirect discrimination on gender, and prevent them.

Gender equality occurs when individuals are able to enjoy human rights uniformly regardless of their social status, gender, and other social indicators. According to some experts, the concept of Gender equality is recognized as a concept that has entered from the West. However, this view does not justify a full-fledged self. The reason is, although in the Islamic world, in particular, the Holy Quran Karim, this concept is not called by the same name, in essence there are separate suras that reveal this issue. (Mas,” Niso " – in the surah of women, it is mainly stated family, marriage, inheritance issues, couple rights)

Literature review. Dr. Kristi Olezeski, director of the gender pediatrics program at the University of Yelya, never counts too early to start talking to children about her gender. At the age of two or three, the child begins to realize himself for the first time and recognize himself as a boy or a girl. [7]. Therefore, it would be better for parents to help their children deal with gender stereotypes by talking more about gender. The ways to do this are listed below. It is necessary to distinguish between the concepts of gender identity and gender identity.

Because people often confuse them, says Dr. Erenzaft. Gender identity is the inner feeling of a person: as a representative of a certain gender: not men, women or both of them. At the same time, it is also possible that the gender identity does not correspond to how the people around them imagine it. For example, a woman can feel even stronger emotions, perceptions than men in herself. Even if the people around her meet her as a woman, she feels masculinity in herself. Sexual self-expression is the way in which a person presents themselves to the outside world through clothing, occupation, or name. It seems that gender identity is not always consistent with gender expression. For example, a child with a girl's gender identity can generally express themselves through “male” behavior, such as playing with cars. Olezeski argues that children need freedom to express themselves in a healthy way, and if the adults around them do not know the difference between gender identity and self-expression, this can lead to conflicts and misunderstandings. Through these amendments to the codes of criminal

and administrative responsibility, it is possible to protect women from domestic violence by holding aggressors accountable. Under this bill no longer those accused of sexual assault are paroled before their term, not commuted to lenient punishment; the age limit of persons sexually abused is abolished; the offender is prohibited from going to certain places; persons who commit sexual violence against minors are prohibited from educating children, engaging in activities that imply direct work with children. In addition, a certain number of fines and prison sentences are also imposed on them.
Of course, such legal measures and efforts against the use of force and violence against women in the laws in recent years, the laws being passed will pay off, and the role and role of women in our society will increase due to gender policy.

Research methodology. Gender equality challenges have existed sufficiently before. But they were not talked about, problems may have been perceived as natural. As an example, some Uzbek families have a certain level of restrictions on female children. We get a study activity in an ordinary higher education institution. “Would you be a scholar by reading?", “Would a girl take the world?" we are faced with the calls of the tribe in numbers. But to what extent is this true? At this point, we want to give an example:

I had seen an Indian movie recently. According to the development of events, an Indian woman-judging her daughters as a lower class, did not want them to read, and even opposed it. On the example of a girl, the fate of all girls is shown. On her way to study, a group of young men spray acid on the girl's face and escape. The girl goes to the nearest hospital in this vicinity, but as you are from a lower class, she is not allowed inside, and since medical measures were not taken in time, the girl's face becomes sad. [3]. But the girl does not lose herself, and here she opens an organization to help girls like herself. Holds demonstrations in the spirit of equal rights for women and men and restrictions on the sale of acid. After several years of action, the intention is achieved, albeit partially.

Analysis and results. According to reports, in the last three years, almost 20 regulatory legal acts aimed at protecting the rights and interests of women have been adopted, including two laws, 1 presidential decree and 4 decrees, 12 government decrees. Today, the role of women among professors and teachers of higher education and researchers of scientific research is growing. In particular, women make up 44% of the academic professors currently working in higher education institutions. Also, 45.5% of women are studying in basic doctoral studies, 40% in doctoral studies, 40% in the trainee-researcher Institute, 42.64% as an independent researcher, are engaged in scientific research. It is very gratifying that they are doing scientific research and contributing to the development of science, not knowing for the future of the country [4]

We addressed the young people with a question on the same issue:
-How do you look at a woman being a leader?
Most of the responses were positive. A little bit, we re-faced, changing the content of the question:
-How do you feel about your woman being a leader?
Their answer is firm: no.

Why are binaries in this regard? How much do you think Gender equality is necessary for us? Issues such as monthly payment and recruitment under the Labor Code also do not pose a problem for women. The health and education system is also one-of-a-kind for both men and women. It is good to adapt to world standards, of course. But we must not forget about mentality, nationalism too! Sofya Babayan said of it: "Gender is a social concept. The impeccable image of a woman or a man is given, the chronological and geographical environment is expressed in colorfulness, national traditions, ethnopsychology, religion, history and national mentality, etc." Its content, commentary, and expression have changed both within and across cultures, and serve as an object of historical change. Is Gender equality possible? Some countries (Denmark, Sweden, Finland) have already answered this question and put forward the following principles by which gender equality can be assessed based on the study of the phenomenon:

- women's participation in the political and economic life of the country;
- equal pay for both sexes;
- giving leave to men to care for a child born in the family;
- lack of discrimination in the workplace, when climbing the career ladder, when pursuing any profession;
- change gender if desired.

Social factors – age, category, race, and background-constitute separate gender content, expression, and experience. Modern sociology is consistently and efficiently developing this concept as one of the important foundations for the analysis of sociability and its forms.

Conclusions. Summing up, according to some experts, the concept of Gender equality is recognized as a concept that has entered from the West. However, this view does not justify a full-fledged self. The reason is, although in the Islamic world, in particular, the Holy Quran Karim, this concept is not called by the same name, in essence there are separate suras that reveal this issue. (Mas," Niso " – in the surah of women, it is mainly stated family, marriage, inheritance issues, couple rights). Gender equality has a long history, implying an inextricable connection with the religious and secular world, and has also shown its proof even though it has increased in centuries. Today, there are religious and legal foundations of Gender equality rules, the development and improvement of which should become the only goal of all members of our society to create a solid foundation for future generations.

References.

[1]. Constitution Of The Republic Of Uzbekistan
[2]. Family Code Of The Republic Of Uzbekistan.
[3]. Decree of the president of the Republic of Uzbekistan No. 87 of March 7, 2022
[4]. 2019 PQ-4235 "on measures to further strengthen the guarantees of women's labor rights and support entrepreneurial activity"adopted on March 7, 2019
[5].Decree of the Cabinet of Ministers of the Republic of Uzbekistan No. 192 of 30.03.2020,"on approval of the regulation " on normative legal acts and the procedure for gender-legal examination of their projects"
[6].Law No. 562"on equal rights and guarantees of opportunities for women and men " dated 02.09.2019

[7].Law No. 561”on the protection of women from harassment and violence " dated 02.09.2019
[8].The law of the Republic of Uzbekistan No. 809 dated December 15, 2022 “on additional and amendments to the law of the Republic of Uzbekistan “on equal rights and guarantees of opportunities for women and men”adopted on September 2, 2019”.
[9].PQ-5020”on measures to further improve the system of supporting women, ensuring their active participation in the life of society, dated March 05, 2021.
[10]. Law of the Republic of Uzbekistan “on additional benefits for women”No. 760

UDC: 316.3

IMPROVING YOUTH'S LIFE QUALITY IS AN IMPORTANT CONDITION FOR THEIR SOCIAL PROTECTION

Khadjamuratova Matlyuba Hashimovna,
Andijan State Medical Institute,
Candidate of History, Associate Professor
Matlyuba@gmail.com

Annotatsiya: Maqolada kommunal sohani rivojlantirish asosida yoshlarning hayot sifatini oshirish, ularni uy-joy bilan ta’minlash, munosib turmush sharoiti yaratish borasidagi davlat siyosatining innovatsion yondashuvi samaralari bayon etilgan.

Kalit so'zlar: yoshlar, hayot sifati, uy-joy, sektor, ipoteka, subsidiya.

Аннотация: В статье описаны результаты инновационного подхода государственной политики по повышению качества жизни молодежи, обеспечению ее жильем, созданию для нее достойных условий жизни на основе развития коммунальной сферы.

Ключевые слова: молодежь, качество жизни, жилье, сектор, ипотека, субсидия.

Abstract: The article describes the results of the innovative approach of the state policy to improve the quality of life of young people, provide them with housing, and create decent living conditions for them based on the development of the communal sector.

Key words: youth, quality of life, housing, sector, mortgage, subsidy.

Introduction. Modern infrastructure was formed in our country based on the innovative approach of the state policy. Measures were taken to ensure the well-being of young people by improving the quality of life of the population, building housing, roads, and developing the communal sector. Of course, these efforts are based on the adopted laws and regulatory documents.

Article 47 of the Constitution of Uzbekistan states that "everyone has the right to housing. No one can be deprived of housing without a court decision and in a manner contrary to the law. The owner who has been deprived of his house shall be compensated for the value of his house and the damages he suffered in advance and in equal amount in the cases and in the order provided for by the law. The state encourages housing construction and creates conditions for the realization of the right to housing.

The procedure for providing housing to socially needy categories of the population is determined by law" [1].

Development of housing and utility sector is important in raising the standard of living of young people. In particular, "more than 4,000 private housing owners' companies operating in our country provided services to more than 32,400 multi-family houses"[2]. The construction of houses and multi-apartment houses on the basis of a mortgage loan has created a special convenience for the population. "Despite the constant growth of the population during the past period, it allowed to increase the level of providing housing to the population per person instead of 12.4 square meters in 1991 to an average of 15.2 square meters. Measures for the development and modernization of water supply, sewage and heat supply systems by directing centralized state capital investments and attracting foreign investments provided by international financial organizations in order to further increase the level of public utility services to the population. ”[2] was defined. Also, existing problems in the housing and communal sector were studied and measures to eliminate them were developed.

Literature review. Comprehensive measures were implemented, including the roof, basement structures, facade, basement, elevator and irrigation networks of multi-apartment houses, as well as concreting of sidewalks and the improvement and landscaping of the areas around the houses. [3]

In our country, more than 4,000 private housing owners' associations provided services to more than 32,400 multi-apartment houses" [3].

23,800 contracting organizations, 31 main project institutes and about 1000 project organizations are operating in our republic for the implementation of construction works. 3 architecture and construction institutes are operating in our country for the training of qualified personnel for the construction industry. In addition, 12 higher educational institutions and 390 vocational colleges train specialist personnel for the construction industry. In 2017, construction works in the amount of 37.5 trillion soums were completed in our republic from all sources, an increase of 120.5% compared to last year [4].

In 2017-2021, the "Program for the repair, beautification and improvement of the conditions of use of the multi-apartment housing fund" [5] was approved. "1.8 trillion soums were allocated for the implementation of this program.

More than 1 million appeals sent by the population to the President's Virtual and People's Reception Offices are also related to the issues of housing, communal services, education, and health care. Taking this into account, in order to ensure the safety of life and activities of the population, improve the quality of life, provide housing, strive to create a clean ecological environment, create decent living conditions for them on the basis of road construction, development of the communal sector, " Karakalpakstan " the regions of the Republic of Estonia, regions, districts, and cities are headed by the Chairman of the Dzhokorg Council of the Republic of Karakalpakstan, the governors of the regions and the city of Tashkent, districts (cities), heads of the prosecutor's office, internal affairs, and territorial bodies of the state tax service. divided into sectors for development" [6]. "Heads of sectors were assigned responsibility for organizing and solving tasks of complex socio-economic development of regions, including

solving the most important problems of the population"[6] and assigned tasks, regions were attached to the Prime Minister and his deputies.

The organization of the work of sectors for the complex socio-economic development of regions and districts (cities) began to be implemented according to the principle of "neighborhood - district (city) - region - republic". Heads of the sector were assigned the tasks of clarifying the problems awaiting solution by going door-to-door in the neighborhoods and organizing meetings with residents, taking measures to solve the problems on the spot, or trying to include them in the development programs of the district (city).

Analysis and summarization of identified problems to sector leaders, ensuring the implementation of decisions on the socio-economic development of regions, inclusion in the adopted programs for the development of upper, middle, and lower regions, holding accountable officials whose activities are slow submitted proposals.

Controlling the implementation of the "roadmap" on the socio-economic development of the regions, developing and implementing state programs for the development of the republic in this matter, as well as making decisions on eliminating shortcomings, monitoring its implementation, reporting to the President on a quarterly basis It was assigned to the Cabinet of Ministers.

Analysis. Neighborhoods were divided into sectors, and these neighborhoods were divided into "green", "yellow", "red" categories based on the criminogenic situation in January of this year, i.e.:

- neighborhood of "green" category - neighborhood where no crime has been committed;
- "yellow" neighborhood - a neighborhood in which the weight of crimes per thousand inhabitants in the reporting period is equal to or lower than the district (city) indicator;
- per thousand population of crimes committed in the territory of the "red" neighborhood, including by persons of a special category, i.e., minors, women, unemployed, previously convicted, intoxicated, persons on preventive account or under administrative control it is a neighborhood with a higher weight compared to the district (city) indicator. The statistics of crimes that can be prevented in the neighborhoods in the territory of the sectors are analyzed by the internal affairs bodies at the end of every month through the unified information system "Electronic criminal-legal statistics" and presented to the relevant agencies[6].

The Department of Internal Affairs submits the collected analytical data to the heads of the sector at the end of every quarter. Leaders of the sector popularize positive experiences in "green" neighborhoods, carry out educational work in "yellow" and "red" neighborhoods.

While the measures to provide the population with housing were implemented rapidly, the need for housing continued to increase in the conditions of demographic stability. "More than 27,000 needy families have applied to regional commissions, expressing their desire to buy apartments in affordable multi-apartment houses under the program [7]. In this direction, based on the demands of the population, the shortcomings of the works being implemented were studied, appropriate measures

were taken, and the state policy was carried out in order to satisfy the needs of the population for housing.

Also, in order to beautify the territory of the neighborhoods, comprehensively develop the existing infrastructure, as well as build road transport infrastructure, engineering communications, and social sphere facilities, and on this basis, to improve the living conditions of the population, the "Obod mahalla" program was introduced[7].

By consistently continuing the implementation of the "Obod qishloq" and "Obod Mahalla" programs, the measure is aimed at developing the regions' road transport infrastructure, engineering-communication networks, and social sphere objects and, on this basis, further raising the well-being and standard of living of the population [8]. - events have been developed.

More than 53,000 affordable houses and apartments were built on the basis of the updated model projects, and about 65,000 families in need of improved living conditions were provided with housing. At the same time, the results of the study of the implementation of the Program showed that there is a high demand for affordable housing in rural areas [9].
In 2016-2018, the expansion of the mortgage loan practice ensured the commissioning of more than 82,000 houses, as a result of which nearly 400,000 citizens in all regions of the country improved their living conditions. In order to implement state-targeted programs for the construction of low-cost housing in rural areas and high-rise buildings in cities, housing for young families, military personnel, employees of budgetary organizations and other categories of the population, "[10] "the commercial banks of the republic More than 10 trillion soums of mortgage loans were granted[10].

The concept of implementing the mortgage market development program in Uzbekistan in 2019-2021 has been developed, and within the framework of it, 200 million USD loan funds[10] have been allocated by ADB to create a long-term stable mortgage financing system based on market principles.

The above innovative reforms are the reason for the increase in the indicators of our country in international ratings and indexes. In particular, over the last four years, our country has risen to 52 places in the Heritage Fund's "Economic Freedom" index, 19 places in the World Bank's "Logistics Efficiency" index, and 18 places in the "Doing Business" index. Uzbekistan has risen from the 6th group of countries to the 5th group of countries in the Organization for Economic Cooperation and Development's "Country-Specific Risk Classification" system[11].

On August 1, 2020, the adoption of the Law of the Republic of Uzbekistan "On the Management of Multi-apartment Buildings" No. 581 on the Management of Multi-apartment Buildings Construction of multi-apartment buildings taking into account the needs of the population , repair, creation of living conditions there, development of the communal sector, beautification, greening works in an orderly manner, served to provide assistance to low-income families.

According to this law, if there are situations in a multi-apartment building that pose a real threat to the life, health and property of individuals or the environment, the Housing Fund Inspection will notify the owners of the premises and many must take

measures to eliminate this risk after notifying the apartment building management body in advance[12].

On March 11, 2021, according to the Decree of the President of the Republic of Uzbekistan, the construction of houses for purchase through mortgage loans was established on the basis of market principles in all "rural areas (areas adjacent to cities and district administrative centers)" [13]. These mortgage loans were given to the population for twenty years with a grace period of six months. Fifteen percent of the estimated value of the apartments being purchased is paid as a down payment.

In 2021, women included in the "Ayollar daftari", "Temir daftar", "Yoshlar daftari" will be provided with housing on the basis of mortgage loans. "10 billion soums to provide housing for women living in non-residential areas, housing for adults who have lost their parents or one of them and are dependent on a single mother, single father or other persons" 5 billion soums were allocated to provide housing for women in need"[14].

Discussion. Further improvement of the multi-apartment housing management system, ensuring the financial stability of the management bodies, and consistent implementation of maintenance, efficient use and repair of the common property of the multi-apartment housing, improvement of the adjacent land plots in order to ensure its increase [15] the President's decision No. 5152 was adopted.

Starting from December 10, 2021, within the framework of the procedure for providing the population with housing through mortgage loans based on market principles, setting the maximum standard of the apartment area when paying subsidies from the State budget to citizens with low income and needing to improve housing conditions practice[16] was cancelled.

The Ministry of Economic Development and Poverty Alleviation has approved the maximum amount of mortgage loan allocated annually to one borrower and the amount of subsidy to cover part of the initial contribution[16]. The persons who received the notification of the subsidy form the part of the initial payment for the mortgage loan equal to at least 5% of the housing value from their own funds, regardless of the location, value and area of the apartment to be purchased. However, subsidies to cover a part of the initial contribution - a fixed amount of 32 million soums, subsidies to cover a part of interest payments - will be paid in excess of 10 percentage points during the first five years[16].

Conclusion. Subsidies to cover part of the initial contribution and interest payments are paid even if the price of the apartment being purchased exceeds the maximum amount of the mortgage loan. In this case, if the price of the apartment to be purchased exceeds the maximum amount of the mortgage loan, the remaining part of the value is paid by the borrower by increasing the amount of the initial contribution at the expense of his own funds and other funds not prohibited by law. Citizens have the right to involve other persons who do not live with them and are not close relatives as co-borrowers when obtaining a mortgage loan. Commercial banks are given the right to set differentiated interest rates on unsubsidized mortgage loans based on the amount of the initial contribution paid by the borrower, the indicator of his debt burden, the duration of the grace period and other indicators [16].

Thus, in the years of independence, it was proven in practice that improving the quality of life of young people is an important condition for their social protection. Measures are being taken to provide young people with housing and create decent living conditions for them based on the development of the communal sector.

References :

[1]. O‘zbekiston Respublikasi Konstitutsiyasi. (Yangi tahrirda). –Toshkent: O‘zbekiston, 2023. –B. 12.
[2]. Uy-joy kommunal xizmat ko‘rsatish tizimini boshqarishni yanada takomillashtirish chora-tadbirlari to‘g‘risida. 18.04.2017. PF-5017-son. /https://lex.uz/docs/3170224
[3]. O‘zbekiston Respublikasi uy-joy kommunal xizmat ko‘rsatish vazirligi huzuridagi ichimlik suvidan foydalanishni nazorat qilish inspeksiyasi faoliyatini tashkil etish to‘g‘risida. 18.04.2017. PQ-2899-son. /https://lex.uz/ru/docs/3170694
[4]. O‘zbekiston Respublikasi qurilish sohasi xodimlari kunini nishonlash to‘g‘risida. 07.08.2017. PF-5136-son. /«Xalq so‘zi» gazetasining 2017 yil 8 avgustdagi 155 (6849)-son.
[5]. 2017-2021 yillarda ko‘p xonadonli uy-joy fondini saqlash va undan foydalanish tizimini yanada takomillashtirish chora-tadbirlari to‘g‘risida. 24.04.2017. PQ-2922-son. /O‘zbekiston Respublikasi qonun hujjatlari to‘plami, 2017 y., 18-son, 319-modda; Qonun hujjatlari ma’lumotlari milliy bazasi, 31.07.2018 y., 06/18/5483/1594-son; 09.11.2019 y., 06/19/5870/4010-son; 13.12.2019 y., 06/19/5893/4150-son; 28.09.2020 y., 06/20/6075/1330-son; Qonunchilik ma’lumotlari milliy bazasi, 30.04.2021 y., 06/21/6218/0398-son, 19.06.2021 y., 07/21/5152/0578-son; 04.08.2022 y., 07/22/346/0709-son.
[6]. Hududlarning jadal ijtimoiy-iqtisodiy rivojlanishini ta’minlashga doir ustuvor chora-tadbirlar to‘g‘risida. 08.08.2017. PQ-3182-son. /https://lex.uz/docs/3302438
[7]. 2017-2020 yillarda shaharlarda arzon ko‘p kvartirali uylarni qurish va rekonstruksiya qilish dasturini samarali amalga oshirish borasidagi qo‘shimcha chora-tadbirlar to‘g‘risida. 23.10.2017. PQ-3350-son. https://lex.uz/docs/3389943
[8]. «Обод маҳалла» дастури тўғрисида 27.06.2018 йилдаги ПФ-5467-сон. Қонун ҳужжатлари маълумотлари миллий базаси, 29.06.2018 й., 06/18/5467/1412-сон; 09.10.2020 й., 07/20/4857/1357-сон.
[9]. Qishloq joylarda va fuqarolarning ayrim toifalari uchun arzon uy-joylar qurishni kengaytirishga oid qo‘shimcha chora-tadbirlar to‘g‘risida. 24.11.2018. PQ-4028-son. / https://lex.uz/docs/4076825
10. Ipoteka krediti bozorini rivojlantirish va kengaytirishga oid qo‘shimcha chora-tadbirlar to‘g‘risida. 13.05.2019. PF-5715-son. / https://lex.uz/docs/4337770
[11]. O‘zbekiston Respublikasining xalqaro reyting va indekslardagi o‘rnini yaxshilash hamda davlat organlari va tashkilotlarida ular bilan tizimli ishlashning yangi mexanizmini joriy qilish to‘g‘risida. 02.06.2020. PF-6003-son. /https://lex.uz/docs/4838762
[12]. O‘zbekiston Respublikasining “Ko‘p kvartirali uylarni boshqarish to‘g‘risida”gi qonuni. 01.08.2020. O‘RQ-581-son. /https://lex.uz/docs/4586282?ONDATE=01.08.2020&ONDATE2=21.04.2021&action=compare

[13]. O‘zbekiston Respublikasi Prezidentining “Bozor tamoyillariga asoslangan ipoteka kreditlarini ajratish orqali aholini uy-joy bilan ta’minlashga oid qo‘shimcha chora-tadbirlar to‘g‘risida”gi Farmoni. 11.03.2021. PF-6186-son. /https://lex.uz/ru/docs/5327053
[14]. O‘zbekiston Respublikasi Prezidentining “Xotin-qizlarni qo‘llab-quvvatlash, ularning jamiyat hayotidagi faol ishtirokini ta’minlash tizimini yanada takomillashtirish chora-tadbirlari to‘g‘risida”gi qarori. 06.03.2021 PQ-5020-son. /https://lex.uz/docs/5320582
[15]. O‘zbekiston Respublikasi Prezidentining “Ko‘p kvartirali uy-joylarni boshqarish tizimini yanada takomillashtirish to‘g‘risida”gi Qarori. 19.06.2021. PQ-5152-son. /https://lex.uz/docs/5464157
[16]. Bozor tamoyillariga asoslangan ipoteka kreditlari orqali aholini uy-joy bilan ta’minlashga oid qo‘shimcha chora-tadbirlar to‘g‘risida. 09.12.2021. PF-33-son. /https://lex.uz/docs/5767194

UDC: 91.5

EDUCATIONAL PHILOSOPHY: MODERN PARADIGMS

Ruziev Jahongir Kuzibayevich
Researcher of the Samarkand State Institute of Foreign Languages
(jruziev@mail.ru)

Annotatsiya. Ushbu maqolada ta’lim falsafasi va uning uning substansional komponentlari, genezisi, rivojlanish evolyusiyasi, jamiyatdagi ijtimoiy ahamiyati masalalari ijtimoiy-falsafiy tahlil qilingan. Shuningdek, ta’lim falsafasining ijtimoiy hayotni ratsional asosida yangilashga qaratilgan asosli sub’ektiv faoliyati, innovatsion tafakkurga oid ilmiy yondashuvlar tahlil qilingan.

Kalit so‘zlar: ta’lim falsafasi, rivojlanish, ilmiy-metodologik tadqiqot, fuqarolik jamiyati, ta’lim, taraqqiyot, axborot, demokratiya, tanqid, interaktiv metod, sinergetika, bahs, ijtimoiy jarayon.

Аннотация. В статье социально-философски анализируются философия образования и ее содержательные компоненты, генезис, эволюция развития, вопросы социальной значимости в обществе. Также анализируется аргументированная субъективная деятельность философии образования, направленная на обновление общественной жизни на рациональной основе, и научные подходы к инновационному мышлению.

Ключевые слова: философия образования, развитие, научно-методические исследования, гражданское общество, образование, развитие, информация, демократия, критика, интерактивный метод, синергетика, дебаты, социальный процесс.

Annotation. The article socio-philosophically analyzes the philosophy of education and its substantive components, genesis, evolution of development, issues of social significance in society. The reasoned subjective activity of the philosophy of

education, aimed at updating social life on a rational basis, and scientific approaches to innovative thinking are also analyzed.

Key words: philosophy of education, development, scientific and methodological research, civil society, education, development, information, democracy, criticism, interactive method, synergetics, debate, social process.

Introduction. Education plays an important role in solving goals and objectives specific to a person, social groups and society, improving it spiritually and educationally. Education realizes a person's ability for self-development, enriches his worldview and thinking, and brings the spirit of creativity into a person's life**[1].** Education manifests itself in the form of conditions, responsibilities and opportunities related to the moral needs of society and its members; it is a factor that strengthens, supports and balances social processes and relationships. The education system is a complex system that includes social stability, people's lifestyle and human development.

In every changing historical period, there is a need for a new, that is, innovative approach to the essence of education. The spirit of the times, the spiritual, social and economic potential of society is reflected in the educational systems of different historical periods. Theories and teachings in the education system always arise from the need to solve complex problems facing society. With the advancement of education through advanced scientific teachings, it becomes a vital necessity to create more advanced innovative teachings instead of the teachings that have been followed so far.

Literature reviuew. A separate philosophical system in the philosophy of education was created by such philosophers as Platon**[2],** Aristotle, John Amos Comenius, Locke**[3],** Jean–Jacques Rousseau**[4],** and Herbart. Typically, philosophy of education is understood as a field of philosophical knowledge that has an educational theme. Philosophy of education as a science has emerged since the beginning of the 20th century. The Anglo-American philosopher John Dewey is considered the founder of the philosophy of education in the world. Today, in English-speaking countries, philosophy of education has become a field that has the status of a science, represented by separate departments in universities.

Anglo-American philosopher John Dewey is considered the founder of educational philosophy in the world. In English-speaking countries, philosophy of education is now a somewhat systematic field taught by separate departments in universities, primarily philosophy departments, and in some cases in teachers' colleges (faculties of education).

Research methodology. Comparative analysis, expert evaluation, dynamic series, analytical comparison, logical reasoning and grouping methods are widely used in this research. Also, the researches of foreign and local scientists on this topic were analyzed. Official statistics were used in the analysis.

Analysis and discussion of results. When we talk about the philosophical features of the educational process, we see that it is directly related to the subject, purpose and objectives of the science of philosophy. "Social philosophy", which is considered one of its main branches along with science philosophy, has an important feature in revealing the socio-philosophical nature of the system of the field of science. "Social philosophy" studies society and man as a continuously changing and

developing system and discusses the essence, forms and manifestations of social development, the laws of social development. The most important problem of social philosophy is the problem of knowledge of society. Social philosophy develops the methodological foundations of scientific knowledge of social phenomena and processes in society.

Therefore, the education system is considered as a large-scale, necessary and vital process of society, forming a chain of the person-education-society system. Pedagogy plays an important role in this process and acquires its own character both as a science and as a process. The subject of pedagogy is an organizationally based and purposeful educational process. The philosophy of education gives pedagogical processes a unique content based on thinking, processes in which the noble goal of solving human problems is also pursued, and gives a new meaning and essence to social life.

In a certain sense, the synergetics method plays a role in philosophical observation of the educational system and in the creation of scientific and methodological connections. This method is uniquely involved in the relationships associated with the formation, existence and development of education. The synergistic self-formation of the educational system explains the nonlinear (uneven) development trends in individual places. It is recognized that there is a phenomenon of bifurcation in the education system. According to this phenomenon, coincidences accumulate on their own and create conditions for the emergence of legal relations within certain quantitative indicators.

Thinking about education is one of the unique problems of modern philosophy. The reason for this is the increasingly complex development of society in the 21st century. Under the influence of the scientific and technological revolution, this society becomes informational, and this process determines its status and prospects. Thus, in modern conditions, the philosophy of education becomes a branch of the science of philosophy. Representatives of pedagogy, psychology, sociology and other humanities strive to jointly study the content, goals and prospects of education, its social meaning and role in the development of human society as a whole, its significance in the study of the destinies of individual states. and people As the President of the Republic of Uzbekistan Sh.M. Mirziyoyev said: “We consider our priority task to be improving the activities of all parts of the education and training system based on the requirements of the time”.

Education is a very diverse and multifaceted social organism. Education embodies the ideological support of moral, religious, political, economic, legal, spiritual, ideological relations between people, as well as mechanisms for implementing their innovative practices in society when interpreted in a modern spirit. This is fully consistent with the laws of the universal connection between academic subjects and cultural existence. S. Lebedov stated that “the philosophical understanding of education consists of a body of knowledge based on the general laws of representation of human existence and way of thinking associated with the change and development of society. Philosophically, the content of such a generalization is material and spiritual - to analyze everything that makes up the world, from the point of view of its level, and pedagogically - to analyze the stages and prospects of designing the educational process".

Regularities and regularities based on the interconnection of elements of the educational system, educational processes and social life will always exist, these aspects determine the features of human existence and the tendency to always develop. Ensuring the dynamic and sustainable development of these features is associated with the level of organization of processes carried out in the education system on an innovative basis. Philosophical observation of the educational system determines the features of innovative development of education. The law of negation of negation existing in the science of philosophy corresponds to the content of creating new values by negating existing processes of innovative development of education.

The existence of philosophy of education is determined by the fact that the field of education itself is a source of universal philosophical problems. The main task of philosophy of education is to understand what education is and to justify it (if possible) from the point of view of man and his needs. Philosophy of education is a form of philosophical activity related to education. Therefore, clarifying the concept of education is one of the pressing issues. The purpose of such activity is the most important in understanding education, it is distinguished by the fact that it is aimed at defining the consciousness that determines its development, interpretation at all social levels interested in its practice, and also conditions it.

The object of the philosophy of education is nature, society, human existence and the changes occurring in it, the existing social system and its character, the educational process corresponding to the level of literacy of people, the education system; and the subject is the most general laws, principles, methods, types and mechanisms of the emergence, formation and development of knowledge about events and processes as a result of integration into the consciousness of people, as a result of the integration of nature and society. and human consciousness represents conceptual scientific and practical knowledge.

The subject of the philosophy of education (from the Latin subjectum - under, on the basis) is an individual personality and a social personality, actively operating in the educational process, consisting of students and educators with knowledge, consciousness and will. From this point of view, the subject of philosophy of education is divided into two large groups: students and teachers.

Today, the essence of the philosophy of education is characterized by determining the main role of knowledge in the development of modern civilization. This creates a need not only for the correct and deep opinions of specialists in a certain field, the basic position of educational organizers, but also for an effective system of social management, effective management of society, and self-defense. The philosophy of education is a response to the crisis of education, the crisis of traditional scientific forms of understanding and intellectual support, the loss of the main pedagogical paradigm.

Philosophy of education is a practical field of philosophy that reflects philosophical knowledge leading to the development of a person’s creative abilities, deepening his participation in economic, social and cultural relations in society and, accordingly, to a more effective contribution to the development of humanity. From this point of view, the socio-historical genesis of the educational philosophy formed in our country was aimed at protecting the interests of Muslim Turkic peoples, who

occupy an important place in the development of human civilization, and achieving economic stability in the world. the area where they live. However, the dialectic of quantitative and qualitative changes in these needs and interests inevitably created the problem of development of the education system. The Jadidism movement was mainly aimed at providing economic and spiritual support to young people thirsting for knowledge through education.

Philosophy of education, as a philosophical science that has scientific and practical significance, first of all, considers ontological issues and their solutions, about the knowledge of things, events, phenomena, processes in the objective world and the methodological basis for equipping people with them. . In fact, ontology is also an integral part of the science of philosophy, and existence is its subject. From this point of view, philosophy of education as a methodological science deals with organizing the study of various characteristics of existence, on the one hand, and ultimately becomes a component of social existence (existing reality), on the other. On the other hand, the methods and means of introducing the emerging knowledge about this existence into the consciousness of people becomes his subject when he reflects on such concepts. So, these two sides make it possible to correctly observe the ontological foundations of the philosophy of education.

Conclusions and suggestions. It is important to understand the practical and theoretical aspects of the development of the educational system, to take into account in its philosophical perception the features recognized in the next world.

1. Comprehensive preparation of people for rapid reforms and innovative development of society in modern conditions, which are rapidly changing and the scale of development is expanding;

2. The activity of educational processes in the context of the rapid penetration of globalization traditions, the growing needs for international scientific and intercultural relations, the processes of spiritual and educational tolerance in the conditions of the rapid manifestation of large-scale features of the information society. increase:

3. Accelerate the process of value creation aimed at organizing integration in the field of education in the international arena in order to educate the YOUNG generation in the spirit of universal human values, realizing their abilities, aspirations and needs;

Philosophical observation of education solves issues related to explaining the dynamics of change and development of the educational process on the basis of philosophical laws, design of education and scientific forecasting of its future. Based on this, we can say that in the educational process, pedagogical science requires the regular use of knowledge related to philosophical thinking in order to increase one's scientific potential. This serves to enrich the theory of pedagogy with philosophical laws and substantiate ideas about the social essence of the educational process, i.e., serving the improvement of man and society. The following factors play an important role in identifying these features:

1) objective, necessary, general, stable and repeatable laws and rules that ensure the interaction of elements of the educational process:

2) principles and rules related to the prohibition, structure and organization of the education system:

All relationships in the educational process are subject to certain general laws in relation to each other. These laws have been refined based on the general characteristics, principles and criteria that have existed during the historical evolution of the education system. In general, the general principles of pedagogy, based on satisfying the spiritual needs of human existence, have existed until now.

There are also certain patterns of development of educational processes that ensure the interconnection of pedagogical processes and their elements. They are concentrated in private law, which is characterized by such factors as the development of education, its compliance with the spirit of the times, the presence of modern features, and the presence of stable conflict processes. Issues such as planning the educational process, using methods and technologies, organizing industry management of the methodology of scientific processes, and determining perspectives are carried out in full connection with these laws.

Based on the analysis of the concept of the sphere of education and its philosophical content, we put forward the following socio-philosophical criteria for the education system and its improvement.

- the sphere of education is an important sector of public life, it reveals the human factor, manifested in the relationship between the student and the teacher and the features associated with ensuring his place in society:

- ensures harmony of interests of participants in education and represents a whole set of characteristics manifested in the educational process, contributes to further improvement of the social status of the individual:

- serves to ensure the spiritual and educational improvement of a person, the education of a mature generation, active participation in public life, productive life, enriching the meaning of life:

- education manifests itself in the form of conditions, responsibilities and opportunities related to meeting the social and legal needs of citizens related to education and training.

Referencies:

[1]. Mirziyoyev Sh.M. Ensuring the rule of law and human interests is a guarantee of development and prosperity // We will resolutely continue to finance national development and look forward to a new stage. -Tashkent: NMIU “Uzbekistan” 2017.- B.124.

[2]. Platon. Legitimate. -Tashkent: New generation asp, 2002. - B. 197.

3.Complete Works of John Locke. – United Kingdom: Delphi Classics, 2017. – P. 3115.;

[4]. Jean–Jacques Rousseau: Human nature and history. Edted by John T.Scott. – USA, New–York: Routledge Taylor & Francis Group, 2006. – P. 16.

[5]. Karimov I. et al. Social philosophy. Tashkent 2008.-B.6

[6]. Dewey D. Democracy and Education. - M.: Pedagogy-Press 2000.- 384 p.