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"GLOBAL DIGITAL INTEGRATION: THE RELEVANCE OF ENSURING MICRO AND MACROECONOMIC SUSTAINABLE GROWTH THROUGH TECHNOLOGICAL AND INDUSTRIAL DEVELOPMENT IN THE TRANSITION TO A GREEN ECONOMY BY 2030"

«ГЛОБАЛЬНАЯ ЦИФРОВАЯ ИНТЕГРАЦИЯ: АКТУАЛЬНОСТЬ ОБЕСПЕЧЕНИЯ УСТОЙЧИВОГО МИКРО- И МАКРОЭКОНОМИЧЕСКОГО РОСТА ЧЕРЕЗ РАЗВИТИЕ ТЕХНОЛОГИЧЕСКОЙ И ИНДУСТРИАЛЬНОЙ ПРОМЫШЛЕННОСТИ В ПЕРЕХОДЕ К ЗЕЛЁНОЙ ЭКОНОМИКЕ К 2030 ГОДУ»

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05.01.00 – Axborot texnologiyalari, boshqaruv va kompyuter grafikasi
05.01.01 – Muhandislik geometriyasi va kompyuter grafikasi. Audio va video texnologiyalari
05.01.02 – Tizimli tahlil, boshqaruv va axborotni qayta ishlash
05.01.03 – Informatikaning nazariy asoslari
05.01.04 – Hisoblash mashinalari, majmualari va kompyuter tarmoqlarining matematik va dasturiy ta'minoti
05.01.05 – Axborotlarni himoyalash usullari va tizimlari. Axborot xavfsizligi
05.01.06 – Hisoblash texnikasi va boshqaruv tizimlarining elementlari va qurilmalari
05.01.07 – Matematik modellashtirish
05.01.11 – Raqamli texnologiyalar va sun'iy intellekt
05.02.00 – Mashinasozlik va mashinashunoslik
05.02.08 – Yer usti majmualari va uchish apparatlari
05.03.02 – Metrologiya va metrologiya ta'minoti
05.04.01 – Telekommunikasiya va kompyuter tizimlari, telekommunikasiya tarmoqlari va qurilmalari. Axborotlarni taqsimlash
05.05.03 – Yorug'lik texnikasi. Maxsus yoritish texnologiyasi
05.05.05 – Issiqlik texnikasining nazariy asoslari
05.05.06 – Qayta tiklanadigan energiya turlari asosidagi energiya qurilmalari
05.06.01 – To'qimachilik va yengil sanoat ishlab chiqarishlari materialshunosligi
05.08.03 – Temir yo'l transportini ishlatish
05.09.01 – Qurilish konstruksiyalari, bino va inshootlar
05.09.04 – Suv ta'minoti. Kanalizatsiya. Suv havzalarini muhofazalovchi qurilish tizimlari
10.00.06 – Qiyosiy adabiyotshunoslik, chog'ishtirma tilshunoslik va tarjimashunoslik
10.00.04 – Yevropa, Amerika va Avstraliya xalqlari tili va adabiyoti
08.00.01 – Iqtisodiyot nazariyasi
08.00.02 – Makroiqtisodiyot
08.00.03 – Sanoat iqtisodiyoti
08.00.04 – Qishloq xo'jaligi iqtisodiyoti
08.00.05 – Xizmat ko'rsatish tarmoqlari iqtisodiyoti
08.00.06 – Ekonometrika va statistika
08.00.07 – Moliya, pul muomalasi va kredit
08.00.08 – Buxgalteriya hisobi, iqtisodiy tahlil va audit
08.00.09 – Jahon iqtisodiyoti
08.00.10 – Demografiya. Mehnat iqtisodiyoti
08.00.11 – Marketing
08.00.12 – Mintaqaviy iqtisodiyot
08.00.13 – Menejment
08.00.14 – Iqtisodiyotda axborot tizimlari va texnologiyalari
08.00.15 – Tadbirkorlik va kichik biznes iqtisodiyoti
08.00.16 – Raqamli iqtisodiyot va xalqaro raqamli integratsiya
08.00.17 – Turizm va mehmonxona faoliyati

Ma'lumot uchun, OAK Rayosatining 2024-yil 28-avgustdagi 360/5-son qarori bilan "Dissertatsiyalar asosiy ilmiy natijalarini chop etishga tavsiya etilgan milliy ilmiy nashrlar ro'yxati"ga texnika va iqtisodiyot fanlari bo'yicha "Muhandislik va iqtisodiyot" jurnali ro'yxatga kiritilgan.

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MUNDARIJA • СОДЕРЖАНИЕ • CONTENTS

MUNDARIJA

UZBEKISTAN'S STRATEGY FOR TRANSITION TO A GREEN ECONOMY: LABOR MARKET TRANSFORMATION, CHALLENGES AND PROSPECTIVE OPPORTUNITIES

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Abstract. This article analyzes the transformational processes taking place in Uzbekistan's labor market within the framework of the national strategy for transitioning to a green economy. The study examines the decline of traditional professions and the emergence of new sectors based on environmental sustainability principles. It also highlights the challenges related to creating new jobs, skills transformation, and aligning the education system with the requirements of the green economy. The results show that the green economy not only ensures environmental sustainability but also contributes to sustainable economic growth and employment in the country. Based on the findings, the study identifies promising opportunities for Uzbekistan and provides effective policy and practical recommendations to support the greening of the labor market.

Keywords: green economy, labor market, sustainable development, renewable energy, environmental modernization, employment policy, skills transformation, Uzbekistan.

Annotatsiya. Ushbu maqolada O'zbekiston Respublikasining "yashil iqtisodiyot"ga o'tish strategiyasi doirasida mehnat bozorida yuz berayotgan transformatsion jarayonlar tahlil qilindi. Tadqiqotda an'anaviy kasblarning qisqarishi va ekologik barqarorlik tamoyillariga asoslangan yangi sohalarning shakllanishi o'rganildi. Shuningdek, yashil iqtisodiyot sharoitida yangi ish o'rinlarini yaratish, malaka transformatsiyasi va ta'lim tizimini moslashtirish masalalari yoritildi. Tadqiqot natijalari shuni ko'rsatadiki, yashil iqtisodiyot mamlakatda ekologik barqarorlikni ta'minlash bilan birga, iqtisodiy o'sish va bandlikning izchil rivojlanishiga xizmat qilmoqda. Natijalar asosida O'zbekiston uchun istiqbolli imkoniyatlar hamda mehnat bozorini "yashillashtirish" jarayonida qo'llanilishi mumkin bo'lgan samarali siyosiy va amaliy takliflar berildi.

Kalit so'zlar: yashil iqtisodiyot, mehnat bozori, barqaror rivojlanish, qayta tiklanuvchi energiya, ekologik modernizatsiya, bandlik siyosati, malaka transformatsiyasi, O'zbekiston.

Аннотация. В данной статье анализируются трансформационные процессы, происходящие на рынке труда Узбекистана в рамках стратегии перехода к «зелёной экономике». В исследовании рассматриваются тенденции сокращения традиционных профессий и формирования новых отраслей, основанных на принципах экологической устойчивости. Также освещаются вопросы создания новых рабочих мест, трансформации квалификаций и адаптации системы образования к требованиям «зелёной экономики». Результаты показывают, что «зелёная экономика» обеспечивает не только экологическую устойчивость, но и способствует стабильному экономическому росту и занятости в стране. На основе полученных результатов определены перспективные возможности для Узбекистана и даны эффективные политические и практические рекомендации по «озеленению» рынка труда.

Ключевые слова: зелёная экономика, рынок труда, устойчивое развитие, возобновляемая энергия, экологическая модернизация, политика занятости, трансформация навыков, Узбекистан.

INTRODUCTION

In recent years, global challenges such as climate change, depletion of natural resources, and the intensification of environmental issues have encouraged the adoption of a new economic paradigm — the green economy [2]. Traditional industries with high environmental impact have become a significant challenge to sustainable development, while the concept of a green economy seeks to harmonize economic growth with ecological balance [3].

In Uzbekistan, this direction has become one of the key priorities of state policy. According to Presidential Decree No. PQ-4477 dated October 4, 2019, "On the Strategy for Transition to a Green Economy for 2019–2030," the country aims to promote efficient resource use, expand renewable energy sources, improve waste management systems, and introduce environmentally friendly production mechanisms[1].

These reforms have also contributed to significant structural changes in the labor market. On the one hand, employment in traditional sectors such as coal, oil and gas, chemical fertilizers, and plastic production is gradually decreasing. On the other hand, new professional areas are emerging in solar and wind energy, waste recycling, green infrastructure, and environmental engineering.

LITERATURE REVIEW

The concept of the green economy is now recognized globally as an integral component of the sustainable development model. International research emphasizes that the green economy not only preserves ecological balance but also serves as a catalyst for advancing economic growth and employment policies to a new stage. According to the World Bank, employment opportunities in renewable energy, waste recycling, and environmental technology sectors have been steadily increasing, while traditional occupations with high environmental impact are gradually declining [2].

The Organisation for Economic Co-operation and Development highlights that the labor market is undergoing a transformational phase during the green transition. Workers in coal, oil, chemical, and plastics industries are moving toward new professional areas such as energy efficiency, green technologies, environmental design, and renewable resource management [3].

Domestic scholars have also made notable contributions to the study of this issue. Khodjayeva M. U. notes that the integration of the green economy into the national economic framework has led to the development of new sectors such as ecological infrastructure, green energy, and environmental protection services [4].

Similarly, Yuldashev M. I. scientifically substantiates that the green economy acts as a major driver of new job creation. He emphasizes that this process necessitates skill transformation — the replacement of outdated professions with new competencies aligned with sustainable growth principles [5].

Akbarova Barno Shuxratovna, in her research, underscores the importance of education and retraining programs in shaping a new professional structure within Uzbekistan's labor market. She argues that the green economy requires not only modernization of production sectors but also a shift in human resource policies toward ecological and innovative development [6].

The analysis of both international and national sources indicates that the transition to a green economy brings profound changes not only in the production sphere but also in the structure of human resources. These changes are closely linked to skill renewal, adaptation of vocational education, and the emergence of new green professions. Furthermore, the green economy is increasingly viewed as a key factor in creating employment opportunities, fostering competitive human capital, and strengthening overall economic resilience.

RESEARCH METHODOLOGY

This study examines the development of the green economy in Uzbekistan and its impact on the structure of the labor market through an economic-statistical approach. During the analysis, methods such as grouping, comparison, time-series analysis, structural analysis, and graphical analysis were applied.

The research is based on the latest data published by the State Committee of the Republic of Uzbekistan on National Statistics, the World Bank, the Organisation for Economic Co-operation and Development, and other relevant national strategic documents. Using these sources, the study analyzed trends in employment, the emergence of new professions, and changes in economic efficiency indicators within the framework of the green economy transition.

The applied methods made it possible to assess the creation of green jobs and the skill transformation of the labor force resulting from ecological modernization processes. This approach provided an opportunity to

1 Decree No. PQ-4477 of the President of the Republic of Uzbekistan dated October 4, 2019, "On approval of the Strategy for the transition of the Republic of Uzbekistan to a Green Economy for 2019–2030." https://lex.uz/docs/-4539502

conduct a comprehensive evaluation of the economic and social effectiveness of the green economy under the conditions of Uzbekistan.

ANALYSIS AND RESULTS

In recent years, Uzbekistan's economy has undergone structural transformations driven by environmental priorities and sustainable development goals. These reforms are closely aligned with national policies promoting the rational use of resources, enhanced energy efficiency, and the advancement of modern waste management systems [2]. The gradual implementation of green economy principles has resulted in notable shifts within the labor market: traditional professions are steadily being replaced by new, environmentally oriented, and technology-based occupations.

According to the World Bank and the Organisation for Economic Co-operation and Development, the green economy has emerged globally as a model that integrates economic growth, sustainable employment, and environmental sustainability. It improves efficiency by reducing waste, promoting renewable energy, and introducing clean technologies (Table 1).

Table 1. Main directions of the green economy and expected outcomes[2]

№	Direction	Expected outcome
1	Renewable energy	270,000 new jobs by 2050
2	Waste recycling	15–20% resource savings
3	Energy efficiency	10–15% reduction in production costs
4	Green transport systems	25% reduction in CO_2 emissions
5	Ecological infrastructure	Creation of new "green" professions

As can be seen from Table 1, renewable energy is among the key growth drivers in the labor market. According to the World Bank, by 2050 this sector alone is expected to generate more than 270,000 new jobs, while simultaneously enhancing both environmental sustainability and economic efficiency.

The waste recycling industry ensures savings of 15–20% in material resources, while energy efficiency measures are expected to reduce production costs by 10–15%. These outcomes not only lower operational expenses for enterprises but also contribute to the preservation of natural resources.

The development of ecological infrastructure has created the foundation for the emergence of new professions, such as energy efficiency specialists, waste management engineers, and green project managers. This demonstrates the qualitative transformation of the labor market in line with sustainable growth goals (Table 2).

Table 2. Changing structure of professions[3]

Declining professions	Emerging "green" professions
Coal and oil industry workers	Renewable energy engineers
Internal combustion engine mechanics	Electric vehicle technicians
Chemical fertilizer producers	Organic agriculture specialists
Plastic manufacturers	Waste recycling and management specialists
High-energy consumption operators	Energy-saving experts

The table shows that the declining professions are primarily associated with hydrocarbon, chemical, and plastic industries, while new job opportunities are emerging in renewable energy, environmental engineering, and recycling technologies. For instance, workers previously employed in coal mining are now being retrained to install solar panels, manage wind farms, or conduct energy audits. Thus, jobs are not disappearing; rather, they are transforming into new forms of employment that require higher levels of technical and environmental competence (Figure 1).

2 Source: compiled and analyzed by the author based on data from the World Bank and OECD.

3 Source: compiled and analyzed by the author based on data from the World Bank, OECD and the State Committee of the Republic of Uzbekistan on National Statistics.

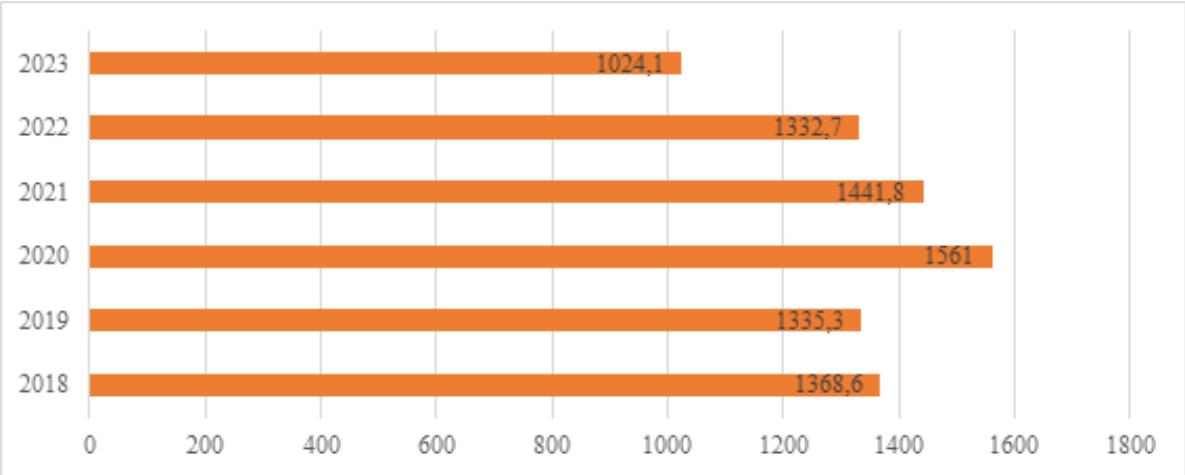

Figure 1. Annual unemployment trends in Uzbekistan (thousand persons)[4]

Figure 1 illustrates that unemployment decreased by approximately 10% over the past five years. Between 2018 and 2023, Uzbekistan's unemployment rate steadily declined, from 1.14 million unemployed individuals in 2018 to 1.024 million in 2023. This positive trend has been largely driven by green investment projects, technological modernization, and employment policies focused on sustainability. In particular, the rapid growth of renewable energy and waste recycling industries during 2021–2023 has accelerated labor market transformation and contributed to job creation in environmentally friendly sectors.

As a result, Uzbekistan's labor market is becoming more adaptive and innovation-oriented. The growth of green industries not only enhances economic productivity but also strengthens social stability and contributes to long-term sustainable development.

CONCLUSION AND RECOMMENDATIONS

The research results demonstrate that Uzbekistan's transition to a green economy has become a key driver of sustainable development and labor market stability. Sectors such as renewable energy, ecological infrastructure, and waste management play a crucial role in creating new jobs and strengthening economic diversification.

To ensure the continued effectiveness of this process, it is essential to develop human capital, integrate green competencies into the education system, and enhance inter-agency coordination. Within the framework of labor policy, introducing a dedicated "Green Jobs National Program" aimed at updating professional qualification standards would be an important step forward.

The education system should incorporate modules on sustainable development, energy efficiency, and environmental management to align workforce skills with future economic needs. To promote green investment, tax incentives, grants, and subsidy mechanisms should be further improved.

At the regional policy level, the formation of clusters specializing in ecological industries, particularly in renewable energy and waste management, would stimulate local innovation and employment. Furthermore, establishing a unified monitoring and evaluation system to regularly assess the number of green jobs, economic performance, and environmental impact would strengthen policy effectiveness.

The green economy represents not only an environmental imperative but also a strategic economic opportunity for Uzbekistan. Its effective implementation will foster sustainable growth, generate quality employment, and strengthen the country's global competitiveness.

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