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UZBEKISTAN'S TRANSITION TO A GREEN ECONOMY: CHALLENGES, ACHIEVEMENTS, AND PROSPECTS

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Abstract:

This article analyzes the current state and prospect of the transition of Uzbekistan to environmentally harmful economics. At the beginning of the article, attention is drawn to the personnel potential in this area, the second part of the article is devoted to comparing different studies related to the improvement of the country's environmental condition. Also, the article lists the measures already taken by the state in the form of an increase in investment and international cooperation.

Keywords: efficiency, "green" economy, renewable energy, decarbonization, landscaping, investment, quality of life

INTRODUCTION

As we know, a significant part of Uzbekistan's economy is comprised of mineral resources, such as: natural gas, gold, uranium, silver, copper, and so on. These minerals provide opportunities for investment and are one of the important factors of economic stability. However, in recent decades, there has been a problem of depletion and inefficient use. Accompanying this problem is also climate change, and because the world's population is growing at a fairly rapid pace, providing for each person requires a certain amount of resources in the form of finances, food, clothing, and basic housing. Food and environmental safety issues today are priority, in Uzbekistan, great attention is paid to reducing the impact of climate change and adaptation to it, accelerating measures to transition to a green economy, promoting the "green" and inclusive model of economic growth. In Uzbekistan, 2025 was declared a year of environmental protection and the "green" economy, which means a priority principle, there will be an environmentally friendly economy and, in general, all spheres of production and industry

But before delving into the topic of the "green economy," the question arises: are specialists being trained in Uzbekistan for the development of the "green" economy? A study was conducted that surveyed the importance of solving which environmental problems would facilitate the transition to a "green" economy and the creation of "green" jobs, what skills job seekers for "green" jobs should ideally possess, and what proportion of trained personnel will be able to work in this field and what specializations they are studying. The table below presents data for different periods and the share of graduates in the "green" sector.

Table 1.
Rrepared for the "green" economy specialists [9]

* Data is taken from the website Sputnik.uz

In the 2009-2020 academic years	In the 2021-2024 academic years:	
Land use and management		
Renewable energy sources and sustainable environment	Semiconductor nanomaterials	
Biogenetics	Forestry	
Environment and human health	Urban planning and landscape architecture	
Protected ground fruit and vegetable cultivation	Ecology	
Mechatronics and robotics	Smart metering systems and devices in water management	
	Water-saving irrigation technologies	
	Artificial intelligence	
	Physics of renewable energy sources and sustainable environment	
Number of graduates		umber of graduates

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2009-2020	2021-2024
5%	30%

The proportion of graduates in this field has increased sixfold in the last 5 years, indicating that the population, especially university graduates, cares about the environment and wants to make their homeland a prosperous country. Based on the data studied, the author has identified some problems that can be solved by transitioning to a "green" economy, including: inefficient use of water resources, air pollution, deforestation, land degradation, and climate change. The author identified the following essential skills for a successful transition to such an economy: analytical and technical skills related to design, digital skills, engineering and technical skills, and monitoring skills. According to the opinions of various production sectors, six abilities are in demand: leadership, monitoring, landscape design, waste management, procurement skills, and financial skills.

As the President noted, the development of human capital and nurturing a creative young generation is one of the strategic tasks Uzbekistan has set for itself. It was noted that for Central Asia, where just over half the population is young people, issues concerning the young generation and the realization of its potential are of particularly great importance. [2] Finding a reasonable consensus between consumption and the preservation of natural resources is the main goal set for society. Fossils used by people in winter conditions are drivers of climate change, with coal, oil, and gas accounting for ¾ of global greenhouse gas emissions. As they are used as fuel and burned, gases from combustion cover the land, altering the structure of air and temperature.

According to the national environmental protection program, over a five-year period (by 2030), more than 40% of the country's electricity will be powered by renewable energy sources. This year, the commissioning of more solar and wind power plants is planned, allowing a several-fold increase in energy sector capacity. In 2025, the expansion of forest areas will continue, which is particularly relevant in the context of combating desertification. New protective forest belts will be created, which will help reduce the impact of dust storms and improve the environmental situation in the regions.[7]

Due to the current year being designated as the "Year of Environmental Protection and Green Economy," plans include the artificial creation of 100,000 hectares of "green areas" on the dried-up Aral Sea bed to mitigate the consequences of its desiccation. Furthermore, the area of forest supply in the Aral Sea region is planned to increase to 2.1 million hectares, the area completely covered by forests to 4.1 million hectares, and protected natural areas to 14.5%. The establishment of gardens and drought- and salt-resistant plants in the Republic of Karakalpakstan, Bukhara, Jizzakh, and Kashkadarya regions is part of the environmental protection program.

The next area needing adjustments at the design stage is water management. Water scarcity in Uzbekistan is already at a critical level, and climate change has exacerbated this concept. At the beginning of this year, a deep, phased reform of the water management complex has begun:[3]

- Implementation of modern drip and rain irrigation systems;
- Automation of water resource management;
- Modernization of irrigation canals to reduce water losses.

In early April of this year, at the first "Central Asia-European Union" summit, a meeting took place between the President of the Republic of Uzbekistan, Shavkat Mirziyoyev, and the Head of the European Bank for Reconstruction and Development, Odile Renaud-Basso, where they defined priority collaborations in the "green" economy, including decarbonization. Decarbonization is the process of reducing emissions into the Earth and incorporating alternative clean sources into the composition of fertilizers that are easily absorbed by the soil. The EBRD will help decarbonize Uzbekistan's fertilizer production by investing in a project to produce renewable hydrogen, which can replace gray hydrogen, which is obtained from natural gas in the production of ammonia fertilizers. According to plans, after the project is launched, the plant will produce up to 3,000 tons of alternative hydrogen and reduce carbon dioxide emissions by approximately 22,000 tons. [8]

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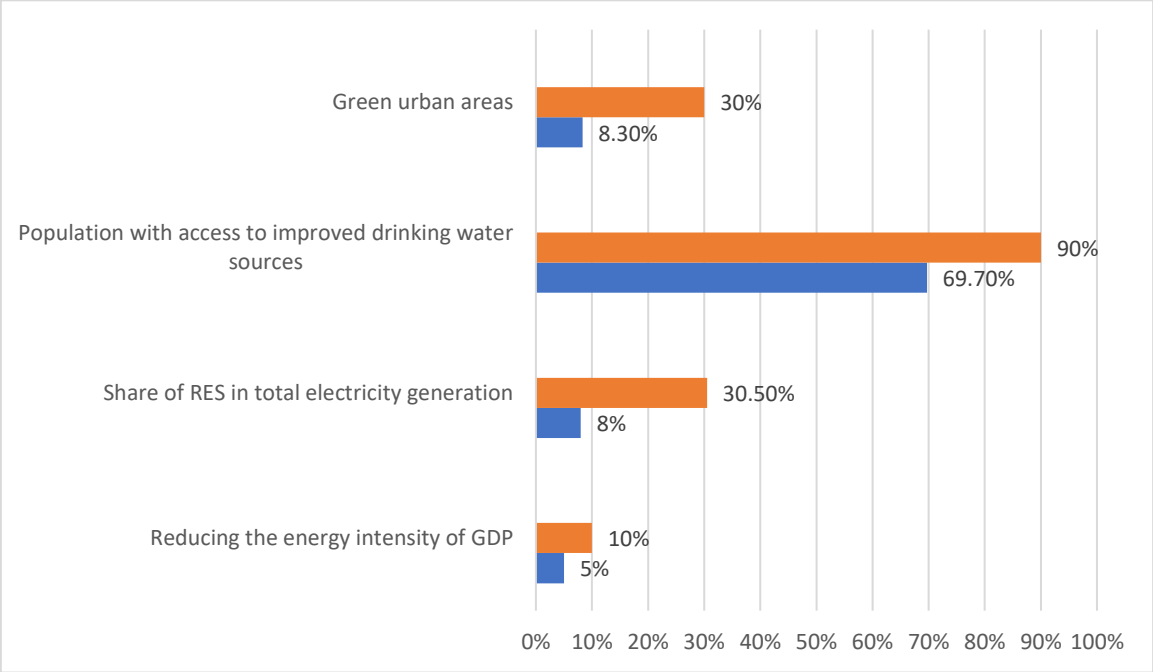

Figure 1. Uzbekistan's transition to a "green" economy 2022-2030

*Data for the figure were taken from World Bank reports, 2023

The infographic visually demonstrates Uzbekistan's projected achievements in developing a "green" economy by 2030 compared to 2022, based on forecasts and data from the World Bank. The strategy focuses on improving energy efficiency, implementing renewable energy sources (RES), and enhancing the quality of life for the population.

In 2022, the capacity of solar power plants was only 10 megawatts. By 2030, an impressive growth to 1500 megawatts is planned. This indicates large-scale investments in solar energy, which is expected to become one of the main drivers of the country's sustainable development. In 2022, renewable sources provided only 8% of the total electricity production. By 2030, this figure is projected to increase to 30.5%, highlighting the country's commitment to decarbonizing the energy sector. Access to quality drinking water is already provided for 69.7% of the population. It is planned that by 2030, this figure will increase to 90%, which will significantly improve sanitation and health in the country. The area of green spaces in cities is also expected to increase significantly – from 8.3% to 30%. This change is aimed at improving urban ecology, improving air quality, and creating a more comfortable living environment.

Nevertheless, investment, and in large amounts, is critical for adapting the economy to climate change. According to the authors of the study (World Bank), Uzbekistan will need at least $340 billion in investment in 3 decades to modernize its completely outdated energy infrastructure.[1] But despite the accuracy of these figures, Shukhrat Bobokhodjaev, Associate Professor of the Department of "Oil and Gas Economics" at the Tashkent branch of the Gubkin Russian State University of Oil and Gas, points out several omissions in the aforementioned report.

"This report fails to consider the actual steps for implementing renewable energy sources (RES) in Uzbekistan, as well as the planned construction of a nuclear power plant in the country in cooperation with the Russian Federation. This project will significantly improve the republic's electricity supply, and the development models proposed in the report need to be substantially revised," Bobokhujaev emphasized. [5]

In our personal opinion, Uzbekistan's transition to a "green" economy has undoubtedly become not just desirable, but a vital transformation. In particular, the report does not sufficiently consider Uzbekistan's actual efforts to implement renewable energy sources (RES), and especially the project to build a nuclear power plant (NPP) in collaboration with the Russian Federation. If this project is successfully implemented, it will significantly increase the stability of energy supply and, consequently, change the predicted development scenarios of the country. A comprehensive approach – acknowledging external forecasts along with reliance on

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internal initiatives – will be the most potentially successful method for discussing the republic's energy and environmental strategy. With a sensible combination of international support and the implementation of its own projects, our country has every chance of becoming one of the leading countries in the "green" transformation in Central Asia.

CONCLUSION

Implementing these plans will allow Uzbekistan to significantly reduce its carbon footprint, improve the quality of life for its population, and make cities resilient to climate challenges. However, without the consolidation of efforts by the state, business, and society, without attracting investment and implementing innovations, the transition to a "green" economy risks remaining on paper only. We are already reaping the first fruits – from an increase in the number of specialists in the field of ecology to the launch of projects with international partners, from new green zones at the bottom of the Aral Sea to reforms in water use. The true strength of Uzbekistan lies in its citizens who believe in their future and are ready to build it. There is sincere hope and enormous potential for how harmony with nature can become the engine of economic growth, and the "green" economy – a fundamental element of a decent life for people in our country.

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