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GREEN ECONOMY AND ITS ROLE IN SOLVING WATER AND ENERGY PROBLEMS IN UZBEKISTAN

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Abstract

"Green" economics as an economic science arose in connection with the need to solve global environmental, economic and social threats facing humanity in the world. At the present stage, the process of ensuring further economic growth without harming the environment is accelerating. The problems of scarcity of limited natural resources are becoming increasingly acute. The world community to a certain extent associates the solution of many aspects of global environmental , economic and social threats with the activation of the "green" economy, using resource-saving innovative technologies, rational use of limited natural resources, development of areas for processing household waste, stimulating technologies that do not pollute the atmosphere, etc. biogas

Keywords: *green economy, environment, natural resources, innovative technology, economic growth, quality of life, demography, solar panels, biogas.*

Introduction. At the present stage, the impact of progressive population growth on the planet is being felt more and more acutely. According to UN forecasts, by 2050 the world's population will grow by almost 30%. Maintaining the achieved level and quality of life of the population in the future will be extremely difficult, which is mainly due to the limited natural resources on the planet and the slower pace of renewal of them or alternative options. In connection with the changes occurring and expected in the near future, it is necessary to radically change the views of traditional methods of resource use, the culture of consumption, investment, solving problems with household and other waste, and choosing priority projects for the future. A wide range of representatives of science, as well as experts, unanimously agree that the "green" economy can become one of the means to solve existing environmental, social and economic problems, but not the only one.

Issues of transition to a "green" economy were actively discussed at the UN Conference on Sustainable Development in 2012 (8), at the 40th World Economic Forum in 2010, in which the "green" economy began to be considered as a promising development of the planet in expected conditions.

Despite the fact that the "green" economy is a relatively new direction in modern science, it attracts public attention to the upcoming negative consequences of environmental management and activates the adoption by states of effective measures for the rational distribution and consumption of limited resources provided by nature to humanity. The main directions of the "green" economy according to generally accepted concepts are:

- application of environmentally friendly technologies in all possible industries;
- organic agriculture;
- efficient energy and water consumption;
- waste disposal;
- environmentally friendly transport, etc.

Materials and methods. The methodology of this article is based on the use of legislative materials, observation methods, generalization of opinions, comparative analysis, international standards, regulatory documents, information from domestic and foreign experts and scientists.

Analysis and results. The main stages of introducing a green economy include:

- allocation of funds for the development of renewable energy sources, reduction of toxic emissions, and so on;
- gradual transition to a circular economy.

The scientific and expert community is unanimous in the opinion that the "green" economy can become a means to solve a complex of existing environmental, socio -economic problems. The current situation is aggravated by the fact that the economy is only part of a complex natural and social system. By nature, the elements of the system are fairly balanced and predictable, but unforeseen human intervention disrupts the predictable balance, which is what is noted now

To transition to a green economy, it is necessary to use both certain economic and financial instruments, as well as the combined efforts of government bodies, the media, cultural and educational bodies in order to purposefully promote the economical consumption of limited resources and a partial transition to renewable resources. In the republic, only in the last two years have environmental problems been brought to the attention of the population more effectively, and the growing shortage of natural resources coupled with rapid population growth. A more effective tool for saving resources will probably be economic levers - an increase in tariff rates for consumed resources. However , this may be accompanied by a deterioration in the quality of life for a significant part of the population. The problem is not that someone can easily afford to spend resources on a grand scale, since they will be able to pay the expenses. The problem is that they are limited worldwide. Uzbekistan is in a water and energy crisis zone, and this is a threat to food security for the country's population.

In international practice, the green growth index has been adopted. A number of developed countries of the world are leaders in this rating. Let's see in what areas and scales this manifests itself:

Denmark - 75.32 points. Denmark focuses on green technologies. Wind power is widely used in Denmark and is one of the cheapest in the country. The country also has high environmental awareness among the population. Ecology here is studied in schools along with other disciplines.

Sweden - 75.09 points. Sweden managed to achieve this result through the active use of renewable energy sources, biomass and hydropower. Sweden proposes a complete abandonment of the heating supply of buildings and homes through the combustion of hydrocarbons, focusing on renewable energy sources, which currently accounts for more than half of the energy supplied to consumers.

Austria -72.32 points. It is a leader in the field of

green construction and technology, its operation. Austria is actively involved in waste management, achieving high rates in Europe. Thus, a waste processing plant in Vienna destroys 250 thousand tons of solid waste every year. The heat released when burning waste is used to heat homes.

Finland - 71.69 points. Finland focuses on the circular economy, introducing technologies for recycling waste and reusing resources into production. In 2019, 65% of packaging and 42% of municipal waste were recycled here. Improving the efficiency of resource use in just a few sectors will provide the Finnish national economy with a growth potential of 2-3 billion euros by 2030.

In October 2019, the "Strategy for the transition of the Republic of Uzbekistan to a green economy for the period 2019–2030" was approved in the republic.

In this regard, a set of measures to develop a "green economy" is being gradually implemented in Uzbekistan. The main directions of the "green" economy in the republic are the following aspects of the economy, ecology, and social sphere. These include:

- rational consumption of limited natural resources, introduction of alternative means;
- inclusion of "green" criteria based on advanced international standards in priority areas of public investment and expenditure;
- assistance in the implementation of pilot projects in the areas of transition to a "green" economy through the development of government incentive mechanisms, public-private partnerships and intensified cooperation with international financial institutions;
- development of a system of training and retraining of personnel related to the labor market in the "green" economy;
- taking measures to mitigate the negative impact of the environmental crisis in the Aral Sea region;
- strengthening international cooperation in the field of green economy.(2)

According to the program of transition to a "green" economy and "green"

Growth until 2030, adopted at the end of 2022, by 2030 the share of renewable energy sources used will be increased to 30% of the total electricity generation in the country. This will be achieved by commissioning wind power plants with a total capacity of up to 5,000 MW and solar photovoltaic power plants with a total capacity of 7,000 MW. (3)

Thus, the stage of transformation of the energy sector has begun in the republic. The energy system of Uzbekistan is the largest in Central Asia.

The total installed capacity of power plants is approximately

14,140.6 MW. About 89.6 % of the total electricity generated within the republic comes from thermal power plants, mainly operating on natural gas. There are 30 hydroelectric power plants with a capacity of 532 MW operating along the watercourse. The reservoirs have 10 hydroelectric power plants with a total capacity of 1.4 GW. The forecast estimate shows that in the period until 2030, the annual growth in electricity consumption in the republic will be about 6-7 percent. By 2030, the republican electricity consumption may amount to 120.8 billion kW. h. At the same time, the population's need for electrical energy will be 21.9 billion . kW. h (growth by 1.8 times by 2018), economic sectors - 85.0 billion kW. h (2.2 times growth by 2018.(7)

Table 1

Structure of installed capacities

Electric stations	Installed power,%
Total for Uzbekistan:	**100**
1. JSC " Uzbekenergo "	85.7
Including:	
- thermal power plants (TPP)	82.8
combined heat and power plants (CHP)	2.9
2 JSC " Uzhydroenergo " (HPP)	13.3
3 Block stations (UGKhK - 96.9 MW and AGMK-36 MW)	1.0

Table 1 shows the structure of installed capacities, which shows the share of enterprises in the country's energy supply .

Due to the presence of significant potential, Uzbekistan plans to actively develop generation based on renewable energy sources, primarily solar energy and wind energy.

One of the options for solving the regulation issue, with limited

water resources, may be the construction of a pumped storage power plant (pumped storage power plant) with a capacity of 1000-1200 MW.

Therefore, to cover peak loads and daily regulation,

mobile power is needed in the energy system of Uzbekistan. Regulation services can also be provided by neighboring energy systems (Kyrgyzstan,

Tajikistan) , naturally at market tariffs . Based on the created

provisions, the republic has adopted the Concept of providing the Republic of Uzbekistan with electrical energy for 2020-2030. Its main goal is to meet the growing need for electric energy at competitive prices and the dynamic development of the electric power industry of the Republic of Uzbekistan through the modernization and reconstruction of existing power plants, the construction of new generating capacities based on highly efficient energy production technologies, improving the electricity metering system, diversifying fuel and energy resources with development of the use of renewable energy sources. The main tasks within the framework of improving the provision of electrical energy to the republic are:

– meeting the republic's need for electrical energy in full through its own generation without being tied to the import of energy resources;

– increasing energy efficiency , saving with a parallel reduction in its energy intensity, through the use of economic mechanisms to stimulate the rational consumption of electrical energy by consumers;

– increasing the energy efficiency of production, transportation and distribution of electrical energy to meet its growing demand;

– reducing the level of wear and tear of electrical equipment by gradually updating it, increasing the reserve capacity of generating equipment and electrical networks;

– development and expansion of the use of renewable energy sources.

- development of an effective basic model of the electric energy market.(7)

As a result, we can expect a decrease in natural gas consumption from 16.5 billion cubic meters. m to 12.1 billion cubic meters. m, while the annual volume of coal combustion will increase from 4.1 million tons to 8.5 million tons. (tab.2)

Table 2

Fuel consumption when generating electrical energy

№	Name of fuel	2019	2025	2030
1	Natural gas (million m³)	15.8	12.7	12.1
2	Coal (million tons)	3.6	8.5	8.5
3	Fuel oil (thousand tons)	204	50	50

An equally important sector of the republic's economy is agriculture, where the transition to organic agriculture and water-saving technologies for watering crops is also being popularized . Organic farming in agriculture involves avoiding the use of herbicides, pesticides, pesticides, and artificial fertilizers. Organic farming products do not contain genetically modified organisms, are processed without the use of E-ingredients and are stored away from contact with non-natural substances.(6)

The production of organic cotton has been established in the republic and an international certificate has been received for it, the area under cultivation is gradually increasing, and foreign demand for it is increasing. At the same time, organic cotton production provides producers with high profits.

In the conditions of the republic at the present time and in the future, the drip method of irrigation of agricultural crops is the most effective .

However , some obstacles that agriculture may face should be taken into account. Now the population of the republic is 37 million people, and according to forecasts, by 2040 the population of Uzbekistan will exceed 42 million, which could create a water shortage of 44–46%.

The main sources of water resources of the republic (80%) are the transboundary rivers Amudarya and Syrdarya. In recent years, the process of using water from these sources by its closest neighbors Kyrgyzstan and Tajikistan has intensified . The construction of a canal in Kosh-tepe by Afghanistan for irrigation of 550 thousand hectares was not envisaged . land for agricultural purposes. The Dashti Jum hydroelectric power station is also planned to be built in Afghanistan by 2030 . Their implementation may lead in the near future to significant economic, environmental and social problems not only in Uzbekistan, but also in Central Asia as a whole.

Conclusions. Thus, the solution to the problem of increasing resource shortages and the inevitable energy crisis is envisaged to be solved by:

- reducing specific greenhouse gas emissions per unit of gross domestic product by 35 percent from the 2010 level ;
- finishing the share renewable energy sources in the total volume of electrical energy production up to more than 30 percent ;
- introduction of water-saving irrigation technologies over an area of up to 1 million hectares;
- expansion of green areas in cities to more than 30 percent;
- increasing the level of processing of generated household waste to more than 65 percent;
--investment projects are assessed for the possibility of reducing the volume of greenhouse gases they emit. (3)

However , alternative energy sources have, relative to traditional energy sources, high costs and certain difficulties in operation and disposal. Naturally, this will lead to an increase in electricity tariffs, which will be accompanied by an increase in prices for all types of goods and services. The solvency of consumers will decrease. Therefore, it is vitally important to provide competent information support to consumers in the country - both legal entities and individuals.

It is also important to strengthen state supervision over the rational use of water by the population, encourage the installation of cold water meters, etc. The media began to conduct information and educational work to raise public awareness about environmental problems and the water and energy crisis.

With the participation of public-private partnerships, smart houses and smart greenhouses are being built, saving water and energy resources. Intensifying the implementation of the principles of a green economy and innovative technologies will help improve the environment, reduce the burden on natural ecosystems, and maintain the proper level of quality of life for residents.

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