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Green Economy Potential in the Organization of Turkic States: Comparison of Economic Indicators

Gulshen Yuzbashiyeva, Samira Abasova, Israfil Yuzbashiyev

Purpose. The main objective of this study is to assess the potential of the green economy to promote economic growth and development in the member states of the Organization of Turkic States (OTS). The object of the study is the OTS countries, and the subject is the analysis of green economy potential and comparison of relevant economic indicators. **Design / Method / Approach**. The research draws on data from international sources, including UNECE, TheGlobalEconomy.com, national statistics of Azerbaijan, and other open datasets. A systems approach, logical generalization, comparative analysis, and cause-and-effect reasoning were applied. **Findings**. The study addresses: (1) the green economy as a category of modern mutually beneficial development; (2) comparison of economic growth and green economy indicators in OTS countries; (3) green economy potential in Azerbaijan; and (4) the experience of green economy implementation in OTS states. The authors identify key challenges and propose recommendations for improving the implementation of green economy objectives. **Theoretical Implications**. All OTS countries show interest in green economy development by attracting investment and creating favorable conditions in industrial zones, agriculture, transport, and tourism. **Practical Implications**. Each OTS member has adopted a strategy for greening the economy and is gradually implementing its elements in alignment with national goals. **Originality / Value**. The study introduces a green economy index, identifies barriers to economic growth and sustainable development, and highlights structural shifts in the economy driven by green economy expansion. **Research Limitations / Future Research**. The main limitation is the lack of a complete statistical base. Nonetheless, the study formulates conclusions and proposes measures to address identified issues. **Article Type**. Applied, empirical research paper.

Keywords:

green economy, Organization of Turkic States (OTS), economic growth, comparison of economic indicators, sustainable development, investment in green economy

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Мета. Головною метою цього дослідження є оцінка потенціалу зеленої економіки для сприяння економічному зростанню та розвитку країн-членів Організації тюркських держав (ОТД). Об'єктом дослідження є країни ОТД, предметом – аналіз потенціалу зеленої економіки та порівняння відповідних економічних показників. **Дизайн / Метод / Підхід**. Дослідження базується на даних міжнародних джерел, зокрема UNECE, TheGlobalEconomy.com, національної статистики Азербайджану та інших відкритих наборів даних. Застосовано системний підхід, логічне узагальнення, порівняльний аналіз та причинно-наслідкове мислення. **Результати**. У дослідженні розглянуто: (1) зелену економіку як категорію сучасного взаємовигідного розвитку; (2) порівняння показників економічного зростання та зеленої економіки в країнах ОТД; (3) потенціал зеленої економіки в Азербайджані; (4) досвід впровадження зеленої економіки в країнах ОТД. Виявлено ключові проблеми та запропоновано рекомендації для покращення реалізації завдань зеленої економіки. **Теоретичне значення**. Усі країни ОТД демонструють зацікавленість у розвитку зеленої економіки шляхом залучення інвестицій і створення сприятливих умов у промислових зонах, сільському господарстві, транспорті та туризмі. **Практичне значення**. Кожна країна-учасниця ОТД ухвалила стратегію озеленення економіки і поступово впроваджує її елементи відповідно до національних цілей. **Оригінальність / Цінність**. У дослідженні введено індекс зеленої економіки, визначено бар'єри економічного зростання і сталого розвитку, а також наголошено на структурних змінах в економіці, викликаних розширенням зеленої економіки. **Обмеження дослідження / Майбутні дослідження**. Основним обмеженням є відсутність повної статистичної бази. Втім, зроблено висновки і запропоновано заходи для розв'язання виявлених проблем. **Тип статті**. Прикладне емпіричне дослідження.

Ключові слова:

зелена економіка, Організація тюркських держав (ОТД), економічне зростання, порівняння економічних показників, Сталий розвиток, інвестиції у зелену економіку

Contributor Details:

Gulshen Zahid Yuzbashiyeva, Head of Department, DSc, Prof., Institute of Economics of the Ministry of Science and Education of the Republic of Azerbaijan: Baku, AZ, ygulshan@hotmail.com
Samira Huseyn Abasova, Lead. Researcher, Assoc. Prof., PhD in Economics, Institute of Economics of the Ministry of Science and Education of the Republic of Azerbaijan: Baku, AZ, samairahuseynqizi@gmail.com
Israfil Habib Yuzbashiyev, Trading & Business Origination, Caspian Sea Region, PhD, SOCAR Trading SA: Geneva, CH, israfil@socartrading.com

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A green economy promotes balanced economic development, considering the use of all key factors: ecology; natural, labor, financial, and production resources; productive forces; production relations; and the interaction between the state and private sector partnerships. The green economy also contributes to improving coordination among all participants and enhancing the well-being of the population. It not only addresses the challenges of economic development but also emphasizes environmental and socio-economic dimensions, thereby ensuring economic growth alongside ecological balance. The OTS countries possess rich natural resources, an adequate level of population education, scientific and production potential, a stable inflow of investments, and a strategic interest in diversification and occupying niches for new goods and services in both domestic and international markets (Table 1).

Table 1 - Commodity Structure of Foreign Trade with the Countries of the Turkic World in 2021, % of total (Gasimli, 2023, p. 285)

	Azerbaijan		Kazakhstan		Kyrgyzstan		Turkey		Total	
	export	import	export	import	export	import	export	import	export	import
Overall	100	100	100	100	100	100	100	100	100	100
Food products and live animals	13.7	12.3	17.5	34.4	15.3	9.8	1.5	3.1	9.6	19.0
Beverage and tobacco	0.0	0.6	1.2	0.2	0.6	0.6	0.0	0.0	0.5	0.1
Non-food raw materials, except fuel	4.9	29.8	4.8	15.9	1.0	8.9	3.4	1.5	3.4	9.1
Mineral fuels, lubricating oils and similar materials	0.4	18.4	0.5	10.5	1.2	27.3	0.6	0.4	0.7	18.6
Animal and vegetable oils, fats and waxes	0.0	0.2	0.0	2.9	0.0	0.0	0.0	0.0	0.0	1.5
Chemical and similar products	1.6	18.6	8.1	2.4	6.9	1.3	7.5	17.5	8.5	7.7
Industrial goods	45.7	17.3	15.0	25.3	33.9	41.5	81.4	16.7	47.5	19.9
Machinery and transport equipment	26.5	0.7	34.6	6.2	4.2	6.8	2.6	47.8	13.0	18.7
Various finished products	4.1	0.3	5.1	0.5	24.1	1.1	0.2	9.3	8.6	3.3
Other goods	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.1	0.1
Services	3.2	1..9	13.1	1..4	2.4	2.8	2.8	3.5	8.2	2.1

The participation of these countries in international organizations, international scientific and technical and technological cooperation, in exhibitions and large interstate projects is based on a comprehensive study of not only legal and economic acts, but also in the development of ICT and telecommunications, which increases the importance of the "green economy" (Accenture & United Nations Global Compact, 2018).

Green Economy as a Category of Modern Mutually Beneficial Economy

The Green Economy Concept, which first introduced a serious critical approach to the value of money and material wealth in the concept of human well-being after the 1960s and defined as an economic foundation, was held in Rio de Janeiro on June 20-22, 2012 and Rio+ 20 has become one of the most topical issues since the United Nations Conference on Sustainable Development (UN-DESA, 2012). Twenty years after the 1992 Rio Conference on Sustainable Development, the concept of "green economy" became the focus of the UN Conference on Environment and Development (UNEP, 2012).

The United Nations Environment Program (UNEP) sees the green economy as a growth strategy that addresses environmental risks and environmental challenges, as well as increasing human well-being and social equality. More specifically, the green economy can be seen as an approach aimed at reducing greenhouse gas emissions, resource efficiency and social development. In a model that can be called a green economy, income and employment can be achieved through reducing pollution and carbon emissions, improving energy and resource efficiency, conserving and enriching biodiversity, and public and private sector investments.

Given that the common future of mankind depends on the cooperation of states, the green economy, which requires a common understanding and common vision, includes the creation of a policy of environmentally friendly growth and development. In order to protect the common future, it must be borne in mind that consensus in the field of environmental and sustainable development must not remain in theory and must be implemented. Accordingly, in October 2012, the United Nations Development Program (UNDP) seminar on "Fiscal Policy in an Inclusive Green Economy" focused on three key areas: environmental protection taxes and duties, energy subsidy revision, and financial reform.

The United Nations Development Program supports the support of investments in the green economy through public spending and political and administrative reforms. In addition, the protection and development of natural assets, which are the main source of capital and are of great value, is extremely important for people who make a living from natural resources (Burkhard & Müller, 2008; UNEP, 2011b).

The term green economy was first mentioned in the Green Economy Plan Report published in 1989 by the London Center for Environment and Economics (UNEP, 2011b). There is no single definition of a green economy, but various international organizations have provided explanations for this concept (GEC, 2019; Duijvestein, 2002; Jabareen, 2006).

UN. A model of economic growth that helps to reduce poverty while maintaining a sustainable economy, ensures the sustainability of a healthy ecosystem, supports sustainability in the process of production and consumption, contributes to the creation of new employment opportunities, and enhances social welfare.

UNEP. It is about ensuring human well-being and social well-being while reducing environmental risks and shortages. In addition, the green economy includes issues such as efficient use of resources, reducing carbon emissions, and improving the social situation.

UNESCAP. Ensuring economic growth by focusing on the environment, reducing carbon emissions, and addressing social issues.

OECD. An environmentally friendly green economy is about achieving economic growth and development after ensuring the long-term use of natural resources based on human well-being. In addition, the green economy must support growth and contribute to investment and innovation to increase economic opportunities to achieve sustainable development.

WB. It is a concept of economic growth that reduces the conditions that cause environmental problems, uses resources efficiently, does not harm living things in nature, and does not slow down development.

G20 Platform. A model of sustainable development, the Green Economy is a growth model that allows old technologies in various sectors to be replaced by new technologies that are less harmful to the environment and increase energy efficiency.

"Green" and "greening" (Table 2) are used for sustainability and related issues where energy and resource efficiency are central elements of green economy. The deterioration of the ecological situation in Europe due to air pollution and water supply led to the study of the ecological situation in the industrial cities of Europe. In the 1980s, the reports The Limits to Growth introduced the idea of sustainable economic growth; Our Common Future demonstrated it was possible to reconcile economic growth, environmental preservation, and social development; and the New Urbanism Movement advocated ways to limit dispersed urban expansion of cities by using more environmentally friendly urban design practices such as walkable neighborhoods, mixed land use, and transit-oriented developments (TODs) (Brilhante & Klaas, 2018; Duijvestein, 2002; Jabareen, 2006).

The green economy is a new and developed mechanism based on an innovative system of economic activities that enhances social welfare and ensures competitive but responsible business growth. The green economy, which stimulates transformation, encourages and facilitates progress towards the three pillars of sustainable development. More than 60 countries around the world are moving towards a green economy, and many want to achieve their ambitions in the next 10 years. Leading governments in this transition are breaking the traditional line of thinking that there is an inevitable

compromise between economic progress and environmental sustainability, and instead demonstrate significant opportunities for investment, growth and security (Environmental Management Group, 2019; Kuloğlu & Öncel, 2015; Tjallingii, 1996).

Table 2 - Difference between brown and green economy (based on the analysis of existing literature on brown and green economy)

Brown economy	Greening	Green economy
Traditional economic growth	Economy growth's planning	Separating economic growth on natural resource using
Non-renewable energy sources	Control on energy sources' using	Renewable energy sources
Intensive consumption of natural resources	Optimization of natural resource using	Energy efficiency
Destruction of biodiversity	Biodiversity controlling	Biodiversity protection
Unlimited consumption (over consumption)		Sustainable consumption
Lack of Corporate Social Responsibility of Businesses and Investors	State monitoring, marketing regulation and financial controlling	Corporate Social Responsibility of Businesses and Investors

In the long run, investing in green economy policies will result in faster economic growth. A green economy will overcome challenges such as energy shocks, water scarcity and ecosystem loss, and investments will be directed more to employment and agricultural productivity, which will lead Green economy and Green Finance to poverty reduction (Maran & Nedelea, 2017). Mechanisms that provide a green economy, such as renewable energy, a green business and technology-friendly environment, and the training of a skilled and agile workforce, are also the driving force and outcome of the transition. The creation of low, medium and highly skilled jobs is just one of the short-term benefits of the transition to a green economy. Other opportunities for governments include improving the health and well-being of the population, leading to higher productivity and reducing healthcare costs. The transition to a green economy requires special conditions. These favorable conditions include the government of national economies, domestic and foreign policy, subsidies and support, as well as international markets and legal infrastructure, trade and technical assistance to developing countries. Steps are now being taken through the green economy against the dominant brown economy, which is overly dependent on natural resources, depleting them and degrading the environment. There are two equally important aspects of the transition to a green economy: greening the brown economy and green growth. Any brown economic sector can be greened through the application of clean, efficient and innovative technologies. Green growth should be stimulated by investing in new green industries.

If ecology means the study of home (environment), then economics is the science of housekeeping. The economy of countries has always depended primarily on natural resources, their quality and availability (UNDESA, 2012). As Mamedov notes, the deep connection between economics and ecology became apparent when the reverse impact of the changes made by people on man and his economy became obvious (Mamedov, 2003). J.-B. Lamarck, E. Reclus in 19th century, V. Vernadsky at the beginning of 20th century in their works pointed out the determining role of the environment on the economy. K. Marx studied the connection between capital and labor, but did not pay attention to natural resources, their potential and possibilities. With any economic activity, natural resources are depleted, and the effect of environmental pollution appears. Since the economy itself is a multifactorial process, it is studied using complex multidisciplinary methods that take into account the political and social aspects of economic development within the framework of natural and social sciences. W. Jevons and L. Walras, as well as T. Veblen and A. Salleh, considered some aspects of the green economy from both the marginalist and institutionalist perspectives.

The goal of any national socio-economic development strategy should not be limited to growth and development, but must also address global social challenges. GDP per capita reflects how much is spent on health care, but it does not capture the outcomes of these expenditures, that is, the actual state of public health, which is better indicated by average life expectancy. GDP may increase, yet the overall effectiveness of the health care system can decline, and the health of the population may deteriorate. Similarly, relying solely on average GDP per capita provides an incomplete picture of well-being. Therefore, it is crucial not only to correctly use green economy indicators but also to plan appropriate strategic and tactical actions (Yuzbashiyev, 2010). Implementing a green economy policy aims to ensure sustainable growth and development of the national economy, enhance security, address social challenges, and prioritize solutions to environmental and climate change issues.

Economic growth and green economy indicators — comparison of OTS countries. In the theory of economic growth, quantitative indicators are more often addressed, and then qualitative components. In the green economy, the main indicator has become the qualitative component of economic growth and development. The quantitative criterion of growth is ensuring sustainable rates of GDP growth. Qualitative characteristics of growth are factors of economic growth that ensure the growth of the people's well-being, reduction of differentiation in the standard of living of the population, reduction of mortality, increase in life expectancy, improvement of the environment, increase in competitiveness, etc. (Yuzbashiyeva, 2010). Many countries have differences in the structure of their national economies, and there is uneven development among sectors and branches of economy, in regional development, and among enterprises and the working population. These problems increase the importance of coordination to solve future problems. It should be noted that sustainable development means meeting current needs without compromising the needs of future generations.

This is achieved through balanced socio-economic-ecological growth and development, which creates the foundations for sustainability and the transition to a "green" economy, the essence of which is to improve people's well-being, social equality and reduce the impact of environmental risks in conditions of uncertainty. Innovative and inclusive growth, the use of "green" GDP, in which the environmental component is strengthened. If the indicator of green economy GDP is negative, this demonstrates a low level of use of energy from renewable sources, low quality of ecology, underdevelopment of ecotourism, a small number of protected natural resources in the territory of the state (Abasova, 2015; Abasova et al., 2020). As is known, the indicators of economic growth are the growth of GDP, the growth rate of GDP, and the growth rate of production. The main indicators of economic development are: sectoral structure, GDP per capita, production of basic products per capita, the standard and quality of life of people. Let's consider some of them (Table 3).

Table 3 - Economic indicators by OTS countries in 2023 (Humanitarian Portal, 2025; TheGlobalEconomy.com, 2024; UNECE, 2024)

	GDP, current, billions. $	Number of employed populations, million people	Annual labor productivity Thousands, $/person	100%	Population size, million people	Current GDP per capita, $ per year	Share of employed population, %, 2023	Share of employed population, %, 2024
Turkey	1118.25	31.632	7.63	-	85.326	13105.66	37.1	48/152
Azerbaijan	72.36	4.963	14.58	4.2	10.11	7125.91	49.1	66/31
Kazakhstan	261.42	9.082	28.79	8.3	19.9	13136.68	45.64	65/38
Kyrgyzstan	13.99	2.656	5.27	1.5	7.1	1970.42	37.41	63/47
Uzbekistan	90.89	13.865	6.56	1.9	36.41	2496.29	38.08	54/124
As an observer of the activities of the OTS								
Turkmenistan	59.89	2.120	28.25	8.2	6.52	9185.58	32.52	46/158

As can be seen from the data in Table 3, there is high labor productivity in Kazakhstan (28.79 thousand $/person) among OTS countries. Azerbaijan has low values - 14.58. However, there are no significant differences in the share of the employed population.

Thus, the share of employed population in Turkey is 37.1%, in Azerbaijan - 49.1%, in Turkmenistan (32.52%), in Uzbekistan (38.08%), in Kyrgyzstan (37.41%). All this demonstrates the feasibility of increasing efficiency, productivity and effectiveness. The importance comes from the fact that the significance of environmental issues, uncertainty in global development, the impact of digitalization and artificial intelligence are increasing, which is reflected in the indicators of economic growth and development.

The processes of greening, digitalization and socio-economic development of any country are reflected in the indicators of economic growth and development of the country, which are subject to certain changes (Yuzbashiyeva et al., 2023). These changes have qualitative characteristics, not quantitative ones, as they ensure sustainability, competitiveness, inclusive growth and development of the country. Economic growth leads to an increase in the physical volume of production, an improvement in the quality of final product, and simultaneously affects the standard and quality of life of population, the technological structure and efficiency of production factors (Yuzbashiyeva et al., 2023). It is important to combine the influence of the country's economic, social, technical, technical and ecological development.

The main risks in the country's economic development are (Yuzbashiyeva, 2010): climate and environmental problems, instability, problems from the use of digitalization and artificial intelligence technologies, cybersecurity, lack of information and disinformation, income polarization, local wars, sanctions, inflation, migration, volatility of raw material prices, volatility of industrial production, etc.

All of this is reflected in the formation of GDP (reduction in the volume of expenditure on investment and consumption). Innovative technologies influence the content of work and lead to the disappearance of some professions and the emergence of new ones. Changes may occur in economy structure: in the sphere of employment (growth in the number of jobs associated with the "green" economy); creation of new markets (Abasova et al., 2020) and types of activity; in the investment and innovation sphere; regional development based on the creation of new industries and jobs; growth of social investments in the conditions of competition (Yuzbashiyeva & Abasova, 2022) and the transition to digitalization.

In turn, digitalization leads to inclusive and sustainable growth. This requires optimal distribution of investments between economic sectors, as it ensures the transition to a "green" economy, the application of ESG standards. In the context of decreasing uncompetitiveness of industries and markets, it is necessary to diversify the economy. On the other hand, it is expedient to increase funding for scientific and technical and technological research and development that stimulates economic growth and development. The issues of high-quality economic growth and development create the foundations for sustainability and stability, which determines the green economy (Yuzbashiyeva et al., 2022).

The creative potential of workers in a green economy should be directed towards filling technological gaps through local technological changes. The products produced may be at a lower technological level, but they will fill the gaps in the final consumption sphere (Yuzbashiyeva et al., 2025).

The quality-of-life index consists of 8 indicators: (1) PPİ — purchasing power index; (2) Sİ — safety index; (3) HCİ — health care index; (4) CLİ — cost of living index; (5) PPİR — property price to income ratio; (6) TCTİ — traffic community time index; (7) Pİ — pollution index; (8) Cİ — climate index (Table 4). Data for Kyrgyzstan and Uzbekistan are not available.

As shown by the data in Table 5, Azerbaijan and Kazakhstan occupy average positions on this index (63rd and 72nd place). Safety index in Azerbaijan is higher (68.4) than in Turkey (59.1) and Kazakhstan (54.1). But health care index in Azerbaijan (47.7) is lower than Kazakhstan (60.1) and Turkey (70.7). Cost of living index is either for all OTS countries. The situation in Azerbaijan and Kazakhstan has improved, but there is still much to be done. Azerbaijan Government is doing a lot of work in this direction, which is reflected in this quality-of-life index (increased investment in education, healthcare, solving environmental problems, reducing the complexity of military issues, etc.).

Based on the importance of the current situation, Azerbaijan Government is carrying out certain work to improve the situation and reduce the country's dependence on resources (Abasova, 2015). As a result of the work carried out by the Government of the country, the foundations for increasing sustainability, competitiveness and efficiency have been created in order to complicate the economic structure (Yuzbashiyeva et al., 2024). A foundation has been created that provides conditions for Azerbaijan to become a developed country and is included in the group of countries with an above-average income.

Table 4 – Quality-of-life index in 2024 (Numbeo, 2025)

	Place	Index	PPI	SI	HCI	CLI	PPIR	TCTI	PI	CI
Turkey		123.6	39.3	59.1	70.7	33.8	12.5	44.1	64.7	93.3
Azerbaijan	63	109.8	29.4	68.4	47.7	31.1	14.4	39.1	73.1	91.4
Kazakhstan	72	98.4	36.8	54.1	60.1	33.5	10.4	35.8	73.6	39.8

Note: PPI - purchasing power index; SI - safety index; HCI - health care index; CLI - cost of living index; PPIR – property price of income ratio; TCTI – traffic commute time index; PI - pollution index; CI - climate index.

Table 5 - Indicators of economic development of Azerbaijan (AzStat, 2024; Imanov, 2017)

	2020	2021	2022	2023	2024
GDP, million $	42693.0	54825.4	78807.5	72356.2	74.3 billion $
Volume of raw materials export, million $	13732.6	22208.0	38146.7	33898.6	
GDP, %, environmental protection expenditures	0.33	0.27	0.23	0.29	0.30
Environmental protection costs, million manat/million $	240.6/141.5	246.0/144.7	281.6/165.7	358.57/210.9	376.87/221.7
GDP growth	- 4.3	5.6	4.7	1.1	4.1
"green" GDP, million $	28818.9	32472.7	40495.1	38246.7	
"green" GDP, % of GDP	67.5	59.2	51.4	52.9	
Human Development Index (HDI)	0.756/88	0.745/91	0.750/92	0.760/89	
Environmental Performance Index	46.5/72	-	88.60/104	40.4/121	40.5/121
Cost of living index	33.0	30.9	39.6	31.2	30.9
Health Index	58.87	44.0	32.0	47.1	48.3
Investments in fixed assets, billion $	10.1	9.9	10.5	12.5	
Network Readiness Index	48.76/66	47.56/76	-	-	46.08/75

Note: Economic development indicators were calculated by G. Yuzbashiyeva and I. Yuzbashiyev using the method of K. Imanov (Imanov, 2017).

Opportunities of Green Economy in Azerbaijan

As the President of Azerbaijan Mr. I. Aliyev said at the COP29 meeting (11-22 November 2024): "... we will resolutely advocate for a "green" transition, and we are doing this. But, at the same time, we must be realistic" (Official website of the President of the Republic of Azerbaijan, 2024). The growth of the non-oil sector contributes to the replenishment of the budget, increasing sustainability, efficiency and effectiveness. The quantitative criterion for growth is ensuring sustainable GDP growth rates. All measures taken by the Government of Azerbaijan contribute to the creation of the foundations of a "green economy". The "green" GDP index shows economic growth taking into account environmental pressure (Table 3).

As shown in Table 5, economic indicators are improving. For example, GDP has increased, and its rate was 4.1% in 2024, the human development index and the network readiness index have improved. Not only is there an increase in environmental spending in GDP, but environmental pressure on economic growth is also growing. The European Bank for Reconstruction and Development (EBRD) has assisted in the preparation of an investment program with a total financing volume of US $232 million for the reconstruction and modernization of AzGRES (the country's largest thermal power plant) by providing a loan of US$207 million.

The project includes:

(1) reconstruction of all turbines and boilers and modernization of the control and monitoring system using EBRD funds;

(2) repair of one section of the cooling tower and the water-cooling system;

(3) implementation of environmental, health and labor protection measures.

The use of "green" GDP promotes clarity and comprehensibility in definitions, which creates certain advantages. It should be noted that negative values indicate losses in value rather than profitability. Also, the assessment of environmental component of "green" GDP index is carried out using economic indicators, which simplifies and facilitates the conceptual apparatus (Yuzbashiyeva, 2025).

According to S&P forecasts, the average annual GDP growth of Azerbaijan in 2025-2027 will be 2%. The agency forecasts the nominal volume of Azerbaijan's GDP in 2025 at 127 billion manat (US$75 billion), in 2026 - 132 billion manat (US$78 billion), in 2027 - 137 billion manat (US$81 billion). According to the forecasts of the Azerbaijan government, "GDP growth in 2024 will be 4.2%, in 2025 — 3.5%, in 2026 — 2.8%, in 2027 — 3.8%. S&P believes that the manat exchange rate against the dollar will remain unchanged until 2028.

"We forecast that Azerbaijan will maintain the peg of the manat to the US dollar at 1.7 manat per 1%, supported by regular interventions by the authorities in the foreign exchange market. However, if hydrocarbon prices fall sharply and remain low for a prolonged period, we assume that the authorities will consider adjusting the exchange rate to protect the central bank's foreign exchange reserves from a significant decline" (S&P Global, 2025) the agency notes.

Experience of applying green economy in OTS countries

Azerbaijan

Ecologically sustainable socio-economic system adopted in Azerbaijan in 2003. The state program based on development covers all important environmental aspects. This program includes clean atmosphere, water resources, and land resource saving. In 2004 Azerbaijan government adopted state program on the use of alternative energy sources: using wind energy and the construction of wind power plants. Azerbaijan's industrial cities have been using a variety of methods since the 1960s to prevent emissions. It is also planned to increase the number of metro stations operating to 60 in 2040. The Green Growth Strategy like as branch of Green Economy Concept, was adopted by the Azerbaijan Government of in 2005.

This strategy initially included four priority areas: (i) rational model of production and consumption; (ii) "greening" of enterprises and markets; (iii) sustainable infrastructure; (iv) "green" tax and budget reforms. Later, two more were added to these directions: (v) investments in natural capital; (vi) indicators of environmental efficiency. It will currently support low-carbon production in Azerbaijan, resource-efficient a policy that will ensure the use and transition to a socially inclusive economy performed.

İn 2009 were established "Alternative and Renewable Energy" State Agency for Sources (hereinafter referred to as ABOEMDA) and "Alternativenerji" LLC. Out Household waste as a result of structural reforms and the State Program Combustion Plant, about 10 hydropower plants in the regions, 5 in Khizi city and in Absheron peninsula created a wind power plant, a hybrid power plant in Gobustan, a lot of Heat pumps and solar panels have been installed at facilities located in the regions.

As a result, 65 MW of wind energy with a total installed capacity of 260 MW, 126 MW hydroelectric power, 39 MW biomass and waste, 32 MW solar power plants were built and put into operation. At the same time Sumgayit city Technology Plant and Azguntex solar panels enterprise for solar panels' production was built. Table 6 demonstrates SWOT analysis of green economy implementation in Azerbaijan by S. Abasova.

Table 6 - SWOT analysis of green economy implementation in Azerbaijan (author's own development)

S - Strengths	W - Weaknesses
The presence of 2 artificial satellites in Azerbaijan will create conditions for the development of the ICT sector and meeting the demand for smart technologies in digital campuses. According to EBRD, new types of containers, expansion of the existing fleet and the introduction of more environmentally friendly vehicles will be provided, which will significantly reduce the carbon footprint of municipal services of the Ganja city. The presence of green urban-type housing estates in Azerbaijan (Sumgayit, Mingachevir city experience, Baku boulevard) will stimulate the development of living standards in accordance with health requirements.	Weak promotion of smart/green economy concept among the population. Lack of smart/green urban promotion among preschool and high school students. Insufficient activity of local authorities and municipalities on environmental propaganda. Lack of propaganda among the population on separate waste collection.
O - Opportunities	**T - Threats**
Construction of Sumgayit and Mingachevir cities from scratch and creation of smart modern residential complexes there. Partial application of technologies for the movement of smart traffic lights in cities, water and heat supply, gas supply management, as well as the regulation of public transport on demand by ICT. Existence of water treatment system for the population created based on German technologies in Baku and Sumgayit. Creation of green belts in Baku for more than 100 years. European Bank of Reconstruction and Development (EBRD) has allocated 10 million euros for smart waste collection and route optimization systems in Ganja city.	Decrease of water in the basin where the Kura River flows into the Caspian Sea because of construction of modern reclamation systems for arable lands and flooding of the seashore. Mass felling of trees in Baku for the last 30 years.

However, despite this, user knowledge of technology, e-commerce and e-payment systems is limited and trust in such systems is low. While all the problems listed above can be solved through advanced technology and technical solutions, the main obstacle is management. For the successful implementation of the concept of a smart/green city, the population in these cities must cooperate with local authorities and play an active role in making decisions about the fate of the city. Smart/green city concept can't work without the participation of the population and their voice.

One of the main problems in Azerbaijan is the use of a monocentric model in the process of governance and urbanization. Observations of the current situation in Baku show that the management of such a large metropolis in the traditional way is inefficient, and there is a need to resort to new innovative management methods based on digital technologies. There is a great need for digital technology management of traffic congestion, waste and utilities. The weakest sub-sector in which Azerbaijan lags behind many countries is the level of use of knowledge and technology. Although digital systems such as e-government, e-education, e-banking, e-medicine have been created, their comprehensive use of high-speed internet and information technologies is required for their use in accordance with modern standards.

Establishment and effective management of smart/green settlements should establish mechanisms for public relations with municipalities and local authorities, and attention should be paid to increasing the civic role of the population. Bringing municipalities

and local communities together can play a key role in building the first stone of a smart economy.

"In recent years, important steps have been taken in Azerbaijan towards the transition to a "green economy". In accordance with the UN Sustainable Development Goals, our country has achieved significant success in the field of expanding renewable energy sources, energy efficiency, etc. In the National Priorities, which provide the vision of Azerbaijan until 2030, sustainable development and environmental protection are defined as one of the main goals. This document contains specific environmental goals, such as accelerating our country's transition to a green economy, efficient management of natural resources, reducing carbon emissions, adapting to climate change and increasing energy efficiency" M. Babayev noted (Bayramova, 2024).

It should be noted that EU4Environment helps Azerbaijan develop green investment strategies, prepare final versions of the Law "On Strategic Environmental Assessment (SEA)" and the Law "On Environmental Impact Assessment (EIA)". EU4Environment (EU4Environment, 2025) also promotes regulatory reform, supports compliance, enhances policy dialogues on green finance and investment, supports public environmental expenditure management, assesses and strengthens administrative capacity, and develops green growth indicators (GGIs).

United Nations to ensure sustainable development, efficient use of resources, as well as equitable distribution, and play a key role in economic development for each country. As a result of cooperation since 1992, several projects have been implemented to increase social welfare and minimize environmental problems.

On March 1, 2021, an agreement covering the years 2021-2025 was signed between the UN Country Group and the Republic of Azerbaijan. The main priorities of the documentary (United Nations, 2021): (1) Development of institutions in the provision of social services. (2) Formation of a society with a gender structure. (3) Protect the environment by protecting against climate change. (4) Ensuring sustainable inclusive growth. The fifth business framework plays a key and stimulating role in achieving sustainable development.

The Government of the Republic of Azerbaijan and the World Bank Group signed an Agreement on Cooperation on November 2021. The main purpose of the agreement was to establish and operate an office of the World Bank in Azerbaijan. This cooperation will play an important role in ensuring socio-economic development and achieving the goals of green and sustainable development. It should be noted that the World Bank has financed more than 50 projects in Azerbaijan to improve the social situation of the population, create new jobs, develop the business environment, increase the competitiveness of agricultural products, develop human capital, and improve the social situation of IDPs. $4.4 billion has been allocated for sustainable development (World Bank Group, 2021).

On February 16, 2022, the European Union and the World Bank signed an agreement for Azerbaijan Rapid Technical Assistance Facility. This agreement Support the development of institutions Improving economic development and market relations Protecting the environment, ensuring energy efficiency allowing for mobility and people-to-people contacts. The main goal of the project is to support the measures taken under the 2030 socio-economic development strategy of Azerbaijan and to provide analytical analysis and advice. €5.25 million has been allocated for the project. Cooperation with the World Bank plays an important role for the Republic of Azerbaijan in developing a green economy, accelerating socio-economic development, ensuring sustainable development, and preventing environmental problems.

Turkey

In 2012, Türkiye tried to maintain its economic balance in an environment of uncertainty stemming from the ongoing recession in the European economies and the political and economic problems prevalent in its neighboring countries. In 2012, the recovery in the global economy could not reach a sufficient level, and basic macroeconomic and financial problems continued.

Turkey, which has an important place in the global economy, is suitable with regards to sectoral diversity, wide production opportunities, modern logistics infrastructure, strategic placement, and qualified workforce, and constitutes a center of attraction in terms of foreign direct investments. Generally, foreign direct investments consist of direct capital investments that cover long-term decisions and long-term portfolio investments. Mainly in recent years, the country's power to attract investment has increased even more in the uncertainties and transformation process of the world economy (Gasimli, 2023, pp. 314–320).

With the elimination of borders with globalizing trade, developing countries are trying to attract foreign capital to their countries due to the lack of domestic savings. Foreign direct capital of Turkey does not only contribute to the capital insufficiency of countries, but it also contributes to the country's economy by providing know-how, technology transfer, and employment directly. Foreign direct investments in Turkey between 2011-2021 have been evaluated. Turkey continues to be an investment attraction center with its widespread R&D centers, intense state incentives in this area, production of innovative products, and strong technological infrastructure. FDI continues to increase the land sea and air transportation to Europe, Asia, and Middle East, constituting a logistic base.

To prevent the negative effects of the COVID-19 epidemic in 2020, the Ministry of Treasury and Finance made some arrangements with the Economy Stability Shield Package announced. Within the scope of the package, sectoral reductions were made in tax rates, the implementation of the accommodation tax was postponed, the existence of force majeure was accepted for taxpayers operating in sectors that were severely affected by the epidemic, and the submission and payment periods of concise, VAT and social security declarations were extended, and all income taxpayers were included in the scope of force majeure, credit conditions were loosened. The scope of the package has been expanded with new measures taken in line with emerging needs (Gasimli, 2023, pp. 222, 235). Within the scope of the Medium-Term Program (2021-2023), it is foreseen that in 2021, in proportion to the success achieved in the fight against the epidemic, the budget revenue collection will increase and a partial tightening will be made by making savings in the areas determined by the efficient use of resources. Furthermore, income -and expenditure-oriented policies were implemented throughout the year, taking into account inflation and demand conditions.

In 2021, within the scope of combating the economic and social effects of the epidemic, there was an increase in expenditures due to the measures implemented to support the real sector and households. However, a strong recovery was observed in income collection as a result of the widespread use of vaccination and the gradual relaxation of the measures taken against the pandemic. In 2021, revenues exceeded expectations, and expenditures were in line with the targets (Gasimli, 2023, p. 234). In June 2022, the International Labor Organization reported that Türkiye could increase its GDP by $8 billion and create more than 300,000 new jobs by 2030 through investments in renewable energy (TRT Global, 2022). In 2022, the EBRD allocated €500 million to Turkey to develop the green economy. The Industrial Development Bank of Turkey (Türkiye Sınai Kalkınma Bankası) was the first bank to benefit from the GEFF programme, with €53.5 million (Kaya, 2022; Yilmaz et al., 2025).

On 28 May 2025, the 4th Poland-Turkey Economic Forum was held in Istanbul, focusing on the theme "Green Technologies and Energy Transformation." Key areas of cooperation included energy, renewable energy sources, chemical industry, contracting services, automotive industry and auto components, medical tourism, agriculture, animal husbandry, infrastructure, ecology, waste management, and logistics. Turkey and Poland are strengthening their collaboration in green energy through joint initiatives aimed at creating sustainable energy systems and combating climate change (Yilmaz et al., 2025). Turkey is set to become the world's 10th largest country in terms of renewable energy capacity, driven primarily by wind and solar power plants. Renewable energy capacity in Turkey is expected to grow by 64% between 2022 and 2027, reaching 90 gigawatts, making it the fourth-largest renewable energy market in Europe and the tenth-largest globally (TRT Global, 2022).

Kazakhstan

The source of long-term economic growth to effectively implement, among other things, the state's social obligations to provide jobs and encourage private businesses in the small and medium-sized enterprise category are large enterprises and national mega-projects. Thus, during the period of independence, according

to public information from regional executive authorities, more than 130 major projects worth 4,425.95 billion tenge have been implemented in Kazakhstan in various sectors of the economy.

Some of them are:

– Construction of a copper ore mining and smelting facility in the East Region of Kazakhstan, commissioned in 2017.

– Modernization and reconstruction of the Shymkent oil refinery, with a capacity of 6 million tons of products per year.

– Construction of a mining and processing complex in the Pavlodar Region, with a capacity of 100,000 tons of concentrate per year, started in 2015.

– Gas-processing Plant-2 in the Aktobe Region, launched in three stages (2008, 2015, 2018), with a capacity of over 500,000 tons of gas, 4 million tons of marketable gas, and 3 million tons of marketable oil per year.

– Opening of a tourist and hotel complex in Aktau, Mangystau Region.

– Launch of a wind power plant in the Akmola Region, built according to green standards, with a capacity of 100 MW.

– A hydrocarbon stabilization and purification unit in the West Kazakhstan Region, with a capacity of 2.57 million cubic meters per year, commissioned in 2011.

– Construction of a cement plant in the Almaty Region, completed in 2020.

– Launch of a mining and processing complex and the Koktaszhal deposit in the Karaganda Region, with a capacity of 3 million tons of ore per year.

– Construction of an international airport in the Turkestan Region.

– Opening of a large-panel reinforced concrete factory in Astana in 2016, with a capacity of 134,000 cubic meters per year.

– Construction and commissioning of a cement plant in the Kyzylorda and Zhambyl Regions, with a capacity of 2 million tons of cement per year.

– A small-section rolling mill in Kostanay, with a capacity of 450,000 tons per year.

– An automotive plant in Almaty, launched in two phases, with a capacity of 45,000 units per year as part of an industrial zone.

– Launch of flour and pasta production in the North Kazakhstan Region, in 1998.

Within the framework of Kazakhstan-Türkiye cooperation 61 projects amounting to 2 billion tenge have been implemented, most of them in Almaty city and Almaty region-21 projects, in Shymkent city and Turkestan region-12 projects and in Astana city-7 projects. For example, *Swissgrow Tarim Gida Ambalaj* – organic mineral fertilizer production; *LC Waikiki* – opening and operating of shop chains; *Anadolu Endustri Holding* – soft drink production; *Nobel Pharmaceuticals* – pharmaceuticals production; *Royal Hijyen ve Saglik Urunleri* – nappy production; *YDA* – airport construction and operation; *Aselsan Elektronic* – electronic and electro-optical devices production; and others.

In 2020, taking into account the new reality both in the world and at home, Kazakhstan has formed a "new agenda" of economic development of Kazakhstan until 2025 (actively reforming approaches in the state sectoral policy). For example, in the sphere of agriculture 7 large ecosystems with a focus on the food industry, as well as the development of the fishing industry are to be formed. This year, 51 agro-industrial projects (production and processing of meat, cereals, milk and others) worth 48.7 billion tenge have been launched, creating more than 0.9 thousand new jobs. Sixty agricultural cooperatives have been established, including 55 cooperatives for the production and processing of livestock products. In industry and infrastructure, more than 1,000 projects are expected to be launched, creating more than 5,000 new jobs. (Gasimli, 2023)

As a result of legislative reforms, Kazakhstan was able to significantly accelerate the development of renewable energy, making RES an important component of its energy balance and sustainable development strategy. Today, there is a stable growth in the share of electricity produced by RES. Excluding large hydroelectric power plants, the share of renewable energy sources in the total volume of electricity production in 2023 was 5.82%, with the volume of energy generated to 6.6 billion kWh. It should be noted that since 2014, the installed capacity of renewable energy sources has increased more than 16 times - from 178 MW to 2868 MW by the end of 2023.

According to the results of the first half of 2024, 148 renewable energy stations with a total installed capacity of 2903.7 MW are already successfully operating in Kazakhstan. These stations include 59 wind power plants (WPP), 46 solar power plants (SPP), 40 hydroelectric power plants (HPP) and 3 bioelectric power plants (BioPP). Together, they account for 6.47% of the country's total electricity production, making a significant contribution to Kazakhstan's energy balance and confirming the country's commitment to developing sustainable and environmentally friendly energy sources. According to the Concept for the Transition to a Green Economy, the task is to reduce the energy intensity of the country's GDP by 25% by 2025 and by 50% by 2050 (from the 2008 level). It should be noted that the 2025 indicator was achieved ahead of schedule: in 2021, a reduction in the energy intensity of GDP by 38.5% from the 2008 level was achieved.

Industry. The goal is to reduce energy intensity by 10% by 2029. This involves the introduction of energy-efficient technologies and the modernization of production processes in large industrial enterprises.

Energy. In this sector, it is planned to reduce energy intensity by 5% by 2029. This is planned to be achieved by optimizing energy infrastructure, improving production technologies and energy distribution.

Transport. The concept also covers measures to reduce energy intensity in the transport sector, which includes a transition to more environmentally friendly and energy-efficient modes of transport (PAGE, 2020). The lack of sustainable finance is one of the biggest obstacles to greening the economy. The average annual gap in long-term green finance is estimated at $2.3 billion, with the EBRD, the European Investment Bank (EIB) and the European Union (EU) providing the bulk of green finance (PAGE, 2020; KazISS, 2024).

Uzbekistan

Investment cooperation between Uzbekistan and the countries of the Turkic World is developing dynamically. Major projects are being implemented within the framework of cooperation in this area. The analysis of investments by industry showed that the largest share (65%) is invested in the manufacturing industry. A high share of investments was in agriculture (13% of the total investment). Investments in housing and communal services and nutrition accounted for 9.3%, construction 6.5%, public administration, wholesale and retail trade 1.5% and 1.3%, respectively. Turkish entrepreneurs have invested in water supply, sewerage and waste collection as well as in healthcare. 50 projects worth $594.55 million have already been implemented, 39 projects worth $985.88 million are under implementation, 21 projects worth $758.4 million are still scheduled to be completed (Gasimli, 2023, p. 308).

As of the beginning of 2022, five major energy projects with a total capacity of 1.4 thousand megawatts have been implemented jointly with Turkish companies over the past year. The second combined-cycle unit of the Navoi thermal power plant with the participation of the Turkish company Calik Enerji has been put into operation. In March 2022, a 240-megawatt thermal power plant was launched in the Qibray district of Tashkent region and the construction of a thermal power plant in the Khavast district of the Sirdaryo region has started.

At the same time, over the past five years, after Uzbekistan began large-scale reforms in all spheres of life, regional cooperation and interaction between the countries of the region in various areas, including in the water and energy sector, has significantly expanded. There is also an expansion of cooperation in the energy sector with Kazakh stan and Turkmenistan. Together with Tajikistan, Uzbekistan plans to build 2 hydroelectric power plants with a capacity of 320 megawatts on the Zarafshan River and expressed its readiness to participate in the construction projects of the Kambar–Ata (Kyrgyzstan) and Rogun (Tajikistan) hydroelectric power plants.

An important step in developing common approaches of the countries of the region to the rational and efficient use of resources can be the adoption of the regional program "Green Agenda", which will lay the foundation for sustainable "green" development of the entire region (Gasimli, 2023, pp. 308–309). Uzbekistan creates Engineering and Technology Centers based on existing specialized organizations of the OTS countries. Their activities will be aimed at the formation of value chains and the development of joint projects based on the principles of competitiveness.

Turkey takes active part in improving of digitalization processes in various fields and the creation of a permanent platform for experts and IT specialists to exchange experience and transfer innovations to create "smart" cities. Turkey modernized the energy sector of Uzbekistan. This project will provide an additional 71 billion kWh of electricity. Twelve billion cubic meters of natural gas per year will be saved. It is important to cooperate in environmental issues and environmental protection, first at all, to improve the situation around the Aral Sea. Joint efforts are required in the transition to a new, innovative and technological model of development, including the introduction of "green", environmentally friendly, energy-saving and safe technologies, the implementation of initiatives to mitigate the consequences of environmental crises and environmental protection for sustainable development. Initiatives are aimed at forming a permanent Platform of experts and IT specialists as well as an environmental protection structure of the Turkic States with headquarters in the Aral Sea region, the region most affected by the environmental disaster. "Development Strategy of the New Uzbekistan for 2022-2026" has got a separate goal: "Raising to a high level of close cooperation in the field of security, trade and economic, water, energy, transport and cultural and humanitarian spheres in Central Asia."

Uzbekistan has successfully addressed several green economy challenges through the following measures:

– to expand mutually beneficial cooperation in the energy sector, with particular attention to the introduction of "green" energy and energy-efficient technologies;

– to hold regular meetings of agriculture ministers of the countries in the region and to develop a regional food security monitoring system;

– to develop a regional program, *Green Agenda for Central Asia*, which would contribute to the adaptation of the countries in the region to climate change, as well as to the wider introduction of resource-saving technologies;

– to create a Center for Research on Trade Cooperation of the Turkic States, tasked with developing proposals for eliminating trade barriers, promoting the widespread introduction of e-commerce, and increasing exports and imports;

– to strengthen industrial cooperation and implement major investment projects, including the establishment of an Investment Fund and a Development Bank of the Turkic Council, the creation of Engineering and Technology Centers based on specialized organizations of member states to develop joint projects, and the holding of the *Week of Industry of the Turkic States* in Uzbekistan in 2022;

– to create a permanent platform of experts and IT specialists for the exchange of experience and transfer of innovations for the creation of smart cities, including the organization of an expert conference in 2022;

– to promote the practical implementation of the joint program *One Tour–the Whole Region*, covering the entire spectrum of tourist destinations.

In order to implement the objectives defined in the Development Strategy of the New Uzbekistan for 2022–2026, a series of measures is being undertaken to ensure green and inclusive economic growth, as well as to further expand the use of renewable energy sources and resource-saving technologies across all sectors of the economy. Key legislative and strategic documents have been adopted, including the Laws *On the Use of Renewable Energy Sources* and *On Hydrometeorological Activities*, the Concept of Environmental Protection of the Republic of Uzbekistan until 2030, and the Strategy for the Transition of the Republic of Uzbekistan to a Green Economy for the Period 2019–2030. In 2023–2024, a green energy certificate system was introduced to control the quality of products and processes produced using environmentally friendly technologies and renewable energy sources, among other initiatives. By 2030, Uzbekistan aims to reduce greenhouse gas emissions by 35% per unit of GDP.

Kyrgyzstan

The state policy framework of the republic contributes to the development of a green economy and stimulates the private sector in transitioning to green business principles. The state policy agenda envisages the following measures (Gasimli, 2023):

– involvement of mass media, especially state and public outlets, to raise awareness among businesses and the population, and to promote the green agenda aimed at fostering environmental responsibility and transforming the culture of thinking;

– organization of awareness-raising activities for the private sector on the introduction of green practices through specialized regional training structures;

– revision of outdated state standards, construction codes, and regulations inherited from the Soviet period, which currently hinder the application of green economy principles, particularly regarding energy efficiency and conservation in the construction sector;

– promotion of green fiscal measures in the new edition of the Tax Code of the Kyrgyz Republic, along with the development of mechanisms for their implementation through private sector participation;

– ensuring the sustainability and continuity of state policy promoting green economy principles, with particular emphasis on the energy and agriculture sectors;

– advancement of data-driven measures for green economy development;

– promotion of potential green initiatives to support sustainable business within the Eurasian Economic Union (EAEU);

– intensification of efforts to attract sustainable financing in the Kyrgyz Republic, including the establishment of a green financial corporation;

– development of a green taxonomy to facilitate the inflow of green investment into the Kyrgyz Republic;

– consolidation of efforts and increased private sector participation in developing climate adaptation measures and fostering a sustainable business environment;

– creation of financial instruments and engagement of the financial sector in implementing the climate and green economy agenda.

At the UN Conference on Sustainable Development "RIO+20" in 2012, Kyrgyzstan expressed its commitment to sustainable development through the promotion of "green economy" priorities. Currently, the Kyrgyz Republic is pursuing an active policy aimed at forming and strengthening its economic potential in accordance with the main strategic guidelines and objectives set out in the National Sustainable Development Strategy. The strategic sectors of the economy in the Kyrgyz Republic include agriculture, manufacturing and processing industry, energy, mining, transport, construction, and tourism. In the industrial sector, there is a need to increase the potential of manufacturing enterprises by reducing energy costs, creating mechanisms to stimulate the introduction of resource-saving and low-waste technologies, ensuring the rational use of local labor resources, and minimizing environmental impacts. The presence of its own mineral resource base is a great advantage for the Kyrgyz Republic, and its development can significantly increase the country's GDP and tax revenues to the state budget. Particular attention should be paid to toxic waste storage facilities that remain in the country after the closure of mining enterprises and require significant financial investments to maintain them in proper condition and eliminate negative impacts. The priority areas of this sector are the modernization of management (administration) of the mining industry, harmonization and increased efficiency of the legal regulation system, improvement of the system of access to subsoil use rights and subsoil use administration, improvement of the taxation system, reduction of environmental impacts, mitigation of potential conflicts (relations with the local population), training of professional personnel, and support and stimulation of small mining businesses. In the field of tourism, the current tasks remain the creation of conditions for the formation of sustainable and competitive tourism products and services while preserving cultural and historical sites and ensuring minimal negative environmental impact, as well as increasing the effectiveness of state regulation of tourism industry development.

At the national level, it is recommended to take measures to increase the human and institutional capacity of all key stakeholders to develop a green economy in the country and to integrate the principles of a green economy into education, fiscal policy, tariffs, public procurement, and subsidies (PAGE, 2017). It is also necessary to provide support to the Government in conducting economic valuation of natural capital and ecosystems, as well as in building an effective monitoring system in accordance with international and national development strategies.

Conclusions

The essence of applying the principles of a green economy lies not in whether economic growth or competitiveness increases or decreases. The green economy promotes not only economic growth but also genuine development, taking into account the conservation of the planet's resources for future generations. The GDP indicator alone does not reflect the true nature of public welfare. Until now, economic growth has largely relied on borrowing from future generations — achieved at the expense of natural resources and environmental degradation. Such practices effectively make future generations poorer, even though this is not captured by GDP. In this context, the green economy should advance the following key components:

– The essence of the green economy lies in improving human well-being, promoting social equity, and reducing environmental risks under conditions of uncertainty. Therefore, innovative and inclusive growth, along with the adoption of "green" GDP, are of key importance.

– A balanced integration of ecological considerations with economic growth and national development contributes to reducing environmental problems, enhancing sustainability, increasing resource-use efficiency, and reinforcing the overall importance of the green economy.

– The green economy fosters higher efficiency and effectiveness, improved governance, better coordination among stakeholders, and ultimately greater public well-being.

– The growing influence of the green economy drives structural transformations across all sectors of the national economy.

– The Green GDP Index reflects economic growth while accounting for environmental pressures and resource depletion.

– The green economy is not limited to the use of renewable energy sources. It is a broader conceptual framework aimed at establishing and implementing new production and consumption models that differ fundamentally from traditional ones, ensuring not only profit generation but also the fulfilment of societal needs.

– The assessment of the environmental component within the Green GDP Index relies on economic indicators, thereby simplifying and streamlining the conceptual framework.

– Enhancing efficiency and governance effectiveness will create the foundation for inclusive growth and development — providing equitable socio-economic opportunities for all members of society and enabling the realization of their creative potential. Such growth and development will also support structural adjustments in the economy in line with global trends.

To solve existing structural problems, a systematic approach is essential because it affects modernization, efficiency, and diversification and thus increases national competitiveness and sustainability. For this purpose, the following methodological toolkit is advisable: divergence (a structured study of the current situation); convergence (an assessment that identifies commonalities and consolidates findings); and transformation (an analysis of the problem structure with the aim of identifying independent components that should be modified in response to changes in the external environment). A systemic approach therefore entails not only identifying existing shortcomings but also defining them precisely, detecting previously unrecognized system elements, and determining a sequenced program of changes designed to achieve qualitative improvements in development.

Technological innovation, and the manner of its deployment, is critical for enabling industry to generate new commercial value while also delivering benefits to people and the environment. Green employment is a specific dimension of green economic development that integrates economic and environmental objectives. In recent years manufacturing firms have advanced their efforts toward sustainable manufacturing, shifting from narrow pollution-prevention measures to integrated approaches that incorporate product lifecycle perspectives and wider socio-environmental implications. Eco-innovation supports this evolution by combining technological and non-technological advances that can produce substantial environmental benefits.

Financial and institutional mechanisms are most often used to achieve sustainable development goals. The implementation of green projects typically foresees state support from the budget or financing from development institutions; however, a persistent problem is the lack of guaranteed payment streams from budgetary organizations or local authorities. In international practice, that problem is addressed by establishing specialized green funds or dedicated legal entities with the prospect of subsequent capitalization. Primary financing sources for such vehicles may include budgetary resources (direct and indirect state and utility investments), credit instruments of international organizations (e.g., technical assistance), and carbon taxation. Empirical experience shows wide variation in financing structures: international development institutions have provided between 20% and 80% of initial capital for national green banks/funds (for example, Kazakhstan and Kyrgyzstan, respectively); central governments' shares have ranged from about 10% to 80% (for example, Uganda and Zambia); and private capital participation typically ranges from 10% to 30% (for example, Kenya, Kyrgyzstan, Mongolia). In addition, private philanthropic and quasi-public instruments that supply grant-based capital (for example, crowdfunding or voluntary contributions) can also be mobilized.

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