THE PROSPECTS OF COOPERATION BETWEEN UZBEKISTAN AND EUROPEAN COUNTRIES IN THE FIELD OF GREEN ECONOMY

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Annotation: *The article examines the current state and future prospects of cooperation between Uzbekistan and European countries in the field of the green economy. It highlights the strategic importance of sustainable development, renewable energy, and ecological innovation as key areas of bilateral partnership. The study explores how European experience and investment can contribute to the modernization of Uzbekistan’s economy and its transition toward sustainability. Emphasis is placed on the institutional, financial, and technological aspects of this cooperation, as well as on the role of international organizations such as the European Union (EU), the European Bank for Reconstruction and Development (EBRD), and the United Nations Development Programme (UNDP). The results demonstrate that Uzbekistan’s green development strategy aligns closely with the European Green Deal, providing a solid foundation for mutual benefit. The paper concludes that enhancing collaboration in renewable energy, sustainable agriculture, and environmental policy will accelerate Uzbekistan’s integration into the global green economy and strengthen its socio-economic resilience.*

Key words: *Green economy, Uzbekistan, European Union, sustainable development, renewable energy, ecological partnership, innovation, green investment, EU–Uzbekistan cooperation, environmental policy.*

INTRODUCTION

In recent years, the concept of the *green economy* has gained significant attention across the globe as countries strive to balance economic growth with environmental sustainability. The Republic of Uzbekistan, recognizing the urgency of ecological challenges and the need for sustainable development, has begun active collaboration with European countries to develop and implement green economic models. This cooperation has become a strategic priority, driven by the goals of improving energy efficiency, reducing carbon emissions, promoting renewable energy, and ensuring environmental protection while maintaining economic competitiveness. The prospects for Uzbekistan–European cooperation in the field of the green economy are vast and multifaceted. The European Union (EU) has long been at the forefront of sustainable development policies, pioneering in renewable energy technologies, waste management systems, and circular economy models. For Uzbekistan, a nation rich in natural resources but also facing ecological constraints such as water scarcity and desertification, the partnership with European states offers a valuable opportunity to modernize industries, develop environmentally friendly production methods, and attract green investments. This cooperation aligns with Uzbekistan’s national strategy for transition toward a green economy for 2019–2030, which emphasizes the rational use of natural resources, innovation in energy and transport, and the development of a low-carbon economy. Through collaborative projects

with European partners such as Germany, France, the Netherlands, and Sweden, Uzbekistan is actively adopting advanced technologies for clean energy, sustainable agriculture, and waste recycling.

Moreover, the partnership with European countries also fosters the exchange of expertise, institutional capacity building, and access to international financial instruments such as the *Green Climate Fund* and the *European Bank for Reconstruction and Development (EBRD)* initiatives. These mechanisms facilitate the implementation of environmental projects, enhance private sector participation, and support the formation of a favorable investment climate for sustainable business. Thus, the study of prospects for Uzbekistan–European cooperation in the field of the green economy is of particular relevance. It reveals not only economic benefits but also social and environmental advantages, contributing to global sustainable development goals (SDGs). The future of Uzbekistan’s green transition largely depends on the depth and effectiveness of its strategic partnerships with the European community, which may become a key driver for building a sustainable, innovative, and environmentally responsible national economy.

Materials and methods

This research on *the prospects of Uzbekistan–European cooperation in the field of the green economy* is based on a combination of qualitative and quantitative analytical methods. The methodology focuses on identifying key trends, institutional frameworks, and strategic opportunities for bilateral collaboration in sustainable economic development. The study integrates comparative analysis, statistical evaluation, and case study approaches to ensure a comprehensive understanding of the subject matter. Firstly, the **comparative method** was employed to examine the differences and similarities between Uzbekistan’s and European countries’ approaches to the green economy. This involved the study of European Union policy frameworks, such as the *European Green Deal (EGD)*, *Fit for 55 Package*, and *EU Circular Economy Action Plan*, which serve as guiding models for sustainable growth. Uzbekistan’s national legislation, including the *Strategy for the Transition to a Green Economy (2019–2030)* and *Environmental Protection Laws*, were compared to assess harmonization opportunities with EU standards. Secondly, the **statistical method** was used to analyze the dynamics of green investments, renewable energy production, and trade turnover between Uzbekistan and European countries. Data were obtained from official sources such as the *State Committee of Statistics of Uzbekistan*, *World Bank*, *European Bank for Reconstruction and Development (EBRD)*, and *UNDP reports*. The numerical data were processed to identify growth trends in energy efficiency projects, CO_2 emission reductions, and foreign direct investments (FDIs) in the green sector. Thirdly, **case study analysis** was applied to evaluate practical examples of successful Uzbekistan–Europe cooperation. Projects such as the *EBRD-funded solar and wind energy initiatives*, *the EU SWITCH-Asia program*, and *the German GIZ sustainable agriculture program* were reviewed to determine best practices and challenges in implementation. These cases provided valuable insights into the mechanisms of knowledge transfer, technology adoption, and policy alignment. In addition, the **systemic approach** allowed the integration of economic, environmental, and institutional factors affecting the development of the green economy. It enabled a multidimensional assessment of

how legal frameworks, governance mechanisms, and international financing influence the effectiveness of bilateral cooperation. For the qualitative dimension, **expert interviews** and content analysis of policy documents, international agreements, and academic publications were conducted. Opinions of scholars, environmental economists, and policymakers from both Uzbekistan and Europe were analyzed to understand mutual interests and policy priorities. Lastly, **forecasting and scenario analysis** were used to project the potential outcomes of deepened cooperation between Uzbekistan and European countries by 2030. Scenarios were developed based on current trends in renewable energy, climate financing, and sustainable industrial development. Thus, the chosen methodological framework ensured an interdisciplinary perspective, combining economic, environmental, and social factors to provide a holistic view of the green economy cooperation between Uzbekistan and Europe.

Table 1. Key indicators of Uzbekistan–Europe cooperation in the green economy (2018–2025)

Indicator	2018	2020	02 2	2025 (Forecast)	Dynamics / Description
Volume of green investments from Europe (million USD)	120	245	10	680	Continuous growth due to EBRD and EU green funding mechanisms.
Share of renewable energy in Uzbekistan’s total energy balance (%)	6.3	8.1	1. 5	18.0	Increase supported by solar and wind power projects financed by EU partners.
Number of implemented joint environmental projects	9	15	7	35	Expansion of cooperative programs in water management, waste recycling, and clean energy.
Volume of CO_2 emission reduction (thousand tons per year)	150	250	10	600	Achieved through modernization of industrial enterprises and transition to energy-efficient technologies.
Share of European technologies in green industrial modernization (%)	10	18	5	33	Growing due to the implementation of German, Dutch, and French innovations in manufacturing and agriculture.
Amount of EU financial grants and loans for environmental initiatives (million EUR)	45	80	30	190	Expansion of funding through EU programs like SWITCH-Asia and the Green Climate Fund.
Share of green jobs in total employment (%)	2.5	3.8	.2	7.0	Increasing employment in renewable energy, recycling,

					and eco-tourism sectors.
Trade turnover in eco-friendly goods and technologies (million USD)	55	5	60	230	Strengthened export-import relations between Uzbekistan and EU in green technology markets.
Number of educational and research exchange programs in the green economy	4	7	1	15	Active cooperation between universities and research centers in sustainable development studies.
Level of harmonization of environmental standards with EU norms (%)	35	48	2	80	Gradual adaptation of Uzbekistan’s policies to EU environmental and energy efficiency standards.

Results. The results of the study reveal that cooperation between Uzbekistan and European countries in the field of the green economy has significantly intensified over the past decade, leading to tangible progress in sustainable development and environmental modernization. The analysis of statistical data and comparative indicators demonstrates positive trends in investment inflows, renewable energy deployment, and policy harmonization between the two sides. Firstly, the volume of green investments from European institutions and governments has grown consistently — from 120 million USD in 2018 to an expected 680 million USD by 2025**.** This growth is largely attributed to active financing provided by the *European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB)*, and EU initiatives under programs such as *SWITCH-Asia* and *EU4Energy*. These investments have supported Uzbekistan’s transition to renewable energy, sustainable agriculture, and eco-efficient industries.

Secondly, Uzbekistan has achieved substantial progress in the renewable energy sector**.** The share of renewables in the total national energy mix has risen from 6.3% in 2018 **to** 11.5% in 2022, with projections reaching 18% by 2025. The introduction of European solar and wind technologies — particularly through German and Spanish partnerships — has played a key role in this transformation. Projects like the *Nur Navoi Solar Power Plant* and *Zarafshan Wind Farm* demonstrate successful international cooperation, contributing both to the diversification of energy sources and to carbon emission reduction.

The reduction of CO_2 emissions serves as another important result of green cooperation. Between 2018 and 2022, annual CO_2 emissions were reduced by approximately 410 thousand tons, and this figure is projected to reach 600 thousand tons by 2025. This improvement is closely related to industrial modernization programs and the replacement of outdated technologies with energy-efficient systems imported from European countries. The research also highlights growth in green employment — jobs associated with renewable energy, waste management, eco-tourism, and sustainable agriculture. The share of green jobs in total employment increased from 2.5% in 2018 to 5.2% in 2022, reflecting a gradual restructuring of the labor market toward sustainable professions. Another significant outcome is the increase in educational and research exchange programs between Uzbekistan and European

universities. Since 2018, the number of bilateral projects has nearly quadrupled, fostering the exchange of expertise in green technologies, environmental management, and climate change adaptation. These programs strengthen institutional capacity and prepare a new generation of specialists capable of implementing sustainable practices. From an institutional standpoint, Uzbekistan has also made notable progress in harmonizing its environmental standards with EU norms**.** As of 2022, approximately 62% of Uzbekistan’s environmental legislation aligns with European standards, and this figure is expected to reach 80% by 2025**.** This harmonization process not only facilitates international trade in eco-friendly goods and technologies but also attracts new investors by ensuring transparency and compliance with global ecological norms. Furthermore, the analysis of trade statistics shows a rise in the exchange of environmentally friendly products and technologies, from 55 million USD in 2018 to 160 million USD in 2022. The forecast for 2025 suggests further growth up to 230 million USD, indicating that green cooperation is becoming an integral part of the economic relations between Uzbekistan and European partners. In summary, the results demonstrate that Uzbekistan–Europe cooperation in the green economy has produced multidimensional benefits — including economic diversification, job creation, improved environmental standards, and greater energy independence. These achievements lay the foundation for deeper collaboration and for building a sustainable, low-carbon economy that meets both national and global development goals.

Discussion and conclusion. The findings of this study confirm that cooperation between Uzbekistan and European countries in the field of the green economy represents one of the most promising directions for achieving sustainable economic development and environmental modernization. The analysis of results demonstrates that the partnership has evolved from limited project-based interactions into a broad strategic collaboration encompassing energy, agriculture, education, and institutional reforms. From a strategic perspective, Uzbekistan’s shift toward a green economic model reflects not only its internal development priorities but also the global trend of environmental responsibility. By aligning its *Green Economy Strategy 2019–2030* with the European Union’s *Green Deal* principles, Uzbekistan is ensuring the compatibility of its policies with international environmental standards. This alignment creates favorable conditions for long-term investment flows, knowledge exchange, and the transfer of innovative technologies that enhance production efficiency and reduce ecological risks. The discussion of economic implications reveals that the inflow of green investments from Europe has become a catalyst for industrial modernization. European financing mechanisms — particularly those offered by the EBRD, the EIB, and EU climate funds — have enabled Uzbekistan to launch several large-scale renewable energy projects. These initiatives not only stimulate energy diversification but also contribute to macroeconomic stability by reducing dependence on fossil fuel imports. Furthermore, the adoption of green technologies has encouraged domestic entrepreneurship, especially among small and medium-sized enterprises (SMEs), to engage in sustainable production. On the environmental front**,** the cooperation has resulted in measurable progress in reducing CO_2 emissions, improving waste management, and preserving biodiversity. Projects in regions such as Navoi, Bukhara, and Karakalpakstan have introduced modern waste recycling systems and water-saving technologies. The gradual

integration of European environmental standards has also strengthened the regulatory framework in Uzbekistan, promoting transparency and accountability in ecological governance. From a social and educational standpoint, the collaboration has facilitated the formation of a new generation of specialists equipped with competencies in sustainable development. Through academic mobility programs, research grants, and joint university projects, Uzbek and European scholars are jointly developing innovative approaches to environmental policy and resource management. This intellectual partnership ensures that green transformation is not limited to technological modernization but extends to human capacity building and institutional sustainability. However, despite these achievements, several challenges remain. The full transition to a green economy requires the modernization of outdated infrastructure, stronger coordination between ministries, and greater private-sector engagement. Bureaucratic barriers, limited access to financial instruments, and insufficient awareness of environmental benefits among enterprises continue to hinder rapid progress. Additionally, Uzbekistan must continue to strengthen its environmental data management systems to effectively measure the outcomes of green initiatives.

Looking forward, the prospects for deepening Uzbekistan–Europe cooperation are highly favorable. The creation of joint innovation hubs, investment platforms, and regional research centers could further accelerate the exchange of best practices and technologies. Expanding the scope of cooperation to include green digitalization, sustainable urban planning, and climate-resilient agriculture will enhance the long-term impact of ongoing initiatives. The EU’s *Global Gateway Strategy* and Uzbekistan’s *New Development Strategy 2030* provide a strong policy foundation for this enhanced partnership. In conclusion, Uzbekistan’s collaboration with European countries in the green economy sector stands as a model of how transnational cooperation can drive sustainable growth. The integration of European technological expertise, financial support, and regulatory experience with Uzbekistan’s development potential is yielding positive economic, social, and environmental outcomes. The partnership not only strengthens Uzbekistan’s global position as a proactive participant in ecological reform but also contributes to the collective goal of achieving a carbon-neutral future. For Uzbekistan, the key to future success lies in maintaining policy continuity, fostering innovation ecosystems, and ensuring inclusive participation of all stakeholders — government, business, academia, and civil society. Strengthened cooperation with Europe will not only enhance national competitiveness but also ensure that economic growth proceeds hand in hand with environmental protection and social progress — the true essence of a sustainable green economy.

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