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GREEN TECHNOLOGY-ORIENTED INVESTMENTS – ACHIEVING SUSTAINABLE DEVELOPMENT THROUGH THE IT SECTOR

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ABSTRACT

This article analyzes the role of investments in green technologies in achieving sustainable development through the information technology sector. The IT sector is considered a crucial factor in increasing energy efficiency, reducing waste, and ensuring environmental sustainability through innovative solutions. The article discusses best practices, challenges, and solutions to improve investment efficiency.

KEYWORDS

Green technologies, information technology, sustainable development, investments, energy efficiency, environmental innovation.

Introduction

One of the most pressing challenges facing humanity today is the disruption of ecological balance and the depletion of natural resources. The green economy is an economic system aimed at protecting the environment, efficient use of resources, and achieving sustainable development. Transitioning to a green economy and achieving sustainability is possible with the help of information technology. These technologies assist in improving energy efficiency, conserving resources, reducing waste, and implementing environmental monitoring. The integration of IT and the green economy plays a significant role not only in protecting the environment but also in ensuring economic growth.

In Uzbekistan, complex measures are being gradually implemented to deepen structural changes, modernize and diversify the basic sectors of the economy, and ensure balanced socio-economic development across regions. For instance, the Presidential Decree No. PQ-4477 dated October 4, 2019, approved the 'Strategy for Transition to a Green Economy in the Republic of Uzbekistan for 2019–2030.' In 2018, Uzbekistan ratified the Paris Agreement adopted on December 12, 2015, committing to reduce specific greenhouse gas emissions per unit of GDP by 10% compared to 2010 levels by 2030. However, insufficient energy efficiency, irrational use of natural resources, slow technological innovation, and the low involvement of small businesses in implementing innovative green solutions pose serious obstacles to achieving the country's sustainable development goals. To overcome these challenges, it is essential to apply low-carbon development and resource-saving principles across all economic sectors, introduce clean and efficient technologies, and integrate approaches based on sustainable agriculture.

Literature Review. Global warming, air and water pollution, and the increasing volume of waste are steering humanity toward green, i.e., environmentally friendly and sustainable technologies. The concept of a 'green' economy gained widespread attention in academic literature in 1989 through the UK report 'Blueprint for a Green Economy.' It was seen as an approach that integrates economic growth with ecological sustainability and social justice. In 2008, the UNEP officially recognized the green economy concept and promoted it as a means to improve both ecological stability and economic efficiency while reducing poverty.

Foreign scholars such as D. Pearce, E. Barbier, and G. Atkinson laid the theoretical foundations of the green economy concept. Researchers like Ornela Danushi, Stefano Forti, and Jacopo Soldani conducted systematic reviews of sustainable software development in ICT, while Jinsong Wu, Song Guo, Huawei Huang, William Liu, and Yong Xiang examined the impact of ICT on sustainable development goals. Local researchers such as Elshod Umarov, Ruslan Shodmonov, Sherzod Mustafakulov, A. Zokirov, Sh. Ghaniyev, and M. Turaqulov have explored Uzbekistan's transition to a green economy, the importance of government policy, legal frameworks, and the role of small and medium-sized enterprises in promoting innovation.

Methodology

This article employs case study methods focusing on two main approaches: green technology-oriented investments and paths to achieving sustainable development through the IT sector. In the last 15 years, new mechanisms and tools for environmentally-focused investments have been developed. The Institute of Forecasting and Macroeconomic Research has analyzed the financing of such green projects globally and in Uzbekistan.

According to the latest report by the Global Landscape of Climate Finance, the total volume of climate-related financing reached $632 billion during 2019–2020. Of this, $321 billion came from public sources, while $310 billion was funded by private sources.

Currently, there is a noticeable increase in the activity of “green” financing in Uzbekistan. While it was previously provided in the form of specific projects and grants from international financial institutions, in recent years other instruments such as “green” loans and bonds have also been introduced. In July 2021, the government became the first within the CIS and among the pioneers globally to issue Sovereign SDG Bonds aimed at financing the Sustainable Development Goals, placing them on the London Stock Exchange. These bonds, amounting to 2.5 trillion Uzbek soums (approximately 235 million USD) with a 14% yield, were issued for a term of three years. The funds raised are directed towards implementing activities and projects targeting nine specific national sustainable development goals, including objectives related to “green” development.

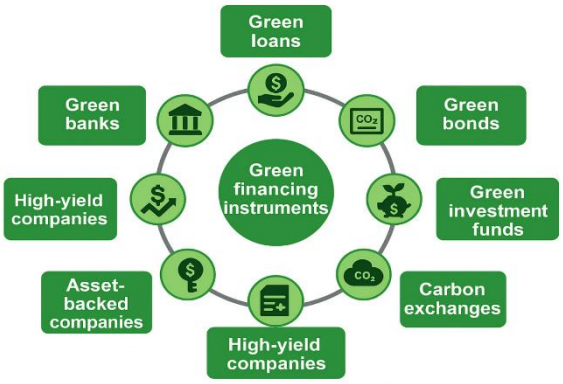


Figure 1. Key instruments for financing "green" projects.

Green financing instruments are diverse, enabling enterprises to attract investments without government involvement, derive financial benefits from "green" activities, and reduce (or eliminate) environmental pollution.

In this process, information technology is becoming a vital tool. Investments directed toward the IT sector can contribute not only to technological progress but also to environmental sustainability. Green technologies are those that help reduce negative environmental impacts and promote the efficient use of energy and resources. The main types include:

- Renewable energy sources (solar, wind, biogas);
- Energy-saving devices and systems;
- IT solutions for electronic waste recycling;
- Environmental monitoring systems, i.e., technologies enabling online observation of environmental conditions.

To ensure these technologies operate effectively, they must be integrated with information technologies. In recent years, significant progress has been made in Uzbekistan in attracting investments directed toward green technologies. Through government policy and international cooperation, several initiatives aimed at transitioning to a green economy and protecting the environment have been implemented. Below are the main actions and achievements in Uzbekistan:

1. Investments in green and renewable energy sources. The government of Uzbekistan is paying significant attention to renewable energy sources, especially solar and wind energy. Projects utilizing solar energy are being implemented in several regions of the country. For example, the construction of a large solar power station has begun in the Navoi region. Plans are also in place to expand the use of wind energy in the northern and western parts of Uzbekistan.

2. Legislation supporting green technologies. In 2021, Uzbekistan developed laws aimed at ensuring the transition to a green economy. Tax incentives, grants, and subsidies have been introduced to promote the development of green technologies. Financial instruments based on ESG (Environmental, Social, Governance) principles are being expanded to encourage green investments.

3. Waste recycling systems in cities. In several Uzbek cities, waste recycling systems are being introduced. In Tashkent, the construction of new plants for waste sorting and processing is planned.

The Tashkent Ecological Economic Zone (Tashkent-Ecozone) is being established to implement projects on waste recycling, green building technologies, and other environmental initiatives.

4. Creating a sustainable transport system. Electric vehicles and eco-friendly transportation are becoming more popular in Uzbekistan. The government has introduced special tax incentives to promote electric vehicles. Particular attention is being paid to the development of environmentally friendly transport in Tashkent and other major cities.

5. Sustainable agriculture and water-saving technologies. Innovative technologies are being introduced in Uzbekistan's agriculture sector to save and use water more efficiently. Water-saving systems and technologies help optimize water resources in agriculture. Projects are being implemented to attract investments through “smart irrigation systems.”

6. Cooperation with international organizations. Uzbekistan, in partnership with the World Bank, International Monetary Fund, and other international organizations, has implemented programs to develop green technologies. Scientific and practical research is being conducted at the International Green Energy Center of Uzbekistan on energy efficiency and renewable energy sources.

7. Issuing green bonds and developing ESG investment mechanisms. New mechanisms are being developed in Uzbekistan’s economy to issue green bonds and attract ESG investments. These bonds help raise funds for renewable energy and ecological infrastructure projects.

Green technologies consist of innovations aimed at efficiently using resources, reducing waste, and ensuring sustainable development without harming the environment. Below are the challenges and solutions for increasing efficiency in the green economy.

Challenges:

1. **Limited financial resources.** Many enterprises or governments lack sufficient investment to implement green technologies. These technologies can be costly at the initial stage.
2. **Underdeveloped technological infrastructure.** Infrastructure required for IoT, artificial intelligence, or big data technologies (e.g., internet, servers, sensors) is lacking in many areas.
3. **Shortage of specialists.** There is an insufficient number of qualified personnel who can work at the intersection of green technologies and IT.
4. **Weak legislative and political support.** Not all countries have laws, tax incentives, or grant programs supporting green technologies.
5. **Low public awareness.** There is not enough promotion and education about green technologies and environmental safety.

Solutions:

1. **Implementing new projects and technologies through public-private partnerships (PPP).**
2. **Diversifying sources of financing.**Attracting funds from international financial institutions (World Bank, OPEC, AIIB), green bonds, and ESG investments.
3. **Using artificial intelligence to reduce waste and control water/electricity consumption.**
4. **Strengthening education and training programs.** Preparing specialists in the field of green IT through universities and IT centers.

5. **Raising awareness through information technology.** Promoting ecological culture via mobile applications, web portals, and social media.

Analysis and Results

The study presented detailed information about the main institutions involved in the development of a "green" economy, their functions, and their roles in this process (as shown in the table). The effective functioning of these structures is a critical factor for the successful implementation of the strategy to transition to a green economy.Improving the organizational and economic mechanisms for developing a green economy in the country involves implementing a set of measures necessary to ensure environmental sustainability and maintain continuous economic growth. By nature, the green economy includes economic activities aimed at protecting the environment, rational and efficient use of natural resources, and reducing the volume of waste.

Table 1. Key organizational structures involved in the development of the "green" economy

Organization Name	Main Function	Role in Development
Ministry of Energy of the Republic of Uzbekistan	Developing the "green" energy strategy	Coordinating body
Ministry of Ecology, Environmental Protection and Climate Change	Environmental standards and monitoring	Regulatory and supervisory authority
Ministry of Investments and Foreign Trade	Financial support for "green" projects	Attraction of foreign investments
Uzbekistan Agency for Innovation	Development of "green" technologies	Promotion of innovative solutions
"Green" Energy Fund (if available)	Financing and allocation of grants	Financial mechanism

Uzbekistan is also continuing to implement green energy projects in cooperation with international organizations and countries. For instance, there are programs aimed at developing energy exchange and cooperation with Afghanistan and Central Asian countries. Uzbekistan is placing great emphasis on expanding the use of solar and wind energy. Projects are being implemented to construct solar photovoltaic stations in order to fully utilize the country's abundant solar resources.

For example, in 2020, Uzbekistan planned to build solar power stations with a total capacity of 1,000 MW. The government of Uzbekistan has developed new laws and regulatory documents in the field of green energy. These documents are aimed at encouraging investment in renewable energy sources, including attracting investors and facilitating the import of technologies.

Projects aimed at improving the efficiency of existing energy systems in the country are also being implemented. These include measures to reduce energy losses, save energy resources, and decrease waste. Recently, Uzbekistan has launched several initiatives on the production of hydrogen energy. Scientific research and the introduction of new technologies in this field are planned.

The methodology for studying investments directed toward green technologies requires a scientifically based, systematic, and comprehensive approach.Innovations implemented in the field of information and communication technologies (ICT) are contributing significantly to sustainable development. For instance, ICT companies may have the potential to reduce an additional 10 gigatons of carbon dioxide (CO_2) emissions by 2030.

The contribution of IT technologies to sustainable development includes the following.

Figure 2. The Contribution of IT Technologies to Sustainable Development.

Information technologies not only make human life more convenient but also contribute significantly to ecological sustainability. The following aspects are particularly important in this regard:

- **Real-time monitoring and forecasting** of air quality, water levels, or waste volumes using artificial intelligence;
- **Cloud technologies** help reduce electricity consumption by storing large volumes of data in centralized locations;
- **Efficient use of resources** such as water, electricity, and gas through IoT (Internet of Things) devices—for example, smart homes and smart cities;
- **Big Data analytics** facilitates a deeper understanding of environmental issues and helps develop effective solutions.

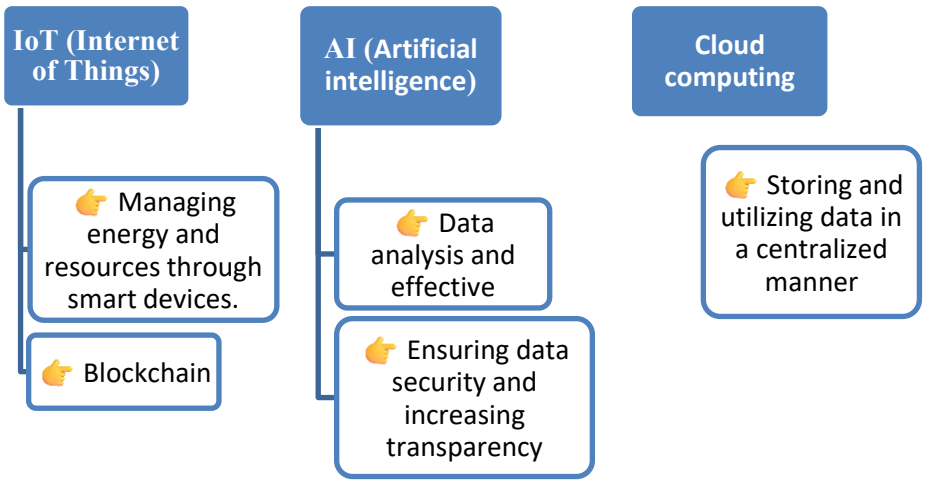
The widespread adoption of green technologies depends on financial support. In this regard, government policies, the private sector, and international donor organizations play a vital role:

- **Government investments:** Green transformation strategies, tax incentives, and grants at the state level are used to support IT-eco projects;
- **Private sector:** Many IT companies are investing in green startups. For instance, Google and Microsoft are transitioning their data centers to 100% renewable energy;
- **International organizations:** Entities like the World Bank, the European Bank for Reconstruction and Development (EBRD), and the UNDP are providing financial and technical support to green projects in Uzbekistan.

In recent years, the government of Uzbekistan has launched several initiatives to develop the digital economy and transition to green energy, including:

- Establishing **techno-parks for green energy;**
- Supporting startups through **IT Park** programs;

Uzbekistan's recent initiatives in digital economy and green energy significantly contribute to the country's economic development. These processes not only stimulate economic growth but also promote environmental sustainability and foster international cooperation. Such efforts aim to increase Uzbekistan's global economic competitiveness in the future.



The programs and initiatives implemented in Uzbekistan in the fields of **IT Park and green economy** are making a considerable contribution to digital and ecological sustainable development. The government is actively supporting startups through IT Park, promoting innovation, and introducing high technologies.

These centers and platforms, aimed at developing the ICT (Information and Communication Technologies) sector in Uzbekistan, are primarily designed for **young entrepreneurs and tech startups.**

Uzbekistan IT Park is a specially designated area for the development of high technologies and the implementation of innovative projects. Its main tasks are to support IT and innovative startups, connect them with the private sector and international markets, and create technological incubators and accelerators. Incubators and accelerator programs at IT Park offer entrepreneurs services such as technological consulting, mentoring, investment access, and legal support.

Startups at Uzbekistan IT Park are working in the most advanced areas of the digital economy, such as blockchain technologies, artificial intelligence (AI), big data, cybersecurity, and other high-tech fields. The main goal of IT Park is to ensure the successful operation of new startups and make them competitive in the global market.

Startups have the opportunity to attract funding from local and international investors. IT Park organizes special events, pitching sessions, and forums for companies and investors. Training, seminars, and conferences are regularly held to enhance technical and business skills among startups and IT specialists. These events aim to foster innovation in the IT sector and promote successful startup development.

Uzbekistan IT Park is also undertaking a range of initiatives to facilitate international cooperation and expand access to global markets. Startups operating in the country are receiving support to become competitive on the international stage.

The government of Uzbekistan is paying special attention to ensuring **ecological sustainability** and developing the **green economy**. The key goals of the green economy include the efficient and environmentally friendly use of natural resources, reducing the carbon footprint, and advancing renewable energy sources.

The government is particularly focused on the development of solar, wind, and other renewable energy sources. By 2030, it is planned that 25% of the country's energy will come from renewable sources. Several large-scale projects are being implemented in this direction, including the construction of **solar photovoltaic plants and wind farms.**

Uzbekistan's climate is very favorable for solar energy production. Currently, the country operates several hundred megawatts of solar power stations, with new projects underway. In 2022, one of the **world’s largest solar photovoltaic plants** was constructed in Navoi region. Some regions in Uzbekistan are also suitable for wind energy, and numerous large-scale projects are being implemented in this area as well.

In the **industrial and transportation sectors**, projects are being introduced to improve energy efficiency. These include the development of energy-efficient technologies, waste reduction in manufacturing, and programs aimed at reducing energy consumption.

In the **construction sector**, it is important to use energy-saving and eco-friendly technologies. New buildings are being constructed based on green building principles, such as energy-efficient structures and the installation of renewable energy systems.

Uzbekistan hosts a number of **investment platforms** focused on green technologies and sustainable development. These platforms aim to support the development of eco-friendly technologies, combat climate change, and accelerate the transition to a green economy.

- The "Yashilovul" platform developed by the **Global Green Growth Institute (GGGI)** provides opportunities for farmers and agribusiness representatives to adopt modern innovations, exchange experiences, and apply green technologies. The platform was developed within the framework of the "Green Rehabilitation Investment Project for the Republic of Karakalpakstan to Address the Aral Sea Crisis," funded by **KOICA.**
- **UzDIF,** as Uzbekistan's national financial institution, is focused on supporting green investments. For example, it backed the issuance of **private green bonds by Saipro Group,** which comply with global environmental and financial standards, thereby strengthening the integration of Uzbekistan's financial system into global green finance.
- The **European Bank for Reconstruction and Development (EBRD)** allocated a loan of **$10 million** to Hamkorbank to support green investments in Uzbekistan. These funds will finance projects aimed at improving energy efficiency. According to EBRD's **Green Economy Transition (GET)** strategy, by 2025, 50% of the bank's annual business volume is planned to be directed toward green financial operations.
- **ACWA Power,** a company from Saudi Arabia, has launched **Uzbekistan's first green hydrogen production project.** As part of this initiative, a **52 MW wind power station** is planned to be constructed in Chirchik. This project represents a significant step in the country's effort to develop renewable energy sources.
- The **Tech4Impact NGO** is implementing a number of programs in Uzbekistan aimed at developing women's and youth entrepreneurship in the field of green technologies. These programs support projects with social impact in the areas of **climate change, innovation, and green technology.** Uzbekistan is planning to **issue green bonds** to support the country's transition to a green economy. These bonds are intended to attract investments and finance environmental projects. The country is also expanding cooperation with **international financial institutions,** including the **World Bank, Asian Development Bank (ADB),** and others in the field of green energy and environmental sustainability.

Support programs for **startups through the IT Park** and initiatives aimed at developing the green economy are making a substantial contribution to Uzbekistan's economic and environmental development. Activities in the digital economy and green energy sectors are positioning Uzbekistan on a path of **competitive and sustainable global development.**

Digital technologies play a significant role in the development of startups and small businesses. Through new technologies and IT infrastructure, small and medium-sized enterprises can **expand their services, enter new markets, and improve efficiency.** For example, **e-commerce, fintech, and digital service sectors** play an important role in economic diversification. With IT, companies can **automate processes** and handle data **quickly and accurately**, reducing costs and using resources efficiently—thus supporting economic growth. Digital technologies also enable companies to compete on a global scale. Through **e-commerce platforms, online marketing**, and digital exports, producers can **access new markets** and promote their brands.

Contribution of IT Sector to Social Sustainability.

- Implementing digital technologies helps improve the **education system**. Remote learning, online courses, and digital platforms are expanding training and upskilling opportunities, thus increasing public access to knowledge and education.
- Innovations in IT support not only technological development but also **social inclusion.** Digital solutions such as **applications and platforms for individuals with physical or mental disabilities** enhance their participation in society. The internet also provides easier access to communication and essential services.
- Digital technologies help **address social issues**. For example, **telemedicine, cybersecurity**, and educational resources can be used to support various social groups.
- Through IT services, **high-quality services can be delivered to remote regions.** Technologies also enable **efficient management of energy resources**. Smart grid systems, for example, can improve energy network efficiency and reduce losses. Moreover, **IoT (Internet of Things)** technologies allow for **monitoring and optimizing energy consumption.**
- IT helps in the **management and integration of renewable energy sources** like solar and wind into energy grids. Smart grid systems, for instance, enhance the efficient use of renewables.
- IT also aids in **environmental monitoring** and in preventing ecological risks. For example, **drones, sensors, and mapping systems** can monitor agriculture, forests, water resources, and air quality—supporting the prevention of ecological threats and efficient resource use.

IT innovations significantly contribute to achieving the **UN Sustainable Development Goals (SDGs).** Digital technologies empower individuals to participate actively in protecting their rights and interests, and simplify access to government services. Digitization in education and expanded remote learning opportunities provide access to education across all social layers. Supporting IT and tech startups creates **new jobs** and ensures **economic growth.**

Achieving a **sustainable green economy** is possible through several avenues in the IT sector. The development of IT and technology is vital for sustainability, as it enables efficient resource management, reduced energy consumption, minimized environmental harm, and advancement of green technologies.

IT is used to create advanced systems for monitoring and managing **solar, wind, and other renewable energy sources**. For instance, IoT can efficiently manage energy consumption. New technologies are also being developed to improve **energy efficiency in computer systems, servers, and data centers,** including energy-saving and improved cooling systems that reduce the carbon footprint.

Remote work systems supported by IT reduce transportation costs and greenhouse gas emissions. Remote work enabled by new technologies and platforms supports a **sustainable green economy.**

Digital archiving systems help reduce paper use, conserving resources and lowering environmental impact. IT also enables **smart transportation systems** to optimize traffic and road conditions, reducing congestion and energy consumption.

Creating **smart buildings** to improve energy efficiency and reduce carbon emissions is another area. Sensors allow for the **monitoring and optimization** of energy and water use. **Blockchain technologies** can create transparent systems for the **generation and distribution of renewable energy**, improving energy trading and governance and enhancing trust.

Blockchain also enables **continuous environmental monitoring. Artificial intelligence (AI)** can help manage water, land, and other agricultural resources efficiently. Analyzing data can increase yields

and reduce environmental impact. AI also supports **monitoring and forecasting environmental changes,** and can guide strategies to reduce carbon emissions.

Digital currencies and payment systems enable the **digital management of documents and financial flows**, reducing reliance on paper and transportation.

IT solutions enable **effective management of green investments and environmental projects.** Cloud computing and centralized storage systems promote **efficient resource use** and reduce energy use by servers. **Efficient data and statistical analysis** can help assess and improve the ecological impact of business and policy.

The IT sector can be a powerful tool for achieving a sustainable green economy. Technologies contribute to **energy saving, environmental protection, resource management**, and ecological sustainability. Moreover, innovations such as **AI, smart cities, blockchain, and digital platforms** offer new opportunities for solving ecological challenges.

Conclusion . The integration of information technologies and green technologies is becoming a means of protecting humanity from ecological disaster. Investment acts as the bridge connecting these two directions.

Green IT solutions not only preserve the environment but also improve economic efficiency, create jobs, and lead society toward a **digitally ecological consciousness**. Therefore, developing the IT sector with a green orientation is the **most appropriate path forward today.** The IT industry is one of the **key driving forces of sustainable development**. Digital technologies create vast opportunities for economic, social, and environmental sustainability. They enhance efficiency, ensure optimal use of resources, generate new jobs, and support inclusive social development. Moreover, applying IT for **environmental sustainability** aids in the protection of natural resources.

Thus, the contribution of the IT sector to **sustainable development** creates important and beneficial avenues for countries and the world at large.

Investments targeted at green technologies are essential tools for achieving sustainable development goals. The IT sector plays a central role in this process by providing **eco-friendly solutions,** enabling **efficient use of resources**, and implementing **digital control and monitoring systems** to reduce environmental burdens. For instance, smart energy systems, digital agriculture, green AI, and cloud computing technologies reduce resource wastage and improve energy efficiency. Furthermore, IT tools increase the transparency and effectiveness of investment projects through **online management, monitoring, and data-driven decision-making.**

Therefore, **integrating green technologies with IT solutions** is a forward-looking strategy for ***ecological sustainability, economic growth, and social well-being*** in Uzbekistan and globally.

In particular, smart infrastructure, cloud computing, AI-based environmental monitoring systems, and green digital platforms are **optimizing production, consumption, and investment processes**. These technologies serve as vital tools for ensuring **ecological safety, reducing carbon footprints,** and **adapting to climate change**. From this perspective, integrating IT with green investments increases the **efficiency of sustainable development strategies** and provides **scientific-innovative solutions to global environmental challenges.** For Uzbekistan, this approach represents an important step toward **economic diversification, compliance with international environmental standards,** and building a **digitally green economy.**

References

1. The President of the Republic of Uzbekistan. (2019, October 24). *On additional measures to improve the procedure for lending projects implemented within the framework of state programs for the development of family entrepreneurship* (Decree No. 4498). https://lex.uz/ru/docs/4569641
2. The President of the Republic of Uzbekistan. (2019, October 4). *On reforms in the field of environmental protection and the "green" economy* (Decree No. PQ–4477).
3. Ministry of Innovative Development of the Republic of Uzbekistan. (2022). *Concept for the development of "green" technologies*.
4. Muhammadiev, Sh. (2023). Green energy and economic growth: Opportunities and challenges. *Economics and Education*, (2).
5. Eshbayev, O., Khursandov, K., Khaydarova, U., & Jamalova, G. (2024). Advancing green technology systems through digital economy innovations: A study on sustainability. *E3S Web of Conferences*, 576.
6. Mishchenko, V., & Yakushina, T. A. (2020). The impact of climate transition risk on firms' value: Evidence from selected Indian-listed companies.
7. Danushi, O., Forti, S., & Soldani, J. (2024). *Principles of Marketing* (17th ed.). Pearson.
8. Saitkamolov, M. S. (2024). The relationship between informatization of the economy and globalization processes: Management solutions. *4th International Scientific-Practical Conference Proceedings*, Tashkent, 222–223.
9. Saitkamolov, M. S., & Karaboev, R. Z. (2024). Cloud technologies and features of their use by modern companies. *EFO: Economics. Finance. Society*, (109), 73–80.
10. Saitkamolov, M. S. (2024). Organizing business processes based on cloud technologies. *Journal of Current Issues in Social and Humanitarian Sciences*, 4(4), 111–125.
11. Bo'tayeva, S. (2025). The Internet as a key factor in economic development. *Green Economy and Development*, 3(1), 391–395.
12. Nazarova, M. (2022). Foreign experience in the development of the fruit and vegetable sector for sustainable food supply. *Gospodarka i Innowacje*, (22), 624–630.
13. Nazarova, M. (2024). Financing the cultivation of fruit and vegetable products: Support and effective use of loans. *Novateur Publications – JournalNX: A Multidisciplinary Peer Reviewed Journal*, 10(7), 79–83.
14. Niyazova, N. A. (2019). Advantages of using information and communication technologies in education. *Scientific Bulletin of Namangan State University*, 1(12), 234–237.
15. Bo'tayeva, S. (2024). The role and importance of information technologies in the management systems of enterprises in the digital economy. *Eurasian Journal of Technology and Innovation*, 2(2), 7–9.