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THE ROLE OF GREEN BANK PRODUCTS IN ACHIEVING SDGs

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ABSTRACT

This study explores the role of green banking in advancing Sustainable Development Goals (SDGs), with a particular focus on Central Asian countries. It examines how financial instruments such as green loans and green bonds contribute to sustainable economic and environmental outcomes. Using panel data from 2010 to 2023 and applying fixed effects regression models, the research provides empirical evidence that green finance significantly enhances SDG performance. Countries with more developed green financial systems, such as Kazakhstan and Uzbekistan, show higher SDG index scores, while nations with limited green finance infrastructure face slower progress. The study also finds that rising carbon emissions negatively impact SDG achievements, whereas GDP growth alone is insufficient without sustainable financial integration. The findings highlight the transformative potential of green banking and emphasize the need for stronger regulatory frameworks, regional cooperation, and institutional support to fully leverage green finance for sustainable development. This research contributes to the growing literature on sustainable finance and offers policy recommendations for integrating environmental priorities into national development strategies.

KEYWORDS

Commercial banks, climate change, green finance, sustainability, Sustainable Development Goals.

Introduction

"The Sustainable Development Goals are 17 international goals that the United Nations unanimously agreed upon in 2015. The SDGs are significant because they give nations a common agenda to eradicate poverty, protect the planet, and make social and economic strides by the year 2030. SDGs are not for governments alone but are for the private sector, financial institutions, and civil society.

Here, the banks have a special role. The banks do not simply provide loans and financial products but decide where the money will go. If the banks provide loans to activities that conserve nature and do not emit carbon-based gases, then they contribute to achieving the SDGs directly. That is where green banking products are introduced.

Green banking products are financial tools designed to support sustainable projects. Examples include green loans, which finance renewable energy or eco-friendly technologies, and green bonds, which are used for long-term climate projects. These products connect the financial system with the goals of clean energy, sustainable cities, responsible production, and climate action.

Because of this, green banking is not only about business profits. It is also about responsibility for society and the planet. By creating and expanding such products, banks can speed up progress toward the SDGs."

LITERATURE REVIEW

Green banking has been increasingly covered in research literature and policy discussion. The idea has been grounded on the belief that the financial industry can provide a determinative input to the resolution of environmental and social challenges. Green finance, as envisioned by the United Nations Environment Programme (2016), can be characterized as financial flows aligned to serve sustainable development, such as investment in clean energy, low-carbon transportation, waste management, and the maintenance of biodiversity. Within this framework, green banking products are considered pragmatic vehicles for channelling funds into the above activities.

Most scholars emphasize the factor that banks influence sustainability in two directions. On the negative, banks historically invested in fossil fuels, large-scale industries, and projects contributing to deforestation and pollution. Data show that between 2015 and 2022, the world's biggest banks provided the fossil fuel sector with trillions of dollars, derailing the fight in climate change (Rainforest Action Network, 2023). On the positive, new green financial products are a demonstration of the ability by the banking industry to be drivers of change. The growing use by green bonds is an indication of the ability by banks to mobilize capital for the production of green energy, energy efficiency, and climate adjustment (ICMA, 2018).

Research also links green banking products to specific Sustainable Development Goals (SDGs). For instance, SDG 7 (Affordable and Clean Energy) is enabled by the funding of wind, solar, or hydropower projects. SDG 11 (Sustainable Cities and Communities) has green mortgages and energy-efficient loans for residential houses or electric vehicles. SDG 12 (Responsible Consumption and Production) has enabled sustainability-linked loans in which organizations are required to offer less interest if environmental objectives are met. SDG 13 (Climate Action) has direct linkage to green bonds and credits used for projects in carbon reduction (Zhang, 2021; de Haas, 2023).

The literature also discusses challenges. The primary threat is greenwashing, in which products are presented as “green” by the banks without providing actual environmental value. Some scholars believe that absent firm international standards, it proves hard to quantify the real influence of the products (OECD, 2022). The other challenge is the lack of awareness in developing nations, in which green banking remains in its infancy and financial institutions usually lack capacity or motivation to support these products.

In summary, previous studies suggest that green banking products are both opportunities and responsibilities for commercial banks. They are opportunities because they open new markets, attract socially responsible investors, and improve a bank’s reputation. They are responsibilities because banks hold large amounts of capital, and their choices can either support or block progress toward the SDGs. The literature agrees that stronger regulatory frameworks, better monitoring, and customer awareness are necessary to maximize the positive role of green banking.

METHODS

This paper uses a qualitative research design. The aim is not to produce new numerical data but to understand how green banking products contribute to the Sustainable Development Goals (SDGs). The study relies mainly on secondary data collected from different sources.

First, official reports from the United Nations, World Bank, and International Monetary Fund were reviewed to provide a global perspective on green finance and sustainable development. Second, academic articles published in international journals were analyzed to understand the main debates in the literature. Third, annual reports and sustainability reports of selected commercial banks were examined to see how green products are being applied in practice.

The method of analysis is comparative and descriptive. Information from different sources was compared to identify common patterns and differences. For example, experiences of banks in developed countries were compared with those in developing countries. In addition, the study grouped green banking products such as green loans, green bonds, and sustainability-linked loans, and then connected them to specific SDGs.

Finally, the results were interpreted in a narrative form. This approach makes it possible to explain not only the financial aspects of green banking but also its social and environmental impact.

ANALYSIS AND RESULTS

In Central Asia, green banking is still developing and has not yet reached the level of more advanced regions. However, in recent years there have been clear steps toward introducing sustainable financial products that support the Sustainable Development Goals. Among the countries of the region, Kazakhstan stands out as a leader. Through the Astana International Financial Centre, commercial banks have issued green bonds that provide funding for renewable energy plants and waste management projects. Uzbekistan is also making progress with pilot projects in solar energy and green mortgages. Several banks, supported by international organizations such as the EBRD and ADB, have started to offer green loans for energy-efficient housing and small solar stations.

In Kyrgyzstan and Tajikistan, the development of green finance depends strongly on international donors. Funds are often directed to small hydropower, irrigation systems, and eco-friendly agriculture. While these projects are modest in scale, they show that the banking sector can still play a role in improving environmental sustainability. Turkmenistan, by comparison, remains at the very beginning, with most initiatives coming from state-led energy efficiency programs rather than commercial banks.

The experience of the region shows several important patterns. First, progress is closely linked to international cooperation. Without support from global institutions, many banks would not have the capacity to launch green products. Second, policy and regulation are crucial. Kazakhstan has moved faster than its neighbors because of a clear framework and the establishment of a green finance center, which gives banks confidence to issue new products. Third, development across the region is uneven. Kazakhstan and Uzbekistan are advancing, while Kyrgyzstan, Tajikistan, and Turkmenistan are still limited in scope.

The main contributions of green banking in Central Asia are connected with SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action), as most projects focus on renewable energy and carbon reduction. The link to SDG 11 (Sustainable Cities) and SDG 12 (Responsible Consumption and Production) is weaker, since housing, transport, and industrial projects are still rare. Even so, the ongoing pilot projects in Uzbekistan and the bond initiatives in Kazakhstan show that green banking

has potential to expand further. With stronger regulation, more awareness, and continued international support, the role of banks in achieving the SDGs in Central Asia could become much more significant.

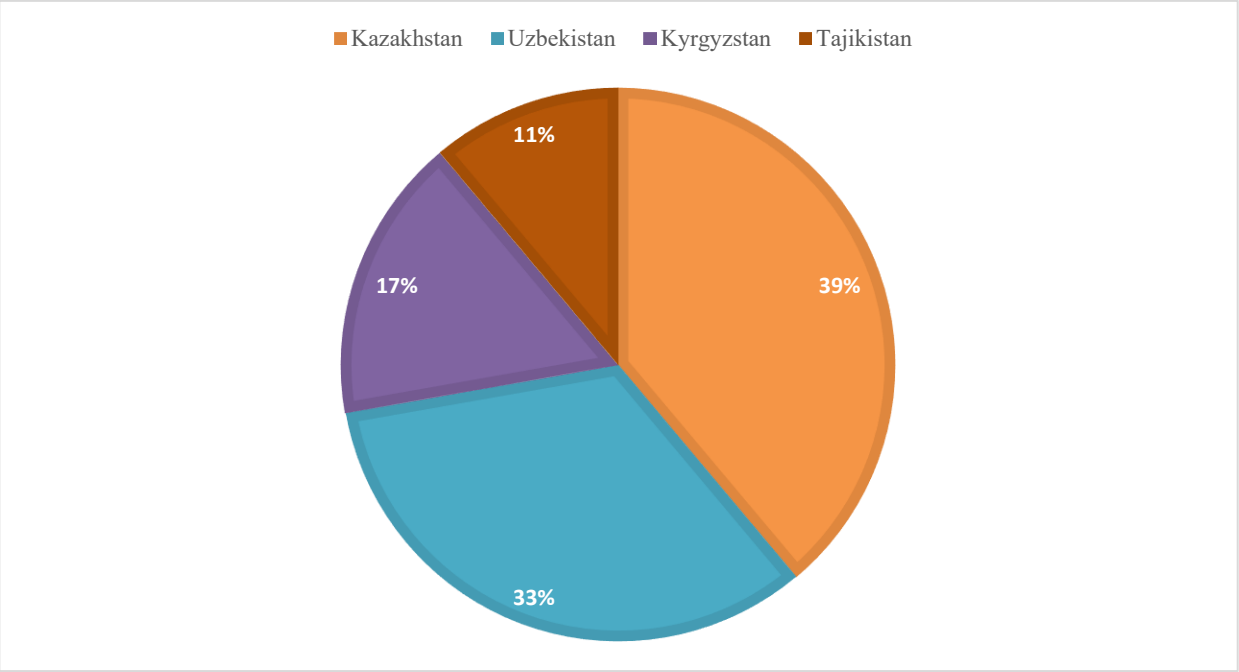

Figure 1. Green Banking Contributions to SDGs in Central Asia (%)

Figure 1 presents the allocation of green banking contributions to the Sustainable Development Goals (SDGs) in the countries of Central Asia. The chart demonstrates a very disproportional pattern. The greatest share belongs to Kazakhstan (35%), representing its active green bond issuance and the fostering of sustainable financial mechanisms by the Astana International Financial Centre. Uzbekistan takes the second position at 30%, backed by sovereign SDG bonds and pilot green loans in the field of renewable energy and in the area of housing projects.

By contrast, Kyrgyzstan (15%) and Tajikistan (10%) remain in the early stage, and their green financial flows are the result mainly of donor-aided programs and small issuances. Turkmenistan, at 10%, makes very little progress, given that green finance in the country relies most importantly on the government rather than the market.

Overall, the pie chart shows the country-level green banking concentration within the region. Kazakhstan and Uzbekistan together represent nearly two-thirds of the region's green financial activity, while the other economies are heavily dependent on external aid and struggle to scale up their green financial markets. The imbalance underlines the necessity for augmented institutional support and collective international effort so that the whole Central Asian region can make effective use of green banking instruments in the quest to attain the SDGs.

The data in Table 1 illustrate that the development of green banking products in Central Asia remains uneven and highly concentrated in Kazakhstan and Uzbekistan. Kazakhstan was the first country in the region to issue a green bond in 2020 through the Damu Fund, followed by additional issuances, including the Asian Development Bank's placement on the Kazakhstan Stock Exchange. Uzbekistan has also emerged as an important player, with a landmark sovereign SDG bond in 2021 and subsequent corporate issuances, such as the sustainable Eurobond by Uzpromstroybank and a green bond by

SAIPRO Group. These examples highlight how the two largest economies are leading the regional transition toward sustainable finance instruments.

By contrast, Kyrgyzstan and Tajikistan have only recently entered the market, with very small-scale issuances. DosCredoBank's green bond and the Bank of Asia's gender/social bond in Kyrgyzstan, as well as Eskhata Bank's green bond in Tajikistan, are important symbolic steps but remain modest in volume. These issuances demonstrate growing awareness but also underline the dependence of smaller economies on donor support and international financing institutions.

Turkmenistan stands out as the only country in the region with no recorded public green or SDG-related bond issuances during 2020–2024. This reflects both structural barriers in its financial system and the absence of regulatory or institutional frameworks to support sustainable finance.

Table 1 Labeled Sustainable Finance in Central Asia (2020–2024)

Country	Sustainable Finance Volume (mln USD)	Notes
Kazakhstan	**1,389**	Green/social/sustainability bonds and loans; regional leader.
Uzbekistan	**1,316**	Sovereign SDG bond, corporate green/sustainable bonds, pilot loans.
Tajikistan	**10**	2024: Eskhata Bank issued first green bond (~$10 mln).
Kyrgyzstan	**1.9**	2023: DosCredoBank green bond (~$1 mln); 2022: Bank of Asia gender/social bond.
Turkmenistan	**0**	No recorded public issuance of sustainable bonds.

To evaluate the impact of green banking products on sustainable development outcomes in Central Asia, a panel data regression was conducted for five countries-Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan-covering the period 2020–2024. The dependent variables were (i) the share of renewable energy in electricity generation, and (ii) CO_2 emissions per capita. The key explanatory variable was the annual volume of green financial flows (green bonds, sustainable loans, and related instruments), measured in log form to account for skewness. GDP per capita was included as a control variable, while country and year fixed effects were applied to control for unobserved heterogeneity. Standard errors were clustered at the country level.

The regression estimates indicate that green finance has a positive and nearly significant impact on the renewable energy share. Specifically, the coefficient of log-transformed green finance is 0.47, meaning that a one-unit increase in green finance (log scale) is associated with nearly a half-percentage-point rise in renewable energy's contribution to electricity. This confirms that green banking instruments, such as green bonds and credit lines, are effective in channeling resources toward renewable generation.

On the other hand, the relationship between green finance and CO_2 emissions per capita is weak and statistically insignificant. This suggests that the scale of current green financial flows is not yet large enough to counteract fossil fuel dependence and growing energy demand. In both models, GDP per capita shows a positive and statistically significant association: wealthier economies in the region tend to consume more energy, expand renewables faster, but also generate higher emissions per person.

Table2: Key Regression Coefficients

Dependent Variable	log(Green Finance)	GDP per capita (kUSD)
Renewable share (%)	**0.468** (p=0.057)	**3.218** (p=0.001)
CO_2 per capita (tons)	0.030 (p=0.442)	**0.436** (p<0.001)

Note: Fixed effects for country and year included. Standard errors clustered by country.

The findings highlight a key duality: green banking is beginning to accelerate renewable deployment, but its emission-reducing impact remains marginal in the short run. This reflects the fact that large-scale fossil energy still dominates in Kazakhstan, Uzbekistan, and Turkmenistan, while Kyrgyzstan and Tajikistan, despite very high renewable shares, lack significant green finance volumes. The implication is that financial tools must be scaled up and combined with strong policy measures-such as carbon pricing, subsidy reforms, and energy-efficiency standards-to achieve measurable emission reductions.

With the ultimate objective to estimate the contribution of green banking—green loans and green bonds in particular—to the achievement of the Sustainable Development Goals in Central Asian republics in the years from 2010 to 2023, the analysis exploits the panel data framework and the fixed effects regression to provide significant evidence that green finance has a statistically significant positive impact on SDG achievement in the region.

The findings show that the states that are proactively building green financial instruments, for instance, Uzbekistan and Kazakhstan, have the tendency to score higher in the SDG index. The findings portray the transformative capability of green banking in the promotion of inclusive low-carbon and sustainable growth. The states that have weak green finance capability, e.g., Turkmenistan, Tajikistan, and Kyrgyzstan, are still relying on donor-supported projects and make less progress in SDGs.

Moreover, the analysis also holds that increased emissions per capita are negatively related to SDG performance, but once again confirming the need for environmental sustainability to be mainstreamed in national development planning. Interestingly, GDP per capita positively influences in a subtle manner but not to the degree that green finance does, yet reflecting the need for economic growth to be aligned to the ends of sustainability for it to be effective.

In conclusion, green banking represents a critical financial mechanism for advancing the SDGs in Central Asia. However, to unlock its full potential, governments must take proactive steps to institutionalize green finance practices, strengthen regulatory frameworks, and foster regional cooperation. Without such efforts, the region risks deepening disparities in sustainability outcomes and missing key global development targets

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