

INNOVATION SCIENCE AND TECHNOLOGY

ISSUE 10, PART I / OCTOBER 2026

 **Acceptance of papers**



**Acceptance of
papers**

Published monthly



Topics

economics,
technology, social
sciences



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THE SCIENTIFIC-POPULAR ELECTRONIC
JOURNAL **"INNOVATION SCIENCE AND
TECHNOLOGY"** HAS BEEN REGISTERED
UNDER THE NUMBER **C-5669633** BY THE
AGENCY FOR INFORMATION AND MASS
COMMUNICATIONS (AOKA) OF THE
REPUBLIC OF UZBEKISTAN, EFFECTIVE
FROM OCTOBER 9, 2024.

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The scientific electronic journal "Innovation Science and Technology" has been included in the list of scientific publications recommended for the publication of main scientific results of dissertations for the award of PhD and DSc degrees in economics and technical sciences, in accordance with the Resolution No. 370 of the Presidium of the Higher Attestation Commission of the Republic of Uzbekistan, dated May 8, 2025.

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FINANCIAL SUPPORT FOR SMALL BUSINESSES IN THE GREEN ECONOMY: MECHANISMS, INSTRUMENTS AND DEVELOPMENT PRIORITIES IN UZBEKISTAN

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Annotatsiya. Yashil iqtisodiyotga o'tish kichik biznes subyektlariga resurs tejankor texnologiyalarni joriy etish, atrof-muhitga ta'sirni kamaytirish va iqtisodiy raqobatbardoshlikni saqlash imkonini beruvchi moliyaviy mexanizmlarni rivojlantirishni taqozo etadi. Shu bilan birga, imtiyozli moliyaviy resurslardan foydalanish imkoniyatlarining cheklanganligi, garov ta'minotining yetarli emasligi, boshlang'ich investitsiya xarajatlarining yuqoriligi hamda yashil texnologiyalarning iqtisodiy qaytimi bilan bog'liq noaniqliklar barqaror biznes loyihalarini amalga oshirishga ta'sir ko'rsatadi. Tadqiqotda O'zbekistonda yashil iqtisodiyotga o'tish sharoitida kichik biznes subyektlarini moliyaviy qo'llab-quvvatlashning asosiy yo'nalishlari o'rganilgan. Tizimli va qiyosiy tahlil, statistik baholash hamda iqtisodiy umumlashtirish usullaridan foydalanilgan. Moliyalashtirish muhitini baholashda O'zbekiston Respublikasi Markaziy banki, Iqtisodiyot va moliya vazirligi, Jahon banki hamda Birlashgan Millatlar Tashkilotining Taraqqiyot dasturi rasmiy ma'lumotlariga tayanilgan. Tadqiqot natijalari imtiyozli kreditlash, qisman kredit kafolatlari, foiz xarajatlarini kompensatsiya qilish, yashil investitsiya fondlari, lizing, aralash moliyalashtirish va xususiy investitsiyalarning ahamiyatini ko'rsatadi. Moliyaviy resurslardan foydalanish imkoniyatlarini ekologik samaradorlik talablari bilan uyg'unlashtiruvchi integratsiyalashtirilgan moliyalashtirish mexanizmi taklif etilgan. Yashil moliyalashtirish samaradorligini oshirish uchun shaffof muvofiqlik mezonlari, ishonchli ekologik monitoring, raqamlashtirilgan ariza topshirish tartiblari hamda davlat institutlari, tijorat banklari va xususiy investorlar o'rtasidagi hamkorlikni mustahkamlash muhimligi asoslangan.

Kalit so'zlar: yashil iqtisodiyot, kichik biznes, yashil moliyalashtirish, moliyaviy qo'llab-quvvatlash, imtiyozli kreditlash, kredit kafolatlari, energiya samaradorligi, barqaror investitsiyalar, O'zbekiston.

Аннотация. Переход к зелёной экономике обуславливает необходимость развития финансовых механизмов, позволяющих субъектам малого бизнеса внедрять ресурсосберегающие технологии, снижать воздействие на окружающую среду и сохранять экономическую конкурентоспособность. Вместе с тем ограниченный доступ к доступным кредитным ресурсам, недостаточность залогового обеспечения, высокие первоначальные инвестиционные затраты и неопределённость экономической отдачи от зелёных технологий влияют на реализацию устойчивых предпринимательских проектов. Исследованы основные направления финансовой поддержки субъектов малого бизнеса в Узбекистане в условиях перехода к зелёной экономике. Применены методы системного и сравнительного анализа, статистической оценки и экономического обобщения. Для оценки условий финансирования использованы официальные данные Центрального банка Республики Узбекистан, Министерства экономики и финансов, Всемирного банка и Программы развития Организации Объединённых Наций. Результаты исследования подчёркивают значимость льготного кредитования, частичных кредитных гарантий, компенсации процентных расходов, зелёных инвестиционных фондов, лизинга, смешанного финансирования и частных инвестиций. Предложен интегрированный механизм финансирования, объединяющий доступность финансовых ресурсов с требованиями к экологической результативности. Обоснована важность прозрачных критериев соответствия, надёжного экологического мониторинга, цифровизации процедур подачи заявок и укрепления сотрудничества между государственными институтами, коммерческими банками и частными инвесторами для повышения эффективности зелёного финансирования.

Ключевые слова: зелёная экономика, малый бизнес, зелёное финансирование, финансовая поддержка, льготное кредитование, кредитные гарантии, энергоэффективность, устойчивые инвестиции, Узбекистан.

Abstract. The transition to a green economy requires the development of financial mechanisms that enable small businesses to adopt resource-efficient technologies, reduce their environmental impact, and maintain economic competitiveness. At the same time, limited access to affordable credit, insufficient collateral, high initial investment costs, and uncertainty regarding the economic returns on green technologies affect the implementation of sustainable business projects. The study examines the main directions of financial support for small businesses in Uzbekistan during the transition to a green economy. Systematic and comparative analysis, statistical assessment, and economic generalization are employed. Official data from the Central Bank of Uzbekistan, the Ministry of Economy and Finance, the World Bank, and the United Nations Development Programme are used to assess the financing environment. The findings highlight

the importance of concessional lending, partial credit guarantees, interest expense compensation, green investment funds, leasing, blended finance, and private investment. An integrated financing framework combining access to financial resources with environmental performance requirements is proposed. The study emphasizes the importance of transparent eligibility criteria, reliable environmental monitoring, digitalized application procedures, and stronger cooperation among public institutions, commercial banks, and private investors in improving the effectiveness of green finance.

Keywords: green economy, small business, green finance, financial support, concessional lending, credit guarantees, energy efficiency, sustainable investment, Uzbekistan.

INTRODUCTION

The transition to a green economy has become an important component of sustainable economic development. This transition involves improving energy efficiency, reducing resource consumption, expanding the use of renewable energy, strengthening climate resilience, and promoting environmentally responsible production. Small businesses play a particularly important role in this process, as they operate across manufacturing, agriculture, trade, transport, services, and local supply chains. At the same time, their capacity to finance environmental improvements can be enhanced by expanding access to long-term capital and developing financial mechanisms that facilitate investment in modern technologies.

The financing challenge is particularly relevant to Uzbekistan, where micro, small, and medium-sized enterprises (MSMEs) account for more than 90% of businesses, approximately 75% of total employment, and around 55% of gross domestic product. Given their economic significance, improving access to credit remains an important priority. According to the World Bank, 10% of small enterprises and 16% of medium-sized enterprises reported access to loans. The World Bank also estimated MSME credit demand at approximately USD 13 billion, with a financing gap of USD 6 billion [1].

These financing considerations are particularly important for green investments. Projects involving solar photovoltaic systems, energy-efficient equipment, water-saving technologies, waste recycling, and cleaner production may require substantial initial expenditure, while their economic and environmental benefits accumulate over several years. Accordingly, aligning lending terms with the cash-flow profiles of such projects is essential for improving their financial sustainability.

The purpose of this study is to identify and substantiate the principal directions for improving financial support for small businesses in Uzbekistan's green economy. The study focuses on the accessibility, affordability, and environmental effectiveness of financing instruments and examines how public support mechanisms can facilitate the mobilization of additional private capital.

LITERATURE REVIEW

The literature on sustainable finance emphasizes that environmental transformation requires effective coordination among public policy institutions, financial organizations, and private investors. The World Bank's analysis of climate-related public financing in Uzbekistan highlights the potential role of state-owned financial institutions, public funds, and private-sector participation in mobilizing investment for sustainable development [2].

An important aspect of green finance is the distinction between conventional commercial lending and financing specifically designed to support environmental improvements. Conventional lending generally emphasizes repayment capacity, collateral, and financial performance. Green financing additionally considers whether investments generate measurable environmental benefits, such as lower energy consumption, reduced emissions, improved water efficiency, or decreased waste generation.

The United Nations Development Programme's Green Development Finance Assessment for Uzbekistan identifies opportunities to improve access to finance, expand dedicated green financial products, and mobilize additional public and private financial resources. The assessment also emphasizes the importance of coherent policies, institutional coordination, and mechanisms aimed at managing investment risks [3].

The World Bank's research on access to finance for businesses in Uzbekistan identifies credit guarantees, equity financing, and partnerships with banks and microfinance institutions as relevant instruments for expanding financing opportunities [1]. Such mechanisms are particularly important for small enterprises with economically viable business projects, as they can facilitate access to financing through additional guarantee arrangements and alternative credit assessment approaches.

Building on progress in the development of green financial instruments, an important practical priority is to improve the identification and measurement of financing specifically directed toward environmentally beneficial investments. Accordingly, the assessment of green business support should distinguish among overall business lending, financing explicitly classified as green, and projects whose environmental benefits

have been independently verified.

RESEARCH METHODOLOGY

The research employs systematic analysis to examine the relationship between small-business development, access to finance, and the transition to a green economy. Comparative analysis is used to identify the distinguishing characteristics of conventional loans, concessional green credit, credit guarantees, interest compensation, leasing, and equity investment. Statistical assessment is applied to interpret published indicators relating to MSME financing conditions and government-supported business projects.

The information base consists of official publications from the Central Bank of Uzbekistan, the Ministry of Economy and Finance, the World Bank, and the United Nations Development Programme. The statistical analysis uses reported indicators with identifiable publication dates and clearly defined methodologies. Figures relating to general entrepreneurship support are distinguished from verified green finance indicators unless the respective sources explicitly identify their environmental objectives.

The study also develops a proposed financing framework based on three complementary dimensions: financial accessibility, environmental additionality, and risk management. Financial accessibility refers to the ability of eligible businesses to obtain appropriate financing under reasonable conditions. Environmental additionality refers to the extent to which financing facilitates environmental improvements that would otherwise not occur or would be implemented more slowly or on a smaller scale. Risk management encompasses repayment capacity, project implementation, technological performance, and compliance with environmental requirements.

The financing structure presented in the pie-chart dataset represents an illustrative analytical proposal rather than an observed national distribution. Its purpose is to demonstrate how several sources of capital could be combined within a hypothetical green business financing programme.

ANALYSIS AND RESULTS

Uzbekistan has developed several mechanisms to support entrepreneurship, including loan guarantees, interest compensation, refinancing, and preferential financial resources. Information published by the Ministry of Economy and Finance concerning the Entrepreneurship Development Company provides evidence of the scale of these mechanisms.

Table 1. Selected Indicators of Business Financing and Green-Oriented Support in Uzbekistan¹

Indicator	Reported value	Period or reference date
MSME share of all businesses	More than 90%	World Bank publication, December 2025
MSME share of total employment	Approximately 75%	World Bank publication, December 2025
MSME contribution to GDP	Approximately 55%	World Bank publication, December 2025
Estimated MSME credit demand	USD 13 billion	World Bank publication, December 2025
Estimated MSME credit gap	USD 6 billion	World Bank publication, December 2025
Business projects supported by the Entrepreneurship Development Company	59,643 projects	By 1 July 2025
Financial assistance reported for supported projects	UZS 19.516 trillion	By 1 July 2025
Green and energy-efficient projects supported	More than 8,000 projects	By 1 July 2025
Funding directed to green and energy-efficient projects	UZS 2.102 trillion	By 1 July 2025
Loans supported through guarantees and interest compensation	More than UZS 77.3 trillion	Cumulative figure reported by 1 July 2025

¹ Source: Developed by the author.

The figures indicate that small businesses represent a substantial part of the national economy and highlight opportunities to expand access to financing. The reported support for more than 8,000 green and energy-efficient projects, amounting to UZS 2.102 trillion, demonstrates that dedicated support for environmentally oriented business activities has already become part of the entrepreneurship support system [4].

These indicators should be interpreted in accordance with their respective definitions and coverage. The UZS 2.102 trillion figure refers to reported support for green and energy-efficient projects and represents a specific component of green investment financing in Uzbekistan rather than its total national volume. Similarly, the broader amount of loans supported through guarantees and interest compensation covers entrepreneurship support in general and includes financing beyond exclusively green projects.

This distinction is important for evaluating the effectiveness of financial support policies. Changes in overall business lending and green investment financing should be assessed separately to ensure the accuracy of their interpretation. Effective monitoring therefore requires separate reporting on the amounts disbursed for eligible green activities, the number of beneficiary firms, the technologies installed, and the environmental outcomes achieved.

Concessional green lending. Preferential loans can reduce the cost of investments in energy-efficient equipment, solar systems, water-saving technologies, and waste-processing facilities. Their effectiveness depends on appropriate loan maturities, transparent eligibility criteria, and repayment schedules aligned with expected project cash flows. Financing conditions should reflect the investment cycle and accommodate the different economic characteristics of individual projects.

Credit guarantees and interest compensation. Small businesses can benefit from additional collateral support mechanisms, particularly when their projects demonstrate sound commercial prospects. Partial credit guarantees can reduce the share of lending risk borne by financial institutions, while interest compensation can lower the effective cost of borrowing. These mechanisms should be targeted toward economically viable projects and designed to promote responsible borrowing and investments with sustainable repayment prospects.

Green leasing and equipment finance. Leasing can be particularly appropriate when the objective is to replace less energy-efficient machinery, install renewable-energy equipment, or modernize production lines. Since the financed equipment itself may serve as part of the contractual security arrangement, leasing can provide an alternative for firms seeking financing arrangements that complement their existing collateral resources. Leasing products should include clearly defined maintenance responsibilities, equipment-performance standards, and transparent total-cost calculations.

Blended finance and public-private partnerships. Public funds, international financial institutions, and commercial lenders can combine resources to share investment risks and attract additional private capital. Public participation is particularly relevant when a project generates environmental benefits that extend beyond the financial returns received by private investors. Public support should be linked to measurable results and designed to complement commercial financing, particularly where projects already demonstrate financial viability.

Equity and venture financing. Some green businesses, particularly innovative enterprises developing recycling solutions, energy-management software, or agricultural technologies, may benefit from financing instruments that accommodate evolving cash-flow patterns. Equity investment can provide patient capital without fixed periodic debt repayments. This approach is most suitable for businesses with credible growth prospects, scalable technologies, and a realistic strategy for attracting further investment.

Digital financial services and technical assistance. Online application systems, electronic documentation, and digital monitoring can reduce transaction costs and improve access for businesses outside major urban centres. Financial support should also be accompanied by technical assistance in preparing business plans, evaluating equipment, estimating energy savings, and documenting environmental performance. Such assistance can strengthen project preparation and facilitate access to available financing programmes.

A diversified financing model can reduce dependence on a single source of capital and better align financing arrangements with the characteristics of different green investments. The following pie-chart dataset illustrates one possible allocation of financing for a hypothetical programme. These percentages represent proposed planning assumptions rather than official statistics or observed national financing shares.

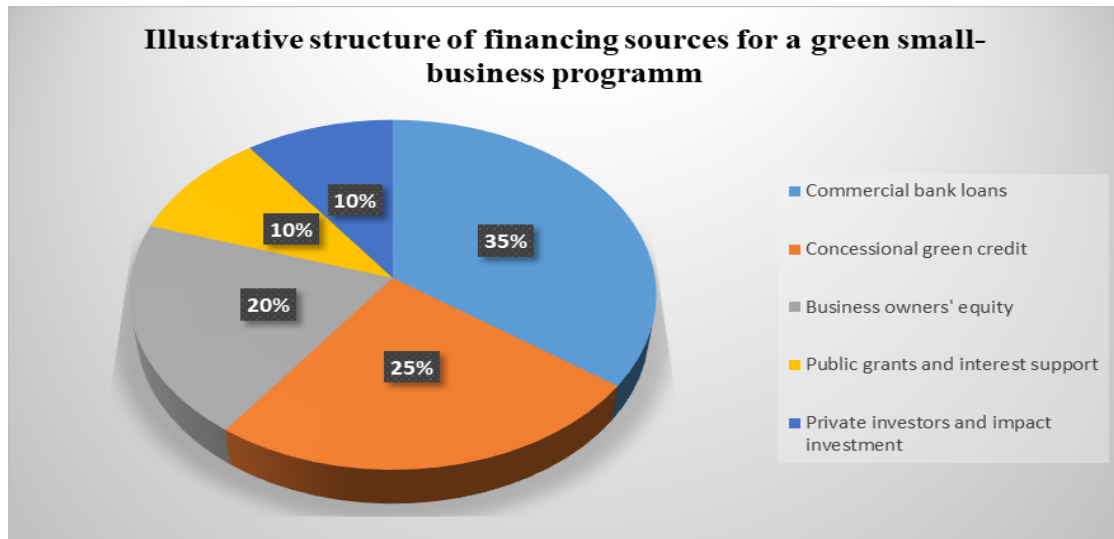


Figure 1. Illustrative structure of financing sources for a green small-business program²

The proposed structure assigns the largest share to commercial bank lending, reflecting the potential role of the banking sector in expanding financing beyond public budget resources. Concessional green credit provides a complementary source for projects whose environmental benefits justify more favourable financing conditions. Business owners' equity demonstrates financial commitment and facilitates the sharing of project risks, while grants and interest support can address specific financing needs that may benefit from additional support mechanisms. Private and impact investors can support innovative projects with growth potential.

The actual allocation should vary according to project type, firm size, repayment capacity, environmental benefits, and the availability of public resources. For example, a small solar installation with predictable energy-cost savings may be financed primarily through a loan or lease, whereas an early-stage recycling technology may require a larger equity component and technical assistance.

A practical financing mechanism should integrate project identification, financial assessment, environmental verification, and post-financing monitoring. The proposed process is presented below.



Figure 2. Integrated mechanism for financial support of green small businesses³

² Source: Developed by the author.

³ Source: Developed by the author.

The mechanism begins with the identification of an investment project and an assessment of its financial viability. Environmental eligibility should then be verified using clearly defined criteria, such as expected energy savings, water efficiency, emissions reductions, or waste minimization. The financing instrument should be selected according to the project's cash-flow profile, collateral position, technological maturity, and risk level.

Monitoring should continue after funds are disbursed. Financial indicators may include repayment performance, project completion, and business continuity, while environmental indicators may include measured energy savings, water consumption, waste recovery, or verified emissions reductions. This approach makes it possible to distinguish between financing classified as green and financing that generates measurable environmental improvements.

The first priority is to establish a clear and consistent classification system for green business finance. Banks and public support institutions should apply transparent eligibility criteria and record green lending separately from general entrepreneurship lending. A common classification system would improve the comparability of reported figures and strengthen the accuracy of environmental performance assessments.

The second priority is to strengthen risk-sharing mechanisms. Partial credit guarantees should be designed to encourage responsible lending while maintaining incentives for banks to assess borrowers thoroughly. Interest compensation should be targeted and periodically reviewed to ensure that public resources facilitate additional investment and complement financing available through existing commercial mechanisms.

The third priority is to improve access for micro and small enterprises outside major economic centres. Simplified applications, standardized project templates, and advisory services can improve administrative efficiency and expand financing opportunities. At the same time, simplified procedures should maintain appropriate financial and environmental safeguards.

The fourth priority is to develop long-term financing products for investments with extended payback periods. Energy-efficiency upgrades, renewable-energy installations, and water-saving infrastructure can generate savings over several years. Financing terms that reflect these benefits can support business cash flows and improve repayment capacity.

Finally, financial support programmes should incorporate performance-based monitoring. Public institutions should report not only the number and value of loans but also the share of funds reaching eligible small businesses, the amount of private capital mobilized, the survival and growth of beneficiary firms, and verified environmental outcomes. Such reporting would strengthen accountability and facilitate the allocation of resources toward more effective programmes.

CONCLUSION AND RECOMMENDATIONS

Financial support for small businesses is an important factor in accelerating Uzbekistan's transition to a green economy. Official data indicate that MSMEs play a significant role in employment and economic activity, while further expanding access to credit remains an important priority. At the same time, the reported support for more than 8,000 green and energy-efficient projects, amounting to UZS 2.102 trillion as of 2025-07-01, demonstrates the development of targeted financing mechanisms.

The main directions for improving financial support include expanding concessional green lending, strengthening credit guarantees and interest compensation mechanisms, developing green leasing, combining public and private capital, widening access to equity financing, and providing digital and technical assistance. These instruments should be coordinated within an integrated financial support system to enhance their effectiveness and complementarity.

A more effective support system requires a clear classification of eligible green investments, transparent selection criteria, risk-based financing decisions, and regular monitoring of both financial and environmental performance. The proposed financing structure and integrated mechanism provide a practical framework for programme design. The illustrative financing percentages should be further validated using actual programme budgets, project-level data, and financing requirements before their practical implementation.

Further research should examine the relationship between the cost of green financing, the financial performance of beneficiary firms, and measurable environmental outcomes. Such research would strengthen the empirical basis for identifying financing instruments capable of generating additional investment and environmental benefits relative to the amount of public support provided.

Practical Recommendations:

Develop targeted concessional green lending programmes and credit guarantee mechanisms to expand small businesses' access to affordable long-term financing.

Introduce a unified digital platform for green financing applications, project evaluation, and environmental performance monitoring.

Strengthen cooperation among government institutions, commercial banks, and private investors to

diversify financing sources and improve the effectiveness of green investment support.

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Proofreader: Zokir ALIBEKOV

Layout and Designer: Oloviddin Sobir ugli

2026. № 10

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