Madhesh Journal of Interdisciplinary Research
Volume 01 Issue 01, 2026. pp. 77–86
Review Article

Sustainable Economic Growth Through Green Finance: A Conceptual and Sectoral Analysis of Nepal

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Abstract

Sustainable economic growth has become a key development priority for Nepal as the country seeks to balance economic expansion with environmental sustainability and climate resilience. In this context, green finance is increasingly recognized as an effective mechanism for channeling financial resources toward environmentally responsible and economically productive activities. The main objective of this study is to examine the role of green finance in promoting sustainable economic growth in Nepal. "Specifically, the study aims to analyze the application of green finance across selected economic sectors and to identify key challenges and opportunities in its implementation. The study adopts a conceptual and descriptive research design based on secondary data. Relevant information is collected from academic literature, government publications, reports of Nepal Rastra Bank, and international development agencies. A sectoral analysis approach is employed, focusing on selected sectors of the Nepalese economy, namely renewable energy, sustainable agriculture, eco-tourism, green infrastructure and transportation, and small and medium enterprises (SMEs). The findings reveal that green finance significantly supports sustainable economic growth by encouraging investment, employment generation, and environmental protection in the selected sectors. However, constraints such as limited financial awareness, institutional weaknesses, and insufficient access to long-term green financing persist. The study concludes that enhancing green financial instruments, strengthening regulatory frameworks, and promoting coordinated policy efforts are essential to maximize the contribution of green finance to sustainable economic growth in Nepal.

Keywords: green finance, sustainable economic growth, sectoral analysis, Nepalese economy, environmental sustainability

Article History
Revised: March 28, 2026
Accepted: June 11, 2026

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Cite
Rahman, A. (2026). Sustainable economic growth through green finance: A conceptual and sectoral analysis of Nepal. *Madhesh Journal of Interdisciplinary Research* (*MJIR*), *1*(1), 77–86.

Introduction

Sustainable economic growth has become a central concern for policymakers and development practitioners, particularly in developing economies that face rising environmental degradation and climate-related vulnerabilities. Conventional growth models, which largely rely on intensive use of natural resources and fossil fuels, have increasingly proven to be environmentally unsustainable and economically fragile in the long run (World Bank, 2020). As a result, there is growing recognition that economic growth must be aligned with environmental sustainability and social inclusion. In this context, green finance has emerged as an important mechanism for supporting sustainable development. Green finance refers to financial investments and services that promote environmentally sustainable economic activities, including renewable energy, climate-resilient infrastructure, sustainable agriculture, and low-carbon technologies (UNEP, 2016). By channeling financial resources toward environmentally responsible sectors, green finance contributes to reducing environmental risks while fostering long-term economic growth (OECD, 2017). The relevance of green finance is particularly significant for Nepal. Nepal is one of the most climate-vulnerable countries in South Asia due to its fragile mountain ecosystem, heavy dependence on agriculture, and exposure to climate-induced disasters (UNDP, 2020). At the same time, the country possesses considerable potential in green growth–oriented sectors such as hydropower, sustainable agriculture, eco-tourism, green transportation, and small and medium enterprises. Effective mobilization of green finance in these sectors can enhance energy security, generate employment, reduce poverty, and promote environmentally sustainable growth (ADB, 2019).

Despite its potential, the development of green finance in Nepal remains at an early stage. Challenges such as limited institutional capacity, inadequate regulatory frameworks, low awareness among financial institutions, and insufficient access to long-term green capital constrain its effective implementation (Nepal Rastra Bank, 2021). Against this background, the present study aims to conceptually examine the role of green finance in achieving sustainable economic growth in Nepal through a sectoral analysis of key economic areas.

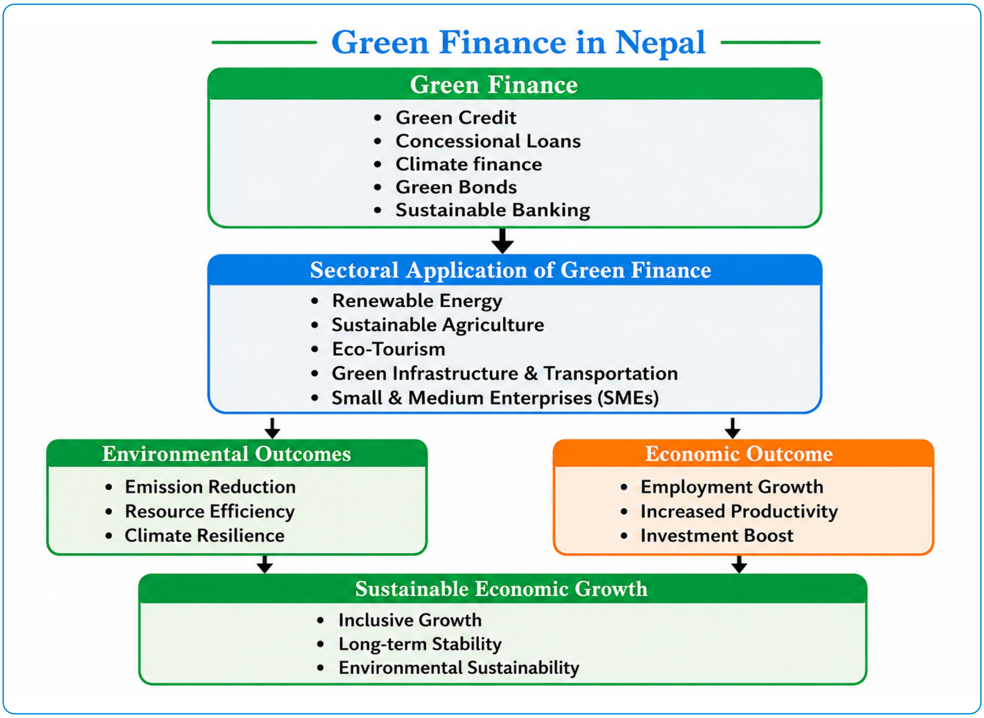
The concept of sustainable economic growth has evolved as a response to the limitations of traditional growth models that emphasize output expansion without considering environmental constraints. Early theoretical foundations of sustainability were laid by Solow (1974) and Stiglitz (1974), who highlighted the role of natural resources in long-term growth. Later, the idea of sustainable development was formally articulated by the World Commission on Environment and Development (1987), emphasizing intergenerational equity and environmental preservation. Green finance emerged as a key instrument to operationalize sustainable development goals by integrating environmental considerations into financial decision-making. According to UNEP (2016), green finance involves financial flows directed toward sustainable environmental outcomes. Studies by Lindenberg (2014) emphasize that green finance plays a critical role in reducing climate risks and mobilizing capital for low-carbon transitions. OECD (2017) further argues that green finance enhances economic efficiency by internalizing environmental externalities. A growing body of empirical literature examines the relationship between green finance and economic growth. Sachs et al. (2019) and Taghizadeh-Hesary and Yoshino (2019) find that green investment contributes positively to long-term growth by promoting innovation and energy efficiency. Similarly, Wang and Zhi (2016) report that green credit policies significantly support sustainable industrial development. Evidence from emerging economies suggests that green finance improves productivity while reducing environmental degradation (Falcone & Sica, 2019; Soundarrajan & Vivek, 2016). Sectoral studies highlight renewable energy as a major channel through which green finance influences sustainable growth. Research by Popp et al. (2020), and IEA (2021) confirms that green financing accelerates renewable energy deployment and strengthens energy security. In agriculture, studies such as Pretty (2008), FAO (2018) demonstrate that climate-smart financing enhances resilience, rural income, and food security. Tourism and infrastructure sectors have also attracted attention in green finance literature. UNWTO (2019) and Gossling et al. (2020) emphasize the role of green investment in promoting sustainable tourism and local development. Meanwhile, Calderón and Serven (2014) and Bhattacharya et al. (2016) argue that green infrastructure finance improves economic competitiveness while lowering environmental costs. Studies by Banerjee et al. (2003) and Wang et al. (2021) highlight the importance of sustainable transport financing in reducing emissions and enhancing urban productivity. The role of financial institutions is central to green finance implementation. Scholtens (2006) note that banks act as key intermediaries in directing capital toward sustainable projects. Research by D'Orazio and Popoyan (2019) and NGFS (2020) suggests that green banking policies strengthen financial stability by reducing climate-related risks. Furthermore, Berg et al. (2022) find that ESG-oriented finance improves firm-level performance and investor confidence.

In the context of developing countries, several studies identify structural and institutional challenges in green finance adoption. Mazzucato and Semieniuk (2018), Aghion et al. (2016), and World Bank (2020) point to policy uncertainty, limited market depth, and weak regulatory frameworks as major barriers. South Asian studies, including Khan et al. (2020), and Narain et al. (2022), emphasize the need for public–private partnerships and supportive policy coordination. Nepal-specific literature on green finance remains limited but growing. ADB (2019) highlights Nepal's potential for green growth through hydropower, sustainable agriculture, and eco-tourism. Nepal Rastra Bank (2021) emphasizes the role of green refinancing and sustainable banking guidelines in promoting environmental responsibility within the financial sector. Studies by Pradhan et al. (2020) underline challenges such as limited awareness, data constraints, and inadequate long-term green funding. Overall, the literature suggests a strong conceptual and empirical link between green finance and sustainable economic growth. However, country-specific sectoral analyses particularly for Nepal remain underexplored. This study seeks to fill this gap by providing a conceptual and sectoral analysis of green finance in the Nepalese context.

The conceptual framework illustrates how green finance acts as the primary driving force influencing sustainable economic growth in Nepal. Green financial instruments channel funds toward environmentally responsible and economically productive sectors. These sectoral applications generate both environmental outcomes (such as reduced emissions and climate resilience) and economic outcomes (such as employment generation and productivity enhancement). The combined effect of these outcomes leads to sustainable economic growth, characterized by long-term stability, inclusiveness, and environmental sustainability.

Figure 1

Sustainable Economic Growth



Research Objective

To examine the concept and significance of green finance in achieving sustainable economic growth in Nepal by analyzing its theoretical relationship with sustainable growth, assessing its role in selected key sectors of the Nepalese economy, and identifying major challenges and policy implications for strengthening green finance in the country. To examine the concept and significance of green finance in achieving sustainable economic growth in Nepal.

Methodology

The study is conducted in the context of Nepal, a developing economy characterized by high climate vulnerability, structural transformation challenges, and growing emphasis on sustainable development. The research focuses on Nepal's key green-growth-oriented sectors, namely renewable energy, sustainable agriculture, eco-tourism, green infrastructure and transportation, and small and medium enterprises (SMEs). The study adopts a conceptual and descriptive research design. It aims to analyze theoretical linkages between green finance and sustainable economic growth and to examine sectoral applications of green finance in Nepal. The research is non-experimental in nature and relies on analytical interpretation rather than hypothesis testing. The study is based entirely on secondary data. Data and information are collected from: Academic journals, books, and working papers, Policy documents, reports, and guidelines issued by regulatory and government agencies, Publications of international development organizations, National economic and financial reports. These sources ensure reliability, validity, and relevance of the information used in the analysis. As a conceptual study, no primary sample or respondents are involved. Instead, a purposive sampling method is used to select relevant literature, reports, and policy documents directly related to green finance, sustainable economic growth, and Nepal's priority sectors. Only recent, credible, and policy-relevant sources are included to maintain analytical rigor. The study employs systematic literature review, content analysis, and sectoral analytical techniques. Comparative and interpretative methods are used to examine how green finance mechanisms operate across selected sectors and contribute to sustainability outcomes. Conceptual frameworks from existing literature are synthesized to explain the finance–growth–environment nexus. Since the study is conceptual and qualitative in nature, no econometric or statistical tests are applied. Analysis is based on logical reasoning, thematic synthesis, and critical evaluation of existing studies and secondary data. The study strictly adheres to academic ethical standards. All sources of information are properly acknowledged and cited. No human subjects are involved, and therefore formal ethical approval is not required. Care has been taken to avoid plagiarism, misrepresentation of data, and biased interpretation.

Results and Discussion

The conceptual and sectoral analysis reveals that green finance has a positive and multi-dimensional role in promoting sustainable economic growth in Nepal. The results indicate that green financial mechanisms primarily influence growth through sectoral investment allocation, environmental performance improvement, and long-term economic resilience. Although Nepal is at an early stage of green finance adoption, existing policies and financial initiatives show promising outcomes across selected sectors.

Table 1

Sectoral Role of Green Finance in Nepal

Sector	Green Finance Instruments Used	Key Sustainability Outcomes	Economic Growth Contribution
Renewable Energy	Green credit, concessional loans, climate finance	Clean energy generation, emission reduction	Energy security, industrial growth
Sustainable Agriculture	Green loans, climate-smart finance, microfinance	Climate resilience, soil conservation	Rural income, food security
Eco-Tourism	Green investment, CSR funding	Environmental conservation, cultural preservation	Employment, foreign exchange
Green Infrastructure & Transport	EV financing, green infrastructure loans	Reduced pollution, energy efficiency	Urban productivity, cost savings
SMEs	Green credit lines, sustainable banking	Resource efficiency, innovation	Job creation, inclusive growth

Note. Compiled by the author based on ADB (2019), Nepal Rastra Bank (2021), World Bank (2022).

The results show that renewable energy and agriculture are the most mature sectors for green finance application in Nepal, largely due to policy support and donor financing. SMEs and green transport remain underdeveloped but have high future potential. This aligns with findings from Taghizadeh-Hesary and Yoshino (2019), who argue that sector-targeted green finance yields stronger growth outcomes in developing economies.

Table 2

Outcomes of Green Finance Implementation

Dimension	Observed Outcomes	Supporting Evidence
Environmental	Emission reduction, climate resilience, resource efficiency	UNEP (2016); OECD (2017)
Economic	Employment generation, productivity growth, investment mobilization	World Bank (2020); ADB (2019)
Social	Inclusive growth, rural development	UNDP (2020)

Note. Authors synthesis of secondary literature

The findings confirm that green finance produces dual dividends—environmental protection and economic expansion. This supports the double materiality principle emphasized in modern sustainable finance literature, where financial and environmental outcomes reinforce each other (OECD, 2021).

Table 3

Latest Models and Frameworks Used in Green Finance Literature

Model / Framework	Core Idea	Relevance to Nepal
Green Growth Model	Growth with environmental sustainability	High relevance due to climate vulnerability
ESG-Based Finance Model	Investment based on environmental, social, governance factors	Emerging relevance for banks
Climate Finance Framework	Mobilization of funds for climate mitigation/adaptation	Strong relevance in agriculture and energy
Sustainable Banking Model	Integration of sustainability in banking operations	Supported by NRB guidelines
Finance–Environment–Growth Nexus Model	Interlinked relationship between finance, environment, and growth	Suitable for conceptual analysis

Note. UNEP (2016), OECD (2017), NGFS (2020), World Bank (2022)

The analysis shows that Nepal's green finance practices are largely aligned with green growth and climate finance frameworks, while ESG-based models are still at a nascent stage. Strengthening ESG disclosure and sustainable banking standards could significantly enhance Nepal's green finance ecosystem.

Table 4

Challenges in Green Finance Implementation in Nepal

Challenge	Description
Institutional Capacity	Limited expertise in green project appraisal
Regulatory Gaps	Absence of comprehensive green taxonomy
Financial Awareness	Low understanding among investors and SMEs
Long-Term Financing	Limited access to green bonds and capital markets

Note. Nepal Rastra Bank (2021), ADB (2019)

These constraints are consistent with findings in other developing economies (Mazzucato & Semieniuk, 2018). Addressing them requires coordinated policy action, capacity building, and stronger public–private partnerships. The results confirm that green finance serves as a strategic enabler of sustainable economic growth in Nepal by directing capital toward environmentally responsible and economically productive sectors. While current progress is modest, the conceptual evidence suggests that expanding green financial instruments and strengthening institutional frameworks can significantly enhance Nepal's growth trajectory. Green financing serves as a conceptual foundation for Nepal's sustainable development, requiring robust institutional support and comprehensive policy frameworks to effectively mobilize environmental capital (Mishra & Aithal, 2022) Banks and financial institutions play a critical intermediary role in channeling green capital through the adoption of green banking practices, which are influenced by specific organizational and regulatory factors (Mishra & Aithal, 2023) At the corporate level, green innovation strategies have been shown to enhance financial performance, particularly in sectors like automotive, demonstrating the business case for sustainability integration (Mishra, 2025) Sectoral priority areas with high-impact investment potential include construction through eco-friendly buildings that demonstrate superior environmental and economic performance compared to conventional structures (Mishra & Rai, 2017). water resources via viable interventions like rooftop rainwater harvesting (Mishra & Joshi, 2021), and automotive through green innovation strategies. Strengthening green finance in Nepal ultimately requires coordinated efforts across multiple stakeholders, including regulators, financial institutions, corporations, and local communities, to create an enabling environment that delivers both environmental benefits and financial returns for long-term economic resilience.

Since the present study is conceptual and sectoral in nature, the analysis is based on established theoretical and analytical models used in green finance and sustainable development literature. The following models guide the interpretation of results. This model explains how green finance contributes to sustainable economic growth by reallocating financial resources toward environmentally responsible sectors. Analytical Logic: Green Finance,

- o Green Investment in Key Sectors
- o Environmental Improvement + Economic Expansion
- o Sustainable Economic Growth

In Nepal, green credit, concessional loans, and climate finance support renewable energy, agriculture, eco-tourism, infrastructure, and

SMEs, leading to inclusive and long-term economic growth. Use in Literature: Widely applied in green growth studies (UNEP, 2016; OECD, 2017). The final theme identifies persistent challenges and transition pathways. Limited awareness among financial institutions, inadequate long-term green financing instruments, and underdeveloped capital markets restrict green finance expansion. The synthesis suggests that strengthening public–private partnerships, expanding green bonds, improving ESG disclosure, and enhancing financial literacy are critical pathways for scaling up green finance in Nepal. The thematic synthesis confirms that green finance plays a strategically important role in advancing sustainable economic growth in Nepal through sector-specific investment, institutional support, and dual environmental–economic benefits. However, its full potential can only be realized through targeted policy reforms, institutional strengthening, and diversified green financial instruments.

Conclusion

This study examined the role of green finance in promoting sustainable economic growth in Nepal through a conceptual and sectoral analytical approach. The findings clearly indicate that green finance functions as a strategic mechanism for reorienting financial resources toward environmentally sustainable and economically productive activities. Rather than acting solely as an environmental policy tool, green finance contributes to long-term economic growth by supporting structural transformation, enhancing productivity, and improving economic resilience. The sectoral analysis reveals that green finance has generated positive sustainability-linked outcomes in key sectors such as renewable energy, sustainable agriculture, eco-tourism, green infrastructure and transportation, and small and medium enterprises. These sectors demonstrate that environmental protection and economic growth are complementary rather than conflicting objectives. The study further finds that the effectiveness of green finance is strongly influenced by institutional capacity, regulatory clarity, and sector-specific financial design. Where supportive frameworks exist, green finance yields stronger growth and sustainability outcomes. Another important conclusion is that green finance enhances economic stability by mitigating climate and environmental risks." This risk-reduction function is particularly significant for Nepal, given its high vulnerability to climate change and environmental shocks. However, the study also concludes that Nepal's green finance ecosystem remains at an early expansion stage, with limited integration into mainstream financial systems.

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