

# Integrating Environmental Governance and Green Economy: Nepal's Journey Towards Sustainable Development

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## Abstract

Nepal's transition towards a green economy, combined with strengthened environmental governance, embodies a comprehensive approach to sustainable development in the face of climate change and socio-economic vulnerabilities. The 2019 amendment to Nepal's Environmental Protection Act introduces enhanced legal provisions addressing pollution, climate change mitigation, and environmental compliance. Institutional frameworks are being reinforced to improve enforcement capacities, monitoring, and public participation. Concurrently, Nepal's green economy initiatives emphasize renewable energy, sustainable agriculture, eco-tourism, and clean transportation, supported by innovative financing mechanisms including green bonds and green finance taxonomy introduced by Nepal Rastra Bank. Collaborative efforts across government, private sector, and grassroots communities, alongside international partnerships such as concessional financing from the Asian Development Bank, are driving inclusive and climate-resilient growth. Despite challenges of financing gaps, infrastructural deficits, and policy fragmentation, Nepal's integrated approach aims to secure environmental protection while fostering economic prosperity and social equity. This dual focus positions Nepal as a model for sustainable development and green growth, contributing significantly towards achieving Sustainable Development Goals and long-term resilience.

**Keywords:** Nepal, green economy, environmental governance, sustainable development, green finance, renewable energy, environmental law

## Introduction

Nepal's journey towards sustainable development underscores the necessity of integrating environmental governance with green economy principles. This dual approach not only safeguards environmental integrity but also propels socio-economic progress in alignment with global sustainability goals.

## Implementation Status of Environmental Law in Nepal

Nepal has shown a notable commitment to environmental protection at both international and national levels. As an active member of the United Nations and regional organizations including SAARC, SACEP, and ICIMOD, Nepal has participated in seminal global environmental

forums such as the 1972 UN Conference on the Human Environment in Stockholm and the 1992 Earth Summit in Rio de Janeiro. These engagements laid the foundation for the country's environmental policies and legal frameworks promoting conservation and sustainable development (Law Gratis, 2025).

### International Commitments and Treaty Obligations

Nepal has ratified or acceded to over sixteen major international environmental conventions tackling issues such as biodiversity conservation, wetland protection, ozone layer preservation, and hazardous waste management. The [Nepal Treaty Act \(1990\)](#) ensures that ratified international treaties supersede conflicting domestic laws, easing the harmonization of global environmental obligations into national legislation ([IUCN Nepal, 1997](#)).

### National Legislative Framework

Nepal's environmental laws encompass a broad suite of statutes aligned with international commitments:

- o **Wetlands:** Supported by the [Aquatic Life Protection Act \(1961\)](#), [Soil and Watershed Conservation Act \(1982\)](#), and the [Water Resources Act \(1992\)](#), these laws uphold Ramsar Convention mandates.
- o **Wildlife and Biodiversity:** The [National Parks and Wildlife Conservation Act \(1972\)](#) and [Forest Act \(1993\)](#) align with CITES and the Convention on Biological Diversity to protect flora and fauna.
- o **Pollution and Hazardous Waste:** The [Environment Protection Act \(1997\)](#), alongside laws like the [Motor Vehicle and Transportation Management Act \(1956\)](#), regulates pollution and substances depleting the ozone layer.
- o **Cultural and Heritage Conservation:** The [Ancient Monuments Protection Act \(1956\)](#) bolsters efforts under the World Heritage Convention.

Nonetheless, regulatory and enforcement gaps persist. For example, despite acceding to the Basel Convention in 1996, Nepal lacks comprehensive legislation regulating transboundary hazardous waste, still relying on the outdated [Solid Waste Management and Resource Mobilization Act \(1986\)](#) ([South Asia Co-operative Environment Programme \[SACEP\] 2001](#)).

### Policy Initiatives and Implementation Challenges

Crucial policy frameworks like the National Environmental Policy and Action Plan (NEPAP) and the National Conservation Strategy guide Nepal's environmental management and offer procedural tools such as the [Environmental Impact Assessment \(EIA\) guidelines \(1992\)](#). However, their implementation faces multiple challenges: limited institutional capacity and financial resources, insufficient public awareness, and weak enforcement mechanisms ([Nepal Lawyer, 2025](#); [Online Khabar, 2025](#)).

Institutional fragmentation and marginalization of environmental units—especially at provincial and local levels—compromise effective governance. Monitoring and follow-up on environmental compliance during project implementation remain inadequate, with environmental professionals frequently under-resourced and sidelined ([Online Khabar, 2025](#)).

### Legal Significance of the 2019 Amendment to the Environmental Protection Act (EPA)

The [Environmental Protection Act \(2019 amendment\)](#) substantially strengthens Nepal's environmental regulatory landscape. It elevates the mandate that no project implementation should harm the environment, adopting a preventive approach that obliges developers to mitigate impacts proactively. The government is empowered to establish emission and hazardous waste standards, and the definition of pollution now explicitly includes both direct and indirect environmental harm ([Yadav, 2025](#)).

Marking Nepal's commitment to climate action, the EPA integrates regulation of greenhouse gases, carbon trading frameworks, and expanded

protections for culturally and ecologically significant sites like mountains and hills, previously unaddressed under the 1997 Act (Kanel, 2024).

Compliance requirements have intensified. Project proponents must submit detailed Environmental Study Reports before project commencement, followed by mandated Environmental Assessment Reports two years into implementation. Non-compliance carries fines from NPR 500,000 up to NPR 5,000,000 (Nepal Lawyer, 2025).

The law delineates responsibilities among key bodies: the Government of Nepal, Environmental Examiner, Environment Protection Council, Department of Environment, and Ministry of Forests and Environment, thereby enhancing coordinated governance (IUCN Nepal, 1997).

The establishment of an Environmental Fund, sourcing contributions from government, local

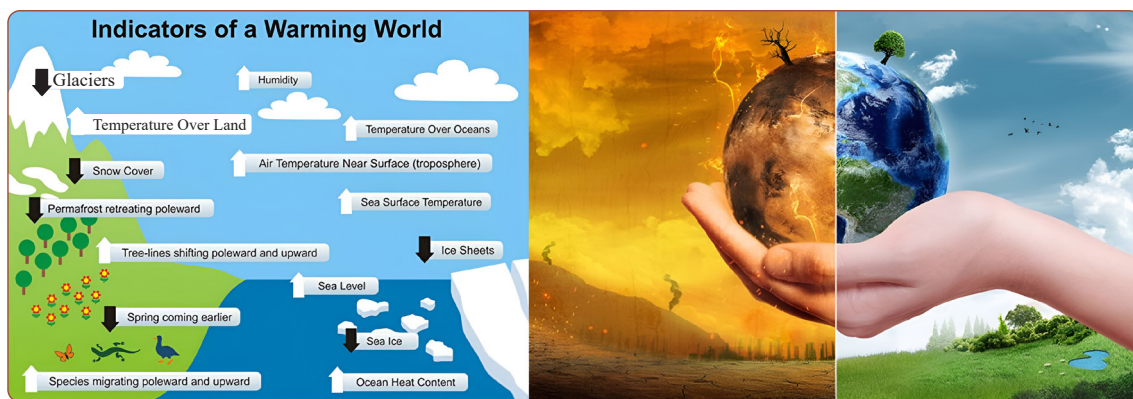
institutions, and international donors, provides a vital financial mechanism to bolster environmental projects (South Asia Co-operative Environment Programme, 2001).

### Prohibitions, Complaint Mechanisms, and Punishments

The EPA explicitly prohibits environmentally harmful activities—including pollution and degradation of mountains and hills—and strictly controls the production and export of hazardous substances. An improved complaint mechanism enables citizens to lodge reports on violations and seek compensation, enhancing participatory monitoring and accountability. Penalties have become more stringent, with fines tripled from NPR 100,000 to NPR 300,000 and provisions for blacklisting non-compliant individuals or institutions for up to five years (Yadav, 2025).

**Figure 1**

*Indicators of Warming World*



### Nepal's Green Economy Transition—A Pathway to Sustainable Prosperity

The escalating global climate crisis presents an existential threat to human civilization, demanding a fundamental shift in development paradigms. In this context, the green economy has emerged as a transformative approach that integrates social equity, resource efficiency, and environmental protection. More than a policy option, the green economy has become an essential framework for developing countries striving to reconcile economic

growth with sustainability, securing a viable future for their populations (Loiseau et al., 2016). It challenges traditional models characterized by over-consumption and environmental degradation, offering a low-carbon, resource-efficient, and inclusive alternative that promotes human well-being and ecological resilience (Georgeson et al., 2017; Bina, 2013).

### Nepal's Vulnerability and Strategic Opportunity

Nepal's unique geography and socio-economic conditions make it highly susceptible to

climate change impacts, especially in mountainous areas where fragile ecosystems and marginalized communities predominate. Amid these challenges, transitioning to a green economy is both pragmatic and urgent, offering a pathway to mitigate climate risks while fostering resilient and inclusive economic growth (National Planning Commission [NPC], 2025).

As a committed signatory of the Paris Agreement, Nepal aligns its national priorities with international climate frameworks. Focus sectors include renewable energy—particularly hydropower and solar power—sustainable agriculture, eco-tourism, forest management, and low-carbon transportation systems, including expanding electric vehicle use. These priorities, supported by international partnerships, provide a robust foundation for sustainable development that respects Nepal's ecological and socio-cultural contexts (NPC, 2025; Nepal Rastra Bank, 2024).

### **Institutional and Policy Frameworks Enhancing Green Growth**

Nepal's green economy strategy is underpinned by recent policy and institutional milestones. The National Planning Commission's 16th Five Year Plan (FY 2024/25–2028/29) emphasizes environmental protection, pollution control, climate resilience, disaster risk reduction, and green economy promotion as core pillars, mandating a reallocation of climate-related budgetary resources from 6% to 20% within the plan period and fostering improved collaboration among different government tiers (NPC, 2025).

The Nepal Rastra Bank's introduction of the Green Finance Taxonomy in October 2024 exemplifies innovative financial policy that channels investments towards sustainable, climate-friendly projects, mobilizing both domestic and international climate finance critical for Nepal's aspirations (Nepal Rastra Bank, 2024).

### **Green Progress in Nepal**

Nepal has made significant strides in advancing green development, driven by a combination of government policy, innovative

financing mechanisms, and sectoral initiatives that align with global sustainability goals. Mishra and Aithal (2022a, 2023) emphasize the critical role of green financing and green banking practices as foundations for enabling green innovation and sustainable business operations within Nepal. These financial mechanisms are essential to mobilizing investments that support environmentally responsible projects across sectors.

Looking at specific sectors, Mishra and Joshi (2021) highlight water resource management through rooftop rainwater harvesting as a promising green infrastructure strategy that addresses both water scarcity and climate resilience. Similarly, Mishra and Rai's (2017) comparative assessment of eco-friendly buildings in Kathmandu illustrates how sustainable construction practices can help reduce environmental footprints while improving urban sustainability.

The integration of Industry 4.0 technologies with virtual farming initiatives (Mishra et al., 2022) demonstrates Nepal's potential in embracing modern, resource-efficient agricultural techniques supportive of green growth. Similarly, Mishra and Aithal's (2022b) work on lean construction assesses waste reduction, highlighting the importance of minimizing material excess to improve sustainability in Nepal's infrastructure development.

At the broader economic level, Mishra (2025) discusses green innovation strategies positively impacting corporate financial performance, particularly in the automotive sector, indicating how green practices contribute not only to ecological goals but also to economic competitiveness and profitability.

These academic insights resonate with Nepal's national development frameworks, such as the 16<sup>th</sup> Five Year Plan and the Green, Resilient, and Inclusive Development (GRID) approach (NPC, 2025). External partners like the Asian Development Bank (ADB) have committed billions of dollars in concessional financing to catalyze Nepal's green, job-rich economic transformation, supporting sectors including

renewable energy, sustainable agriculture, climate-resilient infrastructure, and clean transport (Asian Development Bank, [ADB], 2025).

Challenges remain, notably in access to sufficient finance, infrastructural constraints, and capacity limitations, especially in rural and mountainous areas. Addressing these barriers requires expansion of innovative financing instruments—such as green bonds and thematic funds—and investments in capacity building, policy coherence, and multi-stakeholder engagement (Nepal Rastra Bank, 2024; Shah, 2024).

The successful transition to a green economy in Nepal will depend not only on government leadership but also on active private sector innovation and grassroots participation, as well as continued research and policy adaptation informed by empirical evidence, such as that provided by Mishra and Aithal (2022a, 2023, 2025). Together, these elements create a robust ecosystem for sustainable economic growth that respects Nepal's unique socio-ecological context.

#### **Multi-Sectoral Engagement Driving Implementation**

Government-led initiatives, including ambitious hydropower projects targeting 15,000 MW by 2030, and climate-smart agriculture programs promoting organic cultivation and conservation practices, demonstrate Nepal's progress in green growth. The private sector increasingly embraces green business models—investing in renewable energy, organic food production, and sustainable construction—reflecting growing environmental responsibility (Shah, 2024).

At the grassroots, community forestry and NGO-led sustainable farming initiatives effectively integrate conservation with livelihood enhancement, promoting biodiversity preservation alongside economic benefits. This multi-layered collaboration strengthens Nepal's prospects for sustainable, inclusive, and climate-adaptive development (Shah, 2024).

#### **Challenges to Sustained Green Development**

Despite progress, Nepal confronts significant challenges. Financial constraints limit investments in renewable energy and green infrastructure, while infrastructural deficits in rural and mountainous areas restrict access to sustainable technologies. Fragmented policies and inconsistent enforcement further hinder coordinated green economy transitions (ADB, 2025; Shah, 2025).

Addressing these barriers requires scaling innovative financial instruments like green bonds and climate funds, investing strategically in infrastructure development, and building local capacities. Policy harmonization and institutional coordination are essential to create an enabling environment for green innovation and inclusive growth (ADB, 2025).

#### **Opportunities and Future Prospects**

The green economy offers Nepal substantial opportunities for economic diversification and social upliftment. Emerging sectors such as renewable energy, sustainable agriculture, and eco-tourism are poised to generate employment and reduce poverty. Improvements in pollution control yield public health benefits and enhance quality of life. Nepal's commitment to sustainability also attracts international investment and climate finance, fostering impactful and resilient project development (Loiseau et al., 2016; National Planning Commission, 2025).

By integrating coherent policies, engaging stakeholders, and ensuring effective implementation, Nepal is well-positioned to fulfill its sustainable development objectives and contribute meaningfully to the Sustainable Development Goals (SDGs) (NPC, 2025).

#### **The Role of Mountain Ecosystems in the Green Economy**

Nepal's mountainous Himalayan region plays a vital role in global ecosystem services but faces intrinsic vulnerabilities, including fragile environments and socio-economic marginalization. The green economy framework recognizes



the value of mountain ecosystems, promoting mechanisms such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation), green certification, eco-tourism, and bio-prospecting to sustain incomes in mountain communities (Newton & Cantarello, 2014).

Yet, realizing these benefits demands robust institutional support and tailored policy interventions to ensure equitable distribution and ecosystem preservation. The distinct needs of Nepal's mountain populations necessitate context-specific approaches within the broader green economy transition (Victor & Jackson, 2012).

### **An Imperative for Coordinated Action**

The 2019 amendment to Nepal's Environmental Protection Act marks a pivotal advancement in the country's environmental governance, reflecting a comprehensive response to both global challenges like climate change and local environmental concerns. The updated Act introduces critical provisions such as the requirement for detailed environmental study reports, expanded definitions of pollution, incorporation of climate change mitigation, regulation of harmful substances, and introduction of mechanisms like Strategic Environmental Analysis and Environmental Management Plans (Sadulaw, 2025; Environment Protection Act, 2019).

To fully leverage the potential of these legal reforms, Nepal must prioritize strengthening institutional capacity across all levels of government, ensuring that regulatory bodies like the Department of Environment, Environment Protection Council, and related ministries possess adequate resources and expertise to enforce environmental standards effectively. Financial constraints remain a significant bottleneck; thus, dedicated funding streams including a well-managed Environmental Fund are vital to support monitoring, enforcement, and community engagement activities (Environment Protection Act, 2076; DPNET Nepal, 2018).

Moreover, the dynamic nature of environmental challenges necessitates continuous updates to legislation and policy, informed by scientific evidence and stakeholder input. Effective implementation depends not only on strict enforcement but also on fostering collaborative governance models that involve local communities, civil society, private sector actors, and international partners to create inclusive platforms for environmental stewardship and green growth (Online Khabar, 2025; NPC, 2025).

Simultaneously, Nepal's parallel transition to a green economy offers a complementary trajectory towards sustainable prosperity. Government-led initiatives in renewable energy, sustainable agriculture, eco-tourism, and clean transportation, synergized with private sector innovations and grassroots actions such as community forestry, collectively lay the foundations for resilient economic development aligned with ecological sustainability (Nepal Rastra Bank, 2024; Shah, 2025). However, challenges remain in financing, infrastructural development, policy coherence, and capacity building, which must be addressed systematically to achieve desired outcomes.

The choices made today will fundamentally shape Nepal's environmental and socio-economic trajectory well into the future. Policymakers must embed environmental governance and green economy principles firmly within national development priorities. Businesses should adopt sustainable practices proactively, while researchers and academia need to generate evidence-based insights to support adaptive management. Public awareness and participation are equally essential to cultivating a culture of environmental responsibility.

In summary, the integration of strengthened environmental law enforcement with a robust green economy strategy forms a dual pathway for Nepal to navigate its sustainable development goals. This coordinated action is not optional but imperative to safeguard the country's unique natural heritage, ensure social equity, and foster long-term resilience against climate and ecological crises. Nepal's

experience can serve as a model for sustainable development and green growth, illustrating how developing countries can balance conservation with inclusive prosperity for generations to come.

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