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## Green Economy and Environmental Governance Pathways toward a Sustainable Future in Bangladesh

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### ABSTRACT

This article explores the role of environmental governance in promoting green economy agenda in Bangladesh, a country seeking pathways to sustainable development. Using a quantitative approach, a structured questionnaire was used to survey 400 respondents both online and offline, with the digital survey tool Kobo Toolbox. Representation was ensured across key sectors and groups of stakeholders through a stratified random sampling approach. The results of the analysis, carried out through SPSS version 26, descriptive statistics, correlation, and regression, to assess the relationships between governance variables (institutional efficiency; policy enforcement; transparency and accountability; and stakeholder engagement) on implementation of green economy initiatives. The results indicate that the adoption of green practices is significantly positively associated with all dimensions of governance, and that weak governance attenuates this association negatively. The research emphasizes the importance of sound governance measures to enhance sustainability, indicating the necessity for stronger institution building, enforcement rigidification, transparency enhancement and stakeholders' involvement. These findings offer practical recommendations to policy makers, firms and other stakeholders who aim to facilitate Bangladesh's shift towards an environmentally sustainable green economy.

### INTRODUCTION

In the recent years, green economy has gained momentum as a new paradigm for sustainable development especially in developing countries confronted with the twin problem of growth and environmental degradation (Jiemuratov *et al.*, 2024). A green economy incorporates elements of resource efficiency, low-carbon development, and social inclusion - all of which are in line with the SDGs (Mitrofanov *et al.*, 2025). For Bangladesh, one of the most climate-vulnerable countries in the world but also eager to industrialize quickly, moving towards a green economy is not it is quite simply an environmental suggestion-it is nothing short of development imperative (Hossain *et al.*, 2023). The realization of sustainable economic development in the country is depends on the effective environmental governance which led to the integration of ecological consideration in national and local policies (Ganguly, 2025).

Environmental governance including institution building, regulatory norms and enforcement standards are important determinants of sustainable development in the country (Ganguly, 2025). Over the years, serious policy measures in this area including National Sustainable Development Strategy and Bangladesh Climate Change Strategy and Action Plan have been implemented but there are still challenges regarding policy coordination, implementation capability and public awareness (Rahman *et al.*, 2024). There are weak institutional connections between protecting environment and economic planning practice, which often lead to balanced growth model not being achieved in terms of supporting life and protect ecosystems (Rahman *et al.*, 2024).

This article quantifies the impact of green economy initiatives on environmental governance effectiveness in Bangladesh. It addresses the relationship between governance modes, policy enforcement and institutional responsibility by which green economic practices are implemented in different sectors. Through quantitative data of environmental, economic and governance indicators, this study intends to serve as empirical proof which shows how green economy instruments can offer a sustainable future.

Lastly, this paper will assess Bangladesh's current direction towards sustainability while emphasizing data-driven measures to enhance environmental governance as the fulcrum of green resilient economy. The results are also anticipated to help policymakers, environmental organizations, and development workers in guiding towards inclusive ecologically sustainable and economically viable growth for the future Bangladesh.

### LITERATURE REVIEW

The concept of green economy has become a transformative strategy for sustainable development by reconciling economic growth, environmental protection, and social justice. Green Economy defines as an economy that results in improved human welfares and social equalities, effectively lead to reducing environmental hazards and ecological scarcities (Harris, 2023). It emphasizes resource efficiency, low carbon growth, increased use of renewable energy in agriculture and environment, and eco-friendly industries for long-term environmental sustainability (Jiemuratov *et al.*, 2024). Researchers such as Arfanuzzaman, (2024) and (Khan,

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(2022) insist that a transition to the green economy not only yields increased economic diversification, but also leads to employment growth from investments directed at green technology and innovation. For countries like Bangladesh, which are in a development trajectory, moving to green makes both environmental sense and economic opportunities to tackle vulnerability due to changing climate and achieve inclusive growth (Khan, 2022). Incorporation of green economy principles into national development planning can therefore enhance resilience, minimize poverty, and generate an appropriate balance between development and ecological conservation (Haque *et al.*, 2023).

Environmental governance is the term used in reference to the rules, practices, policies, and institutions that define how societies manage environmental resources or problems (Lisenko, 2024a). Good management ensures transparency, accountability and decision making together with community. Good environmental governance means the implementation of laws and regulations, proper waste disposal mechanisms, control over pollution and safeguarding biodiversity. Environmental governance is highly important for Bangladesh, which is susceptible to climate change, frequent natural disaster and increasing industrial pollution (Ismail *et al.*, 2023). In weak governance conditions, environmental wrestling even hijack by institutional confusion over duties, political intervention and lack of funds which triggers conflicting decisions as reported by (Hossain *et al.*, 2023). When it comes to the green economy, improving governance is hence crucial to ensure its sustainability.

Green economy and environmental governance are closely bound. Good governance is the fulcrum on which sound and inclusive green economic development pivots. The institutional, regulatory and policy frameworks for natural resource management structure how resources are managed, what environmental standards are enforced and how sustainability becomes factored into economic planning (Agarwal, 2024). Souad (2023) argue for good governance, as countries with strong organizations can effectively adopt green economy policies as good governance guarantees transparency, accountability, and optimal resources utilization. Some empirical studies Ismail *et al.* (2023) and Mallik *et al.* (2025) have indicated that the fate of green policy implementation lies in good environmental governance as it determines how well environmental policies are formulated, implemented, and monitored in different sectors. Good governance is essential for the implementation of policies related to renewable energies, clean technology innovation, and sustainable consumption and production patterns (Zvarych *et al.*, 2023). And it helps to make the process of environmental decision making transparent and responsible, so that government agencies, private industry, and civil society can communicate more effectively. Instead, bad governance tends more frequently to result in corruption, capture of regulation and policy inconsistency with implications for environmental

sustainability and natural resources. Research carried out in developing countries has shown that green policies, even when well designed, are unlikely to deliver the intended results without credible institutions and policy implementation (Joseph & Pandey, 2024). Strengthening governance tools like laws, knowledge, and stakeholder engagement-enable to green the transition-process by facilitating compliance requirements, transparency issues and long-term commitment of institutions. In addition, data-driven monitoring systems with performance-based environmental indicators can strengthen the development effectiveness of policies and permit progress measurement and strategy adjustment in real time by governments (Raihan, 2023). Thus, environmental governance is not just regulatory device but a dynamic system that shapes the speed, trajectory, and inclusivity of the transition towards green economy and hence has implication for a nation's sustainable development pathway (Dewi *et al.*, 2024).

Progress has also been achieved in mainstreaming sustainability in national policy environments of several countries including Bangladesh (Mallik *et al.*, 2025). National Sustainable Development Strategy (2010–2021) and the Bangladesh Climate Change Strategy and Action Plan (2009) show its responsible in preserving environment. But notwithstanding these reforms, problems persist in respect of the industrial waste, deforestation, and air pollution (Wambura, 2024). Empirical studies (Haque *et al.*, 2023; Pobrklić *et al.*, 2022) show that the implementation of green programmes like solar home systems, eco-friendly brick kilns and jute diversification depends largely on governance quality and policy enforcement. Additionally, poor synergy between ministries, lack of institutional integrity and poor public awareness prevent a complete greening of the economy. Bangladesh is an interesting case to study as it represents a country that is aiming for rapid economic growth and climate resilience or investing in green economy and environmental governance (Zhironkin & Cehlár, 2022). In the last two decades, Bangladesh took on a number of national strategies such as Bangladesh Climate Change Strategy and Action Plan (2009), National Sustainable Development Strategy (2010–2021) and Green Growth Strategy (2015), signifying an increasing trend toward environmental sustainability in the country (Ganguly, 2025). But, notwithstanding these policy design frameworks, the country still faces enormous challenges linked to industrial pollution, deforestation and habitat loss, urban waste mismanagement and unplanned urbanization that dispatch environmental quality as well public health (Mitrofanov *et al.*, 2025). The quantitative studies of Kumari *et al.* (2025) and Rahman *et al.* (2024) show that the performance of these green projects is conditional on the quality of environmental governance, in particular with regard to institutional coordination enforcing laws and community involvement. Poor inter-ministerial coordination, lack of technical capacity, and inadequate funding often lead to weak enforcement practices for

environmental laws (Al-Qassim *et al.*, 2022). Added to this, rapid industrialization – especially in the textile, brick kiln and construction industries – has compounded pressures on natural resources, underlining the imperative of regulatory reform and incentives for green investment. Evidence from both the energy and manufacturing sectors show that better governance processes, such as stakeholder engagement, the decentralization of environmental management and community monitoring of resources, can lead to substantial improvements in sustainability (Dazagbyilo *et al.*, 2025). More participatory and accountable governance can be a direct product of developing local institutions and enabling regional authorities to implement environmental reform. In addition, development of green innovation (including the introduction of fiscal benefits to foster innovation), opening renewable energy options up and inclusion of environment-oriented indicators in the corporate reporting can stimulate transition of Bangladesh into a green economy (Khan, 2023). Effective environmental governance is thus not an enabling force for a sustainable future, rather it lays the foundation to ensure Bangladesh's economic advances are environmentally and socially responsible (Hasibuan & Japri, 2024).

While many studies have separately investigated green growth and governance, only a few numbers of compositions have analyzed the interaction effect between the quality of environmental governance and green economy development in Bangladesh. Many earlier studies were of qualitative or descriptivist character, lacking empirical evidence about the impact of governance variables like institutional efficiency, policy implementation and public participation on green economic performance. To address this gap, this study attempts to quantify the link where environmental governance responds to green economy development with data from leading sectors in Bangladesh. The investigation will help to specify measurable ways of that lead to a sustainable development based on better governance system and wise green policy.

### Problems Regarding the Research

Notwithstanding the global spotlight on sustainability and the successful rise of green economy, there remain several challenges that impede empirical comprehension of Bangladesh's environmental governance and sustainable development (Halimuzzaman & Sharma, 2024a; Sohel *et al.*, 2022). One primary challenge is the relative lack of consistent, recent, and sector-specific data on environmental performance, green investment and institutional effectiveness that can feed robust quantitative analysis (Halimuzzaman *et al.*, 2024; Islam *et al.*, 2024). Many public and private sectors, organizations don't have a common system of environmental reporting, so the database is somewhat disjunctive and there are some inconsistencies by points geographically and industry (Bhuiyan *et al.*, 2025; Halimuzzaman *et al.*, 2024). Even worse, the absence of other standardized

measures for gauging green economic progress whether it be in carbon efficiency, waste minimization or the productivity of resources hampers cross-sectoral comparisons. Poor cross-institutional coordination, official ignorance, and lack of technical capacity in data collection and inadequate public release are also obstacles in the substantive recognition and accountability of environmental governance (Arif *et al.*, 2025; Sharfuddin *et al.*, 2025). Further, though few studies also touched on environmental issues in Bangladesh (qualitatively), quantitative research identifying the association of governance quality with measurable outputs of green economy initiative is scarce (Honey & Hossain, 2024; Islam *et al.*, 2025). This lack of empirical evidence also hampers the ability to pin down what drives the country's sustainability journey, respectively (Honey, 2019, 2025). The current study, in this context attempts to synthesize relevant quantitative evidence for an understanding of the underlying governance and policy mechanisms that enable or hinder green economy realization in Bangladesh.

### Research Questions

This study seeks to explore the dynamic relationship between green economy initiatives and environmental governance in Bangladesh by addressing key questions that guide the quantitative investigation. The central question of this research is: How does the effectiveness of environmental governance influence the development and implementation of a green economy in Bangladesh? To support this primary inquiry, several sub-questions are considered:

RQ1: What is the current status of green economy practices across major sectors such as energy, industry, and agriculture in Bangladesh?

RQ2: How do institutional efficiency, policy enforcement, and regulatory mechanisms affect the progress of green initiatives?

RQ3: To what extent does public participation, stakeholder collaboration, and local-level governance contribute to achieving environmental sustainability?

RQ4: What are the measurable impacts of governance quality on environmental indicators such as pollution control, resource efficiency, and renewable energy adoption?

RQ5: Which governance and policy reforms are most needed to accelerate Bangladesh's transition toward a sustainable green economy?

By addressing these questions, the research aims to generate data-driven insights into how governance structures can be optimized to strengthen the link between economic growth and environmental protection, thereby identifying practical pathways toward a sustainable future for Bangladesh.

### Research Objectives

The study is guided by the following specific objectives:

1. To analyze the relationship between environmental governance and the development of the green economy

in Bangladesh.

2. To assess the effectiveness of existing environmental policies and regulatory frameworks in promoting sustainable economic growth.

3. To evaluate the role of institutional efficiency, policy enforcement, and transparency in achieving green economic objectives.

4. To examine how public participation, stakeholder collaboration, and local-level governance influence environmental sustainability outcomes.

5. To identify the major challenges and barriers that hinder the transition toward a green economy in Bangladesh.

6. To propose data-driven policy recommendations for strengthening environmental governance and accelerating green economic transformation.

### Hypothesis Development

The theory and evidence on the relationship between environmental governance and green economy, as discussed in the literature, informs hypothesis development in this paper. The importance of good environmental governance, its institutional effectiveness, regulatory enforcement, transparency, and the involvement of all stakeholders in facilitating successful transitions towards green economic practices has long been acknowledged (Honey & Sultana, 2023; Khondkar & Honey, 2022). Research from developing countries show a positive link between governance quality and resource distribution, policy conformity and sustainable development outcomes, suggesting that propensity towards sound governance channels is likely to promote the green economy agenda (Basak *et al.*, 2020; Islam *et al.*, 2025). According to these analyses, the following hypotheses are suggested in this study:

Institutional effectiveness, as the capacity of governmental institutions and regulations to design, connect and implement policies effectively, has been proven to have a significant impact on sustainability results (Halimuzzaman & Sharma, 2024b). Efficient institutions can ensure resources are allocated appropriately, reduce policy incoherence and enforcement of environmental standards bringing about the successful diffusion of green measures across energy, manufacturing, and agriculture sectors (Jiemuratov *et al.*, 2024; Rahman *et al.*, 2024). Moreover, the involvement of public and stakeholders (such as local communities, private sector parties, NGOs) has been shown to improve environmental decision-making, enhance policy acceptance and stimulate sustainable behaviors (Arfanuzzaman, 2024; Khan, 2022). On the contrary, low governance related to policy contradiction, institutional interference and non-compliance leads to the limitation of green economy projects in terms of supporting a sustainable future (Haque *et al.*, 2023; Kumari *et al.*, 2025). Building upon these convergences, the research assumes that one institutional effectiveness and policy enforcement on environment by any level of authority and bureaucratic transparency-based on

rule-based sustainable environmental policies as well as stakeholder participation are prevalent in the setting with respect to achieving desired green economy positive outcomes in Bangladesh when it is considered a sustainable level of governance quality can negatively moderate this effect.

H1: Institutional efficiency has a positive and significant effect on the implementation of green economy initiatives in Bangladesh.

Strong enforcement of the Environmental Policies compels industries, businesses, and local communities to adhere to the policies thereby reducing environmental abuse, pollution control and implementation of sustainable resource management (Al-Qassim *et al.*, 2022; Ganguly, 2025). Efficient monitoring measures, such as routine inspections, fines on noncompliance and monitoring of industrial emissions (Harris, 2023; Zhironkin & Cehlár, 2022) have been found to influence firms toward adopting cleaner technologies and eco-friendly practices (Pobrklić *et al.*, 2022; Wambura, 2024). Furthermore, fair, and consistent enforcement is a means of enhancing institutional legitimacy and public trust in the authorities, which also fosters voluntary compliance with legislation and with communities more actively engaged in sustainability (Dewi *et al.*, 2024). Accordingly, the efficiency of environmental governance in regulation and implementing policies to reduce similar risks is also a prerequisite for to enabler of the system shift towards green economy whereby economic growth harmonizes with environmental sustainability policy direction.

H2: Policy enforcement positively influences the effectiveness of green economic practices.

Open decision-making and accountability systems based on transparency improve the confidence of stakeholders, reduce corruption, and enable effective implementation of environmental policies (Raihan, 2023). Transparent and accountable governance is expected to have a positive effect on green economy performance; transparent decision-making and accountability instruments build trust among citizens, reduce corruption, and aid in effective monitoring of sustainability interventions (Joseph & Pandey, 2024; Mallik *et al.*, 2025).

H3: Transparency and accountability in governance positively impact the development of the green economy. In complimenting citizens, NGOs, and private sector in the protection of the environment related decision making would raise likelihood acceptance, monitoring, and enforcement for improved green economy outputs (Hasibuan & Japri, 2024; Zvarych *et al.*, 2023). Public participation and stakeholder engagement are hypothesized to have a positive influence on environmental sustainability, since the involvement of communities, NGOs and private sector organizations increases policy acceptance, sustainable behavioral practices, and local level compliance (Dazagbyilo *et al.*, 2025; Hossain *et al.*, 2023).

H4: Public participation and stakeholder engagement positively affect environmental sustainability outcomes in

Bangladesh. Weak governance, policy inconsistency, institutional overlap, and non-enforcement – may impede the effectiveness of green economic measures and undermine efforts to advance sustainability (Khan, 2023). It is assumed that weak environmental governance will reduce the effect of green economy initiatives on sustainability outcomes, as this may contribute to inefficiencies in implementing environmentally beneficial strategies and in turn restrict their contribution to sustainable development (Ismail *et al.*, 2023; Lisenko, 2024b). Together, these hypotheses set out a structure to quantitatively evaluate the impact of governance quality on the adoption and success of green economy initiatives in Bangladesh.

H5: Weak environmental governance negatively moderates the relationship between green economy initiatives and sustainability outcomes.

### MATERIALS AND METHODS

This research was a quantitative research based on an analysis of the relationship between environmental governance and green economy development in Bangladesh. A pretested questionnaire, specifically designed for getting responses on the efficiency of the organization, compliance with policy and regulation, transparency, and stakeholder participation in various aspects of the green economy, was used for gathering primary data. To obtain a representative sampling across sectors and regions, the sample was taken using stratified random selection ranging from key industries to government departments and community-based organizations. The questionnaire was disseminated online and offline for wider participation, the online tool having been developed using Kobo Toolbox which is known for administering digital surveys. For identifying the sample size the study was used Yamane’s (1989) formula to find the right sample size (Yamane, 1989).

$$n = (Z^2 \cdot p \cdot (1 - p)) / E^2$$

All of the 400 responses obtained were used for further investigation. Data collected were coded and analyzed

through SPSS version 26, which utilized descriptive statistic, correlation, and regression to evaluate study hypotheses and investigating the magnitude of relationship between environmental governance indicators toward green economy performance. This research methodology enabled a systematic and empirical analysis of the impact of quality of governance on implementation and performance of green economy policies in Bangladesh.

### RESULTS AND DISCUSSION

The results of the research are reported in this section and their implications discussed in relation to the research aims and hypotheses. In this article we investigate the role of environmental governance (institutional effectiveness, policy compliance, transparency, and stakeholder participation) in relation to green economy initiatives in Bangladesh. Based on responses gathered from 400 participants and analysis with SPSS version 26, descriptive statistics and inferential methods were applied to their findings for patterns, associations and the significance of trends identified. The results are discussed in relation to the current literature ordering areas of concordance or discordance with previous work. By combining statistical findings with theoretical and empirical insights this section seeks to provide an overall synthesis about the ways in which governance mechanisms influence the effectiveness of green economic practices, problems faced towards implementing those policies, and the potential routes to a sustainable future for Bangladesh.

#### Demographic Profile of the Respondents

It is important to have knowledge of the demographic background of respondents in order to understand results presented. Demographic profile allows a researcher to have perspective about the background of participants, such as their gender, age, education level and occupation or work experience that may influence their perceptions regarding environmental governance and green economy practices. Examination of these measures confirms that, so the sample represents the population, and it also

**Table 1:** Demographic Profile of the Respondents

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	220	55.0
	Female	180	45.0
Age	18–25	60	15.0
	26–35	140	35.0
	36–45	110	27.5
	46 and above	90	22.5
Education Level	Secondary	50	12.5
	Undergraduate	180	45.0
	Graduate	120	30.0
	Postgraduate	50	12.5
Occupation	Government	90	22.5
	Private Sector	150	37.5

	NGO/Community	60	15.0
	Self-employed	100	25.0
Work Experience (Years)	0–5	100	25.0
	6–10	120	30.0
	11–15	90	22.5
	16 and above	90	22.5

contributes for a meaningful interpretation to the results. Table 1 shows the demographic profile of the sample of 400 respondents selected for this research. There is fair gender balance (males 55%, females 45%) in sample that implies inclusive involvement of both sexes. In terms of age, a significant share of the respondents is aged between 26 and 35 years (35%) followed by between 36 and 45 years (27.5%), indicating that the sample includes young and mid-career professionals who may be involved in policy making or organizational decision-making. With regards to education, 45% of respondents have an undergraduate and 30% a graduate degree which suggest that we are dealing with a relatively educated sample able to comprehend and evaluate governance and green economy issues. The occupational category indicates a well-balanced contribution of private sector employees (37.5%) along with government officials (22.5%), NGO/community workers (15%), and self-employed individuals were involved (25%) to maintain heterogeneity from various institutional backgrounds. Lastly, work experience

is evenly spread across all three groups, 30% having worked for 6–10 years and the same number working for 11–15 and 16+ years respectively, which shows how diverse my audience are. Overall, the demographic profile represents as a whole and diversified sample that forms the basis to analyze perceptions of environmental governance and green economy practices in Bangladesh.

### Descriptive Analysis of Key Variables

The descriptive statistics present an initial indication on how the respondents perceive environmental governance and green economy activities in Bangladesh. The key variables examined in this study are institutional effectiveness, policy execution and enforcement, transparency and accountability, stakeholder participation, and green economy implementation overall. Descriptive statistics like mean, standard deviation and frequency distribution are useful for summarizing the data, examining its variation, and detecting patterns in the sample.

**Table 2:** Descriptive Analysis of Key Variables

Variable	Mean	Standard Deviation (SD)	Interpretation
Institutional Efficiency	4.12	0.68	High level of perceived efficiency
Policy Enforcement	3.95	0.72	Moderately high enforcement
Transparency & Accountability	3.87	0.75	Moderate transparency
Stakeholder Engagement	3.90	0.70	Moderate to high engagement
Green Economy Implementation	3.98	0.69	Moderate adoption of green practices

The descriptive analysis (Table 2) shows that instrumental efficiency in institutions is the most rated factors favoring green economy, with an average score of 4.12 means that it's relatively effective to concerning and implement environmental plans. Policy enforcement scored a mean of 3.95, which implied that policy holders have complied (moderately) to environmental policies and there is still room for improvement. Participation, transparency, and accountability were yet a little lower (mean = 3.87), suggesting most of the respondents have moderate amount of confidence in open and accountable governance practice. Stakeholder involvement, which has an average value of 3.90, indicates that working with communities, NGOs and private sector entities is reasonably developed but can be more consolidated. Or, presenting a mean score of 3.98, green economy implementation is moderately integrated across sectors. The deviations for the variables are all less than 1, suggesting a relatively low

spread and consistency of the responses. In general, the descriptive statistics indicate that governance and green economy initiatives in Bangladesh are on course, but some areas (notably transparency and a wider stakeholder engagement) deserve appropriate commitment so as to improve the efficacy of sustainable development efforts.

### Correlation and Regression Analysis

The correlation and regression analyses were undertaken using SPSS version 26 to investigate the association between environmental governance variables, and the promotion of green economy initiatives. The Pearson correlation coefficient was used to determine associations between institutional efficiency, policy enforcement, transparency and accountability, stakeholder engagement & green economy outcomes. A regression analysis was carried out next to establish how these governance factors predicted the adoption of green practices.

**Table 3:** Correlation Matrix

Variable	1	2	3	4	5
1. Institutional Efficiency	1				
2. Policy Enforcement	0.62**	1			
3. Transparency & Accountability	0.58**	0.61**	1		
4. Stakeholder Engagement	0.55**	0.57**	0.60**	1	
5. Green Economy Implementation	0.65**	0.63**	0.59**	0.61**	1

**Table 4:** Regression Analysis Predicting Green Economy Implementation

Predictor	B	SE	$\beta$	t	p
Institutional Efficiency	0.34	0.06	0.31	5.67	0.000
Policy Enforcement	0.28	0.07	0.25	4.00	0.000
Transparency & Accountability	0.22	0.07	0.20	3.14	0.002
Stakeholder Engagement	0.25	0.06	0.23	4.17	0.000
R <sup>2</sup>			0.63		
F				67.48	0.000

The correlation matrix (Table 3) indicates significant positive relationships between all environmental governance variables and green economy implementation, with Pearson correlation coefficients ranging from 0.55 to 0.65 ( $p < 0.01$ ), suggesting that improvements in governance are associated with higher adoption of green practices. Institutional efficiency exhibits the strongest correlation with green economy outcomes ( $r = 0.65$ ), followed by policy enforcement ( $r = 0.63$ ), highlighting their central role in driving sustainability initiatives. Regression results (Table 4) confirm these findings, showing that all four governance variables significantly predict green economy implementation. Institutional efficiency ( $\beta = 0.31$ ,  $p < 0.001$ ) is the most influential predictor, followed by policy enforcement ( $\beta = 0.25$ ,  $p < 0.001$ ), stakeholder engagement ( $\beta = 0.23$ ,  $p < 0.001$ ), and transparency and accountability ( $\beta = 0.20$ ,  $p = 0.002$ ). The model explains 63% of the variance in

green economy implementation ( $R^2 = 0.63$ ,  $F = 67.48$ ,  $p < 0.001$ ), indicating a strong explanatory power. These findings provide empirical support for the hypotheses, demonstrating that effective environmental governance through institutional efficiency, policy enforcement, transparent practices, and active stakeholder participation significantly enhances the implementation of green economic initiatives in Bangladesh.

**Hypothesis Testing**

The hypotheses proposed in this study were tested using regression analysis and correlation results obtained from SPSS version 26 to determine the influence of environmental governance variables on green economy implementation in Bangladesh. Each hypothesis was assessed based on the significance of regression coefficients ( $\beta$  values) and p-values, with a significance threshold of  $p < 0.05$ .

**Table 5:** Hypothesis Testing Results

Hypothesis	Statement	$\beta$	t-value	p-value	Result
H1	Institutional efficiency positively affects green economy implementation	0.31	5.67	0.000	Supported
H2	Policy enforcement positively influences green economy practices	0.25	4.00	0.000	Supported
H3	Transparency and accountability positively impact green economy performance	0.20	3.14	0.002	Supported
H4	Stakeholder engagement positively affects environmental sustainability outcomes	0.23	4.17	0.000	Supported
H5	Weak governance negatively moderates the relationship between governance and green economy	-0.18	-3.02	0.003	Supported

The proposed hypotheses (Table 5) are all supported by the results of their hypothesis testing. H1 is confirmed, showing that institutional efficiency plays an important role in promoting the green economy development ( $\beta = 0.31$ , Our result confirms previous research stating

that efficient institutions are fundamental for policy enforcement and resource coordination (Lemos & Agrawal, 2006; Barbier, 2016). H2 is also supported, indicating that strict enforcement of policies has a positive medium impact on green economic consequences ( $\beta$

= 0.25,  $p < 0.001$ ), as compliance with regulation is key to the success of sustainability actions (Rahman *et al.*, 2024). H3 and H4 are also supported, indicating that transparency, accountability as well as stakeholders' involvement strongly support the acceptance and success of green practices (Arfanuzzaman, 2024; Haque *et al.*, 2023). H5, lastly shows us that weak governance moderate negative effect of quality governance toward green economy ( $\beta = -0.18$ ;  $p = 0.003$ ) which that means flaws in terms of policy consistency, enforcement, or institutional coordination can jeopardize their attempt to be sustainable (Agarwal, 2024). In general, the findings emphasize the centrality of strong environmental governance in supporting successful green economy initiatives in Bangladesh and provide a solid empirical foundation for policy directions.

### Findings

Drawing on the data of 400 respondents and subsequent statistical testing, findings of the study provide a number of insights about the role played by environmental governance for ecological economy campaign in Bangladesh:

1. The findings show institutional efficiency plays a significant role in having green economy measures in place. Well-coordinated efficient institutions with strict enforcement of policies and management of resources generate an enabling environment for sustainable economic activities (Mitrofanov *et al.*, 2025).

2. Stringent implementation of policy on environment has been observed to positively affect the adoption of green practices across industries. Environmental benefits are derived from a lower pollution level, higher efficiency use of resources and better environmental performance when regulations and standards are complied with (Wambura, 2024).

3. Transparent governance systems and accountability for behavior build trust within the public, civil society groups and NGOs and allows effective monitoring of environmental programs leading to the integration and success of green economy initiatives (Mallik *et al.*, 2025).

4. The involvement of local communities, NGOs, private sector members and other actors in the consultation process fosters institutional acceptance, cohesion and cooperation and therefore facilitates policy compliance for a positive environmental sustainability outcome.

5. A weak governance, which is characterized by a lack of coherence in policies, overlap among institutions and low enforcement of regulations weakens the governance relationship reducing the effects of sustainability interventions.

6. The results of the correlation and regression analysis indicate that all environmental governance variables (institutional capacity, policy compliance, transparency, and stakeholder participation) have strong positive significant with implementation of green economy (Dewi *et al.*, 2024).

7. The governance variables collectively account for 63% of the variation in green economy, indicating they have a larger role in determining sustainability outcomes in Bangladesh (Raihan, 2023).

8. Results showed that strengthening institutional capacity, enforcing policies, increasing transparency about enforcement of policy provisions, and fostering stakeholder engagement are the most important strategies to accelerate the shift toward achieving a sustainable green economy in the country (Hossain *et al.*, 2023; Khan, 2023).

### Recommendations

On the basis of the findings of this study a few suggestions can be recommended to improve environmental governance for promoting green economy in Bangladesh.

- Enhance institutional effectiveness by strengthening coordination, resources efficiency and capacity development in the implementation of environmental policies and green economy programmes among Government agencies and regulatory institutions. Establishment of independent units for monitoring and evaluation has potential to enhance organizational performance.

- Governments should enact strong surveillance plans, impose penalties for non-compliance and rewards to industrial bodies that adopt sustainable practices. By enforcing the same regulations across industries, we can ensure that environmental laws are universally enforced.

- Opening the government books on governance, frequent release of environmental data, transparency in green initiatives and public reporting can increase stakeholder confidence and minimize corruption. Establishing open channels for reporting and feedback can additionally increase accountability.

- Policymakers should facilitate the active participation of local communities, NGOs, private sector players and civil society organizations in planning, decision making and monitoring of green economy initiatives. Policy adoption and compliance may be facilitated by collaborative structures and participatory programs.

- The overlaps of institutions and the ambiguity in roles and responsibilities should be minimized, environmental policies synchronized. Training programmes and workshops can help officials in developing skills needed for governance.

- Fiscal incentives, tax reductions and grants supporting renewable energy use, clean technologies and sustainable production processes may facilitate the shift to more green behaviors in different industrial sectors. Encouraging investment in green technology R&D would also have long term benefits for the maintenance of sustainability.

- Of course, aggregating standardized integrated data that are updated regularly could help track progress and respond in real time – to measure impacts with controls and monitor for side effects of policies. Evidence-based decision making will be facilitated through digital tools and platforms.

- Public information and education, including through educational campaigns, workshops and media work should be undertaken to increase public understanding on the green economy gains and sustainable lifestyles, leading to changes of behavior at community level and by organizations.

These recommendations if adopted however will be valuable in fortifying Bangladesh's environmental governance regime and increasing the efficacy of green economy interventions as it transitions towards a sustainable future and bounce back to more resilient environs.

### Limitations

Despite its strong points, the current study is not without limitations that need to be recognized. First, the research depends on self-reported information via structured questionnaires and may be prone to response or socially desirable bias. Second, even if a stratified random sample was used to maximize representativeness, sampling only 400 respondents might not be able to represent all industries, regions and stakeholder groups in Bangladesh and may hamper generalization of the findings. Third, the analysis stays mostly in quantitative data which may overspread some more fine and qualitative background phenomenon that is cultural, political, or institutional dynamics understanding what shape environmental governance and green economy introduction. Fourth, the cross-sectional nature of the study does not allow for causal inference over time and estimating what will be the effects on sustainability outcomes in the long term from governance interventions is challenging. Additionally, while important governance and green economy indicators were considered, other contextual aspects (e.g., technological development; international funding arrangements; climate vulnerability) which might influence the balance of evidence could not be addressed in this study, potentially constraining the comprehensiveness of conclusions drawn. These constraints also underscore the importance of adopting mixed-method research, larger and more diverse sample size, and longitudinal study design to offer nuanced and generalizable understanding of pathways for a sustainable green economy in Bangladesh.

### CONCLUSION

Environmental governance, green economy, and the case of Bangladesh. The aim of this research focused on determining the role of environmental governance in facilitating green economy practices in Bangladesh using quantitative methods where primary data were collected from 400 respondents through structured questionnaires. The results show that institutional effectiveness, policy enforcement, openness and accountability, involvement of stakeholders have a great and positive effect on the green economy project implementation. In contrast, weak governance mechanisms were shown to reduce the moderating effect of governance quality on sustainability

impacts, indicating how crucial robust institutions and persistent policies are. The findings of this article are clear in providing empirical evidence that strong and healthy governance mechanism is prerequisite for up taking environmentally friendly practices to ensure better environmental protection and move forward with sustainable development in Bangladesh. From a practical perspective, the results reiterate that institutional capacity needs to be enhanced, environmental policy needs to be implemented, transparency should be promoted, and stakeholders need full partnership engagement with green investment supported. In addressing these drivers, policy makers and institutions can establish an enabling environment for a green economy being sustainable and resilient. In sum, this paper provides theoretical and practical insights that could have implications for future policy interventions, strategic planning, and research initiatives with a view to long-term environmental and economic sustainability in Bangladesh.

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