Green Sustainability Outcome: What States Actions Portrays Among West African States

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Abstract: Government actions are crucial for advancing green sustainability, mainly through a combination of regulatory, economic, and informational policies. Regulatory measures, like setting emissions standards or banning single-use plastics, directly control harmful environmental activities. This study examines the consequence of state actions on promoting green sustainability. Panel data from sixteen West African countries were collected and analyzed using the Panel GMM analytical techniques. Data for the study were obtained from both World development indicator database as well as the Kneoma data base. The data were from the period of 2003 to 2023. Findings from the analysis indicates that a positive relationship exist between regulatory quality and green sustainability which signals that effective regulatory frameworks are associated with improved sustainability outcomes. Equally, a positive relationship exists between voice and accountability and green sustainability which again suggests that higher levels of citizen participation, transparency, and accountability are associated with better environmental and sustainability outcomes. Finally, a negative relationship exists between green sustainability and government effectiveness. This suggests that governments in West Africa prioritize economic growth and development indices over environmental sustainability. It is recommended among others that West African states should invest in building robust environmental regulatory agencies with clear mandates, transparency, and accountability. They should equally, develop and implement clear environmental policies that gives incentive to green technologies, renewable energy, and sustainable resource use. Finally, West African countries should invest in training regulators, policymakers, and communities to improve compliance on sustainability practices.

Keywords: *Green Sustainability, Regulatory Quality, State Actions, Government Effectiveness.*

I. INTRODUCTION

West African countries are confronted with multitudes of environmental challenges that threaten its ecological balance, economic development, and the well-being of its populations. These challenges include deforestation, desertification, land degradation, water scarcity, pollution, loss of biodiversity, and the impacts of climate change such as droughts and floods. Rapid logging, agricultural expansion, and infrastructure development have led to significant forest loss, impacting biodiversity and contributing to soil erosion (UNEP, 2019). The Sahara Desert continues to expand southwards, driven by climate variability and human activities, threatening agriculture and livelihoods in affected regions (UNCCD, 2018). Equally, many West African countries face acute water shortages due to overuse, pollution, and climate change, affecting agriculture, health, and industry (World Bank, 2020). West Africa is among the most vulnerable continents to climate change, experiencing increased droughts, irregular rainfall, and extreme weather events that hamper food security and economic growth (IPCC, 2022).

Sustainability is crucial for addressing these environmental challenges because it aims to balance ecological health, social equity, and economic development. Also, sustainable practices ensure that natural resources are used responsibly, ecosystems are preserved, and future generations can meet their needs. Effective state actions are necessary to develop comprehensive environmental policies that promote renewable energy, waste management, conservation, and climate resilience. For instance, Nigeria's National Renewable Energy and Energy Efficiency Policy (NREEEP) aims to diversify energy sources and reduce reliance on fossil fuels (Ayangeaor, 2022).

Government actions can facilitate collaboration between government, private sector, and civil society to finance and implement green projects such as solar energy initiatives and reforestation programs. (Ndukwe, et, al. 2023). Equally, Ogunkan, (2022) notes that good governance promotes transparency, reduces corruption, and ensures that environmental resources are managed responsibly, fostering trust and encouraging sustainable practices.

In a separate study, Ugiagbe, (2022) observed that effective institutions are fundamental to Africa's pursuit of green development, because they enable the formulation and enforcement of sustainable green policies, capacity building, stakeholder engagement, and resource management. Strengthening these institutional frameworks is crucial for West Africa to achieve sustainable environmental and economic goals.

➢ *Statement of the Problem*
Despite West Africa's rich natural resources and the sub-region's potential for sustainable development, numerous environmental challenges threaten the region's socioeconomic stability (UNEP, 2019). The effective management of these environmental challenges largely depends on the strength and efficiency of their state actions in environmental policy formulation, implementation, and enforcement (UNDP, 2020). However, many West African countries face significant governance issues, including weak institutional capacity, corruption, lack of political will, and inadequate enforcement mechanisms that hinder the promotion of green sustainability (Iacobuta, et, al. 2019). These institutional weaknesses often result in ineffective policy implementation, limited stakeholder participation, and poor resource management, thereby impeding sustainable development goals related to environmental sustainability (Ostrom, 2015).

Furthermore, the diversity in State actions across West African nations presents a challenge in establishing cohesive, sub-region strategies for green development (Adger, 2010). Also, the absence of robust and transparent governance structures undermines efforts to mobilize investments in renewable energy, conservation, and climate resilience initiatives (UNEP, 2022). Therefore, there is a critical need to investigate how state actions through its institutional arrangements and governance structures influence the effectiveness of green sustainability initiatives in West Africa. Understanding these dynamics is essential for identifying gaps, strengthening institutional capacity, and shaping state actions that promote sustainable environmental practices across the sub-region.

➢ *The Significance of Study*
The significance of studying state actions on green sustainability among West Africa states lies in understanding how effective governance mechanisms influence the region's ability to achieve sustainable development goals, address environmental challenges, and promote green growth. This study provides valuable insights into the roles, strengths, and weaknesses of various state actions in fostering environmental sustainability, which is crucial for designing effective policies and strategies tailored to the African context.

The study aims to address the research deficit in understanding how state actions impact the promotion of green sustainability initiatives in West Africa, recognizing that strengthening these actions is vital for achieving sustainable environmental and developmental outcomes across the region.
The study elucidates on how state actions through different government agencies, regulatory bodies, civil society, and private sector entities contribute to or hinder green

sustainability efforts. Recognizing these roles can inform capacity-building initiatives and institutional reforms (Opeyemi et, al. 2021).

By analyzing state actions, the study can identify gaps and opportunities for improved policy formulation, enforcement, and coordination. This is vital for evolving policies that balance economic growth with environmental preservation in West Africa (Ndukwe, et, al. 2023).

The findings will also contribute to understanding how governance influences progress toward SDGs related to climate action, life on land and below water, and clean energy, thereby guiding policymakers, international organizations, and development partners in their interventions (UNDP, 2018). Given Africa's unique socioeconomic and political contexts.

Finally, understanding the dynamics of state actions fosters inclusive approaches involving governments, civil society, local communities, and the private sector, which are critical for sustainable environmental management (Ogunkan 2022).

➢ *Gaps in Previous Research*
Most existing studies tend to generalize findings across the developed and developing countries thereby, overlooking the nuanced differences in institutional strength, political stability, and governance capacity at sub-regional levels. There is a need for detailed, region-specific analyses to understand how governance structures influence green sustainability initiatives (Agada, et, al, 2025).

While many countries have environmental policies and frameworks, studies often neglect how these policies are practically implemented and enforced on the ground, which is critical for assessing the effectiveness of state actions on green sustainability.

There is a scarcity of studies assessing the effectiveness of state actions such as regulation quality, voice and accountability and government effectiveness in shaping and strengthening green development and sustainability in the West African sub-region.

➢ *Research Problems*

- How does state actions such as regulation quality affects green sustainability initiatives among West African countries?
- To what extent does governance structure such as government effectiveness impacts the success of green sustainability among West African countries?
- How have recent state actions such as, voice and accountability influenced green development outcomes in West Africa?

II. LITERATURE REVIEW

➤ *Conceptual Review*

Government/State actions refer to the conduct, decisions, or measures undertaken by a government or sovereign authority. These actions can include laws, policies, enforcement activities, or official acts performed by the state in its capacity as a governing body (Tushnet, 2020).

Most state actions are transmitted and measured through metrics such as regulation quality, government effectiveness, voice and accountability, etc, In the context of green sustainability, state actions refer to the policies, initiatives, regulations, and activities undertaken by governments to promote environmental protection, reduce carbon emissions, conserve natural resources, and foster sustainable development.(UNEP, 2022) Such actions includes; a) implementing laws such as renewable energy mandates, emission reduction targets, and pollution control regulations. b) providing subsidies, tax incentives, and grants for solar, wind, hydro, and other renewable energy projects. c) establishing protected areas, wildlife reserves, and promoting biodiversity conservation. d) encouraging green architecture, public transportation, and eco-friendly infrastructure, e) participating in global climate accords like the Paris Agreement to limit global warming. f) funding research into sustainable technologies and practices.(UNDP, 2018)

Addressing climate change and ecological sustainability requires effective state actions, institutions and governance frameworks at global, national, and local levels. Recent global challenges, such as pandemics and climate change, highlight the importance of multilateral institutions like WHO, IMF, and UN, and their evolving roles in governance (Kharas & Gertz, 2023).

Green sustainability is a comprehensive approach aimed at balancing environmental health, economic viability, and social equity to ensure the well-being of current and future generations. It emphasizes reducing environmental impact through practices like renewable energy adoption, resource conservation, waste reduction, and promoting biodiversity. Again UNEP (2022), noted that the core principles of green sustainability includes; i) Environmental protection which entails minimizing pollution, conserving natural resources, and maintaining ecosystems. ii) Economic viability which imply supporting sustainable economic growth that does not deplete resources. iii) Social equity which connote ensuring fair access to resources and opportunities, fostering community resilience. iv) Circular economy initiatives with emphasis on reducing waste through reuse, recycling, and redesigning products for longevity. Businesses are adopting circular models to minimize environmental footprint. v) Green urban development cities through the integration of green infrastructure, such as urban green spaces, sustainable transportation, and eco-friendly buildings, to combat urban heat islands and improve air quality and vi) Corporate sustainability commitments, in which major corporations are setting net-zero targets and investing in sustainable supply chains, driven by stakeholder demand and regulatory pressure.

Green sustainability remains a dynamic and critical framework for addressing environmental challenges while fostering economic and social resilience. Recent advancements reflect a global commitment to transforming industries, policies, and communities toward a more sustainable future. (Ren, & Mia, 2025)**.**

III. THEORETICAL REVIEW

➤ *Theories of State Actions.*

Theories of state action in relations to green sustainability essentially provide a framework for understanding why governments address green sustainability and how their policies are shaped. These theories move beyond the idea of a simple, benevolent government and instead consider the self-interest of various actors, the difficulty of collective cooperation, and the challenges of policy implementation. (Hood, 2023). Some of the theories of state actions includes:

- *Rational-Choice Theory;*

This theory posits that, states act rationally to maximize their benefits and minimize costs. When it comes to green sustainability, governments implement policies that they perceive will effectively address environmental issues while also aligning with their economic and political interests. With respect to its application to green sustainability, it means that states adopt sustainable practices when the perceived benefits (e.g., economic growth, international reputation) outweigh costs. (Lowi & Weir, 2022).

- *Institutionalism (New Institutionalism) Theory*;

This theory emphasizes the role of institutions (rules, norms, and organizations) in shaping state behavior. Institutional frameworks can facilitate or hinder green initiatives. In strict applicability to green sustainability, it means that states develop environmental institutions (e.g., agencies, laws) and adhere to international treaties (e.g., Paris Agreement), which influence their actions. (North, 1990)

- *Constructivism Theory*

Constructivism focuses on how social norms, ideas, and identities influence state behavior. States act in environmentally sustainable ways when environmental issues become part of their identity or normative commitments. By application, it means that the growing global environmental consciousness influences states to adopt sustainable policies due to international norms and moral considerations. (Wendt, 1999).

- *Regime Theory (International Relations);*

This theory suggests that international regimes (sets of implicit or explicit principles, norms, rules) shape state behavior in global issues like climate change. By application, states participate in international environmental regimes (e.g., Kyoto Protocol, Paris Agreement) to coordinate actions and legitimize their sustainability efforts. (Keohane, & Victor, 2011)

- *Ecological Modernization Theory*;

Proposes that economic development and environmental protection can be mutually reinforcing. States can modernize their economies with green technologies and sustainable practices. By implications, States invest in green innovation, renewable energy, and sustainable urban development as part of modernization efforts. (Spaargaren, & Mol, 1992)

Table 1. Summary of The Theory of Government Actions

Theory	Key Idea	Relevance to Green Sustainability
Rational-Choice	States act to maximize benefits/minimize costs	Adoption of policies based on cost-benefit analyses
Institutionalism	Institutions shape behavior	Creation of eco-regulations and treaties
Constructivism	Norms and identities influence actions	Environmental consciousness and norms drive policies
Regime Theory	International regimes coordinate actions	Global climate agreements guide state commitments
Ecological Modernization	Economic growth and sustainability can coexist	Investment in green technologies

Source; Authors Theoretical Review Summary.

➢ *Empirical Review*

Studies indicates that countries with robust environmental regulations tend to have higher rates of green innovation and investment in renewable energy, energy efficiency, and other sustainable technologies. This is because stringent environmental regulations can incentivize businesses to develop and adopt cleaner technologies and practices. This is a form of regulatory push that can foster green innovation. (World Bank, 2022)

There are numerous report highlighting the importance of participatory governance approaches in achieving sustainability goals. This includes involving local communities in decision-making processes related to resource management and environmental protection. Effective governance structures that involve stakeholders (e.g., governments, businesses, NGOs, communities) are crucial for developing and implementing sustainable policies. Collaboration and dialogue improve the legitimacy and effectiveness of environmental initiatives.

Eze, et, al. (2023) examined thirty (30) countries and found that governments with supportive policies experienced higher growth rates in solar and wind energy capacity. The study concluded that proactive government policies (such as subsidies, tax incentives, and regulatory frameworks) significantly increase renewable energy deployment.

Nicollrtti, et al. (2020) analyzed the Kyoto Protocol's influence and observed that countries with stronger domestic environmental policies were more likely to meet their commitments. They found that participation in international environmental agreements correlates with improved national sustainability practices, but the strength of implementation varies.

Wang, et, al. (2021) found that Chinese cities with stricter environmental laws experienced significant reductions in air pollution levels. They concluded that strict environmental regulation is linked with improvements in air and water quality.

Yunxia, et, al. (2023) demonstrated that cities with strong governance frameworks show higher levels of green building certifications and reduced carbon footprints. Their findings further reveals that urban areas with effective governance and planning policies tend to adopt more sustainable practices, such as green infrastructure and public transit.

Despite positive correlations between state actions and green sustainability, empirical studies highlight challenges such as policy implementation gaps, political will, and economic constraints that influence the effectiveness of government actions.

Table 2 Summary of the empirical review

Area	Key Findings	References
Renewable Energy Policies	Supportive policies increase renewable capacity	Eze, et, al 2023
International Agreements	Strong domestic policies improve compliance	Nicolletti, al., 2020
Environmental Regulations	Stricter laws improve air/water quality	Wang, et,al. 2021
Urban Sustainability	Good governance promotes green urban practices	Yunxia, et, al 2023

Source; Authors Empirical Review Summary.

Overall, empirical evidence indicates that government actions (when effectively implemented) are crucial drivers of progress toward green sustainability. However, contextual factors such as political stability and economic capacity significantly influence outcomes.

IV. METHODOLOGY

➢ *Research Design.*

The research design adopted in this study is the *ex post facto* research design which involves, analyzing data to explore possible causes of an observed effect. It is a valuable first step in understanding relationships between variables. It is also valuable when the relationship between variables is complex and difficult to control especially when several factors may influence the outcome. (Obomeghie, 2025).

➢ *Method of Data Collections*

Panel time series data is used for the study, the data were collected from the Kneoman data base (2024) and the World Bank's world development indicators database (2024). The data were from 2003 to 2023.

➢ *Estimation Method and Justification*

The GMM method is adopted for the analysis. The goal is to address the issue of endogeneity, which may occurs when one or more of the independent variables are correlated with the error term, which can lead to biased and inconsistent estimates if one is to use a simpler method like Ordinary Least Squares (OLS). The GMM addresses this issue by using instrumental variables to create moment conditions.

➢ *The Model of the Study.*

Given our Variables GREN (dependent) and GE, RQ, VA (independent), the GMM model can be written as:

$$\llbracket GREN \rrbracket\_it = β\_0 + β\_0 \llbracket GE \rrbracket\_it + β\_2 \llbracket RQ \rrbracket\_it + β\_3 \llbracket VA \rrbracket\_it + ∪\_i + \llbracket ∈ \rrbracket\_it$$

Where:

$GREN_{it}$ = Green Sustainability i at Time *t*.

GE_{it}, RQ_{it}, and VA_{it} are the independent variables for government effectiveness, regulatory quality, and voice and accountability for entity *i* at time *t*.

$β_0$ is the intercept.

$β_1$, $β_2$, and $β_3$ are the coefficients to be estimated.

$∪_i$ is the unobserved time-invariant individual effect for each entity *i.?*

$∈_{it}$ is the idiosyncratic error term?

The GMM estimator minimizes the following objective function:

$$\min/β) \left[\frac{1}{N} \sum\_{i=1}^{N} Z\_it^{/} \llbracket GREN \rrbracket\_it - X\_it^{/} β)\right]'WN \left[\frac{1}{N} \sum\_{i=1}^{N} Z\_it^{/} \llbracket GREN \rrbracket\_it - X\_it^{/} β)\right]$$

➢ *Definition of Variables*

• *Green Sustainability(GREN):*

The practice of meeting present needs without compromising the ability of future generations to meet their own needs, through the promotion of environmentally friendly and resource-efficient approaches. Carbon intensity as a percentage of GDP is used as the proxy.

• *Government Effectiveness (GE)*:

A measure of the quality and efficiency of public services, the capacity of the government to formulate and implement sound policies, and the degree of its independence from political pressures.

• *Regulatory Quality (RQ):*

The ability of a government to formulate and implement sound policies and regulations that enable a conducive environment for sustainable economic growth, protect property rights, and promote efficient markets.

• *Voice and Accountability(VA):*

A component of governance that measures the extent to which citizens can participate in selecting their government, freely express their opinions, and have access to information.

V. RESULTS AND DISCUSSIONS

The descriptive statistics of our analysis is presented below in table 3

Table 3 Descriptive Statistics

	GREN	**VA**	**RQ**	**GE**
Mean	0.297881	37.05313	-0.678347	-0.848278
Median	0.307304	36.25320	-0.683349	-0.850528
Maximum	0.661190	79.12621	0.268864	0.340909
Minimum	-0.514077	8.212561	-1.855969	-1.806476
Std. Dev.	0.132779	17.59976	0.379803	0.456810
Skewness	-0.407421	0.377859	0.036436	0.388845
Kurtosis	6.104528	2.505206	2.431195	2.426467
Jarque-Bera	151.0969	11.96697	4.823128	13.69487
Probability	0.000000	0.002520	0.089675	0.001062

Sum	104.8541	13042.70	-238.7780	-298.5940
Sum Sq. Dev.	6.188265	108722.8	50.63185	73.24521
Observations	352	352	352	352

Source: Author's Computation from E-Views Output

From table 3 which represents the descriptive statistics, it can be seen that voice and accountability (VA) has the highest mean with a value of 37.05313 while government effectiveness (GE) has the lowest mean with a value of -0.848278. Again voice and accountability (VA) has the highest standard deviation with a value of 17.59976 while green sustainability (GREN) with a value of 0.132779 has the lowest standard deviation.

Table 4 Cointegration Test.

Kao Residual Cointegration Test				
Series: GREN VA RQ GE				
			t-Statistic	Prob.
ADF			-1.665440	0.0479
Residual variance			14.59442	
HAC variance			12.78476	
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(RESID)				
Included observations: 320 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-0.225264	0.035318	-6.378124	0.0000
D(RESID(-1))	0.160776	0.055395	2.902345	0.0040
R-squared	0.114779	Mean dependent var		-0.026312
Adjusted R-squared	0.111995	S.D. dependent var		3.935396
S.E. of regression	3.708482	Akaike info criterion		5.465353
Sum squared resid	4373.402	Schwarz criterion		5.488905
Log likelihood	-872.4564	Hannan-Quinn criter.		5.474757
Durbin-Watson stat	1.946427			

Source; Author's Computation from E-Views Output

From the cointergration test in table 4, one can note that the t-statistic of -1.665440 with a p-value of 0.0479 is less than the significance level of 0.05. This suggests evidence of a long-run relationship among the variables.

Table 5 Test for Serial Correlation.

Arellano-Bond Serial Correlation Test				
Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	-2.424385	-0.203732	0.084034	0.0153
AR(2)	-0.266872	-0.007593	0.028451	0.7896

Source; Author's Computation from E-Views Output

From table 5 which is the test for serial correction, it can be noted that the AR (1) with the p-value (0.0153) is less than 0.05, indicating the presence of first-order serial correlation. This is expected in difference GMM estimations, as differencing induces a first-order correlation. In the case of AR (2) with the p-value (0.7896) which is greater than 0.05, indicates that the model does not have second-order serial correlation, which supports the validity of the instruments.

Table 6 Stationarity Test

Variable	Order	ADF value	Prob	Conclusion
GREN	I (0)	47.8669	(0.0428)	Stationary
GE	I (0)	56.0620	(0.0285)	Stationary
RQ	I (I)	170.007	(0.0000)	Stationary
VA	I (I)	121.847	(0.0000)	Stationary

Source: Author's Computation from E-Views Output

From table 6 which depicts the stationarity situation using the ADF test, it can be seen that both GREN and GE are stationary at levels while RQ and VA are stationary at first difference.

Table 7 The GMM Result Output

Dependent Variable: GREN				
Method: Panel Generalized Method of Moments				
Transformation: First Differences				
Instrument specification: @DYN(ENV,-2) RQ(-1) VA(-1) GE(-1)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
GREN(-1)	0.523207	0.008199	63.81403	0.0000
RQ	0.035923	0.006073	5.915536	0.0000
VA	0.000600	0.000184	3.255165	0.0013
GE	-0.084242	0.009743	-8.646544	0.0000
	Effects Specification			
Cross-section fixed (first differences)				
Mean dependent var	0.001075	S.D. dependent var		0.034964
S.E. of regression	0.047021	Sum squared resid		0.698672
J-statistic	12.99478	Instrument rank		16
Prob(J-statistic)	0.369420			

Source: Author's Computation from E-Views Output

From table 7, which depicts the panel GMM output, the J-test of 0.369420 indicates that the instruments used are valid and not correlated with the error term. All the independent variables are statistically significant at 5%, indicating that each independent variable has a meaningful impact on the dependent variable.

With respect to regulatory quality (RQ), the positive coefficient of 0.03594 and p-value of 0.0000 indicates that an increase in regulatory quality is associated with an increase in green sustainability. Specifically, for each unit increase in regulatory quality, green sustainability is expected to increase by approximately 0.0359 units, holding other factors constant. The result suggests that improving regulatory quality promotes higher levels of green sustainability. This aligns with theoretical and empirical literature such as, Stiglitz, (2010) that emphasizes the role of effective regulation in fostering sustainable environmental practices. Equally, regulatory quality is often considered a key factor in encouraging firms and individuals to adopt environmentally friendly practices (World Bank, 2021).

With respect to voice and accountability, (VA) the coefficient of 0.00060 with a p-value of 0.00013 indicates that for a unit increase in voice and accountability, green sustainability is expected to increase by approximately 0.00060 units, holding other factors constant. The significant positive coefficient suggests that greater citizen participation and accountability lead to better environmental practices and policies, thereby enhancing green sustainability. This aligns with existing literature such as, Börzel & Risse, (2014) which indicates that good governance, transparency, and citizen engagement are critical for sustainable environmental outcomes.

In the case of government effectiveness, the estimated coefficient of -0.084242 indicates that for a unit increase in government effectiveness, the green sustainability is expected to decrease by approximately -0.084242 units, holding other factors constant. This imply that effective governments might prioritize economic growth or other policies over environmental sustainability, or that other mediating factors could be influencing this relationship. The relationship between government effectiveness and environmental sustainability is complex with some controversies, while some studies e.g., Stern (2024) suggest that effective governance can support sustainable development other researches such as, Park and Park (2023) indicates that government effectiveness alone may not guarantee better green outcomes if policy priorities favor economic or industrial growth over environmental concerns.

With respect to the lagged dependent variable GREN-1, the positive coefficient of 0.523207 and a p-value of 0.0000 indicates that an increase in last year green sustainability is associated with an increase in current green sustainability. Specifically, for each unit increase in last year green sustainability, current green sustainability is expected to increase by approximately 0.5232 units, holding other factors constant. The result suggests that improvement in last year green sustainability promotes higher levels of current green sustainability. This aligns with theoretical and empirical literature such as, Li, et, al. (2024) that emphasizes the role of inertia on green sustainability in fostering current sustainable environmental practices.

VI. CONCLUSION

A positive relationship between green sustainability and regulatory quality suggests that stronger, more effective regulatory frameworks are associated with improved sustainability outcomes among West African countries. This indicates that enhancing regulatory quality such as; establishing clear environmental policies, enforcement mechanisms, and governance standards can promote greener practices, sustainable resource management, and environmental conservation. (World Bank 2012).

The positive relationship between green sustainability and voice and accountability suggests that citizen participation, transparency, and accountability among citizens in West African are associated with better environmental and sustainability outcomes. This further indicates that when governments are more responsive and

accountable to their citizens, they are more likely to implement and enforce policies that promote green initiatives, conservation, and sustainable development. (Burzel and Risse, 2014)

The positive relationship between green sustainability and its lagged value suggests persistence or inertia in sustainable practices over time among West African countries. This indicates that countries maintaining high levels of green sustainability in the past are likely to continue doing so in the future, highlighting the importance of establishing a strong foundation early on (Muhammed, et, al. 2024).

A negative relationship between green sustainability and government effectiveness among West African countries suggests that governments in West Africa may not prioritize environmental sustainability, possibly due to competing development goals, resource constraints, or policy priorities that favor economic growth over environmental protection.

VII. RECOMMENDATIONS

Policy formulators in West African countries should evolve policies that will encourage investment in building robust environmental regulatory agencies with clear mandates, transparency, and accountability. They should equally, develop and implement clear environmental policies that incentivize green technologies, renewable energy, and sustainable resource use.

West Africa policy managers should also enhance stakeholder engagement through fostering collaboration among government, private sector, civil society, and local communities to ensure policies are inclusive and effective. Finally, given the inertia of past green sustainability, and to capitalize on this inertia, policymakers should focus on maintaining and strengthening existing initiatives, fostering long-term investments, and ensuring policy stability to promote sustainable development effectively. Data collection procedures on environmental indicators should also be improved upon to better inform policy decisions as well as, regularly evaluate the effectiveness of green policies should be embarked upon the various states.

In the case of government effectiveness, states in West Africa should endeavor to include green sustainability policies into their economic growth and development drive. This is in order not to loose track of the imperative of maintaining a balances green environmental outcome.

➢ *Limitations to the Study*
Research on state actions toward green sustainability within West African states faces several notable limitations, which can affect the depth, scope, and applicability of findings, these limitations include:

- *Inconsistent Data Collection:*
Variations in data collection standards and capacities across countries lead to inconsistent datasets, complicating cross-country comparisons. The implication is that this

scarcity constrains rigorous quantitative assessments of government actions and their effectiveness.

- *Limited Political Will:*
Competing priorities, such as economic development challenges, often overshadow sustainability initiatives. These factors limit the scope and consistency of state actions, making it difficult to isolate policy effects.

- *Diverse Economic and Social Contexts;*
Heterogeneity of member states of West Africa countries vary widely in economic development, resource endowments, and institutional capacity, complicating broad generalizations. Local beliefs, practices, and social norms influence policy acceptance and effectiveness are often under-explored. This diversity challenges the formulation of unified policies and their evaluation across the region.

- *Global Market Pressures:*
External economic forces influence state actions, often prioritizing short-term economic gains over environmental sustainability. External factors can distort the assessment of genuine state-led actions and commitments.

- *Measurement Challenges:*
Difficulties in quantifying the effectiveness of policies and translating commitments into tangible outcomes. Research may overestimate progress based on formal commitments without reflecting real-world impacts.

Addressing these limitations requires strengthening regional data collection, enhancing institutional capacities, and conducting more nuanced, longitudinal, and region-specific research to better understand the dynamics of state actions and green sustainability in West Africa.

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