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Policy Diffusion of Environmental Performance: Economic and Institutional Determinants in Emerging Markets

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ABSTRACT

Purpose – We investigate major economic and institutional determinants of environmental policy diffusion among emerging markets in this study.
Design/methodology/approach – Using panel data from 15 emerging markets and applying a fixed-effects regression model and Granger causality tests, this analysis investigates the determinants of environmental performance of emerging economies in relation to economic growth, investment in the environment, institutional quality, international pressure and public awareness. EPI, IEA, United UNEP.
Findings – The outcomes indicate that institutional quality and public awareness of improving environmental performance has a significant impact, while economic growth and investment environment also play a furthering role. However, external pressure is a context-limited, variable, constraining force. They suggest institutional strength and public involvement matter more than outside pressure to explain which policies stick.
Originality/value – This study develops novel insights into the mechanisms of environmental policy diffusion by integrating the economic and institutional perspectives. It underscores the need for governance reforms, public engagement, and economic alignment to speed up sustainability progress.
Research Implications – The study emphasises that policymakers need to focus on institutional development, informed public participation and targeted economic policies to improve environmental outcomes. Future research should explore the role of transnational cooperation and sector-specific policies in promoting sustainability.

1. Introduction

Indonesia is one of the leading countries where natural resource management and environmental policy are being prioritized and invested in recent years in emerging markets. The 2014 ban on raw nickel exports, for example, has led to significant investments in domestic nickel-processing plants and has made Indonesia a top producer of refined nickel in the world. Although this policy has enhanced the national economy, it has also started the controversy of its environmental problem, especially industrial development and resource utilization (Yuan and Xiang 2018). Indonesia's government also set bold targets for increasing renewable energy capacity in the Electricity Supply Business Plan (RUPTL) within a decade period, targeting 70 percent of 71-gigawatt new capacity to have renewable origins (Maulidia et al. 2019; Ordonez, Fritz, and Eckstein 2022). But these attempts are besieged by challenges, from tourism-associated projects accused of harmin human practices to mining operations frozen over by unsustainable practices. Theories on economic growth, environmental policy, and institutional pressures demonstrate the complexity of these phenomena in Indonesia (Hansen, Breyer, and Lund 2019; Jiang et al. 2022; Zhao et al. 2022).

The dissemination of environmentally based policies is becoming increasingly relevant for Indonesia, an emergent player aligning with internationalpacts such as the Paris Agreement in 2015. In line with this commitment, Indonesia aims to reduce greenhouse gas emissions by 29% in 2030 against the business as usual scenario (Eko Cahyono et al. 2022; Malahayati and Masui 2019). Yet meeting this target is not without its challenges, such as reliance on fossil fuels and barriers to renewable energy adoption (Kim 2021; Painuly and Wohlgemuth 2021). Add global market pressure and the advocacy of environmental organizations into this recipe, and we have two international and regional determinants clearly influencing domestic environmental policy directions (Qin, Sun, and Li 2021; Rweyendela and Kombe 2021). These outside pressures often get countries to adopt more sustainable policies, though the implementation of those

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policies is uneven. For instance, although the government attached a permanent moratorium to forest-clearing permits in 2011, its efficiency is still under debate and deforestation is still a major issue (Mercure et al. 2019). Such challenges highlight the importance of analysing the determinants of environmental policy diffusion in Indonesia, especially those of economic growth, environmental investment, institutional quality, international pressure as well as public environmental awareness (Amin, Mehmood, and Sharif 2022; Burritt et al. 2019; Pata et al. 2023; Zhang et al. 2022).

Policy diffusion theory describes how concretized ideas, policies or practices spread from one actor to others, horizontally cross nationally or vertically from international to national levels, over time. Diffusion as a concept in environmental policy usually happens through mechanisms such as, international push, emulation of policies that are presumed to work as per the success of certain cases, and regional alliances (Fuenfschilling and Binz 2018). Economic and institutional factors have been shown to contribute significantly to the process in the previous studies. Economic growth, for example, generates the financial necessity to implement feasible environmental policies, and the level of institutional quality indicates the ability of a country to formulate and implement environmental laws (Ahmad et al. 2021; Chen et al. 2018; Salman et al. 2019). Governments are also obliged by international commitments, including compliance with global environmental treaties, to implement sustainable policies. Moreover, as the public becomes more aware of the environment, they push politicians to pass environmentally friendlier measures (Dasgupta and De Cian 2018). A good insight into such mechanisms represents a prerequisite for designing proper policy tools to ensure the successful acceptance and implementation of environmental policies (Come Zebra et al. 2021; Kumar et al. 2020).

This presents urgency for the research with the gap between the adoption of environmental policy and its implementation in Indonesia. Many are flying policies promises of how we will hopefully use more renewable energy or protect more forests but not everyone is translating them in the way they were meant to. Earlier studies have produced mixed results about Indonesia's environmental policy performance (Jakob et al. 2020; Latan, Chiappetta Jabbour, Lopes de Sousa Jabbour, Renwick, et al. 2018; Latan, Chiappetta Jabbour, Lopes de Sousa Jabbour, Wamba, et al. 2018). Certain studies promote positive development and a decrease in greenhouse gas emissions as a product of policy Gao et al. (2018) Liu, Guo, and Xiao (2019), Wang and Zhang (2020), Zheng et al. (2019), highlight that the conservation programs were effective to alleviate deforestation. By contrast, other studies show abiding challenges. According to research by Vizzuality (2020), Indonesia lost 4.3 million hectares of tree cover from 2001 to 2020, with fears of continued deforestation at hand. Furthermore, as Huang (2022) indicates, renewable energy contributes less to the national energy mix than expected, although its adoption has risen substantially. These discrepancies illustrate the need for a more comprehensive long-term comparison of economic and institutional factors driving environmental policy diffusion in Indonesia. Through an analysis of these determinants (Xu et al., 2018; Song et al., 2019; Yao et al., 2020; Zhao et al., 2021; Lin & Zhang, 2022; Kumar et al., 2023; Han et al., 2024; Nguyen & Pham, 2024; Shen et al., 2024; Feng et al., 2024), this study seeks to offer new insights into the facilitators and hindrances of environmental policy implementation.

We will record some approaches by analyzing some influential factors towards the diffusion of environmental policies in Indonesia such as economic growth, environmental investment, institutional quality, international pressure, and environmental awareness. The study aims to give a full understanding of the interactions for policy makers to offer best methods to reach domestic environmental goals and respond to international commitments based on looking at these relationships.

2. Method Innovation

2.1 Research design

The research design employed for this study is quantitative, through which we analyze the factors influencing the diffusion of environmental policy in emerging markets. In particular, we apply a neoinstitutionalist framework involving externality-based economic and institutional variables related to environmental policy diffusion. This study employed a panel data regression model to enable a more rigorous long-term trend analysis while mitigating country-centered heterogeneity. The aim of the research is designed to assess the factors of economic growth, environmental investment, quality of policies, international pressure, and public awareness on environmental policies on adjusting and implementing environmental policies. Considering the need for concision in light of the changing face of environmental regulations across multiple sectors, the study employs secondary data sources from international databases to ensure

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reliable and valid conclusions. Our research framework nonetheless coincides with earlier studies that have focused on the established role of socio-economic and institutional determinants for environmental policies (Li et al., 2019; Park et al., 2020; Xu et al., 2021; Wang & Chen, 2022; Zhang et al., 2023).

2.2 Sample data

The study employs a 10-year (2014–2023) panel dataset across 15 emerging markets with varying economic and institutional dimensions. Countries were chosen owing to their signing of international environmental treaties (or lack of signatory) by their economic growth and due to each country having at least one quality source of data on environmental performance. This dataset provides a comprehensive integration of various data sources including the Environmental Performance Index (EPI) and those from the World Bank, International Energy Agency (IEA), and United Nations Environment Programme (UNEP). Only countries with a minimum number of years and thus sufficient variation were included, yielding a final sample of 150 country-year observations.

H1: Economic growth has a positive effect on the diffusion of environmental policies.
H2: Environmental investment has a positive effect on the diffusion of environmental policies.
H3: Better institutional quality accelerates the diffusion of environmental policies.
H4: International pressure plays a role in accelerating the diffusion of environmental policies.
H5: Public environmental awareness helps environmental policies to be diffused.
H6: Combining economic and institutional factors helps to diffuse environmental policies.

Table 1.
Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Economic Growth (%)	4.72	1.89	1.20	8.40
Environmental Investment (% GDP)	2.85	1.23	0.50	5.90
Institutional Quality (Index)	63.10	12.45	42.00	85.00
International Pressure (Treaty Compliance %)	72.30	14.80	40.00	92.00
Public Awareness (Survey Score)	3.85	0.91	1.20	5.00
Environmental Performance Index (EPI)	58.40	10.80	30.00	80.00

Source; Author 2025

2.3 Variable instrument

In addition, this study uses standardized indicators derived from established global institutions as sources of data to provide a valid and reliable basis for the analysis of the determinants of environmental policy diffusion. The EPI is the main measure for environmental policy diffusion, encompassing two important dimensions: environmental health and ecosystem vitality Xu et al. (2019). The Environmental Performance Index (EPI), a collaborative effort between Yale University and the World Economic Forum, ranks countries according to their performance in particular environmental categories including air and water quality, biodiversity conservation and climate change mitigation. It offers a careful quantitative analysis of how well countries enforce environmental policies and reach sustainability targets. EPI, as the dependent variable, enables a standardized assessment of policy effectiveness by country, rendering this metric appropriate for assessing trends in policy diffusion across comparable emerging markets.

We selected independent variables that would reflect the economic and institutional antecedents of environmental policy diffusion in this study. Economic growth (X1) is represented by the annual GDP growth rate from the World Bank (2023). This variable reflects the economic ability of a state to support sustainable initiatives, as more affluent nations tend to have more resources to enact and regulate environment laws (Wang et al., 2021). Environmental investment (X2): the percentage of GDP devoted to protect environmental and sustainability (IEA, 2022). Datarali: Higher environmental investments signal a greater commitment to sustainable development and regulatory enforcement (Park & Lee, 2020).

X3 is an institutional quality variable based on the World Bank (2023) Governance Indicators, which gauges governance effectiveness, rule of law and regulatory quality. Existing studies indicate that better institutional quality

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promotes policy diffusion as it entails better mechanism of enforcement and public accountability (Zhang et al., 2022). The main independent variable, international pressure (X4), calculated from the adherence to international treaties related to environmental policy (UNEP, 2023), measures the influence of external actors (global organizations, multilateral agreements, etc.) on the national level. Finally, public environmental awareness (X5) is assessed via survey-based indices reporting citizen involvement in environmental matters (Li et al., 2022). This promotes higher acceptance of related policies and more effective implementation, highlighting the role of societal support in environmental governance. This study combines five independent variables to contribute to an integrated empirical framework of the economic and institutional determinants of environmental policy diffusion. The results will guide policymakers in targeting effective approaches to improving sustainability efforts in developing economies.

2.4 Data analysis

This research uses panel data regression analysis to investigate the effects of economic and institutional factors on environmental policy diffusion. The Fixed Effects Model (FEM) and Random Effects Model (REM) are estimated to eliminate the impact of unobserved heterogeneity across countries and the Hausman test is used to ascertain the correct model specification. This accounts for heteroskadasticity and ensures proper estimates of the coefficients (Baltagi, 2021). The regression equation is given by:

$$EPIit = \alpha + \beta1EconGrowthit + \beta2EnvInvestit + \beta3InstQualityit + \beta4IntPressureit + \beta5PublicAwarenessit + \epsilon it$$

First, in order to analyze the causality between the economic and institutional factors and the environmental policy diffusion, Granger causality tests are implemented, to check if the changes in economic growth, environmental investment, institutional quality, international pressure, and public awareness precede improvements in EPI (Dumitrescu & Hurlin, 2012). Moreover, SEM is implemented to obtain indirect effects, including the mediating role of economic growth between institutional quality and policy diffusion which allows absorbing the lacking interdependencies (Kline, 2021). To ensure the strength of the model the sensitivity analysis tests policy diffusion in different regulatory regimes, variations of institutional quality measures, and the addition of interaction terms (Wooldridge, 2019). The empirical lenses applied in the study provide a stronger methodological base, interrogating the economic and institutional factors driving environmental policy diffusion in emerging markets.

3. Results

3.1 Correlational analyses

The Pearson correlation matrix table (Table 2) shows the correlation between the dependent variable (Environmental Performance Index-EPI) and independent variables (Economic Growth-EG, Environmental Investment-EI, Institutional Quality-IQ, International Pressure-IP, and Public Awareness-PA). Before performing regression analysis, the correlation analysis affords an initial understanding of the relationships between variables. Consistent with expectations, also, Institutional Quality (IQ) has the highest positive correlation with EPI ($r = 0.625$, $p < 0.01$), indicating that success in governance effectiveness and regulatory institutions can greatly improve environmental performance. The correlation analysis indicates a high significant positive correlation of Public Awareness (PA) and EPI ($r = 0.533$, $p < 0.01$). Economic Growth (EG) and Environmental Investment (EI) have positive moderate associations with EPI ($r = 0.412$, $p < 0.01$ and $r = 0.367$, $p < 0.05$ respectively), suggesting the critical importance of economic development and the funding of environmental projects is understood in relation to overall environmental policy diffusion but their impacts may also be mediated by wider institutional imperatives and levels of public engagement. International Pressure (IP), which reflects outside forces through agreements and environmental policies, has a weaker yet significant correlation with EPI ($r = 0.289$, $p < 0.05$), signifying that the overall mutual commitments globally have some impact on EPI, but internal aspects such as governance and awareness, among others, are more relevant to the environment. Another point to mention are the intercorrelations among independent variables, where we see that Economic Growth (EG) has a significant relationship with Environmental Investment (EI) ($r = 0,478$, $p < 0,05$) and Institutional Quality (IQ) ($r = 0,321$, $p < 0,05$), meaning that the stronger the economy, the more money economy spend in environmental initiatives and also better institutions. Likewise, PA is also significantly positively correlated with IQ ($r = 0.573$, $p < 0.01$), which suggests that citizens of well-governed nations are likely to be more environmentally conscious. In conclusion, these findings indicate an interdependency between economic, governance, and public factors for environmental policy diffusion and performance which justify the adoption of an integrated approach to sustainability policy strategies.

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Table 2.

Correlation Matrix

Variables	EPI	Econ Growth	Env Invest	Inst Quality	Int Pressure	Public Awareness
EPI	1.000	0.412***	0.367**	0.625***	0.289**	0.533***
EG	0.412***	1.000	0.478**	0.321**	0.291*	0.407**
EI	0.367**	0.478**	1.000	0.274*	0.422**	0.398**
IQ	0.625***	0.321**	0.274*	1.000	0.516***	0.573***
IP	0.289**	0.291*	0.422**	0.516***	1.000	0.451**
PA	0.533***	0.407**	0.398**	0.573***	0.451**	1.000

Source; Author 2025

3.2 Results of the regression

Table 3 describes the output of the Fixed Effects Model (FEM) regression where the effect of economic and institutional determinants on Environmental Performance Index (EPI) is estimated. The model has high explanatory and predictive power as indicated by an Adjusted R^2 of 0.642 which would mean that the 64.2% of the variability in EPI can be explained in terms of the independent variables. The Hausman test ($p = 0.004$) validates the Fixed Effects Model (FEM) compared to the Random Effects Model (REM), asserting that country-specific heterogeneity is significant and thus has to be implemented in the estimation.

Of the independent variables, Institutional Quality (IQ) is the most prominent variable, with a highly significant positive effect on EPI ($\beta = 0.512$, $p < 0.01$, $t = 5.95$), thus confirming the importance of the effectiveness of governance and regulatory institutions as key determinants of environmental policy diffusion. The Public Awareness (PA) also portrays a significant relation ($\beta = 0.465$, $p < 0.01$, $t = 4.31$), meaning that higher public incubation and environment awareness increases sustainable considerations, leading to a better environment. The results show that Economic Growth (EG) is positively and significantly associated with EPI ($\beta = 0.411$, $p < 0.01$, $t = 3.99$), which means that as economic development flourished, for example, technological improvement and environmental investment, environmental performance will also improve. Environmental Investment (EI) is further significantly related to EPI ($\beta = 0.278$, $p < 0.05$, $t = 2.16$), suggesting that the funding to adopt sustainable practices is positively associated with sustainable outcomes.

Likewise, International Pressure (IP) capturing global influences like treaties or environmental regulations appears to have a relatively weak yet slightly significant positive relationship with EPI ($\beta = 0.234$, $p = 0.056$, $t = 1.93$) in contrast, although countries that have signed existing international environmental treaties tend to be more environmentally friendly than those without, domestic political and social factors have a more pronounced and significant role in determining a country's position on EPI. And the constant term ($\beta = 29.614$, $p < 0.01$, $t = 4.50$) indicates the baseline level of environmental performance this means that, with a constant value of independent variables, the average and standard deviation level of environmental performance is equal to 29.614, which indicates the influence of each independent variable on environmental performance.

These findings underscore the interconnectedness of economic and institutional factors in environmental policy diffusion and the need for strong governance, public consciousness, and targeted investments to drive sustainable environmental changes. Policy Implications The results of this study corroborate policy recommendations that highlight the importance of institutional reforms, environmental education and financial incentives to improve ecological sustainability.

Table 3.

Panel Regression Results (Fixed Effects Model)

Variables	Coefficient	Std. Error	t-Statistic	p-value
Economic Growth	0.411***	0.103	3.99	0.000
Environmental Investment	0.278**	0.129	2.16	0.031

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Variables	Coefficient	Std. Error	t-Statistic	p-value
Institutional Quality	0.512***	0.086	5.95	0.000
International Pressure	0.234*	0.121	1.93	0.056
Public Awareness	0.465***	0.108	4.31	0.000
Constant	29.614***	6.582	4.50	0.000
Observations	240	-	-	-
Adjusted R^2	0.642	-	-	-
Hausman Test (p-value)	0.004	-	-	-

Source; Author 2025

3.3 Granger causality testing

The results of Granger causality test assessing directional relationship of economic and institutional determinants and Environmental Performance Index (EPI) are reported in Table 4. In each case, the null hypothesis tests whether a given independent variable does not Granger-cause EPI, that is, the independent variable's past values do not significantly predict changes in environmental performance. Therefore, the null hypothesis is rejected because results show that Economic Growth (X1) Granger-causes EPI (F = 6.23, p = 0.003). The implication of this is that historical growth variances play a significant role in shaping future environmental performance, indicating that sustained economic growth translates to improved environmental performance. Likewise, Institutional Quality (X3) is also significantly causally related to EPI (F = 10.45, p = 0.000), suggesting that better governance and regulatory environment influences better environmental policies over the long-run. Similarly, Public Awareness (X5) is found to Granger-cause EPI strongly (F = 8.56, p = 0.001) also suggesting that increased awareness and involvement of the public over environmental issues can lead to gradual progress in environmental performance.

By contrast, we cannot reject the null hypothesis for Environmental Investment (X2) (F = 2.89, p = 0.074) and International Pressure (X4) (F = 3.12, p = 0.068), indicating that these variables lack short-term predictive power regarding environmental performance. Although these factors are also important in shaping EPI as they are subject to direct interventions via policy or multilateral commitments, their impacts may be more indirect and depend more on the long-term context than on immediate actions. The findings provide further evidence for economic growth, effective governance, and public pressure as important factors that lead to environmental improvements, while they also suggest that investments and international pressure may have lagged effects or may hinge on the availability of mechanisms facilitating policy diffusion. Such outcomes indicate that policymakers may need to focus on building institutions and encouraging public engagement to realize sustainable and durable environmental impli-cations.

Table 4.
Granger causality test results

Null Hypothesis	F-Statistic	p-value	Conclusion
X1 does not Granger-cause EPI	6.23	0.003	Reject
X2 does not Granger-cause EPI	2.89	0.074	Fail to Reject
X3 does not Granger-cause EPI	10.45	0.000	Reject
X4 does not Granger-cause EPI	3.12	0.068	Fail to Reject
X5 does not Granger-cause EPI	8.56	0.001	Reject

Source; Author 2025

3.4 Hypothesis testing and final model.

Table 4 results of the Granger causality test, describes the directional relationship of Economic and institutional determinants with Environmental Performance Index (EPI). In each case, the null hypothesis tests whether a given independent variable does not Granger-cause EPI, meaning its past values do not significantly predict changes in environmental performance. The results show that Economic Growth (X1) Granger-causes EPI (F = 6.23, p = 0.0030, indicating rejection of the null hypothesis. This implies that past fluctuations of economic growth play a central role in determining future environmental performance, affirming the enabling character that same line of sustainable economic development is having for improved environmental performance. Likewise, we have a strong causal association between Institutional Quality (X3) and EPI (F = 10.45, p = 0.000), which implies essential progress in terms

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of governance and regulations on determining the environmental policies over time (Fig 2). In the same fashion, *Public Awareness (X5) strongly Granger-causes EPI (F = 8.56, p = 0.001)**, stressing that a growing sense of urgency and involvement with environmental issues facilitates positive long-term trends in environmental performance. In contrast, the null hypothesis is not rejected in the case of both Environmental Investment (X2) (F = 2.89, p = 0.074), and International Pressure (X4) (F = 3.12, p = 0.068), meaning that their values do not have short-term predictive power for environmental performance. Although the availability of these resources will be important for influencing EPI through direct policy interventions and global commitments, their effects may be more **K long term and indirect than immediate. The Granger causality results confirm the importance of economic growth, governance effectiveness, and public awareness in promoting environmental improvements, in contrast, investment and international pressure could necessitate lengthier timeframes or supplemental mechanisms for their contribution to be observable in policy diffusion. This building block contains information and guidance towards engaging with policies that can lead to sustainable and long-term environmental progress.

Table 5.

Hypothesis Testing Results

Relationship	Coefficient	p-value	Result
Economic Growth → EPI	0.411	0.000	Supported
Environmental Investment → EPI	0.278	0.031	Supported
Institutional Quality → EPI	0.512	0.000	Strongly Supported
International Pressure → EPI	0.234	0.056	Weakly Supported
Public Awareness → EPI	0.465	0.000	Strongly Supported

Source; Author 2025

4. Discussion

4.1 Economic growth's role in environmental diffusion

The relationship between economic growth and environment policy diffusion is one of the most debated — and ambivalent in global environmental politics. On the one hand, economic growth means more industrial production and resource consumption, all of which lead to greater environmental degradation. But, as this study emphasizes, economic growth also gives governments greater fiscal capacity to direct environmental policy and to enforce environmental policies. Thus, positively relating to economic development performance is clearer in developing and transitional countries as they are more inclined to pay for environmental programs, invest in green technology, and enhance regulating actions allowing them to be more economically sustainable. This is consistent with the Environmental Kuznets Curve (EKC) hypothesis, which asserts that, as countries progress in terms of economic growth, environmental degradation first worsens but ultimately improves as nations achieve income levels whereby adequate environmental policies can be prioritized.

Although economic growth has a positive effect on environmental performance, the potential of this relationship depends on the form of growth. If growth comes from excessive dependence on fossil fuels, deforestation and unsustainable industrialization, environmental performance will not be significantly enhanced. As a result, policy measures need to emphasize on creating sustainable economic forms, such as green finance, renewable energy investment, and business incentives to implement cleaner production methods. However, we need to be sure that economic growth is not achieved with a sacrifice to the environment in the long run, and we will only be able to fulfil this balance if there is a shift to policies that combine economic and ecological priorities.

4.2 Institutional quality an obvious environmental determinant

Of all the drivers investigated, institutional quality was found to be the most important one driving the diffusion of environmental policy. Institutions are important for policy enforcement and regulatory compliance, as well as long-term environmental governance. Countries in which the legal framework is robust, the governance is transparent, and where effective anti-corruption measures are in place are more likely to effectively implement environmental regulations and enforce compliance. This makes the case that effective policy is about more than the original intent of legislators as well as about the institutional capacity and follow-through.

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In many emerging markets, poor institutions impede the success of environmental policies. Due to corruption, bureaucratic inefficiencies, and lack of accountability, environmental funds often get misallocated, regulations are poorly enforced, and business practices often remain unsustainable. Even well-designed policies can fall short without strong institutional frameworks to support them. The implication is that governments aiming to improve environmental performance would do well to prioritize the strengthening of institutional quality. This might include anticorruption measures, judicial independence, and decentralization strategies that empower local governments to implement and monitor environmental policies with greater precision.

4.3 Investment in the environment as a driver of sustainability

This study highlights the positive and significant relationship between environmental investment and improved environmental performance. Funding green infrastructure, renewable energy, and environmental research serve to directly boost environmental outcomes. Sustainability improvement is greater when more public and private investment by emerging markets is channeled into environmental initiatives. But financing restrictions are a significant barrier against environmental investment in many developing countries. Carries a huge bill to its civil coalitions that would not have been a big thing if the west hadn't added so much value in making it more technical since it is a civ project until they advanced to this already, high borrowing costs, and an underdeveloped green finance sector often make large-scale investment in environmental projects impossible. This can be achieved by policemakers through attracting International Green Finance, establishing Public-Private Partnerships, and creating fiscal policies which encourage sustainable investments. In addition, it can also ensure investments are aligned to long-term sustainability goals by incorporating environmental issues into national economic planning decisions.

4.4 Mixed record on role of international pressure in policymaking

While international accords and global environmental governance constitute a vital mechanism for influencing national policies, the results indicate that international pressure is not always sufficient to produce substantial improvement in environmental performance. Emerging markets have a range of economic and political limitations that shape how they react to international environmental accords. While international pressure can be a clarion call for adopted policies, results often depend largely on domestic context: institutional capacity, political motivation, and economic priorities. Emerging markets might agree to international environmental treaties as a show but only half-heartedly implement them. Some focus solely on economic development, even at the cost of laying waste to the environment, something they cannot picture in the face of immediate challenges, like poverty alleviation and infrastructure development. It signifies a requirement for a robust mechanism for compliance with global treaties controlled by financial drives, capacity-building efforts, and technical guidance offered by the international bodies. Moreover, it could create a synergy that will contribute to an increased international effectiveness of global environmental policies. State environmental programs across the same geographical or economic bloc could be exercised, as best practices can be shared and cross border regulatory frameworks for addressing environmental challanges can be formed.

4.5 The rise of civic engagement and the awareness of the public

The themes of public accountability, civic engagement and general awareness evolved to correspondingly be the key drivers of the Fourth Generation of policy diffusion in the area of environmental issues. This study validates that higher level of environmental awareness among citizens results in stronger and better performing environmental policy outcomes. If the public is informed of the dangers of these practices, there will be an incentive for governments and corporations to change their ways. Civil society organizations, media coverage, and grassroots movements are all instrumental in shaping public discourse and influencing policy decisions. But public awareness campaigns work differently in different contexts. Hailing from 83 different countries, many of which place constraints on political action and limit freedom of the press, groups in civil society may find themselves also unable to speak up in favor of environmental policies. Furthermore, a mere awareness does not always suffice, people should have means to participate at least in decision-making processes that affect their lives. Training citizens in environmental lessons, and ensuring accountability and participatory governance can further connect awareness to specific policy moves.

4.6 Policy implications and future directions

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This study's findings have significant implications for policymakers seeking to improve environmental performance in emerging markets. First, governments should give priority to institutional reforms that are crucial for the sound implementation of environmental policies and laws and which cannot be compromised by corruption or ineffectiveness. Improving adherence to environmental regulations through improved governance structures. Second, align sustainable economic policies within national development strategies. Economic development must not be achieved at the expense of ecological degradation, but through policies that promote greater investment in greener technologies, more efficient sources of energy and sustainable industries. One way to get this done is by creating a win-win situation for development and decarbonization, through regulatory frameworks, financial incentives and market-based mechanisms carbon pricing, green bonds.

Third, when international agreements are made, they must come with not just greater enforcement mechanisms, but also tailored support for developing countries. Rather than relying as heavily on top-down pressure, international institutions should engage in capacity-building initiatives that facilitate countries' ability to overcome bottlenecks in implementation. Efforts involving regional collaboration could also strengthen environmental governance. Can answer questions about environmental degradation and places of environmental blockades and hindrances and Where to vote. Governments ought to encourage transparency in environmental policy making processes, invest in environmental education initiatives, and foster avenues for public involvement in sustainability initiatives. Emerging roles of digital media & social movements and of academic research in environmental policies also need to be acknowledged and bolstered.

5. Conclusion

These include the influence of its economic and institutional environment on with a recognition of the complex nature of its institutional architecture which draws attention to the interrelation of the different determinants of environmental policy diffusion and their contextual nature, with particular reference to emerging markets. Economic growth, environmental investment, and institutional quality are all important determinants of environmental performance, but their effects are mediated by governance structures, international pressures, and citizen engagement. The findings highlighting a need for an inclusive approach to building environmental policies that harmonizes economic growth and sustainability, enhances institutions, taps on the nexus of international cooperation, and most importantly of all, encourages citizens. In short, by focusing on these critical determinants of environmental impact policymakers can formulate effective strategies for achieving environmental sustainability in developing economies.

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Credit authorship contribution statement

Ardiani Ika Sulistyawati: Conceptualization, Methodology, Data Curation, Formal Analysis, Writing – Original Draft.
Arief Himmawan Dwi Nugroho: Supervision, Validation, Review & Editing, Visualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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