State Financial Losses as a Result of Environmental Damage

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ABSTRACT

Indeed, corporations serve as the primary consumers of resources and the primary contributors to environmental damage. Indonesia incurs substantial economic losses as a consequence of environmental damage. Corruption frequently contributes to the deterioration of these conditions, resulting in fiscal ramifications for the government that are attributable to environmental damage. This study aims to examine the state financial losses incurred by states as a result of environmental damage. This is normative-jurisprudential research. This research shows that environmental damage ultimately results in a financial loss for the state and must be recouped by the violating corporation. The deterioration of this circumstance is frequently correlated with corruption, leading to financial losses for the government due to environmental damage. Therefore, a comprehensive legal framework is required to maximize the recovery of this damage. Enhancing regulatory transparency concerning the distribution of state funds and calculating losses will ensure the legal validity of efforts to enforce environmental legislation in response to corporate violations. Furthermore, environmental damage affects the populace's well-being, resulting in economic and health repercussions and reduced state revenue. To promote sustainability, the government must regulate financial impacts through education and a greater focus on MSME business lines.

1. Introduction

The ecological damage literature employs terminologies including ecological damage, environmental tort, and natural resource damage, among others, which each refer to a distinct concept to some degree. The General Principles define environmental damage as detrimental alterations in biological and ecological components (e.g., plants, animals, and microorganisms), sediments, ambient air, surface water, soil, groundwater, and forests, which occur due to contamination and destruction of the environment. Additionally, it includes the deterioration of functions and reduction in services provided by ecosystems comprised of said

components.[1] The increasing pace of economic globalization and trade liberalization has led to a heightened global focus on environmental concerns, which have emerged as one of humanity's most significant challenges. A succession of worldwide ecological challenges arising with economic globalization have become obstacles impeding the economy's and society's sustainable development.[2]

The phenomenon of ecological environment degradation is a multifaceted process. In contrast to conventional damage, environmental damage is not the sole repercussion of a tort. Illicit environmental activities and some legal activities cause damage to the ecological environment. The actions above are routine occurrences in the daily lives of individuals and are improbable to result in environmental harm.[3] However, when many people employ these techniques over an extended period and on a large scale, the resulting harmful gas emissions are enormous and far exceed the ecological environment system's maximum allowable value.[4] Ultimately, this results in soil erosion, land desertification, and environmental damage. Ecological environment damage frequently ensues after an extended accumulation period, signifying that it is a long-term accumulation process in which contaminant emissions resulting from pollution surpass the environment's carrying capacity.[5] However, the ecological environment is currently in a critical state of devastation that is challenging to restore rapidly. To enhance the compensation system for ecological environment injury, it is imperative to establish an appropriate legal framework.[6]

The damage compensation system is an essential component in sustaining environmental damage. Relief may be sought through alternative means if the environmental tort fails to result in any harm, including the cessation of infringement, removal of obstruction, or elimination of impact. Liability for damages imposed on the environment is restricted to actions that cause environmental pollution. On the contrary, environmental pollution is the

[1] Rencai Dong and others, 'Environmental Damage Compensation for Illegal Solid Waste Dumping in China', *Ecotoxicology and Environmental Safety*, 253 (2023), 114657 https://doi.org/10.1016/j.ecoenv.2023.114657

[2] Yi Deng and others, 'The Comprehensive Study of the Urbanization Development and Environmental Damage Response Mechanism', *Sustainable Computing: Informatics and Systems*, 36 (2022), 100782 https://doi.org/10.1016/j.suscom.2022.100782

[3] Rais Torodji and others, 'The Role of the Corporate Environmental Regulation Penalty System On', *Journal of Human Rights, Culture and Legal System*, 3.3 (2023), 600–624 https://doi.org/https://doi.org/10.53955/jhcls.v3i3.179

[4] Zaidah Nur Rosidah, Lego Karjoko, and Mohd Rizal Palil, 'The Government's Role in InterfaAith Marriage Rights Protection: A Case Study of AdjustmentC and Social Integration', *Journal of Human Rights, Culture and Legal System*, 3.2 (2023), 265–87 https://doi.org/10.53955/jhcls.v3i2.105

[5] Torodji and others.

[6] Abdul Kadir Jaelani, Muhammad Jihadul Hayat, and others, 'Green Tourism Regulation on Sustainable Development : Droning from Indonesia And', *Journal of Indonesian Legal Studies*, 8.2 (2023), 663–706 https://doi.org/https://doi.org/10.15294/jils.v8i2.72210

intentional or unintentional release of energy or substances into the atmosphere over its inherent purification capacity or the biological tolerance threshold. Such actions can potentially harm the ecological environment's original state of tranquility and health. The act of appropriating, exploiting, claiming, or destroying one or more environmental components constitutes an ecological catastrophe. Pollution of the environment can result in adverse ecological consequences and harm to property and persons, and environmental damage is not an inevitable outcome. Ecological damage can result in ecological imbalance and degradation of the environment for both living organisms and humans.[7]

Generally, administrative sanctions against polluting companies led to insufficient penalties, incentivizing companies to violate the law instead of addressing the pollution. Furthermore, most pollution victims are members of vulnerable groups, which exacerbated the challenges associated with litigating these cases when coupled with the absence of legal representation. Again, in successful litigation, compensation would solely be extended toward the immediate harm inflicted, disregarding any enduring environmental harm. The presence of these institutional externalities elevated the probability that corporations would engage in ecological violations. The policy decreased the likelihood of environmental abuses by imposing the institutional costs of polluting behavior on businesses via transparent legal provisions.[8]

The policy not only rectifies the inequitable allocation of ecological benefits and responsibilities by clarifying the claim scope but also mandates that businesses engage in ecological restoration efforts.[9] Continuous government and public oversight of the restoration process compels polluting businesses to accept environmental responsibility and discourages other destructive ecological practices. The exposure of corporate transgressions to the public sphere enhances public awareness regarding the detrimental environmental impact of corporations and elicits more severe social disapproval.[10]

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[7] Qianxun Xu and Mehran Idris Khan, 'Reflections on the Environmental Damage Compensation Regime in Chinese Civil Legislations', *Heliyon*, 9.4 (2023), e15154 https://doi.org/10.1016/j.heliyon.2023.e15154

[8] Abdul Kadir Jaelani, Resti Dian Luthviati, and Muhammad Jihadul Hayat, 'Halal Tourism Sector and Tax Allowance Policy : A Case Study Observed from Normative Problems to Effective Implementation', *Ijtihad: Jurnal Wacana Hukum Islam Dan Kemanusiaan*, 23.2 (2023), 185–210 https://doi.org/10.18326/ijtihad.v23i2.185-210

[9] Giuseppe Pellegrini-Masini, Fausto Corvino, and Lars Löfquist, 'Energy Justice and Intergenerational Ethics: Theoretical Perspectives and Institutional Designs', in *Energy Justice Across Borders* (Cham: Springer International Publishing, 2020), pp. 253–72 https://doi.org/10.1007/978-3-030-24021-9_13

[10] Dongyue Liu, 'Value Evaluation System of Ecological Environment Damage Compensation Caused by Air Pollution', *Environmental Technology & Innovation*, 22 (2021), 101473 https://doi.org/10.1016/j.eti.2021.101473

In reality, corporations serve as the primary generators of environmental degradation and the primary consumers of resources. As the primary agents of ecological contamination, companies bear an impossible obligation to regulate their emissions. Moreover, these entities serve as sub-units of the larger economy, essential drivers, and primary components of economic expansion. The pivotal factor in attaining the mutually beneficial outcomes of pollution mitigation and economic expansion via environmental regulatory policies lies in their response. With the escalation of environmental regulation, businesses may be forced to either passively "accept" penalties or actively "deal with" them.[11] Environmental violations by corporations are met with administrative sanctions levied by the government in response to noncompliance with environmental legislation during production and operational processes.[12]

The corporation purportedly causes environmental damage, it will harm the state. It is the state's responsibility to account to society for permitting corporate activities in the environment.[13] It is the responsibility of the state to preserve and protect the environment for the benefit of future generations. The sustainability of the environment and the quality of life for future generations may be endangered by environmental degradation. Therefore, the state is morally obligated to prevent ecological degradation to safeguard future generations. Environmental issues that are the result of industrialization. The repercussions for worldwide economic and social progress are profound. They emphasize the substantial contribution of corporations and businesses as polluters of the environment and consumers of resources. The significance of striking a balance between environmental protection and economic development. To promote social and economic sustainability, particularly in developing nations.[14] When an effective environmental damage compensation system is lacking, polluting enterprises frequently pay only the minimum compensation required to address the harm suffered by the affected party rather than considering the harm inflicted on the public environment. Consequently, the compensation awarded must accurately reflect the damage's true extent.[15]

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[11] Qingquan Fan and others, 'Environmental Regulation Policy, Corporate Pollution Control and Economic Growth Effect: Evidence from China', *Environmental Challenges*, 5 (2021), 100244 https://doi.org/10.1016/j.envc.2021.100244

[12] Lu Zhang and others, 'CEO Hubris and Firm Pollution: State and Market Contingencies in a Transitional Economy', *Journal of Business Ethics*, 161.2 (2020), 459–78 https://doi.org/10.1007/s10551-018-3987-y

[13] Zahoor Ahmed and others, 'Moving towards a Sustainable Environment: The Dynamic Linkage between Natural Resources, Human Capital, Urbanization, Economic Growth, and Ecological Footprint in China', *Resources Policy*, 67 (2020), 101677 https://doi.org/10.1016/j.resourpol.2020.101677

[14] Fan and others.

[15] Mousami Prasad and Lavanya Suresh, 'Another Side of Industrial Growth in India: Environmental Damage from Industrial Accidents', *Safety Science*, 164 (2023), 106152 https://doi.org/10.1016/j.ssci.2023.106152

Significant economic losses have resulted from environmental degradation in Indonesia, specifically in the tropical rain forests; illicit harvesting has contributed to a financial deficit of IDR 319,799,679,000. [16] State financial losses in public procurement construction projects, specifically in structural work such as roads, concrete, and front masonry, exacerbate this issue—the significance of environmental valuation due to its capacity to provide valuable insights for decision-making and damage calculation. [17] The importance of strict liability for corporations in environmental harm is also emphasized, as it facilitates the enforcement of environmental legislation and guarantees that such entities bear financial responsibility for any incurred losses. [18]

The legal domain is preoccupied with environmental pollution and harm regarding the efficacy of Law No. 32 of 2009 concerning the Protection and Management of the Living Environment. Ministerial Regulation No. 7 of 2014 on Living Environmental Loss as a Result of Living Environment Pollution and Damage is the implementing regulation of Law No. 32 of 2009 in Indonesia. Nevertheless, the legislation in question has yet to effectively regulate environmental devastation in the form of state financial loss. Subsequently, an ideal policy model for legal formulation concerning ecological damage as the state's financial loss and a vital effort to restore the Indonesian environment was developed utilizing an economic valuation approach.[19]

Collaboratively addressing social, environmental, and economic challenges to ensure long-term sustainability[20] of development-related outcomes has been appropriately underscored on numerous international platforms in the present era.[21] China is the largest developing country with severe environmental pollution,

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[16] B. Wasis and others, 'Analysis of Environmental Damage and Environmental Economic Valuation on Tropical Rain Forest Destruction in Simalungun Regency, North Sumatera Province, Indonesia', *Archives of Agriculture and Environmental Science*, 4.3 (2019), 313–18 https://doi.org/10.26832/24566632.2019.040309

[17] Herry Ludiro Wahyono, Jati Utomo Dwi Hatmoko, and Rizal Z. Tamin, 'State Financial Losses in Public Procurement Construction Projects in Indonesia', *Buildings*, 9.5 (2019), 129 https://doi.org/10.3390/buildings9050129

[18] Muhammad Ainurrasyid Al Fikri, 'Implementation of Strict Liability by Companies in Cases of Environmental Damage in Indonesia: An Overview of State Administrative Law in Indonesia', *Indonesian State Law Review (ISLRev)*, 5.2 (2022), 41–52 https://doi.org/10.15294/islrev.v5i2.47460

[19] Reza Octavia Kusumaningtyas and others, 'Reduction of Digitalization Policy in Indonesian MSMEs and Implications for Sharia Economic Development', *Juris: Jurnal Ilmiah Syariah*, 21.2 (2022), 157–71 https://doi.org/10.31958/juris.v21i2.6855

[20] Palanisamy Manigandan and others, 'Promoting Sustainable Economic Growth through Natural Resources Management, Green Innovations, Environmental Policy Deployment, and Financial Development: Fresh Evidence from India', *Resources Policy*, 90 (2024), 104681 https://doi.org/10.1016/j.resourpol.2024.104681

[21] Ayfer Gedikli and others, 'Dynamic Relationship between International Tourism, Economic Growth and Environmental Pollution in the OECD Countries: Evidence from Panel VAR Model', *Economic Research-Ekonomska Istraživanja*, 35.1 (2022), 5907–23 https://doi.org/10.1080/1331677X.2022.2041063

but the proportion of pollution control investment needs to be revised. China is currently facing an urgent need to address its ecological pollution issues due to inadequate control measures, severe degradation of the environmental system, and progressive degradation of ecological functions. Conversely, as previously stated, environmental regulatory policies have the potential to impede economic expansion, consequently diminishing social welfare. Significant financial losses caused by ecological degradation also occur in the United States. There have been 376 weather and climate disasters in the United States since 1980, with total damages and expenditures exceeding $1 billion and losses amounting to $2.2 trillion. The nation endured two of its three most costly hurricanes, its most expensive winter storm, and four of its most expensive wildfires between 2017 and 2021; the cumulative economic losses from all catastrophes amounted to $765 billion. Rapidly intensifying weather and climate calamity damages have affected every state in the nation, posing risks and causing substantial losses. Notably, one-third of all losses since 1980 have transpired within the past five years. These losses have impacted numerous sectors, including infrastructure, structures, roads, and cropland. The financial ramifications of climate change have also been substantial. Property damage and devastation caused by climate hazards have placed a strain on households, necessitating repairs or replacements and potentially affecting the value of assets.[22]

Research regarding the monetary repercussions of environmental degradation has been undertaken across multiple geographical areas, yielding noteworthy results. The annual financial burden of environmental degradation in India amounts to 3.75 trillion rupees, the primary cause being external air pollution. Sangha put forth a framework to evaluate the depletion of ecosystem services caused by natural catastrophes, emphasizing the impact on human welfare.[23] An additional investigation was undertaken by Qianxun Xu et al., which examined the inconsistencies and discrepancies in court decisions about China's environmental legislation resulting from conflicts. The research suggests that adopting the "tolerance limit theory" could be beneficial in redefining the definition of illegality and identifying the concept of no-fault responsibility for environmental damage more comprehensively. In addition, the evaluation criteria for the punitive compensation system established by the Civil Code could be more precise. Given that the primary objective of civil law is reparation rather than punishment, the research suggests that to ensure uniformity in civil regulations, the extent of punitive damages should be clarified in the context of compensatory damages.[24]

[22] Mohammad Jamin and others, 'The Impact of Indonesia's Mining Industry Regulation on the Protection of Indigenous Peoples', *Hasanuddin Law Review*, 9.1 (2023), 88–105 https://doi.org/10.20956/halrev.v9i1.4033

[23] Kamaljit K. Sangha and others, 'Methodological Approaches and Challenges to Assess the Environmental Losses from Natural Disasters', *International Journal of Disaster Risk Reduction*, 49 (2020), 101619 https://doi.org/10.1016/j.ijdrr.2020.101619

[24] Xu and Khan.

The author intends to conduct research on the manner in which corporations are held liable for environmental harm that results in financial losses for the government.

Failure to address climate change, extreme weather, and biodiversity loss are the top three most grievous threats to human society, according to the most recent report by the World Economic Forum (World Economic Forum). Environmental contamination accumulates annually in developing nations and negatively impacts production activities. As public consciousness regarding environmental protection progressively grows, regulating human conduct and preserving the natural environment's quality have emerged as crucial concerns.[25] In contrast to other commodities readily subject to market regulation, environmental pollution prevention, control, and natural resource protection entail a substantial externality. Consequently, relying solely on market regulation to regulate ecological loss can pose challenges in ensuring appropriate compensation.[26]

It is critical to understand that environmental degradation-induced climate change negatively affects state finances and that investments in facility improvement have a similar negative effect on the state, affecting individuals. This must be investigated concerning the further repercussions of environmental degradation on state losses and the necessary measures to mitigate them. The deterioration of this circumstance is frequently correlated with corruption, leading to financial losses for the government due to environmental degradation. Complicating matters further, recouping these losses requires years and labor, as illustrated by the challenge of enforcing penalties for monetary deficits resulting from corruption. To surmount this obstacle, a comprehensive legal framework that optimizes the recovery of these damages is required. Therefore, it is necessary to conduct research on state losses due to environmental damage.

2. Research Method

This research will be carried out with a statutory, conceptual, and comparative approach. The legislative approach examines the acts and punishments given to corporations as perpetrators.[27] The conceptual approach used is the concept of environmental damage, which is equated with corruption. The comparative approach is used to see countries outside Indonesia that claim environmental

[25] Abdul Kadir Jaelani, Ahmad Dwi Nuryanto, and others, 'Legal Protection of Employee Wage Rights in Bankrupt Companies : Evidence from China', *Legality : Jurnal Ilmiah Hukum*, 31.2 (2023), 202–23 https://doi.org/https://doi.org/10.22219/ljih.v31i2.25874

[26] Yuanchun Zhou and others, 'Study on Ecological Environment Damage Compensation in China', *Journal for Nature Conservation*, 76 (2023), 126503 <https://doi.org/10.1016/j.jnc.2023.126503>.

[27] Purchase Land, 'Model Regulations for Collecting State Revenue in Registration of Sale And', *Journal of Sustainable Development and Regulatory Issues*, 2.1 (2024), 67–85 https://doi.org/https://doi.org/10.53955/jsderi.v2i1.24

damage is equal to actions that harm the country financially.[28] The data sources used to present the magnitude of environmental damage in Indonesia are journals, official websites, and trusted media.[29]

3. Results and Discussion

State Losses Due to Environmental Destruction by Corporations

Globally abundant natural resources function as economic regulators in virtually every nation. However, environmental degradation will result from improper management and overexploitation of natural resources. As the economy depends on the ecosystem for food and other resources production, sustainable development is vital for a nation. Consequently, pursuing economic expansion engenders dire consequences for all life, including the human species. The necessity for ongoing economic expansion and the irresponsible depletion of natural resources has caused irreparable harm to the earth and its ecosystem. Natural resources are indispensable to a nation's prosperity. Nevertheless, the rapid proliferation of industrialization and urbanization has heightened the demand for natural resources, potentially leading to unsustainable extraction practices and the devastation of ecosystems. Still, the relationship between depletion of natural resources and environmental degradation is contentious, as research has produced contradictory results.[30] Governments and businesses are allocating significant resources towards innovation and technology to create sustainable energy solutions that improve capital goods efficiency and energy conservation.[31] This is done with the understanding that research and development can effectively halt environmental degradation.[32]

Economic development has historically been regarded as the principal cause of environmental degradation.[33] At present, our planet is engulfed in a catastrophe

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[28] Soeleman Djaiz Baranyanan, Nilam Firmandayu, and Ravi Danendra, 'The Compliance of Regional Autonomy with State Administrative Court Decisions', *Journal of Sustainable Development and Regulatory Issues*, 2.1 (2024), 35–52 https://doi.org/https://doi.org/10.53955/jsderi.v2i1.25

[29] Abdul Kadir Jaelani, Reza Octavia Kusumaningtyas, and Asron Orsantinutsakul, 'The Model of Mining Environment Restoration Regulation Based on Sustainable Development Goals', *Legality : Jurnal Ilmiah Hukum*, 30.1 (2022), 131–46 https://doi.org/https://doi.org/10.22219/ljih.v30i1.20764

[30] Isaac Ahakwa and others, 'How Crucial Are Natural Resources in Descending Environmental Degradation in Ghana? A Novel Dynamic ARDL Simulation Approach', *Journal of Cleaner Production*, 420 (2023), 138427 https://doi.org/10.1016/j.jclepro.2023.138427

[31] Wei Zhao, Yishu Liu, and Lihua Huang, 'Estimating Environmental Kuznets Curve in the Presence of Eco-Innovation and Solar Energy: An Analysis of G-7 Economies', *Renewable Energy*, 189 (2022), 304–14 https://doi.org/10.1016/j.renene.2022.02.120

[32] Eyup Dogan and others, 'The Roles of Technology and Kyoto Protocol in Energy Transition towards COP26 Targets: Evidence from the Novel GMM-PVAR Approach for G-7 Countries', *Technological Forecasting and Social Change*, 181 (2022), 121756 https://doi.org/10.1016/j.techfore.2022.121756

[33] Mahmood Ahmad and others, 'Financial Risk, Renewable Energy Technology Budgets, and Environmental Sustainability: Is Going Green Possible?', *Frontiers in Environmental Science*, 10 (2022) https://doi.org/10.3389/fenvs.2022.909190

known as climate change, which has the potential to affect our futures significantly. Recent years have witnessed considerable discourse regarding the ramifications of climate change and potential solutions. Deforestation is a part of the cause. The ongoing decline in the loss of verdant forest ecosystems is substantiated by the 40% reduction in forest availability, which amounts to 2.9 million hectares. This occurs due to developing nations' tendency to disregard the establishment of new industries that consume a great deal of natural space. Moreover, ongoing deforestation will undoubtedly contribute to the depletion of the area's biodiversity.

The most extensive forest and land fires in 2019 consumed 1,649,258.00 hectares in 34 provinces, with the most significant losses occurring on Kalimantan Island. In contrast, the extent of the catastrophe experienced a substantial reduction of 81% in 2020, encompassing a mere 296,942.00 hectares. As of the start of 2021, fires continued to transpire, with West Kalimantan province reporting the highest frequency of incidents (14,052 hectares), followed by Riau province with 6,492 hectares. Forest and land fires in Indonesia have thus far constituted a technical dilemma, with digital solutions as the sole means of resolution. This circumstance has resulted in the annual outbreak of fires, particularly during the arid season. According to the fire triangle theory, fires are not caused by hot weather and dry ecosystem conditions; however, a non-causal correlation is noted between the factors that ignite fires. Environmental destruction occurs more often with a large volume of damage; the following is information on the damage in Indonesia.

Table 1: Losses Borne by Countries Due to Environmental Damage from Various Sources

Information	Total Loss
Losses incurred due to fires during the period January - September 2019	190 Trillion Rupiah
Since 2015-2021, 6,143 complaints have been handled, and 2,185 cases have been subject to administrative sanctions	20.7 Trillion Rupiah
Throughout June-October 2019, the impact of forest and land fires. According to the calculation of economic losses by the world bank	72.95 Trillion Rupiah

Due to the country's preoccupation with environmental responsibility and sustainability, the incurred harm is considered one of its casualties. Ecological degradation can manifest in various forms. Environmental communalism holds that the environment is essential to the human community. Ecological degradation can threaten the health and safety of individuals and entire communities. In the interest of civilization as a whole, the protection and maintenance of the environment falls under the jurisdiction of the state.

In practical application, fires in Indonesia are predominantly attributed to social and cultural factors, as well as intentional and inadvertent human activities related to land and forest management.[34] These include, among other things, the use of fires to prepare land, discontent with forest management systems, illegal logging, the demand for livestock feed, and plantation encroachment.21 The law, in addition to the political ecology approach, which emphasizes the role of local, regional, and international actors in environmental management, has a significant responsibility to alter the mentality and conduct of all stakeholders. Article 42 of Law No. 32 of 2009 on Environmental Protection and Management (EPM Law), which forms part of the ecological constitution in Indonesia, mandates that both central and regional governments formulate and execute environmental economic instruments (EEIs) to safeguard the environmental functions. Aiming to finance and administer environmental finance is a component of the financial instruments.

EEI was established by Presidential Regulation EFM (Presidential Regulation No. 77 of 2018) concerning the management of ecological funds. Its purpose was to monetize administrative and sustainable protection initiatives through fundraising, capital fertilization, and distribution. The government has reportedly established a joint venture under the Ministry of Finance called the Public Service-Indonesian Environmental Fund Management Agency (BLU-BPDLH) to manage ecological capital. As per Presidential Regulation EFM, BPDLH oversaw environmental funding consisting of an ecological restoration fund and pollution/damage control fund, with the government maintaining trust/conservation assistance capital. In this regard, the objective of fund management is frequently to fulfill the government's commitment to mitigate greenhouse gas emissions. BPDLH's mandate is not restricted to emission reduction initiatives in this instance.[35] Additionally, the environmental fund is tasked with managing diverse financing schemes for capital programs and recipients funded by various financial sources. Historical precedent indicates, nevertheless, that the primary objective behind establishing ecological capital has been to ensure efficient fund disbursement. This emphasize semphasizes the attainment of emission reduction objectives through land and forest use modifications. By this description, the government is committed to ensuring that environmental capital is adequately funded and managed.

[34] Paul K Gellert and Sarah D'Onofrio, 'Flex Commodities and Intertwining World-Ecologies: Indonesian Palm Waste as an Environmental Fix in the New Zealand Dairy Industry', *Political Geography*, 108 (2024), 103038 https://doi.org/https://doi.org/10.1016/j.polgeo.2023.103038

[35] Muhammad Akbar Dzikriansyah and others, 'The Role of Green Supply Chain Management Practices on Environmental Performance: A Case of Indonesian Small and Medium Enterprises', *Cleaner Logistics and Supply Chain*, 6 (2023), 100100 https://doi.org/10.1016/j.clscn.2023.100100

During its infancy, the Eradication Commission Corruption (KPK) assessed state financial losses regarding environmental damage for the first time. Prosecutors have determined that the conduct of National Mandate Party politicians in the Nur Alam case has led to the ecological depletion or extinction of the subject at mining sites located on the island of Kabena, which are under the management of PT Anugrah Harisma Barakah. The judge concludes in his ruling that the defendant bears no responsibility for ecological losses and recovery expenses incurred in the environment. The panel of judges also noted that environmental damage resulting from PT AHB's mining activities is PT AHB's responsibility and, therefore, cannot be billed to the state. It was explained to him that PT AHB's Report on Calculating Losses Due to Land Damage and the Environment Caused by Mining Activities violates paragraph 1 of article 87 of the PPLH Law, which adheres to the principle that pollution pays, and that the company must bear the costs necessary to restore damaged land portions and change miner.

The argument that environmental devastation is ultimately a financial loss for the state and should be recouped is well-founded. Concerning the resolution of ecological damage cases involving corporations or businesses, the analogy of criminal acts of misconduct, in which Restitution to the state is a crucial step, may be applied. [36] Restitution to the state may be an attempt to compensate for financial or economic losses incurred by the state or society as a result of the activities of a company or corporation that cause significant environmental damage. Cost reimbursement to the state may encompass a series of actions, including but not limited to the restoration of ecological conditions, payment of penalties, or recovery of financial losses. Environmental damage done by companies or corporations can be considered unlawful and detrimental to the country. Like corruption, environmental damage can cause significant state losses.[37]

Environmental degradation can adversely affect individuals' economy, health, and well-being. Environmental protection falls under the jurisdiction of the state, which is obligated to safeguard the welfare and interests of its citizens. Every individual has an inherent and fundamental right to an environment that is

[36] Peter Korba and others, 'Thermodynamics, Environmental Damage Cost, Exergoeconomic, Life Cycle, and Exergoenvironmental Analyses of a JP-8 Fueled Turbodiesel Aviation Engine at Take-off Phase', *Case Studies in Thermal Engineering*, 43 (2023), 102806 https://doi.org/10.1016/j.csite.2023.102806

[37] Haitao Wu and others, 'Does Environmental Pollution Promote China's Crime Rate? A New Perspective through Government Official Corruption', *Structural Change and Economic Dynamics*, 57 (2021), 292–307 https://doi.org/10.1016/j.strueco.2021.04.006

sustainable and healthy.[38] The states must safeguard these rights and prevent human rights violations that may arise due to environmental degradation. Widely recognized in domestic, regional, and international law, the polluter-pays principle holds that pollutants should bear liability for the harm they inflict. Those responsible should endure the financial burden of the harm inflicted on the environment and human health, as opposed to the expenses imposed on society. To rectify the damage that has been caused, the party responsible for the damage must restore it. In legal proceedings concerning environmental damage, implementing compliance procedures for delays may contribute to mitigating such harm by imposing penalties. The provision of litigation by state agencies ensures that ecological damage can be handled appropriately. The judiciary can contribute to the effective resolution of the issue of environmental degradation.[39]

Due to its effects on human rights, the quality of life for all individuals, the welfare of future generations, and the overall human community, environmental degradation is deemed to be detrimental to the state. The responsibility of the state to safeguard and promote the environment is intrinsic to its regard for society and the establishment of a sustainable future. It is the responsibility of the state to restore environmental damage, as it constitutes a fundamental privilege of the community. Damages recoverable can be determined by subtracting the loss incurred by the company. Compensation is determined by the cost of engineering actions necessary to restore the environment to its original state, which is used to calculate the value of environmental damage.[40]

The exacerbation of the situation is frequently correlated with corruption, which results in state losses due to environmental degradation.[41] Complicating matters further, the recovery of such losses requires years and effort, as evidenced by the difficulties associated with enforcing penalties for financial losses caused by corruption.[42] In order to surmount this challenge, an all-encompassing legal structure is required to maximize the recuperation of these damages. Enhanced

[38] David Domingues Pavanelli and Nikolaos Voulvoulis, 'Habitat Equivalency Analysis, a Framework for Forensic Cost Evaluation of Environmental Damage', *Ecosystem Services*, 38 (2019), 100953 https://doi.org/10.1016/j.ecoser.2019.100953

[39] Rong-xin Peng and others, 'Research on Time-Varying Degradation of RC Buildings Coupled Environmental Effects and Corrosion-Induced Damage from Multi-Scale', *Journal of Building Engineering*, 83 (2024), 108365 https://doi.org/10.1016/j.jobe.2023.108365

[40] Dong and others.

[41] Agung Tri Wahyudianto, 'Kewenangan Kejaksaan Dalam Penetapan Kerugian Negara Dan Perhitungan Keuangan Negara Dalam Perkara Tindak Pidana Korupsi', *Badamai Law Journal*, 3.2 (2018), 245 https://doi.org/10.32801/damai.v3i2.6052

[42] Dekie Gg Kasenda And Eko Surya Saputra, 'Tinjauan Yuridis Tentang Eksekusi Kerugian Negara Dalam Tindak Pidana Korupsi', *Jurnal Ilmu Hukum Tambun Bungai*, 5.2 (2020), 775–99 https://doi.org/10.61394/jihtb.v5i2.145

regulatory clarity about allocating state funds and determining losses would provide legal assurance in environmental enforcement resulting from corporate and official misconduct. The loss calculation for the country cuisine environment serves as a means of rehabilitating or preventing ecological damage. Particularly concerning criminal sanctions for corporations that have caused environmental injury to life, the PPLH Law requires confirmation. The confirmation is issued as an agreement regarding the forfeiture of compensation.

Economic and Social Implications for State Financial Losses Due to Environmental Damage

The majority of risks to the Sustainable Development Goals stem from environmental degradation. Environmental risks have an impact on all organizations, societies, and individuals. Major concerns in policy and literary discourse are climate change and ecological degradation. Environmental degradation as a consequence of economic expansion has dominated the economics literature. Establishing a relationship between environmental degradation (as measured by carbon dioxide emissions) and economic growth from 1990 to 2011 using fixed effect data from eleven Asian countries.[43] The repairs for disaster-related damages consume 2.44% of individuals' annual income and reduce it by 21.49%. A decline in economic capacity affects the economically vulnerable lower class. Production and economic expansion are both diminished when a catastrophe strikes a nation. Flooding reduced GDP growth per capita by 0.005% per million affected, according to the study. The calamity will then irreparably harm livelihoods.[44] The influence of natural disasters on economic variables and the repercussions of economic variables on natural disasters.[45]

Disaster-stricken nations lost $2,908 billion between 1998 and 2017. Climate disasters caused US$2,245 billion, or 77% of these losses. According to the report, natural disasters can hurt less developed nations' growth, macroeconomic stability, debt sustainability, and poverty.[46] Severe and frequent extreme weather

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and climate phenomena occur globally due to anomalies within the climate system. The number of global climate disasters increased from 1970 to 2019. The worldwide climate catastrophe resulted in economic losses estimated at $3.64 trillion and claimed the lives of over two million people. Global financial assets could be worth up to twenty-four trillion dollars if climate risk materializes. Furthermore, it is worth noting that the occurrence rate of banking crises has escalated substantially from 26% to 248% due to climate change.[47] As the consequences of climate change become more severe, public pressure on policymakers to implement suitable measures to mitigate the phenomenon increases. The financial stability of nations is significantly more adversely impacted by climate risk in countries with weak political stability than in those with strong political stability. By implementing sustainable administrative regulations that maintain stability in national expectations, market interest rates, and exchange rates, politically stable countries can alleviate the economic consequences associated with climate risk. Irrespective of the political influence and reputation of the government, chaotic nations may intermittently experience abhorrent incidents such as recurring policies and social unrest.[48]

An instance of the repercussions of financial losses extends to society. More excellent and frequent shocks result from climate change, increasing covariate needs through reducing life, income, health, employment, and livelihoods. Sea level rise and rising average temperatures are gradual-onset phenomena that can potentially result in adverse health and livelihood consequences, heightening susceptibility. Salinization and rising sea levels in small fishing communities will simultaneously impact many individuals (covariate). Chronic poverty and a decline in living standards may result from long-term effects, necessitating ongoing social protection. The agricultural sector is more susceptible to disasters than any individual subsector. Inundations benefit rice but harm rubber. Perennials and tea plants are more resilient.[49] Agriculture has been more severely impacted by natural disasters in recent decades, particularly since 2009. Disasters, particularly drought, hinder agricultural expansion. Extreme heat damages health and reduces wages. Extremely low temperatures might impede migration through these channels.[50]

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Environmental damage correlates with human health. Patients were evacuated from hospitals due to the wildfires in California and the flooding in London. Hospital instability has impacted healthcare due to hurricanes and other natural catastrophes. Temperature increases accompany an escalation in short-term mortality. Carpal collapse and heatstroke are both consequences of extreme heat. Extended periods of high temperatures have precipitated a public health crisis that resulted in the loss of 14,000 lives.[51] Extreme weather events have direct health consequences that are temporally and spatially contiguous and are primarily mitigated via disaster risk management and other strategies. Uncertainty surrounds the indirect and deferred health risks of climate change in urban areas. The adverse effects of climate change on urban human health are evident in the deterioration of indoor and outdoor air quality, which can exacerbate chronic respiratory diseases and impair lung function due to ground-level ozone concentrations. Additionally, these conditions may contribute to the development of lung cancer.[52]

The practice sustainability to avoid impact on finance and health loss in the short and long term. Practice Sustainability, like Green Growth, integrates environmental improvements, livelihood enhancements, and economic growth. Green growth necessitates the collaboration of multiple sectors to stimulate innovation, competition, and investment, thereby creating fresh sources of economic expansion. As financial risk impedes the progress of national finances, it is anticipated that it will hurt green growth.[53] Financial development stimulates green growth through its facilitation of technological innovation. Investors can promote value creation and sustainability in the medium to long term or, on the other hand, opt to achieve short-term profits and reduce environmental risks associated with operations.[54] Long-term sustainable development must be encouraged to finance carbon-neutral initiatives. Interest in ecological bonds is increasing throughout Asia; the green bond market has grown from $4.3 billion in 2012 to $162 billion in 2018. In 2007 and 2008, European governments and private

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banks issued the first green bonds. As a result of incentives, green bond issuance has increased[55].

Sustainability has increased the significance of economic growth for infrastructure-building nations in recent years. Prerequisite status for green economic growth to achieve sustainable development. Promoting sustainable energy generation, increased adoption of energy-saving innovations that are environmentally friendly, and distribution of environmental expertise and knowledge.[56] Presently applicable benefits include the positive impact of green credit on the social responsibility and growth potential of banks, which is significant at the 5% level of statistical significance. The expansion of industrial banks is substantially influenced by green credit, as indicated by this finding. Green financing has the potential to mitigate the adverse effects that industrial lenders' social obligations may have on their capacity for growth.[57]

Some action is involved in mitigating state financial losses caused by environmental damage. Climate change-related physical risk, regulatory risk arising from regulatory changes, and technological risk associated with disruptive environmental technology innovation are the three principal channels through which climate risk influences the market. Climate change risk is the likelihood of experiencing economic losses due to extreme weather phenomena, including but not limited to heatwaves, droughts, tornadoes, fires, floods, and tsunamis.[58] There is a possibility that climate change-induced natural disasters will cause property damage to local businesses and residences. For instance, consider the insurance sector. To mitigate, we had an alternative approach called "precautionary financial policy" is suggested, which is based on macroprudential policy and the "precautionary principle." Given the potentially catastrophic losses resulting from climate change, this justifies stricter regulatory interventions.[59]

Since the Kyoto Protocol, industrialized countries have supported mitigation and adaptation efforts in developing countries because they are more vulnerable and lack coping capacity. Suggests mitigation finance increases economic risk in

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recipient developing countries more than adaptation finance. Political stability and less violence in recipient countries can eliminate the adverse effects of climate finance, so they should maintain political stability.[60] Minimize government response to alternative bank stability measures and other institutional governance, bank supervision, and robust regulatory measures. Our findings remain valid even after accounting for endogeneity concerns using the instrumental variable and System GMM methodology. Their stance remains unaffected by the financial crisis or the diversity observed across different regions. Our research contributes to the existing body of knowledge concerning climate risk and its influence on the performance of banks and corporations. Additionally, it offers managers and regulators alternatives to assist in mitigating the adverse impacts of climate vulnerability on the integrity of the banking system[61].

This is one consequence as climate vulnerability increases proportionally with the anticipated escalation of climate risks in the coming years. This detrimental cycle will persist if adaptation investments inadequately address these risks. Consequently, climate-vulnerable economies will incur increased capital expenses, affecting both public and private sectors. This will require international assistance, as climate-vulnerable developing economies will be in the dark. These economies have yet to contribute to global warming and cannot address its root causes through domestic measures. International aid in the form of innovative risk transfer mechanisms can assist climate-vulnerable nations in reducing their capital requirements. Encouraging increased investments and growth would facilitate financing for adaptation, enhanced resilience, and reduced climate vulnerability, empowering both public and private investments and allowing these nations to enter a virtuous cycle. As a result, this would enable further capital infusions, optimize the movement of funds, and ultimately enhance the competitive edge of enterprises[62].

To prevent financial loss to the state, the government must implement policies that prevent environmental damage that could result in financial loss. The government's responsibility to accomplish this with organizational compliance with governmental systems is a fundamental principle of institutional theory. Adaptable environmental policies facilitate the promotion of green growth in high-income nations. In the face of intensifying ecological pressure, industrial

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firms must modify their strategies to remain operational and compliant. Flexible ecological regulation has the potential to green the iron and steel industry and improve environmental governance.[63] Energy sustainability is a top priority within the international development agenda at the institutional and sector levels. Involving stakeholders in managing governance, environmental, and ethical concerns can stimulate financial activity. Sustainable finance—investment decisions in the financial industry considering environmental, social, and governance factors—increases investment in sustainable economic activities and projects over the long term[64]. Governments should implement a variety of environmental regulatory policy instruments and adapt them to regional economic conditions. Environmental regulations can compel businesses to conduct technological innovation and achieve green development in manufacturing, thereby enhancing their resilience.[65]

It is critical to acknowledge that while governments in developed countries have oversight gaps, their primary responsibility is safeguarding their citizens and the nation. Governments monitor people in developed nations due to strict housing, food, travel, and business regulations. Government regulation is still growing in many developing countries. Government environmental regulations must be strengthened to promote innovation, transparency, fairness, and unrestricted competition.[66] To enhance governance's role, we require Environmental benefits that do not yield direct financial gains and are ordinarily considered less substantial than mandated standards or government policy. Government regulators must, therefore, enact environmental regulations to encourage green investments. Environmental laws establish the hierarchy of responsibilities and institute uniformity in ecological stewardship.[67] We must press the government's role because of The ramifications of enterprise regulation on the executive branch. The prevailing consensus among scholars is that government regulation is effective; consequently, corporations tend to comply to

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acquire political legitimacy. In addition to encouraging businesses to adopt environmentally sustainable practices, government regulation also incentivizes their productivity and innovation. The lack of stringent enforcement renders government regulations inadequate in mandating environmental actions from businesses.[68]

The public interest theory posits that government regulation prevents market failure, consequently fostering the development of innovative resources and enhancing social welfare. However, in practice, regulatory measures result in inefficient resource allocation and detrimental effects on social welfare. One plausible explanation is that incumbent institutions may capture the local government, causing the government to collect monopoly rents from them through the establishment of stringent barriers to entry.[69] Role government appears to strengthen Governments and foster an environment conducive to carbon reduction and sustainable development by enforcing rigorous regulations, prohibiting corruption, and maintaining the rule of law. Addressing corruption ensures the effective enforcement of stringent environmental legislation, while the widespread adoption of eco-friendly technologies is an incentive for implementing well-designed regulatory frameworks. The efficacy with which a government executes the policies, regulations, and rules necessary for the sustainable management of natural resources and the promotion of transparency and accountability is intrinsically linked to the caliber of its public institutions.[70]

Moreover, increasing MSME is necessary for government policy to improve sustainability and prevent financial loss. Local initiatives for sustainability are dependent on the SDGs. We construct a transdisciplinary research agenda collaboratively to achieve the global SDGs, starting from the bottom up. To cultivate authentic collaboration, facilitators affiliated with the Local Peatland Restoration Agency engaged in pre-program and during-program dialogues with villagers to address their apprehensions and formulate a restoration strategy.[71] Support from the government can facilitate competition and streamline the integration of cutting-edge technologies by SMEs, whereas enterprise adoption of eco-innovation will result in enhanced operational outcomes. Stakeholder support

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is essential for effectively communicating information and forming consumer opinions that favor environmentally sustainable products. The government must support environmentally friendly initiatives to facilitate positive changes in various business and consumer behavior sectors. To commence, the active endorsement and promotion of environmentally conscious policies and programs by the government effectively heightens public awareness concerning environmental concerns.[72] Contextual analysis of related literature and stakeholder interviews help identify priority SDGs and main interactions in local areas. This approach supports policymaking with confidence and transparency, resulting in more coherent policies that promote synergies and limit trade-offs across the SDGs.[73]

Promoting sustainable development requires more education. Influencing graduates to lead locally will support a strategy for promoting sustainability in our future world. Sustainability Development education encourages transdisciplinary approaches, individual engagement, and synergistic group actions to simplify and reduce entrepreneurship uncertainty.[74] In the same way that a sustainable society would reduce the importance of commercial transactions, conventional advertising would decline. These processes, like all transitions, require the support of organizations through voluntary commitments and changes in standards. This is particularly true in sustainable supply chain management and ethical codes of conduct.[75] To encourage support and participation, a need-based promotion strategy that includes educating and raising stakeholder awareness regarding the advantages of sustainable production and the significance of collaboration can be effective. Incentives for students and academic institutions participating in sustainable production initiatives can

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increase participation and support. Promote the funding and support of initiatives advocating for the circular economy by government agencies.[76]

4. Conclusion

The mining industry contributes to environmental degradation, which in turn results in pollution and 72.95 trillion rupiah in state losses. Indonesia has enacted a number of regulations, including Law 32 of 2009 and its corresponding supporting capacity. However, it persists, in part because of corruption, which furthers the environmental degradation that is afflicting Indonesia and hinders the prevention of state losses. State finances suffer as a consequence of environmental damage, including flood-related environmental damage that can reduce GDP by 0.005% and environmental damage that causes a loss or decrease in state revenue. The occurrence of environmental damage also affects public and socioeconomic infrastructure in areas where population migration and damage transpire. Human-caused diseases and rising temperatures both have destructive effects. A comprehensive legal structure is required to surmount these obstacles and maximize the recovery of these damages. Enhanced regulatory transparency pertaining to the distribution of public funds and the calculation of losses will ensure the legal validity of efforts to enforce environmental legislation in response to infractions by government entities and corporations. By taking into consideration the environmental impacts of rural cuisine, it becomes possible to prevent or restore ecological harm. Confirmation is specifically required with respect to penal sanctions imposed on corporations that inflict environmental damage under the PPLH Law. This confirmation, which constituted an agreement concerning the seizure of compensation, was issued. Among the measures that can be implemented to combat this are the enforcement of stricter banking and financial regulations and the confrontation of the nation's climate change crisis.

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