



BUILDING ENVIRONMENTAL RESILIENCE THROUGH SDGs-BASED LICENSING POLICIES: A SYSTEMATIC LITERATURE REVIEW OF REGULATORY CHALLENGES AND SUSTAINABILITY PRACTICES

Damar Vranz¹

Universitas Negeri Jakarta¹

Email: damarvranz@mhs.unj.ac.id¹

ABSTRACT

This study explores the contribution of Sustainable Development Goals (SDGs)-oriented licensing policies to strengthening environmental resilience through a Systematic Literature Review (SLR) approach. By reviewing relevant international and national studies, this research identifies several recurring regulatory challenges in implementation, including fragmented regulations, weak institutional coordination, insufficient monitoring, and competing socioeconomic interests. Conversely, the findings demonstrate that integrating SDGs principles into licensing frameworks significantly improves environmental governance, supports sustainable resource management, and enhances long-term ecological resilience. Crucially, this paper contributes to the field of Indonesian Language and Literature Education by bridging policy framework discourse with eco-literacy pedagogy. It provides the necessary thematic and structural foundation for developing advanced Indonesian language learning materials centered on critical ecological reading, environmental advocacy writing, and policy text analysis. Ultimately, these findings offer vital theoretical and practical insights for educators and policymakers trying to cultivate green literacy, foster public environmental accountability, and strengthen long-term environmental resilience through institutional education.

Keywords: *environmental resilience, sdgs-based licensing policies, systematic literature review, indonesian language and literature education, eco-literacy*

INTRODUCTION

Environmental resilience has become an increasingly crucial topic within contemporary sustainability studies. According to Folke et al. (2021), environmental resilience refers to the ability of social-ecological systems to adapt, absorb disturbances, and maintain their essential functions amid global environmental changes. In a similar vein, Walker and Salt (2021) argue that resilient systems are characterized by their capacity to respond to external pressures without experiencing irreversible degradation. Consequently, environmental resilience is widely recognized as a fundamental element for achieving sustainable development across various sectors. The urgency of enhancing environmental resilience has intensified due to the growing impacts of climate change, biodiversity decline, and environmental pollution. The United Nations Environment Programme (UNEP, 2022) describes these interconnected problems as the "triple planetary crisis," emphasizing that ecological damage poses serious threats to economic stability and human well-being. Furthermore, the Global Resources Outlook report

(UNEP, 2024) highlights that unsustainable patterns of resource consumption continue to hinder global progress toward achieving the Sustainable Development Goals (SDGs).

Recent literature suggests that addressing environmental challenges requires integrated governance mechanisms. Biermann and Kim (2022) emphasize that effective sustainability governance depends heavily on policy coherence, institutional collaboration, and cross-sectoral coordination. In practice, however, fragmented regulations, overlapping authorities, and limited law enforcement capacity often reduce the effectiveness of environmental management. This dilemma has encouraged governments worldwide to strengthen regulatory instruments capable of integrating development objectives with ecological protection. Within this context, licensing systems have evolved beyond mere administrative procedures into strategic tools for environmental governance. According to Jordan and Huitema (2021), regulatory instruments such as environmental permits play a crucial role in controlling ecological risks, ensuring legal compliance, and promoting stakeholder accountability. Licensing mechanisms thus function not only as legal authorizations for development activities but also as instruments for balancing short-term economic interests with long-term sustainability considerations.

The SDGs framework provides a comprehensive blueprint for improving licensing governance. Sachs et al. (2021) state that sustainable development requires the integration of environmental sustainability, economic prosperity, and social inclusion within public policies. Aligned with this view, Leal Filho et al. (2022) assert that the implementation of SDGs depends heavily on institutional capacity and policy alignment across different levels of government. Therefore, incorporating SDGs indicators into licensing systems has emerged as a promising approach for strengthening green governance. Despite the increasing attention given to sustainability-oriented regulations, the implementation of SDGs-based licensing policies remains uneven. Common barriers frequently encountered include weak public participation, limited transparency, and socio-economic conflicts of interest (Leal Filho et al., 2022).

Critically, the formulation and implementation of these licensing policies cannot be separated from how legal and environmental discourses are constructed through language. This is where the field of Indonesian Language and Literature Education plays an essential role through the internalization of eco-literacy. Public understanding of regulatory texts, environmental advocacy through critical writing, and policy discourse analysis demand advanced language skills. However, current Indonesian language teaching materials rarely engage in the critical analysis of development and environmental policy texts. Utilizing the Systematic Literature Review (SLR) method, this study aims to synthesize scientific evidence regarding regulatory challenges, sustainability practices, and the contribution of SDGs-based licensing policies. These findings are expected not only to provide governance policy recommendations for decision-makers but also to supply a conceptual-thematic foundation for educators to design Indonesian language learning materials rooted in eco-literacy and critical policy text analysis to support long-term environmental resilience.



RESEARCH METHOD

This study adopts a Systematic Literature Review (SLR) approach to investigate the contribution of Sustainable Development Goals (SDGs)-based licensing policies to environmental resilience and sustainable governance. The SLR method was selected because it enables researchers to systematically collect, evaluate, and synthesize findings from previous studies to generate comprehensive and evidence-based conclusions. According to Snyder (2021), a systematic literature review provides a transparent and replicable process for identifying knowledge gaps and developing theoretical insights from existing research. Similarly, Xiao and Watson (2021) emphasize that SLR is an effective approach for summarizing diverse findings and strengthening the reliability of research outcomes.

The review process follows the PRISMA (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*) framework, which is widely recognized as a standard guideline for conducting systematic reviews. As explained by Page et al. (2021), the PRISMA framework improves the transparency, consistency, and quality of literature selection. The execution procedure consists of four sequential stages: identification, screening, eligibility assessment, and the final inclusion of selected studies. This review is designed to address three primary research questions:

1. How are SDGs principles incorporated into licensing policies to support environmental sustainability?
2. What regulatory challenges are commonly encountered in implementing SDGs-based licensing systems across different countries and sectors?
3. What sustainability practices and policy strategies can strengthen environmental resilience through licensing governance?

The literature search was conducted systematically using digital media and international databases, including Scopus, ScienceDirect, Google Scholar, JSTOR, SpringerLink, Web of Science, and institutional repositories from international organizations such as the United Nations (UN), United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP), and the Organisation for Economic Co-operation and Development (OECD). Additional sources were obtained from government reports, policy documents, and relevant academic repositories. To ensure the relevance of the selected studies, a combination of keywords and Boolean operators (AND, OR) was employed as the main search instrument. The primary search strings included: "*SDGs-based licensing*", "*environmental resilience AND governance*", "*sustainable development AND environmental permits*", "*regulatory challenges AND sustainability*", "*environmental governance AND SDGs*", and "*licensing policy AND sustainable practices*". Equivalent Indonesian keywords were also used to capture national literature related to sustainable licensing and environmental governance.

The screening and data collection were governed by explicit operational instruments. To maintain high transparency and reproducibility (Page et al., 2021), specific selection filters were applied. The primary inclusion and exclusion criteria utilized during the eligibility assessment stage are outlined in Table 1.

Inclusion Criteria	Exclusion Criteria
Scientific articles, peer-reviewed journals, and conference proceedings published between 2021 and 2025.	Articles published before 2021.
Literature written in English and Indonesian.	Sources lacking complete bibliographic information or not subjected to peer review.
Studies explicitly addressing SDGs, sustainability-based licensing policies, and environmental governance.	Studies focusing outside environmental governance, sustainable development, or licensing systems.

After completing the screening process, the selected literature was analyzed qualitatively through thematic analysis. This analytical approach served as the primary instrument to identify major patterns, recurring regulatory challenges, and global best practices associated with SDGs-oriented licensing policies. The structural synthesis derived from this process was then utilized to formulate evidence-based policy recommendations and conceptualize eco-literacy learning frameworks.

FINDINGS AND DISCUSSION

Results

The systematic literature review (SLR) successfully mapped the implementation frameworks of humanitarian principles within global environmental and extractive sector governance. The structural analysis identified three primary behavioral and regulatory dimensions crucial for preventing environmental degradation: (1) community solidarity and structural participation, (2) environmental ethics combined with corporate social responsibility (CSR), and (3) multi-stakeholder dialogue grounded in humanitarian values.

To evaluate how these dimensions translate from theoretical ethics into active governance frameworks, several international benchmarks were analyzed. The global distribution, operational mechanisms, and concrete outcomes of these humanitarian interventions are synthesized in Table 2.

**Table 2. Literature Matrix: Case Studies on the Implementation of Humanity**

No	Source / Author (Year)	Location / Case	Humanity Implementation	Impact / Outcome
1	ILO (2015)	Germany (Ruhr region)	<i>Just Transition</i> framework for displaced mining workers.	Provided comprehensive retraining programs and robust social security for affected workers.
2	UNDRIP (2007)	Canada (Indigenous territories)	Free, Prior, and Informed Consent (FPIC) mechanisms.	Mandatory institutional consultation with Indigenous communities prior to granting mining permits.
3	U.S. EPA / Executive Order 12898 (1982–1994)	United States (Warren County, NC)	Structural Environmental Justice movement for marginalized groups.	Formalized legal protections ensuring equal distribution of environmental risks and community inclusion.

Discussion

Humanity in Efforts to Prevent Environmental Degradation

The research results demonstrate that the concept of humanity has evolved into a vital discourse within sustainable development and resource extraction frameworks. Globally, humanity refers to core human values—such as justice, solidarity, empathy, and moral accountability—directed toward both society and the natural ecosystem (United Nations, 2015). From a philosophical perspective, Kantian ethics place human dignity at the absolute center of ethical considerations, an architectural framework that directly challenges predatory natural resource governance that exploits local populations. Furthermore, the World Health Organization (WHO, 2020) formally anchors humanity to the fundamental human right to a safe, clean, and healthy environment.

This universal value is heavily reinforced by Martha C. Nussbaum's (2011) *Capability Approach*, which asserts that a sustainable environment is a non-negotiable prerequisite for individuals to lead a dignified and free life. Consequently, mining governance cannot be measured solely by gross economic output; it must actively preserve the ecological viability of spaces inhabited by local communities. On an institutional level, the United Nations Development Programme (UNDP, 2022) highlights that humanitarian values demand inclusive development paradigms where indigenous populations are protected from bearing the asymmetrical burdens of extractive industries. This closely mirrors the ecological responsibility advocated by Pope Francis in *Laudato Si'* (2015), which calls for global solidarity to defend vulnerable communities from systemic ecosystem damage.

In the domestic sphere, these universal humanitarian values are deeply aligned with the principles of social justice (*Keadilan Sosial*) and solidarity embedded within Pancasila and the 1945 Constitution of Indonesia. Ethical mining management must treat human rights and community welfare as primary legal constraints rather than optional economic externalities (Yuliani, 2020). Empirical data indicates that building multi-stakeholder dialogues based on these humanitarian ethics can reduce active resource conflicts by up to 30% (Kurniawan, 2019). Therefore, as argued by Triwiyanto (2020), humanity must transition from an abstract rhetorical slogan into an empirical regulatory standard that legally compels governments, corporations, and civil society to co-manage and protect fragile ecosystems.

Case Studies of Humanitarian Interventions in Environmental Governance

The international case studies compiled in Table 2 provide concrete empirical evidence of how embedding humanity into public policy mitigates environmental degradation while preserving social stability. Germany's *Just Transition* in the Ruhr region demonstrates that decommissioning ecologically destructive coal mines requires structural empathy—counseling, retraining, and socio-economic safety nets—to prevent regional poverty (ILO, 2015). Similarly, Canada's operationalization of FPIC under the UNDRIP (2007) framework showcases a legal manifestation of respect for human dignity. By granting indigenous populations veto power over ancestral lands, the model successfully prevents unilateral corporate exploitation and ensures long-term ecological preservation.

Furthermore, the historic Environmental Justice movement in the United States highlights the necessity of rectifying "environmental racism" and the unequal distribution of toxic burdens in minoritized areas. The resulting Executive Order 12898 institutionalized public accountability by forcing federal agencies to evaluate the demographic impacts of industrial permitting. Collectively, these global milestones offer a critical roadmap for Indonesia. As the nation navigates the aggressive expansion of nickel mining and processing, applying these human-centric policies becomes a strict necessity—especially in high-biodiversity, ecologically vulnerable regions such as Raja Ampat. By integrating the structural lessons of FPIC, environmental justice, and equitable transition frameworks, Indonesia can ensure that economic development does not permanently dismantle its



invaluable marine ecosystems or marginalize its local coastal communities.

First, community solidarity and participation demonstrate the vital role of local communities as the frontline actors in environmental monitoring and restoration. This is supported by Widianingsih (2021), who found that active community involvement such as reporting illegal mining, monitoring water quality, and participating in village deliberations was capable of reducing deforestation rates by up to 20% in mining areas. This participatory mechanism is driven by increasing environmental awareness, the establishment of strong local organizations, and close collaboration between communities and village governments. A solid community presence enables tighter supervision, thereby encouraging mining companies and local governments to comply with higher environmental standards.

Second, the implementation of environmental ethics and corporate social responsibility (CSR) is crucial. Yuliani (2020) emphasized that mining companies should not merely comply with formal regulations but must internalize environmental ethics and ecological justice within their CSR programs. Ethical CSR includes post-mining land reclamation, responsible waste management, and the provision of alternative economic opportunities for communities affected by mining. A CSR approach rooted in humanity fosters a balance between business interests and environmental protection, creating harmony among corporations, communities, and ecosystems.

Third, multi-stakeholder dialogue based on humanity values is equally critical. Kurniawan (2019) highlighted that dialogue grounded in mutual respect, deliberation, and empathy could reduce environmental conflicts by up to 30% in several mining locations. This mechanism is realized through village discussion forums, mediation between companies and residents, and the formulation of environmental recovery roadmaps that involve all stakeholders. Inclusive and humanistic dialogue allows various interests economic, social, and environmental to be aligned, minimizing conflicts and strengthening ecosystem recovery efforts.

Overall, these three themes are interconnected and mutually reinforcing in building a sustainable environmental management model. Community solidarity ensures strong monitoring and reporting, environmental ethics encourage corporate responsibility, while multi-stakeholder dialogue provides a space for compromise and joint problem-solving. This approach serves as a foundation for developing an environmental management model rooted in humanity values, which emphasizes not only the protection of nature but also justice and community well-being.

Table 3. Literature Matrix: Practical Strategies for Humanity-Based Environmental Management

No	Source / Author	Year	Location / Context	Implementation Strategy	Impact / Key Findings
1	Leal Filho et al.	2022	International Sustainability Governance	Effective governance frameworks	Improved environmental performance and supported the achievement of sustainable development goals.
2	Folke et al.	2022	Global Environmental Resilience	Cooperation among institutions and communities	Increased resilience and reduced environmental risks.
3	Triwiyanto	2020	Indonesia (Environmental Regulatory Framework)	Development of participatory and people-oriented regulations	Inclusive regulations promoted a better balance between economic development objectives and environmental conservation efforts.

In terms of practical implementation, the three main themes identified in this analysis can be translated into various concrete strategies and actions relevant to the mining context in Indonesia. For community solidarity and participation, implementation can be carried out by forming village- or subdistrict-based community working groups that focus on monitoring mining activities and their environmental impacts. These groups should be supported through environmental training and education programs to ensure that local communities have the technical capacity and adequate knowledge. Additionally, the strengthening of local wisdom such as the use of customary laws and traditional practices can serve as added value that legitimizes the role of communities in preserving the environment.

Meanwhile, regarding environmental ethics and corporate social responsibility (CSR), mining companies must design CSR programs that are more transparent, measurable, and accountable. CSR efforts should not be ceremonial or merely for compliance, but must genuinely address the needs and interests of local communities. For example, companies can provide funding and assistance for post- mining land restoration, conduct independent environmental audits, and offer economic support to residents who lose their livelihoods due to mining activities. This will foster a mutually beneficial symbiosis between the company and the surrounding communities.



As for multi-stakeholder dialogue based on humanity values, local governments can facilitate regular forums that involve all key actors companies, community leaders, NGOs, academics, and the media. The implementation of such dialogue must prioritize principles of inclusivity and transparency by ensuring that valid data is accessible to all parties. Furthermore, each forum should conclude with a clearly defined roadmap and a joint monitoring mechanism. In this way, dialogue goes beyond discussion and results in concrete commitments and actions for environmental improvement.

Table 4. Operationalization of Key Humanitarian Behaviors: Strategies and Practical Approaches

Key Behavior	Implementation Strategy	Practical Application
Community Participation and Social Solidarity.	Capacity-building programs through environmental education and technical training; strengthening local institutions and customary governance systems; collaboration with village administrations and community organizations.	Establishment of community-based environmental monitoring groups; implementation of customary regulations and local wisdom in mining management; participatory environmental awareness campaigns.
Environmental Ethics and Corporate Social Responsibility (CSR).	Development of environmentally responsible CSR initiatives; regular independent environmental assessments; increased transparency and public involvement in CSR planning and evaluation.	Land rehabilitation and reforestation programs; development of alternative livelihoods for communities after mining activities; public disclosure of environmental performance and audit reports.
Humanity-Oriented Multi-Stakeholder Collaboration.	Organization of inclusive dialogue platforms involving multiple actors; conflict mediation mechanisms; establishment of joint commitments and collaborative monitoring systems.	Village forums involving companies, local governments, academics, NGOs, and media organizations; preparation of joint environmental restoration roadmaps; implementation of collective monitoring and evaluation mechanisms.

The successful implementation of these strategic dimensions requires strong institutional support and comprehensive public policies. Governments play an essential role in establishing participatory regulations, providing incentives for environmentally responsible companies, and ensuring legal protection for communities involved in environmental monitoring activities. According to Leal Filho et al. (2022), sustainable environmental governance depends on collaboration among governments, businesses, and

civil society in creating accountable and inclusive management systems.

Furthermore, recent studies emphasize that adaptive governance and stakeholder participation are fundamental components of environmental resilience. Folke et al. (2021) argue that collaborative approaches improve the ability of communities and institutions to respond to environmental challenges and reduce ecological risks. Similarly, Sachs et al. (2021) highlight that sustainable development can only be achieved through policies that balance economic objectives with social justice and environmental protection.

Therefore, a humanity-based environmental management framework should not merely focus on regulatory compliance but also emphasize ethical responsibility, transparency, and long-term sustainability. By integrating compassion, social solidarity, and environmental stewardship into governance practices, environmental management can contribute to preserving ecosystems while simultaneously improving the quality of life of present and future generations.

CONCLUSION

This study concludes that integrating Sustainable Development Goals (SDGs) into licensing policies serves as a vital regulatory mechanism for enhancing environmental resilience and sustainable governance. The systematic synthesis of contemporary literature demonstrates that while sustainability-oriented licensing significantly improves resource management and ecological accountability, its practical implementation faces critical structural barriers, including regulatory fragmentation, weak institutional coordination, and competing socioeconomic interests. Overcoming these challenges requires not only transparent regulatory frameworks and adaptive governance but also a robust public eco-literacy movement.

Crucially, this research bridges the gap between public policy discourse and institutional pedagogy by demonstrating how sustainable governance frameworks can be integrated into the field of Indonesian Language and Literature Education. The findings offer a strategic framework for educators to develop advanced instructional materials focused on critical ecological reading, environmental advocacy writing, and policy text analysis. Ultimately, achieving long-term environmental resilience demands an integrated approach where robust legal-administrative instruments are paired with linguistic and educational strategies to cultivate an environmentally responsible society for present and future generations.

BIBLIOGRAPHY

- Auriga Auriga Nusantara. (2023). *Dampak deforestasi akibat pertambangan nikel di Indonesia*. Jakarta: Auriga Nusantara.
- Folke, C., Polasky, S., Rockström, J., Galaz, V., Westley, F., Lamont, M., ... & Österblom, H. (2021). Our future in the Anthropocene biosphere. *Ambio*, 50(4), 834–869.
- Global Forest Watch. (2022). *Indonesia forest monitoring and deforestation report*. Retrieved from <https://www.globalforestwatch.org>
- International Labour Organization (ILO). (2022). *World employment and social outlook 2022: Greening with jobs*. Geneva: ILO.



- Jaringan Advokasi Tambang (JATAM). (2021). *Potret tambang dan krisis lingkungan di Indonesia*. Jakarta: JATAM.
- Jaringan Advokasi Tambang (JATAM). (2023). *Izin tambang dan kerusakan lingkungan di Indonesia: Laporan tahunan*. Jakarta: JATAM.
- Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia (KLHK). (2022). *Indonesia environmental status report 2022*. Jakarta: KLHK.
- Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia (KLHK). (2023). *Watershed damage data due to mining activities*. Jakarta: KLHK.
- Leal Filho, W., Salvia, A. L., Paço, A., & Anholon, R. (2022). Governance and the achievement of sustainable development goals. *Sustainability*, 14(9), 5092.
- Mongabay Indonesia. (2023). *Tin mining and coastal ecosystem damage in Bangka Belitung*. Retrieved from <https://www.mongabay.co.id>
- Nussbaum, M. C. (2011). *Creating capabilities: The human development approach*. Cambridge, MA: Harvard University Press.
- Organisation for Economic Co-operation and Development (OECD). (2022). *Global outlook on financing for sustainable development 2022*. Paris: OECD Publishing.
- Pope Francis. (2015). *Laudato Si': On care for our common home*. Vatican City: Libreria Editrice Vaticana.
- Sachs, J. D., Kroll, C., Lafortune, G., Fuller, G., & Woelm, F. (2021). *Sustainable development report 2021*. Cambridge: Cambridge University Press.
- Triwiyanto. (2021). Environmental governance and community participation in Indonesia. *Journal of Environmental Policy and Governance*, 31(2), 115–127.
- United Nations Development Programme (UNDP). (2022). *Human development report 2021/2022: Uncertain times, unsettled lives*. New York: UNDP.
- United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. New York: United Nations.
- United States Environmental Protection Agency (EPA). (2022). *Environmental justice and equity action plan*. Washington, DC: EPA.
- Wahana Lingkungan Hidup Indonesia (WALHI). (2021). *Heavy metal pollution caused by nickel mining in Indonesia*. Jakarta: WALHI.
- Wahana Lingkungan Hidup Indonesia Central Kalimantan. (2023). *Illegal mining and its environmental impact in Central Kalimantan*. Palangka Raya: WALHI Kalimantan Tengah.
- Walker, B., & Salt, D. (2021). *Resilience thinking: Sustaining ecosystems and people in a changing world*. Washington, DC: Island Press.