

Reconceptualizing Environmental Access Justice in the Era of Ecological Crisis: A Utilitarian Ethical Perspective

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ABSTRACT: The global ecological crisis has exacerbated climate change, environmental degradation, and inequalities in access to essential resources. Vulnerable communities, particularly those in coastal urban areas, disproportionately bear the burden of tidal flooding, land subsidence, and ecosystem degradation. This situation raises urgent ethical questions regarding justice in environmental governance and sustainable development. This study aims to critically analyze the role of utilitarian ethics in shaping environmental access justice and to assess its relevance for sustainable development in the era of ecological crisis. The research employs a normative–philosophical approach, combined with content analysis of environmental policies and normative evaluation through the frameworks of utilitarianism and justice. The data are drawn from publicly accessible secondary sources, including peer-reviewed articles, research reports, and policy documents. Semarang City is used as an illustrative case to demonstrate how ecological problems materialize in coastal urban contexts, where land subsidence, tidal flooding, and socio-economic inequality intersect. The findings indicate that utilitarianism provides a pragmatic framework for evaluating collective welfare, yet its reliance on aggregate benefit calculations often neglects distributive justice. In the case of Semarang, urban development generates short-term economic gains but intensifies the vulnerability of marginalized coastal communities. Reformulating utilitarianism through principles of rule-based stability, intergenerational justice, and recognition of environmental rights offers a more balanced approach, integrating collective welfare with ecological protection. The novelty of this study lies in its attempt to connect utilitarian ethics with environmental access justice through a localized case illustration, thereby bridging abstract philosophical discourse with empirical realities. Its urgency derives from the pressing need to embed justice-oriented ethics into

environmental governance so that sustainable development becomes not only efficient but also equitable.

KEYWORDS: access justice; philosophy; intergenerational equity; coastal vulnerability; sustainable urban governance.

I. INTRODUCTION

The global ecological crisis manifests through interrelated challenges such as climate change, environmental degradation, and ecological disasters, each intensifying the vulnerability of both natural systems and human societies. Climate change, predominantly driven by anthropogenic activities since the Industrial Revolution, has altered weather patterns, threatened biodiversity, and accelerated sea-level rise.¹ Simultaneously, environmental degradation caused by deforestation, pollution, and the destruction of natural habitats undermines ecological resilience and contributes to biodiversity loss.² These processes are not merely ecological phenomena but also socio-political issues, as their impacts are distributed unequally, with marginalized communities bearing disproportionate burdens.³

In the Indonesian context, these global challenges take on acute local dimensions shaped by rapid development, socio-economic inequalities, and political dynamics. Deforestation, land-use change, and pollution threaten both the country's biodiversity and the livelihoods of local communities who depend directly on natural resources.⁴ The expansion of agricultural exploitation and ecotourism, while contributing to economic growth, has simultaneously triggered environmental degradation that disrupts cultural practices and Indigenous knowledge systems.⁵ Moreover, the intersection of climate change with persistent socio-economic disparities reinforces the

¹ C F Kennel, "The Gathering Anthropocene Crisis" (2020) 8:1 *The Anthropocene Review* 83-95.

² Zehra T Yaşın, "The Socio-Ecological Question, the Global Environmental Justice Movement and Anti-Systemic Environmentalism" (2023) 21:5-6 *Perspectives on Global Development and Technology* 466-489.

³ *Ibid.*

⁴ Wiliya Wiliya, Dwi Susanti & Sukono Sukono, "Comparison of Performance From Green Bonds and Conventional Bonds Traded on the Indonesia Stock Exchange" (2021) 2:4 *International Journal of Business Economics and Social Development* 177-183.

⁵ Azwindini I Ramaano, "Alternative Ecotourism Perspectives Within the Protected Conservation Sites and Farming Communities Amid Environmental Degradation and Climate Change-Bound Rural Exercises" (2023) 5:1 *Forestry Economics Review* 77-104.

urgency of environmental justice, particularly in ensuring equitable access to resources and sustainable opportunities for vulnerable groups.⁶

As the ecological crisis deepens, the discourse on environmental justice becomes increasingly urgent. Vulnerable populations often lack equitable access to clean environments, natural resources, and sustainable economic opportunities, placing them at the center of climate-related risks.⁷ Addressing these disparities requires not only technological and policy interventions but also recognition of sociocultural dynamics, including the voices of Indigenous communities and other marginalized groups, in environmental decision-making.⁸ Ensuring meaningful participation of these communities is essential for fostering fair access to environmental benefits and reducing the inequalities that exacerbate ecological vulnerability.

Within this debate, utilitarianism offers a compelling ethical framework for evaluating the balance between collective benefits and individual sacrifices in sustainable development. By emphasizing the maximization of overall happiness and well-being, utilitarian ethics enables policymakers to weigh the positive and negative consequences of environmental initiatives in terms of their broader social and ecological outcomes.⁹ Integrating social justice into utilitarian reasoning strengthens the ethical imperative to ensure a fair distribution of environmental benefits and costs, thereby enhancing community acceptance of sustainability policies.¹⁰ Compared with other ethical perspectives that emphasize individual rights or intrinsic ecological value, utilitarianism provides a pragmatic approach centered on collective welfare, which can increase the effectiveness of environmental governance in diverse societies.

Despite the increasing recognition of utilitarianism as a relevant ethical framework for assessing environmental policies, studies explicitly linking it to the principles of environmental access justice remain limited. Existing research has explored utilitarian perspectives in broader environmental contexts, such

⁶ Misaki Takada, "Challenges and Opportunities of Environmental Sustainability and Social Justice in the Face of Climate Change and Ecological Crisis in Japan" (2024) 8:1 *International Journal of Sociology* 53–65.

⁷ Yaşın, *supra* note 2.

⁸ Takada, *supra* note 6.

⁹ Naveed Khan et al, "Socioeconomic Impacts of the Billion Trees Afforestation Program in Khyber Pakhtunkhwa Province (KPK), Pakistan" (2019) 10:8 *Forests* 703.

¹⁰ Nian Tong, "Environmental Ethics and Ecological Preservation: Integrating Social Justice for Sustainable Development" (2024) 5:10 *International Journal of Religion* 5211–5218.

as carbon allocation preferences and climate mitigation strategies, but rarely investigates their intersection with localized justice issues in Indonesia.¹¹ The complex dynamics between utility maximization and equitable resource distribution, particularly in regions facing acute ecological challenges, are often overlooked in the literature.¹² This gap underscores the need for empirical studies that examine how utilitarian considerations may both support and conflict with local conceptions of justice, especially within Indonesia's diverse socio-economic and environmental landscape.¹³

This study aims to critically analyze the role of utilitarian ethics in shaping environmental access justice and to assess its relevance for sustainable development in the context of Indonesia's ecological crisis. The novelty of this research lies in its attempt to bridge philosophical discourse with empirical realities by applying utilitarian reasoning to a localized case study of Semarang, thereby offering insights that extend beyond abstract theorization. Unlike previous studies that focus primarily on global frameworks or policy-level analyses, this research situates utilitarianism within the lived experiences of vulnerable communities affected by environmental degradation, thus highlighting the ethical tensions between collective welfare and distributive justice. The urgency of this inquiry stems from the intensifying ecological challenges in Indonesia, where rapid urbanization, climate change, and socio-economic inequalities converge to exacerbate environmental injustices. By integrating utilitarian perspectives with principles of justice and equity, the study seeks to contribute both theoretically and practically to the ongoing debate on sustainable development and ecological justice.

II. METHODS

This study adopts a normative-philosophical approach¹⁴ within the field of environmental ethics, aiming to critically evaluate the moral principles that govern human interaction with nature. Rather than merely interrogating established ethical theories, this approach also advances new philosophical

¹¹ Lingling Huang et al, "Efficiency or Equality? The Utilitarianism-egalitarianism Trade-off Determines Carbon Allocation Preference" (2023) 63:2 *British Journal of Social Psychology* 745-766.

¹² Hudali Mukti & Bobur Baxtishodovich Sobirov, "Environmental Justice at the Environmental Regulation in Indonesia and Uzbekistan" (2023) 3:3 *Journal of Human Rights, Culture and Legal System* 476-512.

¹³ Sepehr Khajeh Naeeni, "The Utilitarian Approach to Environmental Law: Balancing Costs and Benefits" (2023) 2:1 *Interdisciplinary Studies in Society, Law, and Politics* 4-15.

¹⁴ Achmad Irwan Hamzani et al, "Implementation approach in legal research" (2024) 13:2 *International Journal of Advances in Applied Sciences* 380.

foundations to address pressing ecological challenges such as climate change, biodiversity loss, and environmental injustice. The examination of the philosophical underpinnings of environmental organizations, alongside the integration of sustainability responsibilities into corporate practices, underscores the relevance of this approach for developing ethical frameworks that are not only theoretically robust but also practically applicable.¹⁵

The research relies on publicly available secondary data, including peer-reviewed journal articles, research reports, and policy documents accessible through open sources.¹⁶ The use of such secondary materials provides a strong analytical foundation, as they offer diverse empirical and theoretical perspectives pertinent to the discourse on environmental ethics. Drawing upon these sources enables the study to generate a comprehensive understanding of ecological dynamics, policy practices, and social responses, particularly as they manifest in the case of Semarang.

The methods of analysis employed are content analysis and normative evaluation. Content analysis is utilized to examine environmental policies and community practices in Semarang, thereby allowing the identification of dominant narratives, policy patterns, and ethical discourses on sustainability.¹⁷ Normative evaluation complements this by assessing the ethical implications of these policies and practices within the framework of justice and equity, thus enabling an inquiry into whether utilitarian reasoning serves to advance or, conversely, to hinder environmental justice.

III. UTILITARIANISM AND ENVIRONMENTAL ETHICS

Utilitarianism, as a consequentialist ethical theory, is primarily concerned with maximizing overall welfare by assessing actions through their outcomes. It distinguishes between act utilitarianism and rule utilitarianism. Act utilitarianism evaluates individual actions based solely on their immediate consequences, even if this requires sacrificing certain rights for the majority's

¹⁵ Kim Pewitt-Jones, "Earth Wars: PETA, Sea Shepherds, Greenpeace and Ethics" (2019) 29:1 *Southwestern Mass Communication Journal*; Ejuma M Adaga et al, "Philosophy in Business Analytics: A Review of Sustainable and Ethical Approaches" (2024) 6:1 *International Journal of Management & Entrepreneurship Research* 69-86; Fiachra Ó'Brolcháin, "Environmental Ethics and Possibility Studies" (2023) 1:1-2 *Possibility Studies & Society* 172-177.

¹⁶ Achmad Irwan Hamzani et al, "Legal Research Method: Theoretical and Implementative Review" (2023) 10:2 *International Journal of Membrane Science and Technology* 3610-3619.

¹⁷ Amidi Amidi et al, "Study of Local Wisdom Nyadran Sruwen Hamlet as Ethnoscience and Environmental Ethics" (2023) 12:1 *Unnes Science Education Journal* 32-38.

benefit. In contrast, rule utilitarianism emphasizes adherence to general rules that, when consistently applied, produce greater long-term utility, thereby providing stability and safeguarding individual interests.¹⁸ This distinction is particularly relevant in environmental ethics, where decisions often involve trade-offs between immediate utility and sustainable benefits.

However, the utilitarian approach tends to prioritize human-centered benefits, leading critics to argue that it neglects the intrinsic value of ecosystems. Such an anthropocentric orientation risks justifying environmental exploitation as long as it maximizes aggregate welfare.¹⁹ Yet, more nuanced interpretations suggest that utilitarianism can support responsible environmental ethics when it incorporates long-term ecological impacts and considerations of social equity.²⁰ The tension between utility maximization and ecological preservation highlights the need for utilitarian reasoning to integrate both environmental sustainability and distributive justice.

A further critique addresses utilitarianism's potential bias toward majority interests, which may result in injustices for marginalized groups. By prioritizing aggregate happiness, utilitarian reasoning can legitimize policies that sacrifice the welfare of minorities, such as allocating health resources disproportionately to larger populations.²¹ This raises ethical concerns about whether collective utility should outweigh individual rights and autonomy, especially when vulnerable groups bear disproportionate burden.²² Moreover, reducing complex moral dilemmas to quantifiable calculations risks oversimplifying values that cannot easily be measured, thereby limiting utilitarianism's capacity to serve as a fair ethical framework²³

Beyond its majoritarian bias, utilitarianism also faces criticism for its reliance on simplistic moral calculus. The pursuit of maximizing aggregate utility can lead to ethically troubling conclusions, such as justifying the sacrifice of an

¹⁸ Daili Chen, Chuanjun Liu & Edgar E Nolasco, "Intergenerational Transmission of Moral Decision-making Inclinations" (2024) 73:5 *Family Relations* 3250–3268; Rea Antoniou et al, "Reduced Utilitarian Willingness to Violate Personal Rights During the COVID-19 Pandemic" (2021) 16:10 *Plos One* e0259110.

¹⁹ Lařna Droz, "Anthropocentrism as the Scapegoat of the Environmental Crisis: A Review" (2022) 22 *Ethics in Science and Environmental Politics* 25–49.

²⁰ Khajeh Naeni, *supra* note 13.

²¹ Daniel Steel & Naseeb Bolduc, "A Closer Look at the Business Case for Diversity: The Tangled Web of Equity and Epistemic Benefits" (2020) 50:5 *Philosophy of the Social Sciences* 418–443.

²² Simon Coghlan & Adam P A Cardilini, "The Use and Abuse of Moral Theories in Conservation Debate About Killing Animals" (2024) 38:4 *Conservation Biology*.

²³ Matt Novacevski, "Pestilence in Planning: Why Camus Is a Beacon for Our Times" (2021) 22:2 *Planning Theory & Practice* 329–335.

individual if it benefits the majority.²⁴ Such reasoning often disregards the moral weight of individual rights and human dignity, raising concerns about whether utilitarianism can adequately balance collective welfare with personal freedom.²⁵ This limitation demonstrates the necessity of integrating complementary ethical considerations that ensure both fairness and respect for individual integrity within a utilitarian framework.²⁶ Recent developments in utilitarian thought have attempted to address these weaknesses by advancing more nuanced models such as preference utilitarianism. This approach, associated with Peter Singer, shifts the focus from maximizing pleasure to respecting the preferences and interests of all sentient beings.²⁷ By incorporating the preferences of both current and future generations, preference utilitarianism broadens ethical concern beyond humans to include animals and ecosystems, thereby enhancing its relevance for environmental issues.²⁸ This orientation challenges the commodification of nature by recognizing its intrinsic value and advocating policies that reflect sustainable intergenerational stewardship.²⁹

Utilitarianism also contrasts with alternative ethical frameworks such as deontology, ecocentrism, and intergenerational justice. Deontological ethics emphasizes adherence to moral duties and rights, offering stronger protection for minorities who may be disadvantaged under utilitarian calculations.³⁰ Ecocentrism, meanwhile, asserts the intrinsic value of ecosystems irrespective of human utility, thereby countering the anthropocentric bias of traditional utilitarianism.³¹ Intergenerational justice further extends ethical responsibility by stressing the long-term consequences of present actions on future

²⁴ Grégory Ponthière, “Are Long-Lived Persons Utility Monsters?” (2024) *Economics and Philosophy* 1–19.

²⁵ Johanna Thoma, “Weighing the Costs and Benefits of Public Policy: On the Dangers of Single Metric Accounting” (2021) 2:2 *Lse Public Policy Review*.

²⁶ Jimin Rhim et al, “A Deeper Look at Autonomous Vehicle Ethics: An Integrative Ethical Decision-Making Framework to Explain Moral Pluralism” (2021) 8 *Frontiers in Robotics and Ai*.

²⁷ Ellie Ritter & Gregory M Thaler, “Technical Reform or Radical Justice? Environmental Discourse in Non-Governmental Organizations” (2022) 6:3 *Environment and Planning E Nature and Space* 2071–2095.

²⁸ Yi Wu & Xiaofeng Cheng, “The Village Bank of a Lisu Community: Indigenous Belief, Economic Practices, and Environmental Conservation in Southwest China” (2023) 43:3 *Critique of Anthropology* 252–268.

²⁹ Nathalie Plante & Lilian Negura, “Social Representations of Children and Parents in Parliamentary-Committee Debates About the Inclusion of Child Psychological Maltreatment in the Quebec Youth Protection Act” (2021) 11:3 *Societies* 114.

³⁰ Mónica Correia, Guilhermina Rêgo & Rui Nunes, “The Right to Be Forgotten and COVID-19: Privacy Versus Public Interest” (2021) 27:1 *Acta Bioethica* 59–67.

³¹ Khajeh Naeeni, *supra* note 13.

generations.³² While utilitarianism offers pragmatic advantages in promoting actions with measurable social benefits, its limitations underscore the importance of balancing utility with principles of justice, rights, and ecological integrity.

To further clarify the distinctions and overlaps among these ethical approaches, a comparative overview is presented in the following table. This synthesis highlights their core principles, strengths, and limitations, thereby enabling a clearer understanding of how utilitarianism aligns with, and differs from, other frameworks of environmental ethics.

Table 1. Ethical Approaches in Environmental Justice: A Comparative Overview

Ethical Framework	Core Principle	Strengths	Limitations
Act Utilitarianism	Maximize immediate utility of each act	Pragmatic, flexible in decision-making	May sacrifice individual rights; short-term focus
Rule Utilitarianism	Follow rules that yield long-term utility	Balances stability with collective welfare	Can marginalize minorities if rules favor majority
Preference Utilitarianism	Respect preferences of all sentient beings	Extends ethics to non-humans; intergenerational scope	Difficult to measure in aggregate or preferences fairly

³² Kathrin Bednar & Sarah Spiekermann, “Eliciting Values for Technology Design With Moral Philosophy: An Empirical Exploration of Effects and Shortcomings” (2022) 49:3 Science Technology & Human Values 611–645.

Ethical Framework	Core Principle	Strengths	Limitations
Deontology	Adherence to duties and rights	Protects minority interests; strong rights orientation	May ignore collective benefits in urgent ecological crises
Ecocentrism	Inherent value of ecosystems	Recognizes non-human nature as morally considerable	Less pragmatic for policy-making in human-centered societies
Intergenerational Justice	Responsibility to future generations	Long-term sustainability and fairness	Often abstract; lacks immediate enforcement mechanisms

The comparative overview illustrates that no single ethical framework offers a complete solution to the dilemmas of environmental justice. While utilitarianism provides a pragmatic calculus for weighing collective benefits, it often struggles to adequately safeguard minority rights and ecological integrity. Conversely, deontology and ecocentrism introduce strong protections for individuals and ecosystems but may lack the flexibility required for urgent policy decisions. Intergenerational justice enriches the debate by extending responsibility to future generations, though its abstract nature makes implementation challenging. This comparison underscores the importance of reformulating utilitarianism in ways that integrate justice, rights, and ecological values, ensuring it remains both practically relevant and ethically robust in addressing environmental crises.

IV. ENVIRONMENTAL ACCESS JUSTICE IN THE ERA OF ECOLOGICAL CRISIS

Unequal access to environmental resources such as clean water, air, and green public spaces remains a persistent challenge in Indonesia, reflecting broader global trends. Despite its abundant freshwater resources, poor management and uneven distribution have left many communities without reliable access to safe drinking water.³³ These disparities are particularly evident in poorer districts, where limited infrastructure intensifies vulnerability, a problem further exacerbated during the COVID-19 pandemic when hygiene and sanitation became critical for public health.³⁴ Beyond water access, inadequate investment in environmental infrastructure has also restricted opportunities for clean air and green spaces, undermining both ecological sustainability and community well-being.³⁵

Globally, similar inequalities manifest most visibly in urban areas where socio-economic conditions strongly influence access to environmental goods. Low-income communities are often more exposed to high levels of air pollution and face a lack of public green spaces, creating significant health disparities.³⁶ Studies show that insufficient green infrastructure worsens physical and mental health outcomes in marginalized populations, a trend made more apparent during the pandemic when such spaces functioned as vital refuges from urban stressors.³⁷ These findings emphasize the need for integrated approaches that combine socio-economic policies, public health initiatives, and urban planning to ensure equitable environmental access for all communities.

The persistence of these disparities reveals that environmental access is not merely a matter of natural availability but one shaped by structural inequalities. When access to clean water, clean air, and green spaces is determined by socio-economic status, environmental justice becomes inseparable from broader struggles for social equity. This highlights the ethical imperative for

³³ Nadia Astriani et al, "The Responsibility of the Indonesian Government to Fulfill the Rights to Water During the COVID-19 Pandemic: Some Legal Issues" (2021) 51:5 *Environmental Policy and Law* 327–341.

³⁴ Keisha D Putirama, "Interregional Disparity and Spatial Autocorrelation of Access to Water and Sanitation in Indonesia" (2021) 5:3 *Jurnal Perencanaan Pembangunan the Indonesian Journal of Development Planning* 372–395; Louis Lebel et al, "COVID-19 and Household Water Insecurities in Vulnerable Communities in the Mekong Region" (2022) 25:4 *Environment Development and Sustainability* 3503–3522.

³⁵ José L Chong, Sohel Rana & Mark Ojal, "Public Spaces as an Invaluable Resource for Delivering Healthy and More Equitable Cities and Communities" (2020) Vol. 5 n. 3 *The Journal of Public Space* 227–232.

³⁶ Laleh R Kalankesh et al, "COVID-19 Pandemic and Socio-environmental Inequality: A Narrative Review" (2023) 6:6 *Health Science Reports*.

³⁷ Hongwei Wang, "Criminalization of Ecocide Acts From the Perspective of Dogmatik" (2024) 105:1 *International Relations and International Law Journal*; Sang G Purnama & Dewi Susanna, "Hygiene and Sanitation Challenge for COVID-19 Prevention in Indonesia" (2020) 15:2 *Kesmas National Public Health Journal*.

states to design policies that not only provide physical infrastructure but also guarantee fairness in distribution, thereby ensuring that the benefits of environmental sustainability reach the most vulnerable groups. Without such measures, the ecological crisis will continue to deepen existing inequalities rather than alleviate them.

The relationship between state and corporate actors plays a decisive role in shaping both the emergence and resolution of ecological injustices. States hold the responsibility to establish and enforce regulations that protect vulnerable groups disproportionately affected by environmental degradation. Increasingly, governments are pressured by investors and stakeholders to ensure that corporations adopt strong environmental, social, and governance (ESG) standards.³⁸ Corporations, meanwhile, must move beyond profit-maximization and acknowledge their ecological footprint, taking active responsibility for promoting sustainability.³⁹ In sectors such as tourism, sustainable practices can directly enhance both community welfare and ecological resilience.⁴⁰ Collaborative initiatives between governments and corporations, such as community-based environmental programs, demonstrate how shared responsibility can foster more equitable ecological outcomes.⁴¹

The global framework for addressing environmental justice is strongly reflected in the Sustainable Development Goals (SDGs), particularly Goals 6, 11, and 13. Goal 6 seeks to ensure universal access to clean water and sanitation, directly tackling disparities in water availability.⁴² Goal 11 emphasizes the creation of inclusive, resilient, and sustainable cities, highlighting the environmental challenges faced by urban populations, especially in marginalized areas.⁴³ Goal 13 calls for urgent climate action,

³⁸ Feng-Li Lin & Chia-Wei Wu, "Board Characteristics and Environmental Performance" (2024) 3:7 *Journal of Ecohumanism*.

³⁹ Julia Bartosch & Jörg Raab, "Corporate Responsibility" (2022) 15–30.

⁴⁰ Iwan H Kusnadi, "Environmental Policy Implementation in West Java (Studies in the Ciletuh Geopark Tourism Area)" (2023) 8:2 *Journal of Governance*.

⁴¹ Thirdchai Sattayapanich, Piyapong Janmaimool & Jaruwan Chontanawat, "Factors Affecting Community Participation in Environmental Corporate Social Responsibility Projects: Evidence From Mangrove Forest Management Project" (2022) 8:4 *Journal of Open Innovation Technology Market and Complexity* 209.

⁴² Neeharika Kushwaha, Charu Nangia & Bhargav Adhvaryu, "Achieving Localization of SDG11": (2023) 11:3 *International Review for Spatial Planning and Sustainable Development* 102–115.

⁴³ Pedro-José Martínez-Córdoba et al, "The Commitment of Spanish Local Governments to Sustainable Development Goal 11 From a Multivariate Perspective" (2021) 13:3 *Sustainability* 1222.

underscoring the disproportionate risks borne by vulnerable groups.⁴⁴ Taken together, these goals provide an integrated vision that situates environmental justice at the heart of sustainable development.

The interdependence among these goals reveals that progress in one area reinforces achievements in others. For instance, improving clean water access (Goal 6) contributes to healthier urban environments (Goal 11), while both strengthen resilience to climate change (Goal 13). Studies confirm that integrated approaches to the SDGs can reduce systemic inequalities by linking infrastructure investment with ecological protection and social inclusion.⁴⁵ This underscores the importance of policy frameworks that align local action with global commitments, ensuring that development not only promotes sustainability but also uplifts marginalized communities.⁴⁶ Ultimately, embedding environmental justice within the pursuit of the SDGs provides a coherent strategy to confront the ecological crisis while addressing persistent social inequalities.

To clarify how global sustainability frameworks address issues of environmental access justice, the following table summarizes the relevance of selected Sustainable Development Goals (SDGs). This overview highlights how each goal directly contributes to reducing inequalities in environmental resources while also identifying the key challenges that hinder their realization.

Table 2. Relevance of Selected SDGs to Environmental Access Justice

SDG Goal	Focus Area	Contribution to Environmental Justice	to Key Challenge in Practice
Goal 6	Clean water and sanitation	Reduces inequality in access to safe drinking water and hygiene	Unequal distribution of poor infrastructure

⁴⁴ Naledzani Mudau et al, “Assessment of SDG Indicator 11.3.1 and Urban Growth Trends of Major and Small Cities in South Africa” (2020) 12:17 Sustainability 7063.

⁴⁵ Gulnara N Nabiyeveva & Stephen Wheeler, “How Is SDG 11 Linked With Other SDGs? Evidence From the United Nations Good Practices” (2024) 3:3 Highlights of Sustainability 294–307.

⁴⁶ Anita Breuer, Hannah Janetschek & Daniele Malerba, “Translating Sustainable Development Goal (SDG) Interdependencies Into Policy Advice” (2019) 11:7 Sustainability 2092.

SDG Goal	Focus Area	Contribution to Environmental Justice	Key Challenge in Practice
Goal 11	Sustainable cities and communities	Promotes resilient urban planning with green spaces	inclusive, Rapid urbanization and socio-economic disparities
Goal 13	Climate action	Protects vulnerable groups from climate-related hazards	Limited adaptation capacity and resource gaps

The table illustrates that while the SDGs provide a comprehensive vision for integrating justice into environmental governance, their implementation often faces structural and socio-economic barriers. The success of these goals depends not only on technical interventions but also on ensuring equitable distribution of resources and inclusive decision-making processes. This reinforces the argument that environmental justice must be embedded within global development strategies rather than treated as a secondary concern.

Coastal cities are increasingly at the frontline of climate change, with Semarang providing a compelling case of the challenges shared across Southeast Asia. Jakarta, for example, suffers from extreme land subsidence caused by over-extraction of groundwater, with rates reaching 20–28 cm annually in certain districts.⁴⁷ Semarang faces similar but less severe subsidence, averaging around 8 cm per year, which contributes to recurrent tidal flooding and urban inundation.⁴⁸ Bangkok also experiences heightened vulnerability from sea-level rise and rainfall-induced flooding, while Surabaya faces growing maritime risks linked to coastal erosion.⁴⁹ These cases illustrate that coastal urbanization,

⁴⁷ Ivan M Hanif et al, “Green Waterfront City, Future Perspectives for Sustainable City in Tidal Flooding Prone Area at Northern Semarang” (2023) 16:2 *Dinamika Teknik Sipil Majalah Ilmiah Teknik Sipil* 88–96.
⁴⁸ Andojo Wurjanto, Julfikhsan A Mukhti & Shinta Ayuningtyas, “Alternative Designs for Semarang-Demak Coastal Dike and Toll Road” (2019) 51:3 *Journal of Engineering and Technological Sciences* 337–354.
⁴⁹ Andi B Rimba & Putu E Yastika, “Indonesia: Threats to Physical Urban Water Problems” (2020) 148 *E3s Web of Conferences* 06001.

combined with climate pressures, creates systemic risks that cannot be addressed by isolated local policies alone.⁵⁰

In this context, sustainable urban planning becomes an urgent priority to strengthen resilience against climate-related disasters. Evidence from Semarang indicates that integrated approaches—linking land-use regulation, groundwater management, and coastal protection—are essential for reducing vulnerability.⁵¹ Similarly, research highlights that cities adopting multi-sectoral strategies, including ecological restoration and infrastructure adaptation, are better positioned to withstand the compound risks of flooding and subsidence.⁵² Although each coastal city has distinct socio-environmental conditions, their shared vulnerabilities underscore the need for regional cooperation, knowledge-sharing, and innovative policy solutions. Addressing these challenges is not only a matter of technical adaptation but also of ensuring ecological justice, as the impacts of climate change disproportionately fall on poorer and marginalized urban communities.

In addition to global frameworks, the experiences of coastal cities offer concrete evidence of how ecological challenges intersect with justice concerns. The following table compares four major Southeast Asian coastal cities, highlighting the specific environmental risks they face and the consequences of subsidence and flooding.

Table 3. Coastal Cities in Southeast Asia: Subsidence and Flooding Risks

⁵⁰ Buddin A Hakim et al, “Assessing Environmental Physics: Tidal Flood Impact With Multidiscipline Approach (Case Study Coastal Cities Semarang Indonesia)” (2022) 2377:1 Journal of Physics Conference Series 012059.

⁵¹ Pranoto S Herbanu et al, “The Zoning of Flood Disasters by Combining Tidal Flood and Urban Flood in Semarang City, Indonesia” (2024) 1314:1 Iop Conference Series Earth and Environmental Science 012028.

⁵² Santy P Dewi et al, “Climate Change Impact on the Coastal Settlement Quality and the Relation With the Attainment of Semarang Healthy City” (2022) 1082:1 Iop Conference Series Earth and Environmental Science 012026.

City	Main Environmental Challenge	Subsidence Rate	Key Risk Outcome
Jakarta	Excessive groundwater extraction	20–28 cm/year (Hanif et al., 2023)	Severe land subsidence and chronic flooding
Semarang	Groundwater overuse, tidal flooding	~8 cm/year (Wurjanto et al., 2019)	Recurrent inundation, tidal
Bangkok	Sea-level rise and rainfall-induced flooding	Significant variable	but Urban vulnerability to compound flooding
Surabaya	Coastal erosion and maritime risks	Not specified	Increased exposure to coastal hazards

The comparison highlights both shared and divergent vulnerabilities across these cities. While Jakarta and Semarang struggle with land subsidence linked to groundwater exploitation, Bangkok and Surabaya face heightened risks from sea-level rise and coastal erosion. These variations underscore the importance of context-specific adaptation policies, yet their common dependence on integrated water and land management points to the potential for regional cooperation. Framing these challenges through the lens of environmental justice ensures that adaptation measures prioritize not only resilience but also equity for marginalized urban populations.

V. CASE STUDY - LAND SUBSIDENCE AND COASTAL FLOODING IN SEMARANG CITY

Land subsidence and coastal flooding have become critical challenges in Semarang, driven largely by unsustainable groundwater extraction and rising sea levels. Studies show that the city experiences subsidence at an average rate of around 8 cm per year, significantly increasing vulnerability to tidal

inundation.⁵³ This process is compounded by the shallow groundwater table in coastal areas, which makes the city highly susceptible to flooding from both seawater intrusion and excessive rainfall. These conditions demonstrate how ecological and hydrological factors converge to intensify climate-related risks in urban coastal zones.

The interaction between land subsidence and tidal flooding illustrates the crucial role of groundwater management in shaping urban resilience. Excessive extraction weakens aquifer systems, leading not only to ground instability but also to the salinization of freshwater reserves, which undermines the quality of water resources.⁵⁴ In many cases, conventional flood defenses such as levees or seawalls prove inadequate because they do not address flooding driven by groundwater rise.⁵⁵ These findings highlight the urgency of adopting integrated management approaches that link groundwater governance with land use planning and coastal protection to mitigate the escalating risks of compound flooding.⁵⁶

Empirical evidence further confirms the close relationship between subsidence, groundwater depletion, and tidal flooding in coastal cities. Declining aquifer levels accelerate land sinking, creating a downward spiral that worsens the frequency and severity of floods. As the ground surface lowers, seawater more easily penetrates inland during high tides, often overwhelming drainage systems and disrupting urban activities.⁵⁷ Research also indicates that poorly managed groundwater extraction exacerbates these conditions, threatening infrastructure stability and the livelihoods of urban populations.⁵⁸ Such evidence demonstrates that Semarang's ecological challenges are not isolated but represent systemic failures in urban water management that demand urgent intervention.

⁵³ Wurjanto, Mukhti & Ayuningtyas, *supra* note 48.

⁵⁴ P S Sheeja et al, "Change Detection of Groundwater Level and Quality in Coastal Aquifers of Malabar Region in Kerala, India" (2022) *International Journal of Environment and Climate Change* 755-768.

⁵⁵ C K Dodd & Gavin M Rishworth, "Coastal Urban Reliance on Groundwater During Drought Cycles: Opportunities, Threats and State of Knowledge" (2023) 1 *Cambridge Prisms Coastal Futures*.

⁵⁶ Madeleine Dyring et al, "Coastal Groundwater-Dependent Ecosystems Are Falling Through Policy Gaps" (2023) 62:2 *Ground Water* 184-194.

⁵⁷ Randy Ardianto et al, "Tidal Flood Model Projection Using Land Subsidence Parameter in Pontianak, Indonesia" (2022) 17:2/2022 *Geographia Technica* 135-147.

⁵⁸ Muhamad Khairulbahri, "The Qualitative Analysis of the Nexus Dynamics in the Pekalongan Coastal Area, Indonesia" (2022) 12:1 *Scientific Reports*; Muhammad Zainuri et al, "An Improve Performance of Geospatial Model to Access the Tidal Flood Impact on Land Use by Evaluating Sea Level Rise and Land Subsidence Parameters" (2022) 23:2 *Journal of Ecological Engineering* 1-11.

The impacts of tidal flooding and land subsidence in Semarang are distributed unevenly, revealing profound socio-economic inequalities. Wealthier neighborhoods benefit from stronger infrastructure, such as elevated housing and reliable drainage systems, while coastal communities like Tambaklorok and Bandarharjo endure recurrent inundation that disrupts livelihoods reliant on fishing and small-scale trading, with residents reporting tidal floods as frequent as four to nine times per month.⁵⁹ In Bandarharjo, poverty and marginalization further reduce adaptive capacity, as the absence of robust infrastructure and social institutions limits community resilience to environmental stressors.⁶⁰ These vulnerabilities are intensified by ecological degradation, notably the loss of mangrove forests that once served as natural flood barriers.⁶¹ Taken together, the intersection of socio-economic disadvantage and ecosystem loss disproportionately exposes marginalized groups to disaster risks, underscoring the ethical imperative of embedding justice considerations into urban planning and resource allocation.

The divergent experiences of Semarang's populations reveal how environmental risks intersect with social inequality, producing distinct geographies of vulnerability. While elites can leverage resources to mitigate environmental threats, marginalized coastal groups are left to cope with deteriorating conditions with little institutional support.⁶² This disparity underscores the importance of adopting justice-oriented approaches to urban development, ensuring that policies not only strengthen physical resilience but also address the inequities that determine who suffers most from ecological change. By framing tidal flooding and land subsidence as issues of justice rather than merely technical problems, policymakers can more effectively design interventions that reduce systemic vulnerability in the city.

From a utilitarian perspective, the benefits of urban expansion in Semarang must be weighed against the socio-ecological costs borne by coastal

⁵⁹ Hakim et al, *supra* note 50; Yossi Giovanie et al, "Land Subsidence in the North Coastal Semarang City for Socioeconomic Activities" (2023) 6:1 *Temali Jurnal Pembangunan Sosial* 15–22.

⁶⁰ Nany Yulastuti, Sariffudin & Syafrudin Syafrudin, "Social Vulnerability Level Appraisal at Tidal Flood Areas" (2023) 11:2 *International Review for Spatial Planning and Sustainable Development* 99–113; Giovanie et al, *supra* note 59.

⁶¹ Westi Utami et al, "The Impact of Mangrove Damage on Tidal Flooding in the Subdistrict of Tugu, Semarang, Central Java" (2021) 9:1 *Journal of Degraded and Mining Lands Management* 3093–3105.

⁶² Iman Khoirudin, Hamdan T Atmaja & Triwathy Aarsal, "The Role of Social Institutions in Building the Youth's Social Resilience in Bandarharjo, North Semarang" (2023) 12:1 *Journal of Educational Social Studies* 19–26.

communities. Economic growth generated through real estate and industrial development can increase job opportunities and stimulate infrastructure improvements.⁶³ However, these short-term gains are offset by the long-term vulnerabilities faced by marginalized groups in areas such as Tambaklorok and Bandarharjo, where recurrent flooding undermines livelihoods and living conditions.⁶⁴ Moreover, the loss of critical ecosystems, including mangroves and wetlands, reduces biodiversity and weakens natural defenses, perpetuating the cycle of risk and inequality.⁶⁵

The consequences of inadequate groundwater management further reveal the ethical shortcomings of prioritizing immediate development over sustainability. Over-extraction accelerates land subsidence, heightening the severity of flooding and threatening infrastructure stability.⁶⁶ While urban expansion may provide visible economic benefits, it also produces hidden costs that disproportionately affect vulnerable populations with limited adaptive capacity.⁶⁷ In this context, the utilitarian calculus appears flawed, as policies that prioritize aggregate growth risk deepening social inequities and ecological harm that ultimately diminish overall well-being.⁶⁸ These outcomes reinforce the need for integrated urban planning that balances economic interests with long-term ecological and social resilience.⁶⁹

To highlight the ethical tensions between development gains and ecological justice in Semarang, the following table summarizes the main trade-offs. It contrasts the short-term benefits of urban expansion with the long-term socio-ecological losses that disproportionately affect marginalized communities.

⁶³ Annisa N Rahmasary et al, "Overcoming the Challenges of Water, Waste and Climate Change in Asian Cities" (2019) 63:4 *Environmental Management* 520–535.

⁶⁴ Eni R Antika et al, "Analysis of Psychological Problem of Coastal Flooding Survivors and Its Implications for Psychological Help" (2023) 225–229.

⁶⁵ Rahmasary et al, *supra* note 63.

⁶⁶ A R Zini & D Danardono, "Analysis of Land Subsidence Rates in DKI JAKARTA in 2018, 2020 and 2022 With the DINSAR Method" (2024) 1357:1 *Iop Conference Series Earth and Environmental Science* 012005.

⁶⁷ Lilai Xu et al, "Long-Term Dynamic of Land Reclamation and Its Impact on Coastal Flooding: A Case Study in Xiamen, China" (2021) 10:8 *Land* 866.

⁶⁸ Eun T Shin et al, "Integrated Inundation Modeling of Flooded Water in Coastal Cities" (2019) 9:7 *Applied Sciences* 1313.

⁶⁹ Siti N M Deros et al, "Land Subsidence Susceptibility Projection for Palembang Slum Area by Complex McDM-Ahp Technique" (2022) 54:1 *Journal of Engineering and Technological Sciences* 220104; Mohit P Mohanty et al, "A New Bivariate Risk Classifier for Flood Management Considering Hazard and Socio-Economic Dimensions" (2020) 255 *Journal of Environmental Management* 109733.

Table 4. Trade-offs between Urban Development and Ecological Justice in Semarang

Aspect	Development (Utilitarian Gains)	Benefits	Socio-Ecological Losses (Justice Concerns)
Economic Growth	Job creation, infrastructure development, revenues (Rahmasary et al., 2019)	local	Increased vulnerability for coastal communities due to recurrent flooding (Antika et al., 2023)
Urban Expansion	Housing, facilities, and growth	industrial real estate	Accelerated land subsidence and tidal inundation from groundwater overuse (Zini & Danardono, 2024)
Resource Utilization	Efficient land and water exploitation for short-term output		Salinization of aquifers, loss of agricultural viability, and ecosystem degradation (Xu et al., 2021)
Environmental Impact	Visible modernization and city competitiveness		Biodiversity decline, mangrove loss, and reduced natural flood barriers (Utami et al., 2021)
Social Distribution	Benefits concentrated in wealthier districts		Marginalized communities bear disproportionate burdens without fair compensation (Misra, 2023; Mann & Sutton, 2025)

The table makes clear that while utilitarian reasoning emphasizes aggregate benefits, the associated socio-ecological losses are unequally distributed, undermining the very notion of collective well-being. Economic growth and urban expansion in Semarang may appear beneficial in aggregate terms, but they impose hidden costs on coastal communities that already face structural disadvantages. This imbalance illustrates the limitations of utilitarianism when applied narrowly to development policies. It reinforces the need for reformulating utilitarian ethics so that environmental access, ecological sustainability, and procedural justice are not sacrificed for short-term gains.

Preventing ecological injustice in Semarang requires a framework that ensures participation, fair compensation, and procedural justice for affected communities. Without inclusive decision-making, the needs and rights of coastal residents remain overlooked, exacerbating their vulnerability to environmental change.⁷⁰ Mechanisms for fair compensation are equally important to address the disproportionate socio-economic burdens placed on marginalized groups, particularly when development initiatives intensify existing hardships.⁷¹ Embedding procedural justice in environmental governance can create transparent and accountable processes, enabling communities to become active co-creators of sustainable futures.⁷² By institutionalizing participation and equity, policymakers can foster resilience that is not only technical but also ethical, ensuring that the pursuit of development does not perpetuate systemic injustice.⁷³

VI. REFORMULATING UTILITARIANISM TOWARD ECOLOGICAL JUSTICE

Rule utilitarianism provides a valuable alternative framework for environmental governance by emphasizing the creation of general rules that consistently promote the greatest good. Unlike act utilitarianism, which

⁷⁰ Manoj Misra, "Practicing Ecological Citizenship Through Community Supported Agriculture: Opportunities, Challenges, and Social Justice Concerns" (2023) 45:1 *Culture Agriculture Food and Environment* 21–33.

⁷¹ David G Mann & Caitlin D Sutton, "Ethics for the Labor and Delivery Unit" (2025) 38:2 *Current Opinion in Anaesthesiology* 157–161.

⁷² Bridget Pratt et al, "Justice: A Key Consideration in Health Policy and Systems Research Ethics" (2020) 5:4 *BMJ Global Health* e001942.

⁷³ Oládayò Bifárin & David Stonehouse, "Justice: What Is It and How Can You Ensure Your Patients Receive It?" (2022) 16:1 *British Journal of Healthcare Assistants* 12–16; Cristina Richie et al, "Research on the Health Impact of Climate Must Consider Distributive Justice and Environmental Sustainability" (2024) 3:6 *Plos Climate* e0000431.

evaluates each action in isolation, rule utilitarianism encourages adherence to policies that yield long-term societal benefits and ecological sustainability.⁷⁴ This perspective supports the balancing of economic growth with environmental protection by promoting rules such as biodiversity conservation, sustainable land use, and ecosystem protection. For example, policies governing protected areas not only safeguard natural resources but also reflect an ethical commitment to recognizing the intrinsic value of non-human life.⁷⁵ By grounding environmental policies in rule-based utilitarian reasoning, governments can enhance predictability, legitimacy, and public trust in sustainability initiatives.⁷⁶

Equally important is the integration of intergenerational equity and basic environmental rights into utilitarian reasoning. Intergenerational justice emphasizes the moral obligation of present generations to ensure that future generations inherit a livable planet.⁷⁷ This principle has been increasingly recognized in international law and human rights frameworks, reinforcing the right to a healthy environment as a fundamental human entitlement.⁷⁸ The establishment of basic rights to clean air, water, and ecological stability ensures that vulnerable groups have a normative basis to claim environmental justice, thereby preventing utilitarian calculations from disregarding marginalized voices.⁷⁹ Embedding such rights into utilitarian frameworks bridges collective welfare with individual dignity, producing a more balanced approach to sustainability.

Reformulating utilitarianism in this way underscores the need to move beyond a narrow calculus of aggregate happiness. By integrating rule-based stability, intergenerational obligations, and environmental rights, utilitarianism can evolve into an ethical framework that is both pragmatic and just. This reformulation ensures that development policies do not simply maximize

⁷⁴ Khajeh Naeeni, *supra* note 13.

⁷⁵ Elijah Baker, “Ethical Implications of Environmental Policies and Practices” (2024) 3:1 *International Journal of Philosophy* 37–40.

⁷⁶ André S Campos & Sofia G Vaz, “Justificatory Moral Pluralism: A Novel Form of Environmental Pragmatism” (2021) 30:6 *Environmental Values* 737–758; Luca Valera, Gabriel Vidal & Yuliana Leal, “Beyond Application. The Case of Environmental Ethics” (2020) 60 *Tópicos Revista De Filosofia* 437–460.

⁷⁷ Jochelle G Siew, “Facing the Future: The Case for a Right to a Healthy Environment for Future Generations Under International Law” (2020) 8:1 *Groningen Journal of International Law* 30–47.

⁷⁸ Umma Habiba, “Protecting the Environment With Human Rights: Mechanism Rooted in Anthropocentric Approach” (2023) 2:2 *Human Rights in the Global South (Hrgs)* 106–123.

⁷⁹ LaDawn Haglund, “Human Rights Pathways to Just Sustainabilities” (2019) 11:12 *Sustainability* 3255.

immediate benefits but also uphold ecological values and distribute risks and opportunities more fairly across present and future generations.

Law plays a central role in embedding ecological justice within the broader development agenda. Legal frameworks that enshrine environmental rights and intergenerational equity serve not only to protect ecosystems but also to rectify historical injustices disproportionately borne by marginalized groups.⁸⁰ By integrating ecological considerations into land use, resource management, and disaster response regulations, legal systems can institutionalize accountability and sustainability.⁸¹ Litigation and legal advocacy further strengthen community capacity to demand environmental rights, ensuring that justice is not abstract but enforceable in practice.⁸² In this way, law becomes a powerful instrument for aligning utilitarian calculations with ethical imperatives of fairness and long-term stewardship.

Education is equally vital in cultivating ecological awareness and embedding justice principles in social life. By integrating sustainability and equity into curricula, schools and universities can shape future generations to critically evaluate and address environmental challenges.⁸³ Participatory and experiential learning approaches have proven effective in equipping young people with the skills needed to advocate for ecological justice and engage as active citizens.⁸⁴ Such transformative education nurtures not only knowledge but also moral responsibility, ensuring that utilitarian reasoning incorporates ecological values alongside social well-being.

Civil society organizations complement these efforts by amplifying community voices and advocating for inclusive environmental policies. Through campaigns, mobilization, and policy dialogue, NGOs and grassroots movements ensure that marginalized perspectives are represented in decision-

⁸⁰ Christopher H Trisos, Jess Auerbach & Madhusudan Katti, "Decoloniality and Anti-Oppressive Practices for a More Ethical Ecology" (2021) 5:9 *Nature Ecology & Evolution* 1205-1212.

⁸¹ Timothy Pape, "Futuristic Restoration as a Policy Tool for Environmental Justice Objectives" (2022) 30:3 *Restoration Ecology*.

⁸² Gillian Bowser & Carmen R Cid, "Integrating Environmental Justice Into Applied Ecology Research: Somebody Else's Problem?" (2020) 30:8 *Ecological Applications*.

⁸³ Karen McIver, "Engaging Youth to Explore Activism: An Educational Framework for Supporting an Ecological Justice-Oriented Citizenry" (2020) 21:1 *The Canadian Journal of Action Research* 102-125.

⁸⁴ Asli Sezen-Barrie, Mark Windschitl & Fikile Nxumalo, "Transformative Climate and Environmental Education for a Just Future" (2025) 109:3 *Science Education* 715-721; Maria Vamvalis, "'We're Fighting for Our Lives': Centering Affective, Collective and Systemic Approaches to Climate Justice Education as a Youth Mental Health Imperative" (2023) 117:1 *Research in Education* 88-112.

making.⁸⁵ They also play a crucial role in bridging gaps between legal mandates and lived realities, fostering collaboration across disciplines and sectors to advance sustainability goals.⁸⁶ By promoting transparency, accountability, and inclusivity, civil society strengthens the ethical foundation of development policies, ensuring that utilitarian principles are reformulated in ways that are socially just and ecologically responsible.⁸⁷

Taken together, law, education, and civil society illustrate how utilitarianism can be reformulated to incorporate justice, rights, and ecological sustainability. When these domains interact, they create a holistic framework that balances pragmatic decision-making with ethical imperatives. This synergy ensures that development policies do not simply pursue aggregate welfare but also safeguard the dignity of individuals, the rights of communities, and the integrity of ecosystems for future generations.

VII. CONCLUSION

The findings of this study highlight the inherent dilemmas of applying utilitarianism to environmental access justice in the era of ecological crisis. While utilitarian reasoning provides a pragmatic framework for weighing collective benefits against individual sacrifices, its reliance on aggregate welfare calculations often neglects issues of distributive justice. In the case of Semarang, short-term development gains in urban expansion have come at the cost of increased vulnerability for marginalized coastal communities. This demonstrates that a narrow utilitarian calculus, focused solely on maximizing immediate benefits, risks legitimizing policies that deepen social inequities and exacerbate ecological degradation. Addressing this dilemma requires a reformulation of utilitarianism so that it integrates ecological values, basic rights, and intergenerational justice. By incorporating rule-based stability, recognition of environmental rights, and obligations to future generations, utilitarianism can evolve into an ethical framework that is both pragmatic and just. Such a reformulation ensures that decisions do not merely prioritize

⁸⁵ Siân Jones, Sandra Eady & Linda Craig, "Considering Social Justice: Lived Experiences of Education Students During the First Course Year" (2022) 19:2 *Education Citizenship and Social Justice* 218-235.

⁸⁶ Deryl K Hatch et al, "No Justice Without Sustainability: Taking the Climate and Environment Literally in Diversity, Equity, and Inclusion Work." (2025) 18:2 *Journal of Diversity in Higher Education* 204-211.

⁸⁷ Millie Locke, "Manakitia a Papatuanuku: Eco-Literate Pedagogy and Music Education" (2022) 22:2 *Teachers and Curriculum* 113-125.

aggregate welfare but also protect the dignity of vulnerable groups, the integrity of ecosystems, and the sustainability of resources for those yet to come. In this way, utilitarian ethics can move beyond its anthropocentric and majoritarian limitations to provide a more balanced foundation for ecological justice. In practical terms, a reformulated utilitarian approach necessitates concrete policy shifts that prioritize integrated water management, coastal protection, and sustainable land use, while embedding participatory decision-making and fair compensation to strengthen marginalized communities. By aligning utilitarian principles with justice, rights, and intergenerational equity, development can simultaneously advance collective welfare and safeguard ecological integrity. This study contributes to scholarly debates by bridging utilitarian ethics with the lived realities of environmental justice in Semarang, demonstrating that ethical innovation is essential for ensuring sustainability efforts are not only effective but also equitable.

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