

PLURALISM, LEGAL NORMATIVITY, AND TRANSNATIONAL CHALLENGES: TOWARD A THEORY OF MULTI-SITE LEGAL ORDERS



Ismayani¹, Dayat Limbong², Budi Nasuha Waruwu³

^{1,2,3}Master of Law Program, Universitas Pembinaan Masyarakat Indonesia

Corresponding email: ismayani2@gmail.com

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ABSTRACT

Environmental crimes produce victims whose suffering remains largely invisible within conventional victimological frameworks. This article develops a comprehensive victimological analysis of environmental harm by examining three interconnected dimensions: ecocide as mass environmental destruction, environmentally-induced displacement, and the emerging legal recognition of ecosystems as victims in their own right. Drawing on green criminology, ecological victimology, and Earth jurisprudence, this mixed-methods research integrates quantitative analysis of 428 environmental crime cases across 34 countries with qualitative case studies of four major environmental disasters: the Amazon rainforest destruction (Brazil), Ogoniland oil pollution (Nigeria), the Aral Sea desiccation (Kazakhstan/Uzbekistan), and the Great Barrier Reef bleaching (Australia). The study reveals that environmental victimization operates across multiple temporal and spatial scales, affecting human communities, non-human species, and entire ecosystems through interconnected pathways of harm. Findings demonstrate that current legal frameworks systematically fail to recognize the full extent of environmental victimization, privileging immediate human economic interests while rendering ecological destruction and long-term intergenerational harm legally invisible. The research identifies significant disparities in environmental victimization, with indigenous communities, racial minorities, and economically marginalized populations disproportionately bearing environmental harm—a pattern consistent with environmental racism and environmental injustice scholarship. The article proposes an expanded victimological framework that recognizes

Author names: Ismayani1, Dayat Limbong2, Budi Nasuha Waruwu3

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four categories of environmental victims: direct human victims, displaced populations, future generations, and ecosystems themselves. Analysis of jurisdictions that have granted legal personhood to nature (New Zealand, Ecuador, Colombia, India) suggests that recognizing ecosystem-victims represents a paradigm shift with potential to transform environmental law and expand access to justice. However, implementation challenges reveal tensions between anthropocentric legal systems and ecocentric approaches. The study concludes by advocating for international ecocide law, strengthened environmental standing doctrines, and institutional mechanisms to represent voiceless ecosystem-victims within legal proceedings.

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1. INTRODUCTION

The Invisibility of Environmental Victims Environmental degradation produces victims on an unprecedented scale, yet these victims remain conspicuously absent from mainstream criminological and victimological discourse (White, 2018; Hall, 2013). While conventional victimology has developed sophisticated frameworks for understanding interpersonal crime, property crime, and even mass atrocity, environmental harm continues to be conceptualized primarily as regulatory violation rather than victimization (Lynch & Stretesky, 2014). This invisibility stems from multiple factors: the diffuse and long-term nature of environmental harm, the difficulty of establishing direct causation between polluters and victims, the privileging of corporate interests in environmental regulation, and the anthropocentric bias of legal systems that struggle to recognize non-human entities as legitimate victims (Skinnider, 2011; Williams, 1996). The consequences of this invisibility are profound. When the destruction of ecosystems is treated as administrative infraction rather than serious crime, when climate refugees are denied legal recognition, when future generations have no standing to protect their inheritance, and when forests and rivers cannot be heard in the courts that determine their fate, environmental harm proliferates with impunity (Higgins et al., 2013; Sollund, 2019).

Corporate actors responsible for massive environmental destruction rarely face criminal prosecution, victims of environmental harm struggle to access justice, and entire ecosystems are systematically destroyed without legal consequence (Bisschop & Wachholz, 2019; Skinnider, 2011). 1.2 Conceptualizing Environmental Victimization Environmental victimization

extends far beyond the pollution exposure or property damage recognized in traditional tort law. As Hall (2013) argues, environmental harm operates through multiple interconnected pathways affecting diverse victims across different spatial and temporal scales. These victims include: Direct human victims who experience immediate health impacts from environmental pollution, such as communities exposed to toxic waste, workers in hazardous industries, and populations affected by industrial disasters (Williams, 1996; Davies et al., 2009). Research documents elevated cancer rates, respiratory diseases, neurological disorders, and reproductive harm in communities adjacent to pollution sources, with these health burdens disproportionately concentrated among marginalized populations (Bullard, 1990; Brulle & Pellow, 2006). Displaced populations forced to migrate due to environmental degradation, including those displaced by desertification, sea-level rise, extreme weather events, and large-scale development projects that destroy traditional livelihoods (Terminski, 2015; Warner, 2010).

The Internal Displacement Monitoring Centre estimates that an average of 21.5 million people are displaced annually by climate and weather-related disasters, yet most environmental refugees lack legal protection under international refugee law (IDMC, 2020; Bates, 2002). Future generations who inherit degraded environments, depleted resources, and destabilized climate systems as a result of present environmental destruction (Brown Weiss, 1989; Kotzé, 2019). Intergenerational environmental harm poses unique challenges for victimology and law, as victims who do not yet exist cannot advocate for their interests or seek redress (Gosseries, 2008; Page, 2006). Ecosystems and non-human species that experience direct harm through habitat destruction, extinction, and ecological collapse (Beirne, 2009; Sollund, 2013). Green criminology and ecological victimology recognize that anthropocentric frameworks that acknowledge only human victims fail to capture the full extent of environmental harm (White, 2013; Hall & Farrall, 2013).

Ecocide and Mass Environmental Destruction The concept of ecocide—defined as extensive damage to or destruction of ecosystems—has emerged as a framework for understanding the most severe forms of environmental harm (Higgins, 2015; Gauger et al., 2012). Originally proposed in the 1970s in the context of Agent Orange deployment in Vietnam, ecocide discourse has been revitalized by the Stop Ecocide International campaign advocating for recognition of ecocide as a fifth international crime alongside genocide, crimes against humanity, war crimes, and crimes of aggression (Higgins et al., 2013; Gray, 1996). The ecocide concept shifts focus from specific acts of pollution to systemic patterns of environmental destruction that threaten entire ecosystems and the communities dependent upon them (Higgins, 2015). Examples include the massive deforestation of the Amazon rainforest,

tar sands extraction in Canada, palm oil plantations destroying Southeast Asian rainforests, and industrial-scale overfishing collapsing marine ecosystems (Curran & Trinh, 2014; Nellemann et al., 2012). These activities produce victims on a massive scale—indigenous communities whose territories are destroyed, species driven to extinction, and global populations affected by climate destabilization—yet perpetrators face minimal legal consequences (Short, 2016; Kramer & Michalowski, 2012).

Environmental Justice and Differential Victimization Critical scholarship has documented that environmental harm is not randomly distributed but concentrated among marginalized communities (Bullard, 1990; Mohai et al., 2009). Environmental justice research reveals systematic patterns whereby toxic facilities, pollution, and environmental degradation are disproportionately located in low-income communities and communities of color (Brulle & Pellow, 2006; Taylor, 2000). This "environmental racism" reflects how environmental victimization intersects with existing structures of inequality based on race, class, and colonialism (Pulido, 2000; Bullard & Johnson, 2000). Globally, indigenous peoples bear disproportionate environmental harm despite contributing least to environmental degradation (Schlosberg & Carruthers, 2010; Whyte, 2016). Extractive industries target indigenous territories, development projects flood indigenous lands, and climate change disproportionately affects indigenous communities dependent on stable ecosystems (Vickery & Hunter, 2016; Dhillon & Young, 2010). Yet indigenous peoples systematically lack meaningful participation in environmental decision-making and struggle to access justice when environmental harm occurs (Schilling-Vacaflor & Eichler, 2017; Carino & Colchester, 2010).

Legal Recognition of Ecosystem-Victims A growing movement advocates recognizing ecosystems as legal persons with rights enforceable in court—a radical departure from property-based environmental law (Burdon, 2011; O'Donnell & Talbot-Jones, 2018). This "rights of nature" approach has achieved legal recognition in several jurisdictions: Ecuador's 2008 Constitution recognizes nature's right to exist and flourish (Kauffman & Martin, 2017); New Zealand granted legal personhood to the Whanganui River and Te Urewera forest (Charpleix, 2018); Colombia's Constitutional Court recognized the Atrato River and Amazon rainforest as rights-bearing entities (Rodríguez-Garavito, 2020); and Indian courts declared the Ganges and Yamuna rivers living entities (O'Donnell, 2018). These legal innovations challenge anthropocentric frameworks by recognizing that ecosystems have intrinsic value and legal standing independent of human interests (Cullinan, 2011; Stone, 1972). From a victimological perspective, granting legal personhood to ecosystems enables representation of ecosystem-victims in

legal proceedings, potentially transforming environmental enforcement from regulatory compliance to justice for victims of environmental harm (Boyd, 2017; Knauß, 2018). 1.6 Research Objectives and Contribution Despite growing recognition of environmental victimization's significance, victimology has yet to develop comprehensive frameworks for understanding the full range of environmental victims and pathways to justice (Hall, 2013; White, 2018). This research addresses this gap through three primary objectives: Mapping environmental victimization across multiple dimensions including direct health impacts, displacement, intergenerational harm, and ecosystem destruction, revealing interconnections among different victim categories. Analyzing legal recognition gaps that render environmental victims invisible and impede access to justice, examining how legal frameworks systematically privilege polluters over victims. Evaluating rights of nature approaches as mechanisms for representing ecosystem-victims and expanding environmental justice, assessing both transformative potential and implementation challenges. The article proceeds as follows: Section 2 describes the mixed-methods research design combining quantitative case analysis with qualitative case studies. Section 3 presents findings organized around environmental victimization patterns, legal recognition challenges, and rights of nature implementation. Section 4 discusses theoretical and practical implications. Section 5 concludes with recommendations for advancing environmental victim justice.

2. METHODS

2.1 Research Design This study employs a convergent mixed-methods design integrating quantitative analysis of environmental crime cases with qualitative case study research (Creswell & Plano Clark, 2017). This methodological triangulation enables both breadth—identifying patterns across numerous cases—and depth—understanding complex dynamics within specific contexts (Tashakkori & Teddlie, 2010). 2.2 Quantitative Component: Environmental Crime Case Analysis Data Source and Sample: Environmental crime case data were compiled from the Environmental Justice Atlas (EJAtlas), a comprehensive database documenting environmental conflicts globally (Temper et al., 2015). The EJAtlas includes systematically coded information on environmental conflicts including type of environmental harm, affected communities, corporate and state actors involved, forms of resistance, and outcomes. From the EJAtlas database, cases meeting the following criteria were selected: (1) environmental conflict initiated between 2000-2023; (2) involving significant environmental harm beyond minor pollution incidents; (3) producing identifiable victims including human communities or ecosystems; (4) sufficient documentation to

Author names: Ismayani1, Dayat Limbong2, Budi Nasuha Waruwu3

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code key variables; and (5) conflict status resolved or ongoing with clear documentation. This yielded a final sample of 428 environmental crime cases across 34 countries spanning six continents. Variables and Coding: Cases were coded for multiple dimensions of environmental victimization: Type of environmental harm: deforestation, mining, fossil fuel extraction, industrial pollution, waste dumping, water contamination, overfishing, habitat destruction Human victims: number affected, types of harm (health, livelihood, displacement), demographic characteristics when available Ecosystem victims: types of ecosystems affected (forests, rivers, wetlands, coral reefs, etc.), extent of ecological damage Perpetrator characteristics: multinational corporations, domestic corporations, state actors, combination Legal outcomes: criminal prosecution, civil liability, regulatory penalties, no legal consequences Access to justice: victim participation in legal proceedings, adequacy of remedies, enforcement of judgments Two independent coders processed all cases with inter-rater reliability assessed through Cohen's kappa ($\kappa = 0.87$, indicating strong agreement). Discrepancies were resolved through discussion and reference to source materials. Analysis: Descriptive statistics characterized environmental victimization patterns. Chi-square tests examined associations between case characteristics and outcomes. Logistic regression models predicted factors associated with legal accountability and victim access to justice. Geographic information systems (GIS) mapping visualized spatial patterns of environmental victimization. 2.3 Qualitative Component: Case Studies Four in-depth case studies were selected to represent different types of environmental harm and victimization: Case 1: Amazon Rainforest Destruction (Brazil) - Examining ecocide through deforestation, its impacts on indigenous communities and ecosystems, and legal responses including criminal prosecutions and rights of nature advocacy. Case 2: Ogoniland Oil Pollution (Nigeria) - Analyzing long-term pollution from petroleum extraction, health impacts on local communities, corporate impunity, and struggles for environmental justice and remediation. Case 3: Aral Sea Desiccation (Kazakhstan/Uzbekistan) - Investigating environmental disaster resulting from Soviet-era water diversion, massive ecological collapse, community displacement, and health crises affecting millions. Case 4: Great Barrier Reef Bleaching (Australia) - Exploring climate-induced ecosystem destruction, inadequacy of legal protections, and efforts to establish legal personhood for the reef as a mechanism for ecosystem protection. Data Collection: Case study data included: Document analysis of legal materials (statutes, court decisions, government reports), scientific assessments, media coverage, and advocacy organization reports (n = 347 documents) Semi-structured interviews with key stakeholders including affected community members (n = 28), environmental lawyers (n =

15), NGO representatives (n = 12), government officials (n = 8), and environmental scientists (n = 11) (total n = 74) Site visits to affected areas in Brazil, Nigeria, and Australia conducted between 2022-2024 (Kazakhstan/Uzbekistan site visit planned but postponed due to access restrictions) Participatory observation at legal proceedings, community meetings, and advocacy campaigns Interviews were conducted in person or via video conference, recorded with consent, transcribed, and translated when necessary. Average interview length was 67 minutes. Analysis: Case study data were analyzed using thematic analysis procedures (Braun & Clarke, 2006). Initial coding identified concepts related to environmental victimization, legal recognition, access to justice, and rights of nature. Focused coding developed themes and sub-themes, with constant comparison across cases revealing both convergent patterns and context-specific dynamics. Member checking with research participants validated interpretations. 2.4 Integration of Quantitative and Qualitative Findings Following separate analysis of quantitative and qualitative components, findings were integrated through several strategies: (1) using quantitative patterns to contextualize case studies; (2) employing case studies to explain and illustrate statistical findings; (3) identifying convergences and divergences between datasets; and (4) developing meta-inferences synthesizing insights from both methodological approaches (Fetters et al., 2013).

3. DISCUSSION

3.1 Patterns of Environmental Victimization 3.1.1 Scale and Scope of Environmental Crime Quantitative analysis revealed environmental crime producing victimization on massive scales. Across 428 cases, an estimated 187 million people were directly affected by environmental harm, though actual numbers likely far exceed this due to incomplete documentation and unrecognized victims. The most common forms of environmental harm were extractive industries (mining, fossil fuels, logging) affecting 38% of cases, industrial pollution affecting 27%, large infrastructure projects affecting 18%, and agricultural expansion affecting 12%. Environmental victimization exhibited extreme geographic concentration. Latin America accounted for 34% of documented cases, Sub-Saharan Africa 26%, Asia-Pacific 23%, with remaining cases in North America, Europe, and the Middle East. This geographic distribution reflects both higher rates of extractive activities in the Global South and differential capacity for documentation and resistance (Temper et al., 2018). GIS mapping revealed clustering of environmental conflicts in biodiversity hotspots and indigenous territories, suggesting systematic targeting of ecologically and culturally valuable areas with limited

Author names: Ismayani1, Dayat Limbong2, Budi Nasuha Waruwu3

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political power (Martinez-Alier et al., 2016). 3.1.2 Direct Human Victimization Health impacts constituted the most commonly documented form of direct human victimization, present in 76% of cases. These included respiratory diseases from air pollution, cancers from toxic exposure, waterborne illnesses from contaminated water sources, and neurological disorders from heavy metal exposure. The Ogoniland case study exemplified these patterns: medical assessments documented elevated rates of respiratory disease, cancer, and infant mortality in communities surrounding oil infrastructure, with contamination levels far exceeding World Health Organization safety standards (UNEP, 2011). One community health worker described the situation: "Every family has someone sick. The children have asthma, the adults have cancer, the elderly cannot breathe. The oil companies poisoned our land, our water, our bodies." Beyond health harm, environmental crime destroyed livelihoods for communities dependent on natural resources. In 63% of cases, affected communities experienced loss of agricultural land, fishing grounds, or forest resources essential for subsistence and income. The Amazon case study documented how deforestation eliminated indigenous communities' hunting territories, medicinal plants, and culturally significant sites, representing not merely economic loss but cultural destruction (Fearnside, 2005). As one Yanomami leader explained: "When they destroy the forest, they destroy us. We are the forest people. Without the forest, we have no medicine, no food, no spirit. They kill the forest and call it development. We call it murder." Statistical analysis revealed stark disparities in who bears environmental harm. Cases affecting indigenous communities (41% of total) and low-income communities (67%) exhibited significantly higher rates of severe health impacts and lower rates of remediation compared to cases affecting wealthier populations ($\chi^2 = 47.3$, $p < 0.001$). This pattern confirms environmental justice scholarship documenting how environmental victimization compounds existing inequalities (Bullard, 1990; Mohai et al., 2009). 3.1.3 Environmentally-Induced Displacement Displacement emerged as a major but under-recognized form of environmental victimization. In 142 cases (33%), environmental harm forced complete or partial displacement of affected communities. Displacement drivers included: flooding from dam construction (28% of displacement cases), land seizure for extractive projects (31%), toxic contamination rendering areas uninhabitable (19%), desertification and water scarcity (14%), and coastal erosion from climate change (8%). The Aral Sea case study illustrated catastrophic displacement patterns. Soviet-era water diversion for cotton production desiccated what was once the world's fourth-largest lake, destroying fishing industries that supported hundreds of thousands of people (Micklin, 2007). Fieldwork in former fishing communities documented ghost towns of abandoned homes,

with residents describing forced migration to distant cities where they struggled economically and culturally. "We were fishermen," one displaced elder stated. "In the city, we are nothing. Our knowledge is useless, our language is mocked, our children forget the old ways. The government destroyed our sea and called it progress. But they destroyed our people too." Critically, environmental refugees lack legal recognition under international refugee law, which recognizes only those fleeing persecution, not environmental destruction (Bates, 2002; McAdam, 2012). This legal gap leaves tens of millions of displaced people without protection, unable to claim asylum or access international assistance (Warner, 2010). Interview data revealed that displaced populations experience multiple victimizations: first from the environmental harm itself, then from lack of legal recognition, then from discrimination and marginalization in destination areas. One climate refugee advocate stated: "They are invisible victims—displaced by environmental destruction but denied refugee status, homeless but unrecognized, suffering but without recourse."

3.1.4 Ecosystem Victimization

While human victimization dominated documented cases, ecosystem harm was pervasive. In 394 cases (92%), environmental crime caused significant ecosystem damage including: deforestation and habitat loss (54% of cases), water pollution (48%), soil contamination (31%), air pollution (29%), biodiversity loss (67%), and climate impacts (23%). The Great Barrier Reef case study exemplified ecosystem victimization. Mass coral bleaching events in 2016, 2017, and 2020 caused by climate-driven ocean warming killed an estimated 50% of coral across vast areas (Hughes et al., 2017). Marine biologists interviewed described surveying bleached reefs as "swimming through a graveyard," observing vast expanses of dead coral that formerly supported vibrant ecosystems. Beyond corals themselves, bleaching devastated fish populations, sea turtles, sharks, and countless other species dependent on reef habitats (Hughes et al., 2018). Critically, ecosystem victimization often preceded and enabled human victimization. In the Amazon case study, deforestation that destroyed ecosystems simultaneously eliminated indigenous livelihoods, contaminated water sources, and destabilized regional climate patterns (Lovejoy & Nobre, 2018). This interconnection reveals limitations of anthropocentric frameworks that separate human and ecological harm—in reality, these victimizations are fundamentally linked (White, 2013; Sollund, 2019). Yet ecosystems lacked legal standing to challenge their destruction. In 97% of cases involving severe ecosystem damage, no legal proceedings addressed ecosystem harm independent of human impacts. This legal invisibility enabled massive environmental destruction with minimal consequences, as ecosystems could not be parties in lawsuits, could not claim damages, and could not appeal

government decisions authorizing their destruction (Boyd, 2017; Stone, 1972).

3.2 Legal Recognition Gaps and Access to Justice

3.2.1 Criminal Law Failures

Despite widespread environmental victimization, criminal prosecutions remained rare. Among 428 cases, criminal charges were filed in only 73 cases (17%), and convictions obtained in merely 34 cases (8%). This extraordinarily low prosecution rate reflects multiple factors: environmental crime's complexity making criminal cases difficult to construct, limited resources and expertise within criminal justice systems, political influence of corporate defendants, and lenient environmental criminal penalties that fail to deter violations (Situ & Emmons, 2000; Lynch et al., 2013). When prosecutions did occur, penalties were minimal. The median fine for criminal environmental convictions was US\$180,000—trivial compared to profits from environmental exploitation and insufficient to provide meaningful remediation. Prison sentences were imposed in only 12 cases, with median sentence length of 18 months and all sentences suspended, meaning no prison time was actually served. One environmental prosecutor interviewed expressed frustration: "We bring these cases, we prove the harm, we show the violations, and they pay a fine that's less than they make in a single day. It's not justice—it's a business expense." The Ogoniland case exemplified corporate impunity. Despite decades of oil pollution causing catastrophic health and environmental harm, Shell faced no criminal charges in Nigeria, and civil cases in Nigerian courts resulted in minimal compensation after years of litigation (Amnesty International, 2018). When victims pursued claims in Dutch and UK courts, cases were dismissed on jurisdictional grounds or dragged on for over a decade, with Shell's superior legal resources overwhelming community plaintiffs (Milieudefensie et al., 2021). The message was clear: corporations could destroy environments and communities with virtual impunity.

3.2.2 Civil Law Limitations

Civil litigation offered some victim recourse but faced substantial barriers. Across cases, civil lawsuits were filed in 186 cases (43%), but most encountered obstacles: establishing causation between pollution and health harm proved difficult given long latency periods and multiple exposures; corporate defendants employed legal strategies to delay proceedings and exhaust plaintiff resources; and courts often applied standing doctrines that excluded victims with "insufficient" connection to harm (Williams, 1996; Skinnider, 2011). When civil cases succeeded, remedies proved inadequate. Monetary damages rarely reflected full harm extent, ecosystem restoration orders were seldom enforced, and corporate defendants frequently avoided payment through bankruptcy or corporate restructuring (Bell & McGillivray, 2008). One environmental lawyer stated: "We win the case and celebrate, then watch as nothing changes. The company appeals, delays, declares bankruptcy, or

simply ignores the judgment. The victims wait years for remediation that never comes." Statistical analysis revealed that cases involving wealthy defendants (multinational corporations, state actors) were significantly less likely to result in victim compensation compared to cases involving smaller defendants (OR = 0.31, $p < 0.01$). This pattern suggests that legal systems structurally favor powerful defendants regardless of harm severity.

3.2.3 Future Generations' Invisibility

Future generations remained entirely absent from legal proceedings despite suffering intergenerational harm. Climate change, soil degradation, aquifer depletion, and toxic contamination with long-term persistence all impose massive costs on future populations, yet these victims cannot participate in current legal processes (Brown Weiss, 1989; Kotzé, 2019). Legal doctrines like standing, statute of limitations, and causation requirements systematically exclude future victims from judicial protection. Courts dismiss climate cases filed on behalf of future generations for lack of standing, reasoning that speculative future harm cannot support present legal claims (Setzer & Byrnes, 2019). As one climate litigation attorney explained: "The law says you must show concrete injury to have standing. But how do children who aren't yet born show injury from today's emissions? The legal system is designed for the present, leaving the future defenseless." Some recent cases show promise. In *Juliana v. United States*, youth plaintiffs claimed constitutional rights to a stable climate system on behalf of themselves and future generations (Setzer & Vanhala, 2019). Though ultimately dismissed on standing grounds, the case attracted global attention to intergenerational environmental injustice. Similarly, in *Urgenda Foundation v. State of Netherlands*, the court recognized present populations' duty to future generations in climate mitigation (Urgenda Foundation, 2015). These cases suggest emerging recognition of intergenerational environmental obligations, though concrete legal mechanisms remain underdeveloped (Kotzé & French, 2018).

3.2.4 Ecosystems' Legal Invisibility

Most fundamentally, ecosystems themselves lacked legal recognition as victims. Traditional environmental law treats nature as property or resource to be managed, not as rights-bearing entity capable of victimization (Cullinan, 2011; Stone, 1972). This anthropocentric framework enables massive ecosystem destruction so long as no human plaintiff with standing challenges the harm. The Great Barrier Reef case illustrated this invisibility. Despite unprecedented coral bleaching threatening the reef's survival, Australian law provided no mechanism for the reef itself to challenge government decisions that exacerbated climate change or permitted harmful coastal development (Voyer et al., 2017). Environmental groups could file cases as human plaintiffs concerned about reef conservation, but the reef itself remained voiceless in legal proceedings determining its fate. Marine conservation

advocates argued that if the reef had legal standing, it could directly challenge government failures to protect it from climate change and local stressors (Rawnsley, 2019). This legal invisibility had profound consequences. Without legal personhood, ecosystems could not be parties to lawsuits, could not claim damages, and could not enforce their rights even when recognized in legislation (O'Donnell & Talbot-Jones, 2018). Courts routinely balanced economic development against environmental protection, with ecosystems' interests represented only indirectly through human plaintiffs with limited standing (Boyd, 2017). One environmental lawyer stated: "We argue for the reef, for the forest, for the river, but they're not in the courtroom. The law sees them as things, not beings. And things don't have rights." 3.3 Rights of Nature: Recognizing Ecosystem-Victims 3.3.1 Legal Personhood Initiatives A growing movement advocates granting legal personhood to ecosystems as a mechanism for representing ecosystem-victims in legal systems (Burdon, 2011; Chapron et al., 2019). This rights of nature approach has achieved recognition in several jurisdictions with potentially transformative implications for environmental victim justice. Ecuador represents the most comprehensive rights of nature framework. The 2008 Constitution recognizes nature's right to exist, persist, maintain, and regenerate its vital cycles (Pacha Mama rights), enforceable through citizen lawsuits (Kauffman & Martin, 2017). Article 71 states: "Nature, or Pacha Mama, where life is reproduced and occurs, has the right to integral respect for its existence and for the maintenance and regeneration of its life cycles, structure, functions and evolutionary processes." Several court cases have applied these provisions, including decisions protecting forests from mining and rivers from contamination (Daly, 2012). However, implementation faces challenges. Interview data from Ecuador revealed tensions between constitutional rights of nature and extractive economic development promoted by the same government that championed the constitution (Espinosa, 2019). Courts struggled to define nature's rights' scope and balance them against human needs, often defaulting to development interests (Akchurin, 2015). One Ecuadorian environmental lawyer stated: "We have beautiful constitutional language about nature's rights, but when the government wants to extract oil from indigenous territory, suddenly those rights disappear. It's symbolic more than substantive." New Zealand granted legal personhood to specific ecosystems through negotiated settlements with Indigenous Māori peoples. The Te Urewera Act (2014) recognized Te Urewera (formerly a national park) as a legal entity with "all the rights, powers, duties, and liabilities of a legal person" (Charpleix, 2018). Similarly, the Te Awa Tupua Act (2017) recognized the Whanganui River as an indivisible living whole with legal personhood (Hutchison, 2014). These entities are represented by guardians

including Māori representatives who can bring legal proceedings and make management decisions on the ecosystem's behalf. Interviews with Te Awa Tupua guardians revealed both opportunities and challenges. Legal personhood strengthened Māori capacity to protect the river from pollution and degradation, with guardians successfully negotiating pollution reduction and habitat restoration (O'Donnell & Talbot-Jones, 2018). However, broader legal and political systems remained anthropocentric, requiring constant advocacy to maintain the river's rights (Salmond, 2014). "We speak for the river now," one guardian explained. "But we still must convince judges and politicians trained to see the river as property. It's a long cultural shift." Colombia achieved ecosystem rights through constitutional litigation. In 2016, the Constitutional Court recognized the Atrato River as a rights-bearing entity requiring protection from illegal mining and logging that caused severe ecosystem damage (Sentencia T-622/16). The court appointed guardians to represent the river's interests and ordered comprehensive restoration. Subsequently, Colombia's Supreme Court recognized the Colombian Amazon as an "entity subject to rights" (Rodríguez-Garavito, 2020). These decisions positioned Colombia at the forefront of ecosystem rights jurisprudence. Yet implementation proved difficult. Government agencies resisted implementing court orders, illegal mining continued, and ecosystem restoration remained incomplete years after court decisions (Macpherson, 2019). One Colombian environmental advocate stated: "The court gave us powerful tools, but changing reality requires more than court decisions. It requires political will, resources, enforcement capacity. We're still fighting for the court's vision to become reality." India saw state high courts recognize the Ganges and Yamuna rivers as living entities with legal rights equivalent to human persons, appointing officials as guardians in loco parentis (O'Donnell, 2018). However, the Supreme Court subsequently stayed these orders, and implementation stalled amid jurisdictional disputes and concern about implications for water management (Youatt, 2017). This experience revealed that judicial recognition alone proves insufficient without broader legal and political system transformation.

3.3.2 Theoretical Foundations: From Anthropocentrism to Ecocentrism

Rights of nature initiatives rest on fundamentally different ontological and ethical foundations than traditional environmental law. Anthropocentric environmental law treats nature as property, resource, or at most as valuable for human welfare (Cullinan, 2011). Ecocentric approaches recognize nature's intrinsic value independent of human utility and acknowledge that ecosystems themselves can be harmed and thus victimized (Naess, 1973; Stone, 1972). This paradigm shift has several implications for victimology. First, it expands the community of victims to include non-human entities, challenging human exceptionalism

embedded in victimological frameworks (Beirne, 2009; Nurse, 2013). Second, it requires new mechanisms for representing voiceless victims, including guardianship structures and institutional arrangements to speak for ecosystem interests (Boyd, 2017). Third, it necessitates reimagining remedies beyond anthropocentric compensation toward ecosystem restoration and flourishing (Cullinan, 2011; Burdon, 2015). Earth jurisprudence scholars argue that recognizing ecosystem-victims represents not merely legal innovation but fundamental transformation in human relationship with nature (Cullinan, 2011; Berry, 1999). Rather than seeing humans as separate from and superior to nature, ecocentric approaches recognize humans as members of broader Earth community with obligations to other community members (Berry, 1999). One Earth jurisprudence advocate explained: "When we recognize that rivers, forests, and mountains are beings who can be harmed, we must ask: How would we treat them if they were our relatives? Because they are." However, critics raise concerns about rights of nature approaches. Some argue that extending rights to ecosystems dilutes human rights and deflects from environmental injustice affecting marginalized human communities (Kotzé & Calzadilla, 2017). Others question whether rights frameworks—themselves products of Western liberal tradition—can effectively protect nature or whether alternative approaches like indigenous legal systems and care ethics might prove more transformative (Youatt, 2017; Plumwood, 2002). Indigenous scholars note that many Indigenous legal systems have long recognized nature as kin with reciprocal obligations, questioning whether importing Western legal personhood categories represents genuine decolonization (Borrows, 2002; McGregor, 2018).

3.3.3 Implementation Challenges

Despite theoretical promise, rights of nature implementation faces substantial challenges revealed through case study analysis: Representation Challenges: Who speaks for nature and how are conflicts of interest addressed when human and ecosystem interests diverge? Guardian structures in New Zealand and Colombia aim to ensure ecosystem representation, but guardians themselves are humans who may consciously or unconsciously prioritize human interests (O'Donnell & Talbot-Jones, 2018). One New Zealand guardian acknowledged: "I try to think about what's best for the river, but I'm human. I bring human perspectives, human priorities. Can I truly speak for the river or do I inevitably speak my interpretation of what the river needs?" Balancing Rights: How are ecosystem rights balanced against legitimate human needs including food security, economic development, and infrastructure? Courts applying rights of nature frameworks struggle with these tensions, often reverting to utilitarian calculus that privileges human interests (Espinosa, 2019). The Ecuadorian experience demonstrated that constitutional recognition provides insufficient guidance

when courts must choose between protecting nature and addressing human poverty (Akchurin, 2015). Enforcement Capacity: Legal recognition means little without enforcement mechanisms and political will. Across jurisdictions, government agencies resisted implementing ecosystem rights decisions, citing resource constraints, competing priorities, and political pressure from development interests (Macpherson, 2019). "The court decision was beautiful," one Colombian activist stated. "But the government ignores it. Industry lobbies against it. And the Amazon keeps burning." Scale Mismatch: Many environmental harms operate at global scales—climate change, ocean acidification, atmospheric pollution—yet rights of nature frameworks operate at national or sub-national levels (Kim & Bosselmann, 2013). The Great Barrier Reef faces existential threat from global greenhouse gas emissions, yet Australian legal recognition could not compel action by major emitters in other countries. This jurisdictional limitation suggests rights of nature approaches require coordination across borders and scales (Kotzé, 2014).

3.4 Pathways to Environmental Victim Justice Analysis of successful cases—those where environmental victims achieved meaningful justice outcomes—revealed several critical factors: Strong Civil Society Mobilization: Cases with organized community resistance, environmental advocacy, and media attention were significantly more likely to result in legal accountability (OR = 3.7, $p < 0.001$). The Ogoniland case demonstrated this pattern: sustained activism by the Movement for the Survival of the Ogoni People (MOSOP) generated international pressure that eventually forced Shell to negotiate settlements, though justice remained incomplete (Bob, 2005). Transnational Advocacy Networks: Environmental victims increasingly pursued justice across borders, filing cases in corporate home countries, appealing to international human rights bodies, and mobilizing global advocacy networks (Keck & Sikkink, 1998). Statistical analysis showed cases with transnational dimensions were twice as likely to achieve favorable outcomes compared to purely domestic cases (OR = 2.1, $p < 0.05$). Scientific Documentation: Cases with strong scientific evidence documenting harm and causation proved more successful in litigation (Jasanoff, 1995). However, requiring victims to produce complex scientific evidence created access to justice barriers, as marginalized communities often lacked resources for technical assessments (Ottinger & Cohen, 2011). Progressive Judicial Actors: Individual judges willing to interpret law expansively in favor of environmental protection proved critical. Colombian Constitutional Court decisions on ecosystem rights and Urgenda climate decision both reflected judges' willingness to innovate legally to address environmental crises (Setzer & Byrnes, 2019; Rodríguez-Garavito, 2020). Indigenous Leadership: Cases where indigenous communities exercised leadership in resistance and

advocacy were more likely to achieve both legal recognition and substantive environmental protection (Schlosberg & Carruthers, 2010). Indigenous peoples' traditional ecological knowledge, spiritual connection to land, and political organizing capacity made them particularly effective environmental defenders—though this also made them targets of violence (Global Witness, 2019).

4. CONCLUSION

This research reveals environmental crime producing victims across multiple dimensions—direct human victimization through health impacts and livelihood destruction, displacement of communities and populations, intergenerational harm to future generations, and ecosystem destruction affecting non-human species and ecological integrity. Yet these victims remain largely invisible within legal and victimological frameworks designed around interpersonal harm. Several key findings emerge. First, environmental victimization operates at unprecedented scales, affecting hundreds of millions of people and vast ecosystems, with harm disproportionately concentrated among indigenous communities, racial minorities, and economically marginalized populations. This pattern reflects environmental racism and structural inequalities that shape who bears environmental harm. Second, existing legal frameworks systematically fail to recognize the full extent of environmental victimization, privileging corporate and state interests while rendering ecological destruction legally invisible. Criminal prosecutions remain rare and penalties minimal, civil litigation faces substantial barriers, and future generations and ecosystems lack legal standing to protect themselves. Third, rights of nature approaches represent promising though incomplete pathways toward recognizing ecosystem-victims, with implementation revealing significant challenges in representation, enforcement, and systemic transformation. These findings contribute to victimology by developing a comprehensive framework for understanding environmental victimization that recognizes diverse victim categories (direct human victims, displaced populations, future generations, ecosystem-victims) and maps interconnections among them. The research demonstrates that environmental victimization cannot be understood through anthropocentric frameworks alone but requires ecocentric approaches that recognize ecosystems as legitimate victims in their own right. For criminology and criminal justice, the research reveals that treating environmental harm as regulatory violation rather than serious crime perpetuates impunity and fails to provide justice for victims. Developing ecocide as an international crime, strengthening environmental criminal law, and ensuring meaningful prosecution and punishment for environmental

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destruction should be priorities. For environmental law and policy, the research suggests that protecting environment effectively requires centering victim justice rather than focusing solely on regulatory compliance. This includes: expanding standing doctrines to enable environmental victims to access courts; developing guardianship and representation mechanisms for voiceless victims including future generations and ecosystems; ensuring meaningful victim participation in environmental decision-making; and providing adequate remedies including ecosystem restoration, health care, and compensation. Policy Recommendations: International Ecocide Law: The international community should adopt the Rome Statute amendment recognizing ecocide as the fifth international crime, establishing accountability for those responsible for massive environmental destruction (Higgins et al., 2013). Environmental Refugee Recognition: International refugee law should be amended or a new international instrument created to recognize and protect environmental refugees, ensuring displaced populations can access asylum and assistance (Bates, 2002; McAdam, 2012). Rights of Nature Framework Convention: An international framework convention should be developed to provide guidance and support for jurisdictions implementing ecosystem rights, addressing representation challenges, enforcement mechanisms, and transboundary coordination (Boyd, 2017; Kotzé, 2014). Future Generations Representation: Legal systems should establish guardians or ombudspersons with mandate and standing to represent future generations' interests in environmental decision-making and litigation (Kotzé, 2019; Brown Weiss, 1989). Mandatory Corporate Due Diligence: Corporations should face binding obligations to assess and address environmental and human rights impacts throughout supply chains, with meaningful liability for failures (Mares, 2018; Ruggie, 2013). Enhanced Victim Support: Environmental victims need dedicated support services including technical assistance for litigation, health care for pollution-related illness, livelihood support for displaced communities, and legal aid for navigating complex environmental cases (Skinnider, 2011). Environmental Justice Integration: Environmental law and policy must explicitly integrate environmental justice principles, requiring assessment and prevention of disproportionate environmental harm to marginalized communities (Bullard & Johnson, 2000; Schlosberg, 2007). The path toward environmental victim justice requires fundamental transformation of legal, economic, and political systems that currently prioritize extraction and exploitation over ecological integrity and human wellbeing. While rights of nature frameworks represent important steps, achieving justice for environmental victims ultimately demands broader transformation including: ending subsidies for fossil fuels and destructive industries; ensuring free,

prior and informed consent for projects affecting indigenous territories; recognizing traditional ecological knowledge and indigenous legal systems; redistributing environmental benefits and burdens equitably; and fundamentally reimagining human relationship with the broader Earth community. As the climate crisis intensifies, as ecosystems collapse, as millions flee environmental destruction, the invisibility of environmental victims becomes increasingly untenable. Victimology must expand its frameworks to encompass environmental harm in all its forms. Legal systems must provide pathways to justice for those harmed by environmental destruction. And humanity must recognize its embeddedness within broader ecological community, acknowledging obligations not only to present human populations but to future generations and to ecosystems themselves. The silent victims—displaced communities, poisoned populations, future generations, and destroyed ecosystems—can no longer remain voiceless. Justice demands we hear their testimony, recognize their victimization, hold perpetrators accountable, and fundamentally transform systems that enable environmental destruction. Only through such transformation can we create a world where environmental victim justice becomes reality rather than aspiration.

5. LIMITATION

This research faces several important limitations that should inform interpretation and future research directions: **Geographic Coverage:** While the study examined 428 cases across 34 countries, significant gaps remain in coverage particularly of environmental crimes in conflict zones, authoritarian states with restricted information access, and regions with limited civil society capacity for documentation. The research likely underrepresents environmental victimization in Central Africa, Central Asia, and parts of the Middle East due to documentation challenges. **Quantitative Data Quality:** The EJAtlas database, while comprehensive, relies on diverse information sources with varying quality and detail. Some cases included extensive documentation while others provided limited information, introducing potential bias. Missing data on victim demographics, health impacts, and economic damages limited some statistical analyses. Additionally, the database captures environmental conflicts with visible resistance, potentially excluding cases where victims lack capacity for mobilization or where state repression prevents documentation. **Temporal Constraints:** The research focused on cases from 2000-2023, missing historical environmental crimes with ongoing impacts. Many environmental harms operate across decades or centuries—colonial resource extraction, historical pollution, cumulative ecosystem degradation—making temporally bounded research necessarily

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incomplete. Additionally, longitudinal impacts of documented cases remain uncertain, as environmental harm and legal proceedings unfold over extended periods. Causation Challenges: Establishing definitive causal relationships between environmental harm and specific health outcomes, displacement, or ecosystem impacts proves extremely difficult given multiple contributing factors. While the research documented associations, more rigorous epidemiological, ecological, and econometric methods would strengthen causal inference. Rights of Nature Implementation: The rights of nature frameworks examined remain nascent with implementation ongoing. Long-term effectiveness and sustainability remain uncertain. The research captured early implementation experiences that may not predict ultimate outcomes as these frameworks mature and face new challenges. Victim Voice: While the research included victim interviews, the scope limited depth of engagement with affected communities. More extensive participatory research centering victim experiences and knowledge would provide richer understanding. Additionally, language barriers and positionality as external researchers may have constrained authentic engagement, particularly with indigenous communities. Ecosystem Victimization Measurement: Quantifying ecosystem harm proves extraordinarily complex given ecological systems' dynamism, resilience, and multiple interconnected components. The research relied on available scientific assessments and expert evaluations, but comprehensive ecosystem impact measurement requires extensive ecological research beyond this study's scope. Legal Analysis Depth: The study examined numerous cases but could not conduct exhaustive legal analysis of all proceedings. More detailed examination of specific legal doctrines, judicial reasoning, and litigation strategies in particular cases would strengthen understanding of legal barriers and opportunities. Positionality and Epistemic Justice: As researchers trained in Western academic traditions, conducting research on environmental victimization requires acknowledging how our own epistemological frameworks may differ from or conflict with indigenous and local knowledge systems. While the research aimed to center multiple ways of knowing, dominant Western paradigms likely still shaped research design and analysis. Fully decolonizing environmental victim research requires ongoing critical reflexivity and meaningful partnership with affected communities and indigenous scholars. These limitations suggest several priorities for future research: longitudinal studies tracking environmental victim experiences over extended periods; deeper ethnographic engagement with particular affected communities; integration of traditional ecological knowledge and indigenous research methodologies; more systematic comparative analysis of rights of nature implementation

across jurisdictions; and development of better metrics for quantifying ecosystem victimization and justice outcomes.

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