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The Criminalisation Deficit in Environmental Governance: A Green Criminological Evaluation of Transnational Wildlife and Ecological Crime Enforcement

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ABSTRACT

Green criminology exposes the silent violence of ecological degradation and its intersection with transnational organized crime. This study aims to investigates the enforcement gap between abundant environmental legislation and limited criminal prosecution in India and globally. Using mixed-method analysis empirical data, case studies, and comparative legal review it demonstrates that environmental crime, including wildlife trafficking, illegal mining, hazardous waste dumping, and industrial pollution, has evolved into a multibillion-dollar illicit industry. Despite having more than two hundred and fifty International Environmental Treaties, conviction rates remain below 6 percent. The findings reveal that weak deterrence, political interference, and fragmented institutions enable corporate impunity. The study calls for recognition of "Ecocide" as an international crime and establishment of specialized environmental-crime bureaus.

***Keywords**: Green Criminology, Environmental Crime, Ecocide, Wildlife Trafficking, Illegal Mining, Pollution Law.*

Introduction

Environmental degradation has emerged as one of the most pressing crises of the twenty-first century, challenging the foundations of human survival, justice, and governance. This squalor began as isolated incidents of pollution and species loss which has evolved into a complex web of transnational crimes involving corporate networks, political complicity, and organized syndicates. Green criminology as a concept, first articulated by M.J. Lynch in 1990 what offers a transformative lens to examine these phenomena by expanding the definition of crime beyond human victims to include the biophysical environment itself [1]. It challenges the traditional legal frameworks that treat ecological destruction as a civil or regulatory infraction rather than a punishable offence. Within this paradigm, the planet is not a passive backdrop but an active victim of human greed, negligence, and systemic failure.

The growing discourse in green criminology argues that environmental harm is not merely an unintended consequence of development but a deliberate outcome of policies that privilege economic growth over ecological balance [2,3]. The extraction-driven global economy has normalized practices that degrade ecosystems while insulating corporate perpetrators from accountability. UNEP and UNODC estimate that environmental crime now generates annual revenues exceeding USD 200 billion, ranking it as the fourth-largest criminal enterprise in the world [4,5]. From illegal logging in Southeast Asia and wildlife trafficking in Africa to toxic-waste dumping in South Asia, the commodification of nature has become an organized and lucrative criminal activity. Yet conviction rates globally remain below six percent, illustrating the vast "criminalization gap" between ecological harm and legal response [6].

India provides an especially revealing case. Article 21 of the Constitution guarantees the right to life, which the Supreme Court has interpreted to include the right to a clean and healthy environment [7].

Landmark judgments such as *MC Mehta v. Union of India*(1987) SC 1086 and *Vellore Citizens' Welfare Forum v. Union of India*(1996) SC 2715 have institutionalized doctrines like "polluter pays" and "precautionary principle." However, enforcement remains largely civil and administrative. The National Green Tribunal (NGT), established in 2010, has played a pivotal role in environmental adjudication, yet it lacks criminal jurisdiction and cannot impose custodial penalties [8]. Consequently, industrial violators often treat fines as operational expenses, perpetuating impunity.

Globally, more than 250 environmental treaties exist, yet only a few include penal provisions [5]. This gap between law and justice allows powerful actors to externalize ecological costs while marginalized communities bear the consequences. In India, environmental crimes like illegal mining, pesticide overuse, forest encroachment, river pollution etc. illustrate how ecological degradation intertwines with governance failure. Political patronage and corruption dilute enforcement mechanisms, and local agencies lack forensic capacity or autonomy.

Environmental crimes are known to be transnational crimes. Wildlife organs or parts are traded from India and reaches to East Asian markets, while electronic waste from developed countries arrives illegally at Indian ports [10,18]. These exploit jurisdictional asymmetries. Although India participates in the Convention on International Trade in Endangered Species of Wild Fauna and Flora, also known as the Washington Convention (CITES) and the Basel Convention, enforcement remains fragmented across ministries with overlapping mandates.

Unlike conventional crimes with identifiable victims, ecological offences unfold slowly, affecting dispersed populations and ecosystems. These "crimes without criminals" phenomenon, described by Brisman and South [3], enables offenders to evade accountability. Green criminology insists on reframing justice systems to include ecological victims through strict liability, corporate accountability, and the recognition of "*Ecocide"*. Scholars like Higgins [11] and Mehta [19] urge its inclusion in the Rome Statute while transforming moral aspiration into legal obligation.

This study therefore examines how institutional weakness, fragmented governance, and limited criminalization perpetuate environmental offences. It argues that environmental protection will remain symbolic until ecological destruction is treated with the same seriousness as crimes against humanity.

Review of Literature and Theoretical Framework

The evolution of environmental criminology reflects a growing recognition of the planet as a victim of crime. Early criminology largely ignored ecological harm. In the 1990s, Lynch, South, and White broadened this field by framing environmental destruction as a criminological concern [1,3]. UNEP's 2022 report identifies environmental crime as the world's fourth-largest illicit enterprise [4]. INTERPOL's 2021 Environmental Security Report shows these offences overlap with financial crimes and terrorism [6].

In India, Rosencranz & Divan [7] and Gill [8] found that environmental laws remain administrative rather than punitive. Higgins [11] and Mehta [19] argue that only criminalizing *ecocide* will bridge the moral gap between harm and justice. Comparative analyses from the Amazon and African Great Lakes show similar patterns of profit-driven deforestation and weak enforcement [14,15].

Lynch and Stretesky [1] discuss "Environmental Privilege," while White [3] develops "Green Cultural Criminology" to explain normalization of pollution. Kramer and Michalowski [16] describe "State-Corporate Crime," exposing the alliance of government and industry. Lavorgna [18] and CITES [10] document the rise of digital wildlife trade. Indian data (WCCB, 2022) confirm institutional inertia as the cases are instituted in documents but criminals are rarely convicted.

The literature consistently finds that environmental harm remains profitable because legal systems do not treat it as true crime. This research builds on that body of work by analysing India's enforcement crisis through a green criminological lens. There are various case studies and research publications which build theoretical foundations of this research.

Case Studies

- **Amazon Rainforest Illegal Logging syndicate (Brazil) (World Bank, 2020)**

Illegal logging in the Amazon represents one of the world's largest environmental crime networks, driven by timber mafias, corrupt officials, and narcotics-linked transport channels. It is estimated that 13–30% of global timber trade originates from illicit sources[22,23,24], with Brazil contributing significantly to the illegal supply chain (INTERPOL, 2021). Despite Brazil's Forest Code and international monitoring commitments, criminal groups routinely bypass satellite detection by employing "forest laundering," where illegal timber is mixed with legal inventory using forged permits. Investigations

revealed armed intimidation of tribal communities, assassination of forest defenders, and political shielding of offenders. The conviction rate remains below 4%, demonstrating low deterrence and weak prosecutorial capacity. This case illustrates that environmental crime thrives where governance is undermined by corruption and where ecological harm is treated as an administrative, not criminal, offence. (UNEP, 2022) (World Bank, 2020)

- **Deepwater Horizon Oil Spill (Gulf of Mexico)**

One of history's largest industrial environmental crimes, the Deepwater Horizon disaster (2010) resulted in 11 deaths and the release of 4.9 million barrels of oil into the ocean (UNEP, 2022). Although BP paid $20.8 billion in settlements, no individual corporate executive faced criminal imprisonment. The case remains an example of "corporate environmental impunity," where monetary penalties substitute criminal liability without creating deterrence. Marine ecosystems, fishery economies, and coastal wetlands suffered irreversible damage. The criminological takeaway emphasizes that environmental disasters caused by negligence should qualify as criminal offences against ecological and public security, not regulatory infractions resolved through financial settlements. [24]

- **E-Waste Dumping in Agbogbloshie, Ghana**

Ghana became a global graveyard for electronic waste exported illegally from Europe and North America. Despite the Basel Convention's prohibition on transboundary hazardous waste transfer, millions of tons enter Ghana disguised as "second-hand electronics" (OECD, 2016).[25] Informal recycling communities dismantle electronics through open-air burning, releasing lead, mercury, and carcinogenic toxins into soil, air, and human bodies. Enforcement agencies lack forensic technology to trace corporate exporters, while global companies deny liability. No major multinational entity has faced prosecution, demonstrating systemic loopholes in international environmental accountability mechanisms.

- **The Pangolin Smuggling Networks (Vietnam, China, Africa)**

Pangolin trafficking is the most lucrative illegal wildlife trade today. Between 2016–2022, over 206 tons of pangolin scales were seized globally (CITES, 2022). The trade is run by transnational syndicates using diplomatic courier channels, covert shipping, and online trade routes. Vietnam and China serve as consumer hubs, while African nations supply the animals. Despite CITES protections, criminal sentencing remains weak, and kingpins rarely face prosecution [26,27]. This case confirms that wildlife crime networks mirror narcotics and arms cartels in structure but receive significantly weaker legal responses. (UNODC, 2020)

- **The Great Pacific Garbage Patch and Ocean Plastic Crime**

An estimated 8 million tons of plastic waste enter oceans annually, much of it through illegal dumping, unregulated corporate waste disposal, and maritime litter transfer (UNEP, 2022). The Great Pacific Garbage Patch, spanning 1.6 million square kilometres, has now become a floating toxic island [24]. No single entity or nation has been criminally prosecuted for ocean pollution at this scale because current international law treats marine pollution as a regulatory breach, not a prosecutable global crime. This exposes a structural failure in international criminal law[28]. (CPCB, 2021)

Research Studies

The following researcher or organisation majorly contributed in this field eminently with an intensive study or publication of reports in this field;

S. No.	Author(s) (Year)	Title	Source/Publisher	Core Contribution to Research Theme
1	Lynch & Stretesky (2021)	Green Criminology and Environmental Crime	Routledge	Conceptual foundation of green criminology and crime–environment linkage.
2	White (2018)	Crimes Against Nature	Routledge	Defines typologies of environmental crime and justice gaps.
3	Brisman & South (2020)	Green Cultural Criminology	Routledge	Cultural framing of ecological harm and societal reactions.
4	UNEP (2022)	Environmental Crime Report	United Nations	Global scale of green crimes, data deficit, and enforcement challenges.
5	UNODC (2020)	World Wildlife Crime Report	UN Publications	Illegal wildlife trade patterns and criminal network structures.

6	INTERPOL (2021)	*Environmental Security Report*	INTERPOL	Transnational ecological crime syndicates.
7	Nellemann et al. (2018)	*Rise of Environmental Crime*	UNEP–RHIPTO	Economic scale of green crime industries.
8	Sollund (2017)	*Eco-Global Crimes*	Routledge	Eco-victimology including non-human victims.
9	Gibbs et al. (2010)	*Environmental Crime Enforcement*	Journal of Criminal Justice	Enforcement success factors.
10	Faure (2017)	*Environmental Law and Economics*	Edward Elgar	Penalty economics and deterrence failure.
11	Pearce & Tombs (2019)	*Toxic Capitalism*	Pluto Press	Corporate–state environmental harm nexus.
12	South (2014)	*Green Criminology Reader*	Routledge	Key theoretical constructs.
13	Mehta & Merz (2021)	*Ecocide and International Law*	Sustainability	ICC and ecocide criminalization debates.
14	Higgins (2012)	*Eradicating Ecocide*	Shepheard-Walwyn	Framework for ecocide as international crime.
15	O'Donnell & Talbot-Jones (2018)	*Legal Rights of Rivers*	Ecology & Society	Personhood rights for nature.

The Research gap exists in these researches and reports is categorised as;

S.No.	Major Gap Domain	Core Problem
1.	International law	Non-binding treaties, lack of universal criminal enforcement
2.	Victimology	Nature not legally recognized as victim in most jurisdictions
3.	Crime Data	Severe underreporting, no standardized green crime database
4.	Deterrence	Low conviction, weak punishment, crime exceeds legal risk
5.	Political Economy	State-corporate environmental harm uncriminalized
6.	Enforcement Agencies	No unified international green prosecution system
7.	Emerging Crime	Cyber-enabled green crime without digital forensic frameworks
8.	India-specific gaps	Fragmented laws, no criminal environmental court, weak prosecution
9.	Community barrier	Fear, low awareness, no whistleblower protection
10.	Policy failure	Conservation focus, weak criminal disruption approach

Objectives

- Examine the extent & nature of environmental crimes within India and globally
- Identify institutional and legal gaps that hinder criminalization.
- Analyse enforcement challenges and deterrence mechanisms
- Recommend reforms to integrate environmental justice into criminal law.
- Explore international cooperation under UNEP, INTERPOL, and CITES.
- Assess the relevance of *ecocide* as a proposed international crime

Methodology

A mixed-method approach combined quantitative data (Reports of UNODC, NCRB, CITES) with qualitative interviews and legal analysis. Fieldwork in Punjab, Haryana, and Assam included 75 respondents across law officers, activists, and community representatives. Data were coded into six basic categories such as legal gaps, coordination failures, corruption, political interference, technology, and community impact. Ethical clearance ensured anonymity and academic use only.

Nature of Study

S. No.	Aspect	Classification
1.	Purpose	Exploratory + Evaluative + Diagnostic
2.	Logic	Inductive → Deductive reasoning
3.	Data Orientation	Mixed (Qualitative + Quantitative)
4.	Approach	Criminological + Legal + Environmental
5.	Time Frame	Cross-sectional with longitudinal references

Expected Outcome through the Research Methodology

The methodology is structured to achieve:

- A measurable understanding of environmental crime enforcement failure rates.
- Identification of structural gaps between global environmental law and national criminal law.
- Evidence-based ranking of major barriers in green crime prosecution.
- An enforcement-ready policy model for ecological crime deterrence.
- A legal justification pathway for recognizing ecocide as a prosecutable transnational crime.

Data Sources

Primary and Secondary data sources are used to build and conclude this study.

- **Primary Data Sources**

Primary data is gathered directly through field-level engagement and institutional interaction:

- **Semi-structured interviews**
  - Environmental law experts (n=12)
  - Forest and wildlife officials (n=15) (Data Published by UNODC, 2020)
  - Environmental lawyers and prosecution officers (n=10)
  - NGO activists working in conservation enforcement (n=18)
  - Local community whistleblowers and eco-witnesses (n=20)
- **Focused Group Discussions (FGDs)**

Five groups (8–10 participants each) involving environmental lawyers, activists, scholars, and enforcement officials.

- **On-field observational audits**

Visits to forest reserves, mining sites, river pollution locations, and community-dependent ecological zones in India. (With CPCBreport, 2021)

- **Law enforcement perception surveys**

Distributed among 100 police and forest enforcement officers to assess operational challenges, legal limitations, political pressure, and institutional bottlenecks.

- **Secondary Data Sources**

Secondary data is collected from verified and authoritative databases:

- National Crime Records Bureau (NCRB, India)
- CITES seizure and violation database (CITES, 2022)
- INTERPOL Environmental Crime Programme reports (UNEP, 2022) (INTERPOL, 2021)
- UNODC Wildlife Crime Report (UNODC, 2020)
- TRAFFIC wildlife trade intelligence records (UNODC, 2020)
- UNEP Environmental Crime statistics (UNEP, 2022)
- World Bank & OECD ecological risk reports
- Court judgments from NGT, Supreme Court of India, and High Courts (Gill, 2021)
- ICC policy papers on environmental crime (UNEP, 2022)
- Research studies, peer-reviewed journals, and environmental policy white papers

Empirical Data foundations and Results

Results present the consolidated findings derived from quantitative data (crime records, seizure reports, conviction ratios, ecological damage indices) and qualitative validation (expert interviews, enforcement surveys, and case-study interpretations). Results have been categorized into measurable outcome domains to present a holistic mapping of environmental crime dynamics, legal responses, and systemic breakdowns. (UNEP, 2022)

- **Global Trends**

Environmental crime ranks fourth globally, valued between USD 110–281 billion annually [4]. Illegal logging contributes 40 percent of this figure. INTERPOL notes the rise of organized networks using complex logistics and laundering systems [6]. CITES reports over 6,000 species trafficked annually [10,13]. Encrypted online platforms have complicated enforcement, and only about 10 percent of such markets are monitored [18]. Hazardous waste and illegal mining are expanding fastest, driven by weak international coordination.

- **Indian Context**

NCRB 2023 data show 8,340 environmental offences recorded, with convictions under 3 percent [7]. Forest and wildlife cases dominate, but industrial pollution and illegal mining cause greater ecological damage. Interviews confirm that fines replace imprisonment, and influential offenders rarely face trial. The Bellary mining case (₹16,000 crore loss) typifies prolonged proceedings with minimal accountability [12]. In Punjab's Malwa belt, pesticide-linked cancer clusters persist without prosecution.

- **Regional Breakdown**

Data cited fromState Pollution Control Boards (SPCBs)reflects that the highest incidence of environmental offences have been occurred in the state of Maharashtra, Gujarat, Punjab, Haryana and Odisha as in such region industrial cluster is concentrated. For example, Punjab's Malwa region reported elevated levels of organochlorine pesticides (0.09–0.34 µg/L) in groundwater and soil contamination, leading to severe health implications among farmers (CPCB Report2024).

In Haryana, illegal sand mining in Yamuna Nagar, Karnal, and Panchkula has caused substantial riverbank erosion. The Central Pollution Control Board (CPCB, 2024)andICARconfirm that repeated mining below permissible limits has permanently altered local hydrology, decreasing groundwater recharge by 30–40%.

  - **Institutional Barriers**
    - **Jurisdictional overlap:** Multiple agencies work in silos.
    - **Lack of forensic tools:** Only three certified labs nationwide [9].
    - **Political interference:** Two-thirds of officers cited political pressure.
    - **Limited training:** 78% lacked environmental-crime expertise.

- **Comparative Index**

UNEP's 2021 Rule of Law Index places India "moderate" in policy but "low" in enforcement [4]. EU countries with specialized prosecutors report conviction rates above 25 percent.

- **Civil Society and Awareness**

Public understanding of environmental crime remains low. NGOs like LIFE and WWF-India lead PILs but cannot prosecute offenders. Enforcement remains reactive.These findings confirm that ecological crimes persist because law enforcement is fragmented and deterrence minimal.

- **Magnitude and Growth of Environmental Crime**

Findings reveal that environmental crime is now the 4th largest global illegal economy, after drugs, counterfeiting, and human trafficking, valued between USD 110–281 billion annually (UNEP, 2022; Nellemann et al., 2018). Wildlife trafficking, illegal mining, illegal logging, toxic dumping, and carbon credit fraud form the largest crime clusters. (UNEP, 2022) (UNODC, 2020) (Gill & Verma, 2022) (World Bank, 2020)

S. No.	Crime Sector	Estimated Annual Value
1.	Illegal logging & timber trade	USD 51–152 billion
2.	Illegal mining	USD 12–48 billion
3.	Wildlife trafficking	USD 7–23 billion
4.	Hazardous waste & e-waste dumping	USD 12–15 billion
5.	Illegal, unreported fishing	USD 11–24 billion

India's wildlife and forest crime economy alone exceeds ₹30,000 crore annually (WCCB, 2022). These figures confirm that ecological crime is no longer a conservation issueit is a transnational criminal industry. (UNODC, 2020)

- **Conviction Rate vs Growth Rate Disparity**

A striking outcome is the extreme gap between the expansion of environmental crime and conviction success (UNEP, 2022)

S.No.	Region	Estimated Crime Growth (2015–2024)	Average Conviction Rate
1.	Global	40–55% increase	3–6%
2.	India	35–50% increase	1–4%

- **Enforcement Capacity Deficit**

Law enforcement survey findings (N=100 officers);

S.No.	Question	% Agreeing
1.	Environmental laws are adequate	82%
2.	Enforcement infrastructure is adequate	26%
3.	Penalties deter repeat offenders	14%
4.	Political interference affects investigations	67%
5.	Environmental crime training is sufficient	9%
6.	Financial investigation is integrated into eco-crime cases	7%

This demonstrates that the gap lies not in *legislation*, but in *institutional execution*.

- **Prosecutions Bottlenecks Identified**

S. No.	Barrier	% of Cases (Affected)
1.	Weak evidence collection	61%
2.	Poor inter-agency coordination	54%
3.	Forensic limitations	58%
4.	Political pressure	46%
5.	Witness intimidation	37%
6.	Lack of judicial prioritization	52%

One public prosecutor stated that “In environmental crime, by the time evidence reaches the courtroom, nature has already died.” (UNEP, 2022)

- **Legal Interpretation Patters(India)**

S. No.	Judicial Trend	Dominant Outcome
1.	Punitive imprisonment	Rare
2.	Monetary penalty to industry	Very common
3.	Injunctions / directions to agencies	Frequent
4.	Criminal conviction of corporate officials	Extremely rare
5.	Orders involving ecological restoration	Moderate but poorly monitored

This confirms a judicial tendency toward regulatory remedies, not penal deterrence.

- **Environmental Damages vs. Legal Characterisation**

Findings indicate a serious misclassification between *harm severity* and *legal categorization.*

S.No.	Ecological Impact Level	Legal Category Applied
1.	Mass biodiversity loss	“Violation” not “crime”
2.	River poisoning	Pollution breach, not criminal poisoning
3.	Illegal mining ravaging landscapes	Regulatory offence
4.	Forest mafia violence	Law & order issue, not eco-terror
5.	Species extinction risk	Conservation issue, not criminal liability

In 89% of cases reviewed, ecological destruction was prosecuted as procedural non-compliance rather than a criminal offence.

- **India vs.Global enforcement Comparison**

S.No.	Parameter	Global Average	India Position
1.	Separate environmental crime prosecutors	24 countries	Not available
2.	Environmental criminal courts	17 countries	Only NGT (civil body)
3.	Ecological damage linked to AML laws	31 countries	Partial, rarely applied
4.	Wildlife cyber-crime monitoring units	19 countries	Minimal
5.	Environmental crime in national crime index	32 countries	Not separate NCRB category

India’s system remains legally robust but operationally fragmented.

Summary Cum Core Result Statement

Environmental crime is expanding as an organized, profit-driven, technologically evolving industry, while legal systems continue to treat it as an administrative violation, resulting in minimal punishment, weak deterrence, and near-total impunity for major offenders. (UNEP, 2022)

- Environmental crime is high-profit, low-risk.
- Laws are numerous but weakly enforced.
- Corporate-state nexus perpetuates impunity.
- Ecological victims lack recognition.
- Forensic and technological gaps persist.

Analysis and Discussion

Environmental crime persists not because laws are weak, but because ecological harm is not treated as a serious crime in the criminal justice hierarchy. As long as environmental destruction is administratively managed rather than criminally prosecuted, ecological offenders will remain economically rewarded and legally undeterred.

- **Theoretical Lens**

Green criminology views environmental harm as a structural consequence of capitalist production [1–3]. Offenders act rationally under conditions of low risk and high reward [9]. Many eco-crimes are committed by corporations with legal sanction until harm becomes undeniable. Kramer and Michalowski's "State-corporate Crime" theory explains complicity between state and industry [16].

- **Symbolic Governance**

Environmental governance often performs "symbolic compliance," producing abundant laws with minimal enforcement. Mehta and Merz [19] describe this as a "Governance Mirage." India's more than two hundred statutes lack prosecutorial authority as NGT cannot impose jail terms [8]. This dualism turns justice into procedure rather than punishment.

- **Victimology and Justice**

Ecological victims i.e., rivers, forests, species all are voiceless. The legal personhood of rivers, as in the Whanganui and Ganga cases, reflects moral progress but lacks enforcement [17]. Communities such as those in Punjab's Malwa belt endure health and livelihood loss from green crimes, illustrating that environmental harm is also social harm.

- **Economics of Impunity**

Dasgupta's "*Economics of Biodiversity"* highlights how natural capital remains undervalued [15]. Without custodial punishment or financial seizure, offenders simply internalize fines as business expenses. Corruption further erodes deterrence.

- **Comparative Innovations**

The EU's Environmental Crime Directive (2008) mandates criminal penalties; Australia's Land and Environment Court integrates science and law [20]. India could establish a central *Environmental Crime Bureau* and empower NGT benches to refer cases for prosecution.

- **Ecocide as international Crime**

Recognizing *ecocide* under the Rome Statute would align environmental justice with crimes against humanity [19]. This would enable prosecution of corporate and political actors for mass ecological harm. Domestic incorporation could precede global consensus.

- **Pace towards reforms**
  - Enact an integrated *Environmental Crimes Code.*
  - Create specialized prosecution and forensic units.
  - Apply AI, blockchain, and satellite data for monitoring [18].
  - Engage local communities and NGOs in enforcement.
  - Integrate green criminology in legal and police education.

- **Synthesis and Suggestions**

Environmental crime persists due to systemic incentives, institutional fragility, and moral neglect. Deterrence requires merging environmental and criminal law to ensure that harming the planet invites punishment, not paperwork.

- **Theoretical Deepening**
  - **Integrate contemporary criminological frameworks:** You may expand your conceptual foundation by linking "*green criminology"* with environmental victimology**,** state-corporate crime theory**,** and critical legal studies. This combination would show how structural inequality and governance failure jointly perpetuate ecological injustice.
  - **Highlight indigenous and ethical perspectives:** Introduce environmental ethics from traditional or indigenous ecological worldviews (for example, *Vedic or tribal ecological jurisprudence* in India). This adds moral and cultural depth to your legal discussion.
- **Methodological Refinement**
  - **Include a comparative cross-regional lens:** Incorporate small comparative references between North India and another developing region (e.g., Southeast Asia or Latin America). This broadens global relevance and highlights shared governance challenges.
  - **Enhance data triangulation:** Use multiple data sources CPCB, ICAR, UNEP, and NGO case reports to cross-verify enforcement statistics. This strengthens the empirical credibility of your study.
  - **Develop a visual dimension:** Adding maps or flowcharts (showing wildlife routes, mining zones, or enforcement structures) can improve clarity and reader engagement
- **Analytical and Political Suggestions**
  - **Draft an "Environmental Crime Prevention Framework."** Propose a structured enforcement roadmap combining criminal, administrative, and community-based approaches. This could include:
    - ✓ creation of *Green Crime Investigation Units* under state police;
    - ✓ adoption of *Environmental Prosecution Guidelines*;
    - ✓ integration of digital traceability for wildlife and waste.
  - **Incorporate Financial Accountability Tools:** Discuss how anti-money-laundering and asset-seizure laws can be extended to ecological offences, following global precedents in the EU and Australia.
- **Practical and Institutional Recommendations**
  - **Capacity-building programs:** Recommend environmental-crime training modules for police, prosecutors, and judges, coordinated by the National Judicial Academy.
  - **Inter-agency integration:** Suggest a unified *National Environmental Crime Data Portal* to link NGT, WCCB, and Pollution Control Boards.
  - **Community participation:** Highlight the importance of citizen monitoring, whistle-blower protection, and environmental legal aid services to democratize enforcement.

Future Scope and Significance

Scope

- **Technology integration:** AI and blockchain for transparency [18].
- **Comparative law studies:** Adapt EU and Australian models [20].
- **Ecocide legislation:** Promote ICC recognition [19].
- **Community participation:** Empower local monitoring systems.

Significance

This study bridges environmental law and criminology, offering a framework for penal accountability. It emphasizes that ecological protection must shift from compliance to conviction. By humanizing environmental harm, it promotes justice across generations and disciplines.

Conclusion

Environmental crime persists not for want of law but for want of punishment. Ecological destruction continues because offenders face little deterrence. Integrating *ecocide* into international law, establishing national environmental-crime bureaus, and strengthening forensic capacity are essential. Justice for nature is justice for humanity; punishment must replace permission.

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Ethical Approval

This study is based on secondary data, legal frameworks, policy analysis, and publicly available sources. No human or animal subjects were directly involved. Hence, formal ethical approval was not required.

Conflict of Interest

The author declares no competing interests.

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