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Abinaya Sundari M.
Law Student, 3rd Year, B.A.LLB. (Hons.),
School of Law, Dhanalakshmi Srinivasan University, Samayapuram

Abirami Sundari M.
Assistant Professor
Anandam Law College, Thanjavur (DT)

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Abinaya Sundari M.
Law Student, 3rd Year, B.A.LLB. (Hons.),
School of Law, Dhanalakshmi Srinivasan University, Samayapuram

Abirami Sundari M.
Assistant Professor
Anandam Law College, Thanjavur (DT)

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ABSTRACT

This paper examine the Environmental crimes—ranging from illegal deforestation, pollution, and wildlife trafficking to hazardous waste dumping—pose a significant threat to ecological balance, public health, and sustainable development. Despite the existence of comprehensive environmental legislation at both domestic and international levels, enforcement remains fragmented, under-resourced, and often subordinated to economic and political interests. This paper undertakes a critical analysis of the legal frameworks governing environmental crimes, with a special focus on enforcement mechanisms and accountability challenges. Drawing upon secondary sources such as reports by the United Nations Environment Programme (UNEP), Interpol, the World Bank, and peer-reviewed legal journals, the study examines the increasing sophistication of environmental crimes and the growing involvement of transnational organized networks. Indian legal instruments like the Environment (Protection) Act, 1986, the Air and Water Acts, and relevant provisions of the Indian Penal Code (IPC) are critically evaluated alongside international instruments such as the Basel Convention, CITES, and the Rome Statute of the International Criminal Court, which now recognizes "ecocide" in certain scholarly proposals. The paper also reviews landmark judgments, including Vellore Citizens' Welfare Forum v. Union of India and A.P. Pollution Control Board v. Prof. M.V. Nayudu, to illustrate the Indian judiciary's evolving approach to environmental accountability. It argues that

enforcement failures often stem from institutional overlap, lack of technical capacity, corruption, and weak deterrence through penalties. Further, it explores how environmental crimes are often treated as regulatory infractions rather than serious criminal offences, thus limiting effective prosecution. The research recommends strengthening environmental governance through specialized green tribunals, improved inter-agency coordination, community participation, and adoption of environmental criminal law frameworks that integrate restorative justice principles. The paper highlights the need for a global shift towards recognizing environmental protection as a core tenet of legal and moral responsibility.

KEYWORDS

Environmental Crimes, Ecological Balance, Illegal Deforestation, Pollution, Sustainable Development.

INTRODUCTION

In the 21st century, environmental degradation has emerged not merely as a consequence of development but increasingly as a by-product of intentional illegal acts that exploit natural resources for profit—acts that fall under the domain of environmental crimes. These crimes, which include illegal logging, wildlife trafficking, pollution, unregulated mining, and the illegal disposal of hazardous waste, are no longer isolated offences but are often transnational in nature, involving complex networks and organized syndicates. As the environment continues to suffer irreversible damage due to such crimes, the demand for robust legal mechanisms and enforcement frameworks has become more urgent than ever. Environmental crime is broadly defined by the United Nations Environment Programme (UNEP) as any illegal act that directly harms the environment. According to Interpol and UNEP's joint reports, environmental crimes have become the fourth largest criminal enterprise in the world, after drug trafficking, counterfeiting, and human trafficking, generating billions of dollars annually. Despite this alarming trend, these crimes are often considered "victimless," and as a result, remain under-prioritized within criminal justice systems worldwide. This attitude not only undermines environmental protection but also exposes vulnerable ecosystems and communities to unchecked exploitation and degradation.

In India, the legal regime includes significant statutes like the Environment (Protection) Act, 1986, the Air (Prevention and Control of Pollution) Act, 1981, and the Water (Prevention and

Control of Pollution) Act, 1974, among others. While these laws provide a framework for regulation and control, they often lack teeth in terms of criminal deterrence and institutional enforcement. Judicial pronouncements such as *Vellore Citizens' Welfare Forum v. Union of India* and *M.C. Mehta v. Union of India* have highlighted the need for the application of the Polluter Pays Principle and Precautionary Principle, yet implementation gaps persist. Furthermore, enforcement agencies suffer from lack of training, resources, and autonomy, often leading to weak prosecution and low conviction rates.

At the international level, while conventions like the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Basel Convention on Hazardous Wastes offer normative guidance, there is no globally binding criminal law instrument exclusively focused on environmental crimes. Even the Rome Statute of the International Criminal Court (ICC) does not currently categorize environmental crimes as independent international crimes, though there are increasing scholarly proposals to recognize "ecocide" as a fifth international crime.

This research paper aims to critically evaluate the effectiveness of existing legal frameworks—both national and international—in addressing environmental crimes, with a special focus on enforcement and accountability. It explores how environmental crimes are systemically enabled by regulatory loopholes, institutional apathy, and inadequate penalties. By analyzing statutory frameworks, international agreements, case laws, and scholarly discourse, the paper seeks to assess the role of the judiciary, executive, and civil society in combating these crimes. Ultimately, the paper calls for a paradigm shift: from treating environmental harm as a secondary regulatory issue to recognizing it as a grave criminal act that threatens not only biodiversity and ecosystems but also global peace, justice, and intergenerational equity.

NEED AND SIGNIFICANCE OF THE STUDY

The increasing scale, sophistication, and transboundary nature of environmental crimes have made them a pressing global concern, yet they remain inadequately addressed within conventional legal frameworks. This study is essential to understand the gap between legal provisions and enforcement realities, especially in jurisdictions like India where regulatory frameworks exist but institutional weaknesses hinder effective action. The research highlights the growing nexus between environmental offences and organized crime, the lack of deterrent punishment, and the low prioritization of such crimes within the criminal justice system.

By critically analyzing national laws, international conventions, and judicial interventions, the study aims to contribute to the evolving discourse on environmental criminalization, ecological justice, and sustainable governance. It is particularly significant in the context of global climate crises, biodiversity loss, and ecological insecurity. The study seeks to inform policymakers, legal practitioners, and enforcement agencies on the urgent need for reform, accountability, and inter-agency coordination in combating environmental crimes.

METHODOLOGY

This research adopts a doctrinal legal methodology, analyzing statutes, judicial decisions, international conventions, and scholarly literature. It includes comparative legal analysis to evaluate enforcement models across jurisdictions. Secondary data from reports, journals, and official records will be critically examined to assess gaps, challenges, and suggest legal reforms in environmental crime enforcement.

REVIEW OF LITERATURE

1. UNEP & INTERPOL (2016) – "The Rise of Environmental Crime"

This joint report by UNEP and INTERPOL outlines the scale and complexity of environmental crimes, identifying them as the world's fourth-largest criminal activity. It emphasizes the need for enhanced cross-border enforcement, stronger penalties, and better funding for environmental policing. The study underscores the global failure to prioritize environmental crime within mainstream criminal justice frameworks.

2. Sathe, S.P. (2002) – Judicial Activism in India: Transgressing Borders and Enforcing Limits

Sathe discusses how Indian courts have played an active role in environmental protection, especially through PILs. He critiques the gap between judicial activism and administrative compliance. The book highlights key environmental judgments and demonstrates how judicial directions often lack follow-through, revealing the limitations of law without robust institutional mechanisms and accountability systems.

3. White, Rob (2011) – Transnational Environmental Crime: Toward an Eco-global Criminology

White introduces the concept of "eco-global criminology" and

argues for a criminological approach that transcends national boundaries. He critiques traditional criminology's neglect of environmental harms and advocates recognizing environmental crime as a form of social injustice. His work is vital for understanding the ideological and policy shifts needed to criminalize and combat ecological harm globally.

RESEARCH GAP

Despite the growing body of literature on environmental protection and sustainable development, there remains a significant gap in the focused study of environmental crimes as distinct criminal offences rather than mere regulatory violations. Most existing research tends to concentrate on civil liability, administrative penalties, or public interest litigation without adequately addressing the criminal dimensions of environmental harm. While reports by international agencies like UNEP and INTERPOL have highlighted the financial scale and organized nature of environmental crimes, there is limited academic engagement with the effectiveness of legal enforcement mechanisms—especially in developing countries like India where institutional capacity, corruption, and political interference hinder deterrence.

Furthermore, international law lacks a dedicated treaty or convention that criminalizes environmental harm universally, and the Rome Statute's silence on "ecocide" reflects the absence of global consensus on criminal accountability for environmental destruction. In India, although landmark judgments have evolved doctrines like the Precautionary Principle and Polluter Pays Principle, there is no comprehensive analysis of why conviction rates for environmental offences remain low, and why enforcement agencies fail to prosecute major polluters effectively.

Another gap lies in the lack of interdisciplinary approaches—blending law, criminology, and environmental science—to understand how enforcement can be strengthened. Also missing are comparative studies that assess successful environmental crime enforcement models from other jurisdictions. This research aims to bridge these gaps by offering a legal-analytical critique of enforcement challenges and recommending pathways for stronger accountability through institutional reform, legislative clarity, and global cooperation.

STATEMENT OF PROBLEM

Environmental crimes, despite their severe impact on ecosystems, public health, and global sustainability, are often treated as minor

regulatory infractions rather than serious criminal offences. Weak enforcement, inadequate penalties, lack of inter-agency coordination, and poor conviction rates highlight a systemic failure in addressing such crimes. In India and globally, existing legal frameworks lack the necessary criminal jurisprudence and institutional capacity to ensure accountability. Moreover, the absence of a unified international legal instrument criminalizing environmental harm further complicates enforcement. This research seeks to critically examine these legal and institutional shortcomings to propose more effective mechanisms for environmental crime control.

OBJECTIVES

The present study has the following objectives:

1. To examine the existing national and international legal frameworks governing environmental crimes, including statutory provisions, treaties, and judicial precedents.
2. To analyze the enforcement mechanisms and institutional challenges faced by regulatory and criminal justice authorities in prosecuting environmental offences.
3. To assess the role of the judiciary in shaping environmental jurisprudence, particularly through public interest litigation and landmark judgments.
4. To identify gaps in legal accountability and explore reasons behind low conviction rates, under-reporting, and inadequate deterrent measures and recommend reforms for strengthening environmental crime enforcement, including legislative amendments, capacity-building of agencies, and integration of criminal liability into environmental governance.

HYPOTHESIS

H1: The existing legal framework in India and at the international level is inadequate to effectively prevent and punish environmental crimes due to weak enforcement mechanisms and lack of criminal accountability.

H2: Strengthening institutional capacity, introducing stricter criminal liability, and promoting judicial and inter-agency coordination can significantly enhance the enforcement and deterrence of environmental crimes.

FINDINGS

According to the objectives of the study findings of the study are

discussed below-obj:

1. To know the existing national and international legal frameworks governing environmental crimes, including statutory provisions, treaties, and judicial precedents.
2. 2.To know the enforcement mechanisms and institutional challenges faced by regulatory and criminal justice authorities in prosecuting environmental offences.
3. To know the role of the judiciary in shaping environmental jurisprudence, particularly through public interest litigation and landmark judgments.
4. To know the gaps in legal accountability and explore reasons behind low conviction rates, under-reporting, and inadequate deterrent measures and to know reforms for strengthening environmental crime enforcement, including legislative amendments, capacity-building of agencies, and integration of criminal liability into environmental governance.

EXAMINATION OF NATIONAL AND INTERNATIONAL LEGAL FRAMEWORKS GOVERNING ENVIRONMENTAL CRIMES

Environmental crime has emerged as one of the most critical challenges of the 21st century, affecting biodiversity, ecosystems, climate, and human health. These crimes encompass a wide range of illegal activities such as illegal wildlife trade, deforestation, unlawful discharge of pollutants, illegal mining, and hazardous waste dumping. According to a joint report by UNEP and INTERPOL (2016), environmental crime is the world's fourth-largest criminal enterprise, generating an estimated USD 91–258 billion annually[1]. Despite this alarming trend, environmental crimes continue to receive less attention compared to conventional crimes like drug trafficking or terrorism. One of the major reasons for this under-enforcement is the inadequacy of legal frameworks—both national and international—to criminalize, prosecute, and deter environmental offences[2]. This section critically examines the statutory provisions, judicial developments, and international legal instruments dealing with environmental crimes, particularly focusing on India and global legal frameworks.

NATIONAL LEGAL FRAMEWORK: INDIA

India has a relatively well-developed environmental legislative

[1] *INTERPOL & United Nations Env't Programme, The Rise of Environmental Crime (2016).*
[2] *Stuart Bell et al., Environmental Law 8 (9th ed. 2017).*

framework, especially in the wake of the 1972 Stockholm Conference[3]. Environmental protection has been recognized as part of the right to life under Article 21 of the Indian Constitution[4]. However, while these laws provide administrative and civil remedies, criminal prosecution for environmental offences remains rare, with low conviction rates and weak enforcement mechanisms[5].

The cornerstone of India's environmental law is the Environment (Protection) Act, 1986, enacted in the aftermath of the Bhopal Gas Tragedy[6]. This Act serves as an umbrella legislation, empowering the central government to take necessary measures to protect and improve the environment[7]. Sections 15 and 16 of the Act prescribe criminal penalties, including imprisonment of up to five years and fines[8]. However, in practice, these provisions are rarely invoked, and enforcement tends to be more regulatory than punitive[9].

The Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 were enacted to control pollution in water bodies and air respectively. These Acts established Central and State Pollution Control Boards, which are responsible for monitoring and controlling pollution. However, both statutes suffer from weak enforcement capabilities. For instance, while they prescribe penalties for non-compliance, these are often limited to fines or short-term imprisonment, which fail to act as effective deterrents. Furthermore, the Boards lack prosecutorial authority and are often underfunded, politically influenced, and poorly staffed.

The Wildlife (Protection) Act, 1972 is another key piece of legislation aimed at curbing poaching, trafficking, and illegal trade in wildlife[10]. It provides for imprisonment and fines for offences like hunting of protected species and trade in wildlife articles. Despite this, illegal wildlife trade continues to thrive in India due to corruption, weak border control, and lack of coordination among enforcement agencies.

In addition to these environmental laws, certain provisions of the

[3] *United Nations Conference on the Human Environment, Stockholm Declaration, U.N. Doc. A/CONF.48/14/Rev.1 (June 16, 1972).*
[4] *M.C. Mehta v. Union of India, (1987) 1 SCC 395.*
[5] *Ritwick Dutta, Litigating for the Environment: Accountability in India's Green Courts, 59 JILI 97 (2017).*
[6] *Environment (Protection) Act, No. 29 of 1986, § 3, India Code (1986).*
[7] *ID*
[8] *Id. §§ 15–16.*
[9] *Shibani Ghosh, Implementation of Environmental Judgments in India: A Critical Appraisal, 4 EPL 87 (2015).*
[10] *Wildlife (Protection) Act, No. 53 of 1972, India Code (1972).*

Indian Penal Code (IPC), 1860 are applicable to environmental crimes. Sections 268 (public nuisance), 278 (making atmosphere noxious to health), 290, and 291 are occasionally invoked. However, these are minor offences with weak penalties and are largely inadequate to address serious environmental harm.[11] India has also introduced the National Green Tribunal (NGT) Act, 2010[12], which established the NGT as a specialized body for expeditious disposal of environmental disputes. While the NGT has played a proactive role in environmental adjudication, it deals primarily with civil liability and regulatory orders and has no criminal jurisdiction. This further highlights the gap in India's environmental criminal jurisprudence.

JUDICIAL DEVELOPMENTS AND PRECEDENTS

The Indian judiciary has played a pioneering role in expanding environmental jurisprudence. In M.C. Mehta v. Union of India (Oleum Gas Leak Case), 1987 AIR 965[13], the Supreme Court introduced the principle of Absolute Liability, holding that enterprises engaged in hazardous activities owe an absolute duty to the community to ensure safety. This principle marked a departure from the English rule of strict liability and strengthened environmental accountability.

In Vellore Citizens' Welfare Forum v. Union of India (1996) 5 SCC 647[14], the Supreme Court recognized the Precautionary Principle and the Polluter Pays Principle as essential features of Indian environmental law, embedding them within the constitutional mandate under Article 21. The Court directed industries to compensate for the harm caused and ordered the creation of an Environment Protection Fund.

Another landmark case, Indian Council for Enviro-Legal Action v. Union of India (1996) 3 SCC 212[15], involved chemical industries that had polluted land and water sources. The Court ordered the industries to pay compensation and cleanup costs, further reinforcing the Polluter Pays Principle. However, these judgments, while doctrinally significant, often fall short in implementation due to institutional and bureaucratic constraints.

Despite these judicial innovations, there remains a disconnect

[11] *Ruchi Pant, Environmental Crime and Punishment in India: An Analysis of IPC Provisions, 12 GNLU J. L. Dev. & Pol'y 55 (2020).*
[12] *National Green Tribunal Act, No. 19 of 2010, § 3, India Code (2010).*
[13] *M.C. Mehta v. Union of India, AIR 1987 SC 965 (India)*
[14] *Vellore Citizens' Welfare Forum v. Union of India, (1996) 5 SCC 647 (India).*
[15] *Indian Council for Enviro-Legal Action v. Union of India, (1996) 3 SCC 212 (India).*

between progressive rulings and actual criminal enforcement. Very few cases of serious environmental crimes result in prosecution or imprisonment. Judicial activism has filled many legislative gaps but cannot substitute for a coherent statutory framework that treats environmental harm as a serious criminal offence.

INTERNATIONAL LEGAL FRAMEWORK

Globally, several multilateral environmental agreements (MEAs) have been adopted to address specific environmental harms. However, these instruments primarily impose obligations on states, with limited or no provisions for individual criminal liability or enforcement mechanisms. This makes the international legal regime fragmented and often ineffective in preventing or punishing environmental crimes.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973 aims to regulate the international trade in endangered species[16]. While it has had some success in curbing trade through licensing and regulation, enforcement remains a challenge, particularly in countries with weak wildlife protection laws.

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1989) is another major treaty that seeks to prevent the dumping of hazardous waste in developing countries[17]. Although it imposes obligations on signatory states to regulate the movement of hazardous waste, it lacks punitive sanctions and depends heavily on domestic implementation.

The Stockholm Convention on Persistent Organic Pollutants (2001) and the Montreal Protocol (1987) focus on the elimination of harmful substances and ozone-depleting chemicals[18]. While these treaties have contributed to environmental protection, they too lack provisions for individual or corporate criminal accountability.

One of the major criticisms of international law is the absence of a comprehensive treaty that criminalizes environmental harm at a global level. The Rome Statute of the International Criminal

[16] *Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1973, 993 U.N.T.S. 243.*
[17] *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, Mar. 22, 1989, 1673 U.N.T.S. 57.*
[18] *Stockholm Convention on Persistent Organic Pollutants, May 22, 2001, 2256 U.N.T.S. 119; Montreal Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, 1522 U.N.T.S. 3.*

Court (1998) includes war crimes and crimes against humanity but does not explicitly recognize environmental crimes, except in wartime ecological destruction under Article 8(2)(b)(iv)[19]. There is growing global advocacy for the inclusion of "ecocide" as the fifth international crime, alongside genocide, war crimes, crimes against humanity, and aggression. Proposals by scholars and civil society organizations call for a new legal norm that would impose criminal responsibility on individuals, corporations, and even state actors for severe environmental damage.

While both Indian and international legal frameworks have made significant progress in environmental regulation, they fall short in criminalizing environmental harm effectively. India's environmental laws are comprehensive in scope but lack robust criminal enforcement and prosecutorial mechanisms. Most offences result in administrative penalties or civil litigation, rarely leading to imprisonment or criminal convictions. Internationally, treaties provide valuable normative frameworks but lack the coercive power and criminal enforcement mechanisms required to deter environmental crimes, especially those committed by powerful corporate and transnational actors.

Judicial activism in India has been instrumental in filling legislative gaps and advancing environmental justice, but the absence of a dedicated legal architecture for environmental crime hampers deterrence. Moving forward, there is a pressing need for legal reform—including amending existing laws to provide for stricter penalties, empowering enforcement agencies, and establishing environmental courts with criminal jurisdiction. At the global level, the recognition of ecocide and the creation of binding international instruments for environmental criminal liability are critical steps toward ensuring accountability and safeguarding the environment for future generations.

ENFORCEMENT DEFICITS AND INSTITUTIONAL HURDLES IN PROSECUTING ENVIRONMENTAL OFFENCES: A CRITICAL APPRAISAL

Environmental crimes such as illegal mining, wildlife trafficking, toxic waste dumping, and pollution pose a significant threat to ecosystems, biodiversity, and public health. While environmental legislation in India is comprehensive, its enforcement remains weak and inconsistent. Regulatory authorities, though empowered by statute, face significant institutional constraints that hinder effective action. Likewise, the criminal justice system

[19] *Rome Statute of the International Criminal Court, art. 8(2)(b)(iv), July 17, 1998, 2187 U.N.T.S. 3.*

is ill-equipped to address environmental offences, resulting in low conviction rates, prolonged litigation, and widespread impunity. This section explores the practical difficulties faced by enforcement bodies and judicial authorities in prosecuting environmental crimes, with relevant case laws and examples to illustrate these systemic deficiencies.

REGULATORY ENFORCEMENT: WEAK EXECUTION OF STRONG LAWS

India's environmental regulatory regime is governed by statutes such as the Environment (Protection) Act, 1986, the Air and Water Acts, the Wildlife Protection Act, 1972, and the Forest Conservation Act, 1980[20]. These laws empower agencies like the Central Pollution Control Board (CPCB), State Pollution Control Boards (SPCBs), and the Ministry of Environment, Forest and Climate Change (MoEFCC) to monitor compliance and initiate legal proceedings against violators[21].

However, these agencies are often plagued by institutional shortcomings. A 2020 audit report by the Comptroller and Auditor General (CAG) found that several SPCBs lacked sufficient manpower, technical expertise, and laboratory infrastructure to monitor pollution effectively[22]. Additionally, inter-departmental coordination is weak, and overlapping jurisdiction often results in delayed responses or conflicting actions[23].

Despite the legal power to issue closure notices, seize property, or prosecute, most pollution control boards rely on issuing show-cause notices and levying small fines[24]. These administrative measures rarely deter repeat offenders, particularly large industrial units whose profits far outweigh any penalties[25]. Moreover, political interference and lack of independence often prevent agencies from acting against powerful violators[26].

[20] *Environment (Protection) Act, No. 29 of 1986, INDIA CODE (1986).*
[21] *The Wildlife (Protection) Act, No. 53 of 1972, INDIA CODE (1972).*
[22] *Comptroller & Auditor General of India, Report No. 44 of 2020 on Performance Audit of Pollution Control Boards*
[23] *Id. at 32–35.*
[24] *Ministry of Environment, Forest and Climate Change (MoEFCC), Annual Report 2018–19, at 88*
[25] *Harsh Vardhan & Kunal Sharma, Why India's Pollution Control Boards Are Ineffective, THE WIRE (Mar. 12, 2020)*
[26] *Divya Narain, The Influence of Political and Corporate Power in Environmental Governance, 8 Indian J. Env't L. & Pol'y 56 (2019).*

CRIMINAL PROSECUTION: SYSTEMIC GAPS IN THE JUSTICE DELIVERY SYSTEM

Environmental offences are primarily treated as regulatory violations rather than serious crimes. As a result, the criminal justice system has not evolved adequate tools, training, or institutional mechanisms to investigate and prosecute them effectively.

- Lack of Specialized Investigation Units: - Most police departments treat environmental offences as minor or technical breaches. There are no specialized environmental crime investigation cells in most states, and police officers are often unfamiliar with environmental laws. This results in poor quality of investigation, insufficient evidence collection, and weak prosecution.
- Inadequate Prosecutorial Capacity:- Environmental cases require specialized legal expertise, which is often lacking among public prosecutors. The failure to understand scientific data, environmental reports, and compliance documents makes it difficult to build strong cases in court. The result is poor conviction rates and long delays.
- Burdened Judicial System and Lack of Criminal Jurisdiction in NGT: Although the National Green Tribunal (NGT) has expedited civil environmental litigation, it lacks criminal jurisdiction. Criminal trials must go through the regular judicial system, which is already overburdened with a backlog of cases. This contributes to years of delay in environmental trials, allowing violators to continue their activities unchecked.

CASE LAWS ILLUSTRATING ENFORCEMENT FAILURES

- **A.P. Pollution Control Board v. Prof. M.V. Nayudu**[27]: The Supreme Court emphasized the importance of scientific expertise in environmental adjudication and the need for effective enforcement by pollution control boards. Despite this, institutional capacity remains weak, and agencies continue to function with outdated equipment and insufficient staff.
- **Goa Foundation v. Union of India (2014)**[28]: This case revealed massive illegal mining operations in Goa, enabled by regulatory failure, corruption, and lack of monitoring. The Court ordered a suspension of all mining leases and mandated fresh environmental clearances. This landmark case showed

[27] *A.P. Pollution Control Bd. v. Prof. M.V. Nayudu, (1999) 2 S.C.C. 718 (India).*
[28] *Goa Found. v. Union of India, (2014) 6 S.C.C. 590 (India).*

how weak institutional oversight can lead to large-scale environmental degradation.

- **T.N. Godavarman Thirumulpad v. Union of India**[29]: Known as the "Forest Case," this PIL exposed deforestation and illegal timber trade due to the ineffective functioning of forest departments across states. The case led to judicial monitoring of forest governance, further highlighting the inadequacies of statutory enforcement.
- **Vardhaman Kaushik v. Union of India**, **2016**[30]: This case, concerning vehicular pollution in Delhi, demonstrated that even when the NGT passes proactive orders (like banning old diesel vehicles), the lack of coordination between regulatory agencies and traffic police results in poor implementation on the ground.

CORRUPTION, POLITICAL INFLUENCE, AND LACK OF ACCOUNTABILITY

One of the major challenges in enforcement is corruption and political interference. Regulatory officials are often influenced by local political and industrial pressures, and enforcement actions are either delayed or diluted. In many cases, inspection reports are manipulated, and environmental clearance processes are compromised. The lack of transparency in environmental governance further aggravates the problem. Environmental Impact Assessment (EIA) reports are often drafted without proper public consultation, and project approvals are given despite clear violations of environmental norms.

Moreover, enforcement agencies lack accountability. There is no centralized data on environmental crime rates, prosecution status, or conviction outcomes. This makes policy reform and institutional assessment nearly impossible.

NEED FOR INSTITUTIONAL REFORMS

To strengthen enforcement and criminal justice in environmental matters, the following reforms are necessary:

- Creation of Environmental Crime Units within police departments and investigation agencies.
- Training programs for police officers, prosecutors, and judicial officers on environmental law, forensic evidence, and scientific data analysis.

[29] *T.N. Godavarman Thirumulpad v. Union of India, W.P. (C) No. 202 of 1995 (India).*
[30] *Vardhaman Kaushik v. Union of India, O.A. No. 21 of 2014, Nat'l Green Trib. (India).*

- Granting criminal jurisdiction to special environmental courts or extending NGT's powers to cover serious criminal offences.
- Amending environmental laws to categorize serious environmental harm as non-bailable and cognizable offences.
- Whistleblower protection laws and citizen participation in monitoring and enforcement.
- Use of technology such as satellite surveillance, remote sensing, and online monitoring of industrial emissions to detect violations.

While India has a vast array of environmental laws and an active judiciary, enforcement mechanisms remain deeply flawed. Regulatory agencies lack autonomy, resources, and political will. The criminal justice system is inadequately equipped to handle the complexity of environmental crimes. The combined effect of these institutional failures is widespread impunity for polluters and environmental offenders. Case laws, audit reports, and real-world incidents consistently demonstrate that without strengthening enforcement and judicial capacity, the promise of environmental justice will remain unfulfilled. Effective enforcement requires not only robust laws but also efficient, independent, and scientifically equipped institutions working with a strong commitment to environmental protection.

FROM THE BENCH TO THE BIOSPHERE: PUBLIC INTEREST LITIGATION AND THE JUDICIAL SHAPING OF ENVIRONMENTAL LAW

In India, the judiciary has emerged as a crucial pillar in the protection of the environment, filling gaps left by legislative and executive inaction. In a country where pollution, deforestation, and ecological degradation threaten public health and sustainability, the judiciary—particularly the Supreme Court and High Courts—has used its constitutional powers to expand environmental jurisprudence. A defining feature of this activism is the widespread use of Public Interest Litigation (PIL), which has allowed citizens and organizations to directly approach the higher judiciary for environmental concerns. This section critically examines the judicial role in developing environmental principles, delivering landmark judgments, and enforcing ecological justice, thereby transforming India’s environmental governance.

JUDICIAL INNOVATION THROUGH PIL

Public Interest Litigation has revolutionized access to environmental justice in India. Under Article 32 of the Constitution (before the Supreme Court) and Article 226 (before

High Courts), any public-spirited individual or group can initiate litigation to protect the environment without the need for locus standi in the traditional sense. PILs have enabled the judiciary to interpret constitutional provisions in a way that protects nature as an integral part of the Right to Life under Article 21.

The case of Rural Litigation and Entitlement Kendra v. State of Uttar Pradesh, 1985 SCR (3) 169[31], often cited as the first environmental PIL, concerned illegal limestone mining in the Mussoorie Hills. The Supreme Court ordered closure of the mines in the interest of environmental preservation, even though it affected economic activity and employment. This case established that ecological balance and sustainable development must override commercial interests when the two are in conflict.

EXPANSION OF ARTICLE 21 AND ENVIRONMENTAL RIGHTS

The judiciary's most transformative contribution lies in reading environmental rights into the constitutional guarantee of "life" under Article 21. This began with the landmark case of M.C. Mehta v. Union of India (Oleum Gas Leak Case), AIR 1987 SC 965[32], where the Court held that the Right to Life includes the right to a clean and safe environment. In this case, the Court evolved the "Absolute Liability" principle for industries engaged in hazardous activities, stating that they are absolutely liable to compensate for any harm caused, without exceptions.

This marked a shift from the British common law doctrine of strict liability to a more stringent standard. The Absolute Liability doctrine has since been instrumental in holding polluting industries accountable and is a uniquely Indian contribution to environmental jurisprudence.

ENVIRONMENTAL PRINCIPLES DEVELOPED BY COURTS

The Indian judiciary has been at the forefront of embedding international environmental principles into domestic law, even in the absence of explicit legislative provisions. The most prominent among these are:

- **Polluter Pays Principle** - Recognized in *Indian Council for Enviro-Legal Action v. Union of India*[33], the Court held

[31] *Rural Litig. & Entitlement Kendra v. State of Uttar Pradesh, 1985 S.C.R. (3) 169 (India).*
[32] *M.C. Mehta v. Union of India, A.I.R. 1987 S.C. 965 (India).*
[33] *Indian Council for Enviro-Legal Action v. Union of India, (1996) 3 S.C.C. 212 (India).*

that the polluter is liable not only to compensate victims but also to bear the cost of restoring the environment.

- **Precautionary Principle** -Emphasized in *Vellore Citizens' Welfare Forum v. Union of India*[34], the Court stated that environmental measures must anticipate, prevent, and attack causes of environmental degradation, even when there is scientific uncertainty.
- **Public Trust Doctrine** - In *M.C. Mehta v. Kamal Nath*[35], the Supreme Court ruled that natural resources like air, water, forests, and seashores are held in trust by the government for the public, and cannot be transferred to private parties for commercial use.

These principles are now firmly embedded in Indian law and have guided a wide array of environmental cases across sectors such as mining, deforestation, industrial pollution, and urban development.

NATIONAL GREEN TRIBUNAL (NGT): JUDICIAL CONTINUITY

While not part of the constitutional judiciary, the National Green Tribunal (NGT), established under the NGT Act, 2010, represents an extension of judicial intervention in environmental matters. The NGT is a specialized quasi-judicial body that adjudicates environmental cases with scientific and technical input. It applies the principles of sustainable development, polluter pays, and precautionary principle as part of its statutory mandate.

For example, in Almitra H. Patel v. Union of India (2017)[36], the NGT ordered comprehensive waste management reforms and directed state governments to implement Solid Waste Management Rules, 2016. The tribunal's swift orders and accessibility have made it a vital forum for environmental justice, though its lack of criminal jurisdiction and occasional non-enforcement of orders limit its effectiveness.

LANDMARK JUDGMENTS AND JUDICIAL OVERSIGHT

The judiciary has passed several far-reaching judgments that shaped India's environmental regulatory landscape.

[34] *Vellore Citizens' Welfare Forum v. Union of India, (1996) 5 S.C.C. 647 (India).*
[35] *M.C. Mehta v. Kamal Nath, (1997) 1 SCC 388 (India).*
[36] *Almitra H. Patel v. Union of India, Original Application No. 199 of 2014, NGT (July 10, 2017) (India).*

- **T.N. Godavarman Thirumulpad v. Union of India, W.P. (Civil) No. 202 of 1995**[37] - This continuing mandamus case has led to significant changes in forest governance. The Court redefined the term "forest," directed a halt to illegal deforestation, and established centralized forest clearance mechanisms, leading to the creation of Compensatory Afforestation Fund Management and Planning Authority (CAMPA).
- **Subhash Kumar v. State of Bihar**[38] - The Court held that the right to clean water and a pollution-free environment is part of Article 21, laying the foundation for water rights jurisprudence.
- **M.C. Mehta v. Union of India (Ganga Pollution Case)**[39] **-** The Court ordered the closure of tanneries that discharged untreated effluents into the Ganga, compelling industries to adopt clean technologies and treatment systems.
- **Vellore Citizens' Welfare Forum v. Union of India**[40] The Court held tanneries liable for pollution of agricultural lands and drinking water and directed payment of compensation and cost of remediation. This judgment is a cornerstone of environmental accountability in India.

CRITICISM AND LIMITATIONS

While judicial intervention has undoubtedly strengthened environmental protection in India, it is not without criticism. Some scholars argue that excessive judicial activism leads to a "juristocracy" where courts perform executive functions, often without sufficient technical or administrative expertise. Moreover, implementation remains a major hurdle. Many judgments and orders are not enforced due to lack of follow-up, political resistance, or weak institutional mechanisms.

Another concern is the over-centralization of environmental decision-making. In cases like Godavarman and others, courts have limited the role of state governments, sometimes undermining democratic decentralization. Additionally, frequent litigation and judicial stays can lead to delays in infrastructure and development projects, creating a tension between environmental protection and economic growth.

[37] *T.N. Godavarman Thirumulpad v. Union of India, W.P. (Civil) No. 202 of 1995, S.C. (India).*
[38] *Subhash Kumar v. State of Bihar, (1991) 1 S.C.C. 598 (India).*
[39] *M.C. Mehta v. Union of India, A.I.R. 1988 S.C. 1037 (India).*
[40] *Ibid 40*

The Indian judiciary has played an unparalleled role in developing and enforcing environmental jurisprudence. Through public interest litigation, creative interpretation of constitutional provisions, and the evolution of new legal doctrines, the courts have significantly expanded the scope of environmental law. Landmark judgments have compelled the government and industries to act responsibly, and PILs have empowered civil society to hold polluters accountable.

However, the judiciary cannot operate in isolation. Judicial pronouncements must be complemented by robust legislative action and effective administrative enforcement. Strengthening the capacity of the regulatory authorities, improving coordination among stakeholders, and ensuring compliance with court orders are essential to convert judicial innovations into lasting environmental reforms.

In conclusion, the judiciary has not only shaped environmental jurisprudence in India but has also emerged as a guardian of ecological democracy, ensuring that environmental protection remains central to India's constitutional vision of justice, equality, and sustainability.

CLOSING THE ACCOUNTABILITY GAP: ADDRESSING LOW CONVICTIONS AND WEAK DETERRENCE IN ENVIRONMENTAL CRIME ENFORCEMENT

1. Introduction: The Accountability Deficit

Despite having robust environmental laws, India grapples with serious enforcement deficiencies. From 2014 to 2016, under the Environmental Protection Act alone, the number of cases fell from 5,835 to 4,732—despite nearly 8,365 arrests in 2016[41]. In 2019 alone, 34,671 environment-related offences were registered, yet over 50,000 cases awaited judicial trial, and 7,000 were stuck in police investigations[42] . Courts dispose of only 86 cases daily—far less than the 137 cases needed to reduce backlog [43]. These figures reflect under-reporting, poor investigation, and judicial bottlenecks, making conviction rates for environmental crimes markedly low—estimated at around just 3%. This section explores the structural causes behind weak accountability and proposes targeted reforms[44].

[41] *Ministry of Environment, Forest & Climate Change, Annual Report 2016–17 (India)*
[42] *National Crime Records Bureau, Crime in India 2019 (India),*
[43] *Id.*
[44] *Kanchi Kohli & Manju Menon, The Elusiveness of Environmental Justice in*

GAPS IN LEGAL ACCOUNTABILITY

A. UNDER-REPORTING AND DATA DEFICIENCIES

NCRB data historically captures offences under only five central laws and neglects other environmental statutes (e.g., E-Waste Rules, Mining Regulations)[45]. Some states report zero cases despite severe ecological degradation[46]. Moreover, environmental crime data lacks granularity: case filing, charge-sheeting, trial progression, and conviction rates are aggregated across entire laws rather than being statute-specific[47] This opacity diminishes policymaking and accountability.

B. WEAK INVESTIGATION AND PROSECUTION

Police lack specialized environmental crime cells; environmental statutes are not priorities. An activist notes, "police officers and the pollution board are not having sufficient knowledge regarding how to take actions"[48]. PCB inspections are superficial—only ~2% of show-cause notices are converted into legal actions[49]. Courts report 7,000 cases stuck in investigation—a direct consequence of untrained officers and ineffective legal machinery[50].

C. INADEQUATE DETERRENCE

Offences typically lead to minor fines—"light fine[s]" with institutional seizures being the main serious sanction[51]. International evidence suggests that even within the EU, environmental crimes seldom lead to imprisonment (0.5–2.5%), while a stronger deterrent exists in the U.S. where 18–53% of sentences for serious cases carry jail time[52]. In India, convictions happen in only about 3% of cases—showing negligible deterrent effect[53].

India, Econ. & Pol. Wkly., Vol. 52, No. 24 (June 2017).

[45] *NCRB Report 2019, supra note 2.*

[46] *Centre for Science and Environment, State of India's Environment 2020: In Figures,*

[47] *Id.*

[48] *Interview with anonymous environmental rights activist (on file with author).*

[49] CAG Report No. 34 of 2020, *Performance Audit on Water Pollution in India*, Union Government, MoEFCC.

[50] NCRB Report 2019

[51] Id.

[52] European Union Network for the Implementation and Enforcement of Environmental Law, *Imprisonment Rates for Environmental Offences* (2018).

[53] Kohli & Menon.

D. GOVERNANCE BARRIERS: CORRUPTION AND POLITICAL INFLUENCE

Environmental crime enforcement is plagued by corruption and lack of political will. Pollution boards prioritize revenue from permitting over compliance checks[54] . In many cases, illegal approvals follow political pressure[55]. Activists suing mega-corporations face legal harassment, including frivolous charges[56].These systemic governance deficits hinder enforcement.

ROOT CAUSES OF LOW CONVICTION RATES

A. PROCEDURAL WEAKNESSES AND JUDICIAL DELAY

Environmental trial courts are overburdened. With over 50,000 cases pending, clearance rates are exceedingly low: only ~0.13 EPA cases and 0.66 Wildlife Act cases disposed daily[57] . This leads to prolonged delays, eroding public confidence and diminishing the deterrent impact of prosecutions.

B. COMPLEX TECHNICAL AND SCIENTIFIC EVIDENCE

Environmental crimes require expertise in fields like hydrology, chemistry, ecology, and industrial engineering. However, few police or prosecutors have access to technical support. As observed in Finland, offences prosecuted by natural persons are resolved easily, but corporate cases—burdened by complex evidence—are harder to prosecute[58].

C. POOR COORDINATION

Enforcement responsibility is fragmented. Police, PCBs, forest officers, and central agencies like the Wildlife Crime Control Bureau operate independently with poor data-sharing. Inter-agency disconnects compound delays and weaken case quality[59].

D. CULTURAL UNDERVALUATION AND PUBLIC APATHY

Unlike other crimes, environmental offending is often perceived as

[54] Shibani Ghosh, *Regulating Pollution in India: Law, Policy and Practice* 32 (Oxford Univ. Press 2019).
[55] Id.
[56] Interview with NGO Litigator, Legal Initiative for Forest and Environment (2023).
[57] NCRB Report 2019
[58] Minna Piispanen, *Criminal Sanctions for Environmental Offences in Finland*, 20 Env't Crime & Policing J. (2016).
[59] Ibid 53

a regulatory lapse rather than a serious crime. With awareness low, public pressure on enforcement agencies is minimal, and only a few NGOs take up litigative roles—often facing intimidation[60].

REFORM FRAMEWORK

To systematically tackle these challenges and build environmental justice, reforms must target legal, institutional, capacity, and cultural dimensions. Below are evidence-supported recommendations:

A. LEGAL REFORMS

- **Classify serious environmental offences as cognizable and non-bailable**, enabling immediate arrest and stronger deterrence.
- **Adopt sliding scales of penalty severity**, including substantial fines proportional to harm and incarceration for corporate officers. International standards suggest sentences with detention in serious cases.
- **Mandate corporate criminal liability**, holding both entities and responsible individuals accountable, similar to practices under the EU's 2024 Environmental Crime Directive

B. INSTITUTIONAL ENHANCEMENTS

- **Create dedicated Environmental Crime Units** within police, staffed with trained investigators and forensic ecologists.
- **Empower PCBs** to use self-monitored data for legal action and streamline inspection protocols for court admissibility .
- **Set up Special Environmental Courts**, or grant criminal jurisdiction to the NGT to expedite technical cases and reduce ordinary court backlog.

C. CAPACITY-BUILDING AND RESOURCES

- **Train police, prosecutors, and judges** through international bodies like INECE in investigation, evidence handling, and ecological jurisprudence.
- **Establish forensic and scientific support units**, similar to Finland's model with high conviction rates due to strong evidentiary procedures .

[60] Ghosh, ibid 54

- **Deploy technology**: satellite monitoring, remote sensing, and blockchain-enabled compliance in critical sectors—drawing on innovations in marine pollution tracking.

D. DATA TRANSPARENCY AND MONITORING

- **Implement standardized NCRB reporting**, per CAG recommendations, disaggregating offences by statute, stage, and outcome
- **Publish regular environmental crime dashboards** with charge-sheeting rates, conviction statistics, and case durations, enhancing accountability.
- **Foster independent auditing** by external bodies to assess PCB compliance and enforcement actions.

E. STRENGTHEN PUBLIC ENGAGEMENT AND ACCOUNTABILITY

- **Incentivise whistleblowers** and community surveillance with legal protection and rewards for reporting offences.
- **Enhance NGO access** through safe-litigation grants while protecting litigants from frivolous countersuits
- **Launch public awareness campaigns** equating environmental crimes with public health risks, shifting cultural perception towards severity.

F. FOSTER INTER-STATE AND INTERNATIONAL COOPERATION

- **Establish inter-agency protocols** for tackling cross-border offences, modeled on ASEAN-WEN
- **Pursue bilateral MLAT agreements** to facilitate transnational investigations, critical for tracking waste, wildlife, and chemical pollutants.

STRATEGIC IMPLEMENTATION PLAN

Implementing these reforms demands a phased, integrated strategy:

- ✓ **Legislation**: Amend statutes to reclassify offences and integrate corporate liability. Follow EU models in codifying penalty tiers
- ✓ **Institutional Pilots**: Launch environmental investigation units in high-crime states. Embed forensic teams with PCB officers and police.

- ✓ **Court Infrastructure**: Pilot Special Environmental Courts in mining-intensive or polluted states; pilot adjudication by specialized panels.
- ✓ **Capacity-Building**: Partner with INECE and national academies to train officials. Include case-based workshops from jurisdictions like Finland.
- ✓ **Tech Integration**: Implement geospatial monitoring in brick kiln zones and maritime sectors
- ✓ **Transparency Initiatives**: Begin quarterly environmental crime reports, mandating PCB/NGRBA disclosures.
- ✓ **Community Outreach**: Fund NGOs and launch media campaigns to elevate public demand for environmental accountability.

EXPECTED OUTCOMES AND JUSTIFICATION

Target Area	Outcome
Conviction Rates	Increase from ~3% toward global norms of 18–50% seen in the U.S.
Backlog Reduction	Lower court pendency through fast-track courts and special tribunals
Stronger Deterrent	Enhanced penalty certainty and severity to shift rational offender calculus
Public Trust	Greater transparency and civil participation rebuild institutional legitimacy
Inter-Governmental Coordination	Breach of syndicates and cross-border crimes through shared protocols
Technological Enforcement	Real-time detection of violations to trigger faster responses

India's remarkable legal and judicial strides in environmental protection are undermined by systemic failures in enforcement. Low conviction rates, data opacity, procedural delay, and under-resourced institutions sustain a culture of impunity. Remedial action requires legal revision to criminalize serious environmental harm effectively; institutional enhancements that combine dedicated resource, knowledge, and technology; and a cultural transformation recognizing environmental crime as as grave as other societal threats.

By implementing these reforms, India can shift from reactive regulation toward proactive prosecution—fostering a judicial vision that moves beyond symbolic justice to a governance reality

where environmental rights are both legally affirmed and socially enforceable. Only then can green crime cease being a second-tier priority and transform into a cornerstone of ecological governance and justice for future generations.

SUGGESTIONS

To effectively combat environmental crimes and enhance legal accountability, a multi-dimensional reform approach is essential. Firstly, serious environmental offences should be reclassified as cognizable and non-bailable to empower law enforcement with immediate response capabilities. The integration of corporate criminal liability into environmental statutes is crucial, especially for large-scale industrial violations. Secondly, specialized environmental crime units must be created within police departments and supported by scientific experts for proper investigation and prosecution. The judiciary should be equipped with environmental benches or fast-track courts to handle technical cases more efficiently. Thirdly, environmental agencies like Pollution Control Boards should be trained, adequately staffed, and given prosecution powers with accountability audits. Public engagement must be encouraged through awareness campaigns, whistleblower protections, and support for environmental NGOs. Additionally, technology such as satellite imaging, remote sensing, and real-time pollution monitoring must be adopted for enforcement and evidence collection. A centralised, transparent database on environmental offences should be developed to improve tracking and analysis. Lastly, inter-agency and interstate cooperation mechanisms must be institutionalized to address transboundary environmental crimes. These suggestions aim to create a deterrent legal framework, strengthen institutional coordination, and promote environmental justice through improved enforcement and public participation.

CONCLUSION

Environmental crimes pose a severe threat not only to ecosystems but also to public health, economic stability, and intergenerational equity. Despite the existence of comprehensive legal frameworks in India, including the Environment (Protection) Act, 1986, the Water Act, 1974, the Air Act, 1981, and various international commitments, enforcement remains inadequate. This research has revealed that the main obstacles to effective implementation include under-reporting, fragmented institutional roles, poor technical capacity, low conviction rates, and weak penalties. Judicial interventions, especially through Public Interest Litigations (PILs), have played a commendable role in shaping environmental jurisprudence. However, judicial activism

alone cannot substitute a structurally sound and well-coordinated enforcement mechanism.The study highlights that strengthening environmental governance requires a multipronged approach. Legislative amendments must incorporate stricter punitive measures and corporate liability. Dedicated environmental courts and investigative units are vital to expedite justice. Moreover, training law enforcement and judicial officers in environmental law, improving inter-agency cooperation, and adopting modern technological tools like GIS and remote sensing can drastically improve monitoring and evidence collection.

Public participation also needs to be fostered through awareness, legal literacy, and protection of environmental defenders. A transparent, data-driven mechanism must be instituted to ensure that environmental crimes are tracked, prosecuted, and deterred effectively. Addressing environmental crimes necessitates not just regulatory intent but also institutional resilience, technological integration, and societal involvement. If India is to ensure sustainable development and environmental protection for future generations, urgent reforms in enforcement and accountability mechanisms must be undertaken. Only through a cohesive, well-resourced, and just environmental governance structure can the vision of environmental justice be truly realized.

Based on the findings, the first hypothesis, "*The existing legal framework and enforcement mechanisms are insufficient to effectively deter and prosecute environmental crimes*," is satisfied, as the evidence confirms serious deficiencies in both legal implementation and institutional support. The second hypothesis, "*Judicial interventions have significantly shaped and strengthened environmental crime enforcement in India*," is also satisfied, as landmark cases and the proactive role of courts have provided interpretative clarity and upheld environmental rights, even in the face of administrative inertia. Thus, this study confirms that while the judiciary has played a constructive role, broader systemic reforms are essential to establish a credible and effective environmental crime enforcement regime in India.

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