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Prasanna S,

Chairman of Institute of Legal Education

No. 08, Arul Nagar, Seera Thoppu,

Maudhanda Kurichi, Srirangam,

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Phone : +91 73059 14348 – info@iledu.in / Chairman@iledu.in



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“CLIMATE CHANGE AS ENVIRONMENTAL CRIME: NEED FOR CRIMINAL LAW RESPONSE”

AUTHOR – SUPRIYA KUMARI, LL.M STUDENT AT AMITY UNIVERSITY, PATNA

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Abstract

Climate change is usually discussed as a policy failure, a market failure or a civil liability issue. This article argues that the scale, foreseeability and unequal distribution of climate harm also justify a carefully designed criminal law response. The purpose is not to criminalise every emitter, ordinary energy use or development activity, but to address knowing, reckless and profit-driven conduct that creates severe, widespread or long-term climate-related environmental harm. Drawing on current scientific data, India-specific greenhouse gas information, climate litigation trends and emerging international criminal law debates on ecocide and environmental crimes, the article explains why criminal law should become part of a broader climate governance framework. It proposes a graded model that combines corporate criminal liability, individual responsibility of decision-makers, climate-related fraud offences, mandatory disclosure duties, sentencing principles, restorative remedies and protection against over-criminalisation. The argument is that climate criminality must be attached to culpable conduct, not mere contribution to emissions, and must be supported by science-based attribution, due process and proportionality.

Keywords – Climate change; environmental crime; ecocide; corporate criminal liability; greenhouse gas emissions; criminal law; India; climate justice; environmental governance.

1. Introduction

Climate change has crossed the boundary between ordinary environmental degradation and systemic harm to life, health, food security, water security, biodiversity and public order. Traditional environmental law has usually relied on administrative permits, civil compensation and regulatory penalties. These tools remain necessary, but they appear insufficient where powerful public or private actors knowingly continue high-emission, misleading or destructive practices despite clear scientific warnings. The central question is therefore whether climate change, in its most serious and culpable forms, should be treated as environmental crime and whether criminal law must respond to it.

The answer requires caution. Climate change is not caused by one incident or one offender in the same way as illegal dumping or poisoning a river. It is cumulative, transboundary and historically unequal. Many emissions are lawful under present regulatory systems. For this reason, a simplistic criminalisation of emissions would be legally unfair and practically impossible. Yet climate harm is also foreseeable, measurable and increasingly attributable. When corporations, officials or organised actors conceal emissions, falsify climate disclosures, violate environmental clearances, destroy carbon sinks, expand highly polluting activities in defiance of binding duties, or knowingly expose vulnerable communities to severe harm, criminal law has a legitimate role. The criminal law response must target

culpability: knowledge, recklessness, deception, wilful regulatory breach and serious harm.

1. Scientific and factual basis for treating climate harm seriously

The scientific basis for urgent legal action is now exceptionally strong. The Intergovernmental Panel on Climate Change (IPCC) states that human activities, principally greenhouse gas emissions, have unequivocally caused global warming and that global surface temperature reached about 1.1°C above the 1850-1900 level in 2011-2020. The World Meteorological Organization reported that 2024 was the warmest year in the 175-year observational record, with global mean near-surface temperature about

1.55°C above the pre-industrial baseline. The Global Carbon Project projected fossil CO2

emissions at about 38.1 billion tonnes in 2025, a record high. UNEP’s Emissions Gap Report 2025 warned that even with full implementation of nationally determined contributions, warming this century is still projected around 2.3-2.5°C.

These figures show that climate change is not speculative. It is a present and worsening condition. The legal significance is that foreseeability, causation and risk are becoming more provable. Criminal law often acts where conduct creates a serious risk, not only where direct injury has already occurred. In public safety, food adulteration, industrial disasters and pollution offences, criminal liability may arise from reckless risk creation. Climate-damaging conduct can be analysed similarly when actors have clear knowledge of risk and capacity to prevent or reduce harm.

Table 1: Key climate data relevant to criminal-law analysis

Indicator	Recent data point	Legal relevance	Source
Global warming baseline	1.1°C above 1850-1900 in 2011-2020	Supports foreseeability of climate harm	IPCC AR6 Synthesis Report
Warmest year	2024: 1.55 ± 0.13°C above 1850-1900	Shows climate harm is current, not remote	WMO State of Global Climate 2024
Fossil CO2 emissions	2025 projected fossil CO2 emissions: 38.1 GtCO2	Shows continued high-emission trajectory	Global Carbon Project 2025
Projected warming under NDCs	2.3-2.5°C if all NDCs are fully implemented	Shows gap between legal promises and actual safety	UNEP Emissions Gap Report 2025
India emissions	2020 gross emissions excluding LULUCF: 2,959 MtCO2e; net including LULUCF: 2,437 MtCO2e	Useful for national policy and enforcement context	India BUR-4 / PIB

Source: Compiled from IPCC AR6, WMO State of the Global Climate 2024, Global Carbon Budget 2025, UNEP Emissions Gap Report 2025 and India’s Fourth Biennial Update Report/PIB release.

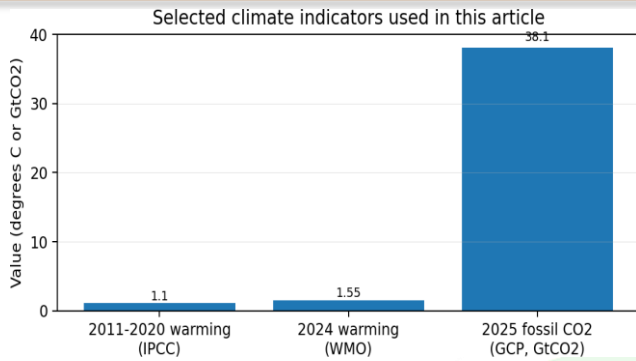


Figure 1: Selected climate indicators used in the article. Source: IPCC, WMO and Global Carbon Project data points compiled by the author.

2. Why climate change can be understood as environmental crime

Environmental crime traditionally covers illegal pollution, illegal mining, forest offences, wildlife trafficking, hazardous waste dumping and violations of environmental approvals. Climate change differs in scale but not in moral logic. It involves serious harm to common ecological systems and vulnerable people, often driven by profit and enabled by weak enforcement. The criminal character becomes clearer in four categories. First, there is direct illegality: unauthorised deforestation, illegal coal mining, illegal flaring, false compliance reporting and violation of emission norms. Second, there is deception: greenwashing, concealment of climate risk, manipulation of carbon credits and false environmental, social and governance claims. Third, there is reckless endangerment: continuing dangerous activities after clear warnings, without mitigation or disclosure. Fourth, there is governance corruption: collusion in approvals, suppression of impact assessments and deliberate weakening of safeguards.

The concept of climate change as environmental crime therefore should not mean that every tonne of CO₂ is a crime. It should mean that criminal law recognises grave climate-related harm where conduct is unlawful, fraudulent, reckless or intentionally destructive. This distinction protects ordinary citizens and legitimate development while focusing on powerful actors with knowledge,

control and capacity to prevent harm.

3. Existing legal movement: litigation, ecocide and international criminal law The global legal landscape is moving toward stronger accountability. UNEP's climate litigation reports show that courts are increasingly being used to challenge inadequate climate action, corporate greenwashing and failure to protect constitutional or human rights. Although most climate cases are civil, constitutional or administrative, they are changing the vocabulary of responsibility. Courts are beginning to consider emissions pathways, climate risk disclosure, corporate duties and intergenerational equity.

International criminal law is also evolving. The Rome Statute of the International Criminal Court currently recognises genocide, crimes against humanity, war crimes and aggression; environmental destruction is expressly mentioned in the war-crimes context, but peacetime environmental destruction is not yet a standalone international crime. In 2024, Pacific island states including Vanuatu, Fiji and Samoa supported the formal proposal to recognise ecocide as an international crime. The ICC Office of the Prosecutor also released a draft policy on environmental crimes in 2024, signalling increased attention to environmental harm connected with existing Rome Statute crimes. These developments do not yet create a complete climate-crime framework, but they show a powerful shift: environmental destruction is no longer treated as a secondary issue.

4. India-specific relevance

India faces a dual challenge. It is a developing country with legitimate energy, poverty-reduction and infrastructure needs, while also being highly vulnerable to heat waves, floods, cyclones, glacial risks, water stress and agricultural disruption. India's Fourth Biennial Update Report showed that total greenhouse gas emissions decreased by 7.93% in 2020

compared with 2019, largely influenced by pandemic-year conditions, while gross emissions excluding land use, land-use change and forestry were about 2,959 million tonnes of CO₂ equivalent and net emissions including LULUCF were about 2,437 million tonnes of CO₂ equivalent. This data should not be used to criminalise development; rather, it highlights the need for credible monitoring, transparent reporting and targeted enforcement against unlawful or reckless conduct.

Indian environmental criminal law already contains useful foundations. The Environment (Protection) Act, 1986, the Air (Prevention and Control of Pollution) Act, 1981, the Water (Prevention and Control of Pollution) Act, 1974, the Forest (Conservation) Act and the Wildlife (Protection) Act provide criminal penalties for several environmental violations. The Bharatiya Nyaya Sanhita also contains offences relating to public nuisance and negligent conduct endangering life. However, existing laws were not designed around climate attribution, corporate climate deception or long-term greenhouse gas harm. Penalties are often low, prosecutions are slow, and liability frequently remains at the level of local managers rather than decision-makers who design high-risk strategies. India therefore needs a climate-sensitive criminal law response without undermining equity and development.

5. Elements of a principled criminal law response

A sound criminal-law response should be based

on five principles. First, seriousness: criminal liability should be reserved for conduct causing or risking severe, widespread or long-term climate-related environmental harm. Second, culpability: liability should require intention, knowledge, wilful blindness, recklessness or serious negligence, not accidental or unavoidable emissions. Third, legality: offences must be clearly defined so that individuals and companies know what conduct is prohibited. Fourth, proportionality: sanctions should match the degree of harm, culpability and capacity to prevent harm. Fifth, justice: enforcement should not target poor communities, informal workers or ordinary consumers while ignoring powerful polluters.

The offence design may include three levels. Level one can cover climate-related fraud and false reporting, including manipulation of emission data, fake carbon credits and greenwashing that misleads regulators, investors or consumers. Level two can cover serious breach of binding emission, forest, waste or environmental-clearance duties where the breach contributes to substantial climate or ecological harm. Level three can cover aggravated climate endangerment: knowing or reckless conduct by corporate or public decision-makers that creates a substantial likelihood of severe, widespread or long-term harm, especially where vulnerable communities are exposed. Such offences must require strong scientific and evidentiary standards.

Table 2: Proposed criminal-law framework for climate-related environmental harm

Area of offence	Typical conduct	Required mental element	Suggested legal response
Climate fraud and greenwashing	False net-zero claims, fake offsets, concealed emission data	Knowledge or recklessness	Fine, disgorgement, correction orders, director liability

Serious regulatory breach	Violation of emission limits, illegal deforestation, breach of clearance conditions	Wilful breach or gross negligence	Criminal prosecution, restoration order, suspension of licence
Aggravated climate endangerment	Continuing high-risk activity despite clear warnings and available alternatives	Knowledge, wilful blindness or recklessness	Higher penalties, personal liability for decision-makers, victim compensation
Public-official misconduct	Corrupt approvals, suppression of impact assessments, non-enforcement for illegal polluters	Intentional abuse of office or corrupt negligence	Anti-corruption prosecution and environmental sentencing
Carbon-market crime	Double-counting credits, forged verification, fraudulent carbon trading	Knowledge or dishonesty	Fraud charges, market ban, confiscation of proceeds

6. Evidence, causation and attribution

The strongest objection to climate criminal law is causation. Because climate change is cumulative, it may be difficult to prove that one accused caused one specific flood, heatwave or death. This objection is serious but not fatal. Criminal law already deals with complex causation in toxic exposure, industrial disaster, food safety and public endangerment cases. Liability can be framed around contribution to unlawful risk, deception, regulatory breach and failure to prevent foreseeable harm, rather than requiring proof that one actor alone caused the whole climate crisis.

Attribution science is improving. Courts and investigators can rely on emission inventories, satellite data, corporate records, lifecycle assessment, climate attribution studies, internal documents and expert evidence. A lower threshold may be appropriate for offences

based on fraud or breach of duty, while aggravated endangerment should require stronger proof of substantial contribution and foreseeability. The law must also preserve due process: accused persons must be able to challenge models, assumptions and expert testimony.

7. Corporate and individual liability

Climate criminal law must address corporate structures. Many environmentally harmful decisions are made through boards, subsidiaries, contractors and supply chains. If liability attaches only to the immediate site operator, senior decision-makers may escape accountability. A modern framework should allow prosecution of companies where the offence is committed through corporate policy, organisational culture or failure of supervision. It should also permit individual liability of directors, officers and public officials where they

authorised, ignored or benefited from serious climate-related wrongdoing. Sanctions should go beyond imprisonment and fines. Courts should be empowered to order restoration of ecosystems, climate adaptation funds for affected communities, disgorgement of illegal profits, mandatory transition plans, independent environmental audits, community service obligations, public correction of misleading statements and temporary disqualification of responsible officers. Criminal law should thus become restorative and preventive, not merely punitive.

8. Risks of over-criminalisation

A climate-crime framework can itself become unjust if drafted poorly. It may be misused against protesters, tribal communities, small farmers, informal workers or low-income households rather than against large-scale culpable actors. It may also create uncertainty for industries genuinely trying to transition. Therefore, safeguards are essential. Offences must exclude ordinary consumption and good-faith compliance efforts. Liability should consider available technology, economic capacity, regulatory clarity, historical responsibility and the actor's actual control over emissions. Prosecutorial guidelines should prioritise large-scale, knowing and harmful conduct. Independent scientific panels may assist prosecutors before charges are filed in complex climate cases.

9. Recommendations

First, India should introduce climate-sensitive amendments to environmental legislation, defining aggravated environmental harm to include severe climate-related risk where conduct is unlawful, reckless or fraudulent. Second, corporate climate disclosure fraud should be treated as a serious economic and environmental offence. Third, environmental impact assessment and clearance violations should carry stronger criminal consequences where they destroy carbon sinks or expose communities to climate hazards. Fourth, a

specialised environmental prosecution wing should be created with scientific, financial and forensic expertise. Fifth, sentencing guidelines should include restoration, compensation and transition duties. Sixth, India should support international dialogue on ecocide while ensuring that any global definition respects equity, common but differentiated responsibilities and development needs. Seventh, climate criminal law should be integrated with civil liability, administrative regulation, carbon markets, disaster law and human rights protection.

10. Conclusion

Climate change is not only a scientific emergency; it is also a justice problem. The present legal system often treats climate harm as diffuse, accidental and politically negotiable. But the data show that warming is already severe, emissions remain high and vulnerable communities carry disproportionate burdens. Criminal law cannot solve climate change alone, and it should not be used indiscriminately. However, where actors knowingly deceive, unlawfully pollute, destroy carbon sinks, manipulate climate markets or recklessly endanger communities, criminal accountability is justified. A carefully designed criminal law response can strengthen deterrence, expose wrongdoing, protect victims and signal that severe climate harm is not merely a cost of doing business. The future of environmental law lies in combining science, equity and accountability. Climate change as environmental crime must therefore be addressed through a principled, proportionate and evidence-based criminal law framework.

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