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Environmental Degradation and Legal Accountability: Strengthening India's Response to Pollution and Climate Crisis

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I. INTRODUCTION

One of the most important concerns of the 21st century is the decline of the environment. This puts ecological stability, public health, economic growth and fairness between generations at danger.[1] India's cities, industry and population are all growing swiftly. This means that the government needs to deal with two environmental problems: pollution that is getting worse and climate change that is happening faster.[2] The air quality in many big Indian cities is among the worst in the world. Sewage and industrial waste that hasn't been handled pollute water bodies, forest cover is decreasing, biodiversity is always under stress and greenhouse gas emissions keep going up.[3]

Even though this trend is scary, India has strong laws and policies in place to preserve the environment. Over the years, Parliament and the courts have made a lot of environmental laws and case law based on the ideas of "polluter pays," "sustainable development" and the "precautionary approach."[4] The Supreme Court has been very involved in defining environmental governance. It has done this by interpreting Article 21 to include the right to a clean and healthy environment and by making it easier for people to get justice through public interest lawsuits.[5] But these laws haven't led to consistent, effective execution. Environmental authorities have a hard time enforcing the law since they don't have enough staff, money or monitoring capacity and their tasks overlap.[6] Industrial non-compliance is still a big problem, local governments have a hard time dealing with garbage and environmental impact assessments are often questioned because they don't follow the right procedures.[7] Judicial activism has filled many gaps, but it can't take the place of good administrative work.[8] For India to really fight pollution and fix the climate problem, it needs to connect legal accountability with changes in government, new technologies, and proactive action.[9]

II. ENVIRONMENTAL DEGRADATION: A CONCEPTUAL OVERVIEW

Environmental degradation is the decline of the natural environment caused by both human and natural processes that upset the balance of ecosystems and make it harder for the Earth to support life.[10] The phrase now includes many aspects, such as climate, ecology, economy, and society and culture. This shows how human growth and environmental stability depend on each other.[11] The United Nations Environment Programme

[1] Ministry of Environment, Forest and Climate Change (MoEFCC), *State of Environment Report 2024*, Government of India, 2024.
[2] World Bank, *India: Air and Climate Change Overview*, 2023.
[3] WHO, *Global Air Quality Report 2023*.
[4] P. Leelakrishnan, *Environmental Law in India*, 3rd edn, LexisNexis, 2022.
[5] M.C. Mehta v. Union of India, (1987) 1 SCC 395.
[6] Central Pollution Control Board (CPCB), *Annual Report 2024*, Government of India.
[7] K. Chopra, *Environmental Governance and Policy Implementation in India*, Journal of Environmental Law, 2021, 33(2) 45.
[8] A. Khanna, *Judicial Activism and Environmental Protection in India*, Indian Journal of Public Law, 2020, 12(1) 23.
[9] R. Singh, *Sustainable Development and Legal Accountability in India*, Environmental Policy Review, 2022, 14(3) 67.
[10] R. K. Pachauri & L. A. Meyer, *Climate Change 2014: Synthesis Report* (IPCC, 2014) 2.
[11] S. Agarwal, *Environmental Issues in India* (Oxford University Press, 2018) 15.

(UNEP) defines environmental degradation as the "deterioration of the environment through depletion of resources, destruction of ecosystems, extinction of wildlife, and pollution," which means that both the quality and quantity of natural assets are lost.[12]

The National Green Tribunal (NGT) and the Supreme Court of India have said many times that harming the environment is a violation of Article 21, which protects the right to life, which includes the right to clean water, clean air, and a healthy environment.[13] The Supreme Court said in M.C. Mehta v. Union of India that protecting the environment is both a constitutional duty and a moral duty.[14] International environmental law, especially the Stockholm Declaration, 1972; the Rio Declaration, 1992 and the Paris Agreement, 2015 also sees environmental deterioration as a global problem that needs coordinated responses from all countries.

Early environmental study saw environmental deterioration as a side effect of industrialization. Now, research sees it as a major developmental problem that threatens the very existence of humanity.[15] There are several signs of environmental degradation, including deforestation, desertification, poor water quality, loss of biodiversity, higher greenhouse gas emissions, climate change, contamination of marine ecosystems, soil toxicity and unplanned urban growth.[16] These signs show that environmental deterioration is not just a problem in one area, but a crisis that affects public health, human rights, economic productivity, and geopolitical stability.[17]

III. DIMENSIONS AND INDICATORS OF ENVIRONMENTAL DEGRADATION

We can only fully understand environmental degradation by looking at its many signs at different levels. Every indication shows how bad and how widespread the damage to the environment is, which helps politicians come up with specific ways to fix it.

1. Deforestation and Biodiversity Loss: Deforestation is still one of the worst things that can happen to the ecosystem. The FAO's Global Forest Resources Assessment says that the globe loses about 10 million hectares of forest per year.[18] The Forest Survey of India (FSI) has done satellite-based studies in India that show that infrastructure projects, illegal mining, shifting cultivation, fires and population growth are putting a lot of stress on forest cover in ecologically sensitive areas like the Western Ghats and the Himalayas.[19] Habitat fragmentation, species extinction, and the destruction of wildlife corridors all speed up the loss of biodiversity.[20]
2. Pollution and Toxicity: Pollution of the air, water, soil, and noise is the most obvious sign of environmental damage. According to WHO Global Air Quality Reports, India has some of the worst air quality in the world.[21] Industrial waste, sewage, agrochemicals and solid waste dumping are all major sources of pollution in water bodies including the Ganga, Yamuna and Godavari.[22] Unregulated use of pesticides, heavy metals and untreated industrial effluent can make soil dirty. Noise pollution, which isn't talked about as often, has an effect on mental health, cognitive health, and the behavior of animals.[23]
3. Climate Change Impacts: Climate change is both a cause and a speed-up of environmental damage. The Intergovernmental Panel on Climate Change (IPCC) says that human actions, mainly burning fossil fuels, farming in ways that aren't sustainable and changing how land is used, are the main causes of global warming.[24] India is dealing with rising

[12] United Nations Environment Programme, *Global Environmental Outlook* (UNEP, 2019) 43.
[13] *MC Mehta v. Union of India*, (1987) 1 SCC 395; National Green Tribunal Act, 2010, ss 14–15.
[14] *MC Mehta v. Union of India* (n 4) 404–405.
[15] K. R. Smith, "Environmental Degradation and Development" (2017) 12 *J Environ Law* 89.
[16] FAO, *Global Forest Resources Assessment* (2020) 20; World Bank, *World Development Report: Environment* (2021) 34.
[17] P. Dasgupta, *The Economics of Biodiversity: The Dasgupta Review* (HM Treasury, 2021) 51–52.
[18] UN Food and Agriculture Organization, *State of the World's Forests* (FAO 2022).
[19] Government of India, *National Forest Policy* (1988).
[20] Convention on Biological Diversity, 1992.
[21] Air (Prevention and Control of Pollution) Act, 1981.
[22] Water (Prevention and Control of Pollution) Act, 1974.
[23] Environment (Protection) Act, 1986.
[24] UNFCCC, *Paris Agreement* (2015).

temperatures, more frequent heat waves, unpredictable rainfall, melting glaciers, rising sea levels and catastrophic weather events like floods and cyclones. These changes put food security, farming, access to water, stable electricity and living on the shore at risk.[25]

4. Overuse of Natural Resources: For the environment to stay stable, resources must be used in a way that doesn't harm them. But taking too much groundwater, extracting too much sand, overfishing, and running out of fossil fuel reserves have all put stress on ecosystems. India is one of the biggest users of groundwater in the world. States like Punjab, Haryana, Rajasthan, and Tamil Nadu have seen their water tables drop dramatically.[26] When resources are used too much, deserts form, ecosystems become unbalanced, and conventional ways of making a living fail.[27]
5. Urbanization and Industrialization: Rapid urbanization is a sign of economic growth, but it also does a lot of damage to the environment. Unplanned growth of cities leads to the loss of green space, stress on drainage systems, the heat-island effect, and the buildup of municipal solid waste. Industrialization makes pollution worse, creates more hazardous waste, and pollutes land and water habitats. Cities like Mumbai, Chennai, and Bengaluru have had urban floods that show what happens when ecological planning is ignored.[28]

IV. CAUSES OF ENVIRONMENTAL DEGRADATION

Environmental degradation is caused by a complicated mix of human actions, government failings, and, to a lesser extent, natural events. In the twenty-first century, patterns of development that aren't sustainable, a growing population, industrial growth, and weak regulatory institutions have all made the environment worse. Natural calamities like earthquakes and volcanic eruptions can hurt the ecosystem, but their effects are short-lived. In contrast, human-caused pressures are constant, pervasive, and much more harmful. Stress from a growing population, industrialization, urbanization, more intensive farming, reliance on fossil fuels, and flaws in governance are the main culprits.[29]

1. Population Growth, Overconsumption, and Resource Pressure: Rapid population increase puts a lot of stress on land, water, forests, and energy supplies. Countries like India have a higher need for food, housing, transportation, and consumer goods, which makes the gap between how much resources are used and how much the Earth can regenerate wider.[30] Overconsumption in cities, especially by people with high incomes, is a big cause of waste, carbon emissions, and ecological footprints. More people living in the same area also speeds up changes in land use, the conversion of forests, and rising levels of pollution.[31]
2. Industrialisation and Unregulated Economic Expansion: Industrialization is still a major cause of environmental damage since it causes pollution, hazardous waste, and heavy resource extraction. Industries like textiles, chemicals, mining, petrochemicals, leather, steel, and thermal power send dangerous waste and emissions into the air, soil, and water.[32] After liberalization, industrial growth in India has often outpaced environmental protections. Major industrial clusters are still affected by not following effluent treatment rules, air pollution control devices that don't work, and waste disposal systems that aren't good enough. Industrial pollution gets worse because of weak monitoring, corruption, and not enough enforcement power.[33]
3. Urbanisation, Infrastructure Stress, and Waste Mismanagement: Environmental deterioration is greatly caused by rapid and unregulated urbanization. Cities are facing more and more problems, such building on wetlands, building without planning, not having enough sewage systems and infrastructure that is too busy.[34] A lot of municipal solid trash is still not separated and is dumped in open landfills, which pollutes

[25] IPCC, *Climate Change Impacts and Adaptation Report* (2022).
[26] NITI Aayog, *Composite Water Management Index* (2021).
[27] UNCCD, *India Drought Report* (2022).
[28] Ministry of Housing and Urban Affairs, *National Urban Policy Framework* (2018).
[29] UNEP, *Annual Environmental Outlook*, 2022.
[30] UNFPA, *World Population Report*, 2023.
[31] IPBES, *Global Assessment Report on Biodiversity*, 2019.
[32] CPCB (India), *Industrial Pollution Status Report*, 2021.
[33] MoEFCC, *State of India's Environment Report*, 2022.
[34] UN-Habitat, *World Cities Report*, 2020.

the environment and groundwater. Because of changes in how people live and how much technology they use, there is more biomedical waste, plastic pollution and electronic waste. Untreated sewage and industrial waste pollute cities' rivers and other bodies of water, which causes serious damage to the environment.[35]

4. Unsustainable Agricultural Practices and Land-Use Change: Agriculture is necessary for making a living, but it may be bad for the environment if done in an unsustainable way. Heavy use of artificial fertilizers, too much reliance on pesticides, planting the same crop over and over and taking water from the earth have all made the soil and water tables much less fertile.[36] Groundwater depletion is a big problem in places like Punjab, Haryana, Rajasthan and Uttar Pradesh. Biodiversity loss, desertification and ecosystem fragmentation are all caused by cutting down trees to make room for farming, moving farming to different areas, and bad land management. Climate change makes farming even more dangerous by causing droughts, floods, crop failures, and pest outbreaks.[37]
5. Fossil-Fuel Dependence and Rising Energy Demands: One of the biggest causes of environmental damage is that the world still relies on coal, oil, and natural gas. Thermal power plants, car emissions, and industrial fuel use all give off a lot of particulate matter, sulfur dioxide, nitrogen oxides, and carbon dioxide.[38] Many coal-fired power stations don't have the pollution-control systems they need. Even while we are making strides toward renewable energy, the change is still sluggish. Relying on fossil fuels makes air pollution worse, speeds up climate change, raises sea levels, and messes up rainfall patterns.[39]
6. Vehicular Emissions and Transportation Challenges: The rapid rise in private cars, poor public transportation, and bad traffic management have made pollution from cars a big problem for the environment in cities. Cities like Delhi, Mumbai, Bengaluru, and Kolkata have very bad air quality because they release a lot of NOx, CO, SO_2 and particulate matter. Policies like BS-VI fuel requirements and encouraging electric mobility are good steps ahead, but they are not always followed, and people are sluggish to accept them.[40]
7. Weak Environmental Governance, Policy Gaps, and Corruption: Implementation is still weak, even though there are strong environmental laws as the Water Act (1974), the Air Act (1981), the Environment Protection Act (1986) and the Biodiversity Act (2002).[41] Pollution Control Boards don't have enough staff, their labs are out of date, and politics gets in the way. Reports that are not very good, not enough community input, and wrong data are common problems in Environmental Impact Assessment (EIA) processes. Illegal mining, smuggling timber, invading forest lands and not enforcing the law properly all make things worse. Conflicting national interests, not enough money and broken international promises make climate governance weaker around the world.[42]
8. Technological Waste and Emerging Environmental Threats: New environmental dangers have come up because of the growth of modern technology, especially electronic trash. Every year, millions of tons of e-waste are made, and a lot of it gets recycled informally in risky ways.[43] Lead, mercury and cadmium are some of the toxic chemicals that get into the soil and water. Plastic, microplastics and biomedical waste have also become serious pollutants, especially in areas with a lot of people.[44]
9. Natural Factors (Limited but Relevant): Even while most of the damage is caused by people, natural disasters like earthquakes, floods, volcanic eruptions and tsunamis can also hurt ecosystems. But these effects are usually short-lived and limited to a small area, while the

[35] CPCB, *Status of Sewage Treatment in India*, 2021.
[36] FAO, *Global Soil Degradation Report*, 2020.
[37] IPCC, *Climate Change and Land Report*, 2019.
[38] IEA, *World Energy Outlook*, 2022.
[39] IPCC, *Sixth Assessment Report*, 2021.
[40] MoRTH, *Vehicular Emission Trends in India*, 2022.
[41] Government of India, *Compendium of Environmental Laws*, 2023.
[42] UNEP, *Global Environmental Governance Review*, 2021.
[43] Global E-Waste Monitor, 2020.
[44] WHO, *Health Risks of Plastic and Biomedical Waste*, 2022.

effects of human-caused pollution are long-lasting and broad.[45]

Impact of Environmental Degradation on India

Environmental degradation in India has far-reaching effects on ecosystems, human health, economic productivity and social stability. Pollution, climate change and resource depletion have come together to make a crisis that hurts sustainable development and Article 21's promises of life and dignity.[46] India is a big country with a lot of different types of ecosystems, so different parts of the country face different environmental challenges. For example, the glaciers in the Himalayas are melting in the north, there isn't enough water in the western states, the sea level is rising along the coasts, and the air quality is getting worse in large cities. The combined effects now present existential threats that necessitate immediate legal and policy responses.

1. Public Health Crisis: Environmental damage has become one of the main reasons for early death and sickness in India. The Lancet Commission on Pollution and Health[47] says that India has one of the worst rates of pollution-related mortality in the world. Air pollution alone causes millions of premature lives per year. Particulate matter (PM2.5 and PM10), hazardous emissions from factories, and pollution from cars have all caused a lot of respiratory illnesses, heart problems, and developmental issues in kids. Arsenic, fluoride, industrial waste, and untreated sewage have polluted groundwater in many states, including West Bengal, Bihar, Punjab and Andhra Pradesh.[48] This has caused long-term health problems. The effect on public health not only raises medical costs but also lowers worker productivity, which in turn slows down the growth of the economy.[49]
2. Climate Change and Extreme Weather Events: The destruction of the environment has a big effect on India's climatic system. Extreme weather phenomena like record-breaking heat waves, unpredictable monsoons, droughts, floods and cyclones have gotten worse because of rising greenhouse gas emissions.[50] The IPCC says that the Indian subcontinent is one of the places in the world that is most at risk from climate change.[51] Under the past several years, Kerala (2018), Uttarakhand (2021) and Assam (every year) have all seen terrible floods. At the same time, Maharashtra, Karnataka and Rajasthan have all been under severe drought. The glaciers in the Himalayas, which feed the Ganga, Yamuna, and Brahmaputra rivers, are melting quickly. The ensuing imbalance in the water cycle puts water security, farming, and hydropower projects at risk. In addition to saline intrusion and population displacement, rising sea levels are a growing hazard to coastal areas like Mumbai, Chennai, and Kolkata.
3. Biodiversity Loss and Ecosystem Fragility: India possesses around 8% of the world's biodiversity, but environmental damage has put this natural treasure under a lot of stress.[52] Many species and ecosystems are at danger because of deforestation, habitat fragmentation, poaching, the illegal wildlife trade and climate change.[53] The Living Planet Report says that wildlife numbers around the world are dropping a lot. India is seeing the same thing happen with mammals, birds, amphibians, and marine species. The loss of forest cover, especially in the Western Ghats, Northeast India, and the Himalayan area, has hurt ecosystem services like storing carbon, stabilizing soil, and recharging water. Mangroves in the Sundarbans and Gulf of Kutch are quickly disappearing because of industrial growth and rising sea levels. This makes natural barriers against storms and coastal erosion weaker.[54] The waters are getting warmer, which is also causing coral reefs in the Andaman and Nicobar Islands to lose color.

[45] NASA Earth Observatory, *Natural Hazards Overview*, 2020.
[46] M.C. Mehta v. Union of India, AIR 1987 SC 1086.
[47] Landrigan PJ et al., *The Lancet Commission on Pollution and Health*, Lancet 2018;391:462–512.
[48] Central Ground Water Board (CGWB), *Groundwater Yearbook – India 2022*.
[49] World Health Organization, *Ambient Air Pollution: Health Impacts*, WHO, 2018.
[50] Ministry of Environment, Forest and Climate Change (MoEFCC), *State of Environment Report 2021*, Government of India.
[51] IPCC, *Sixth Assessment Report*, 2021.
[52] Forest Survey of India, *India State of Forest Report 2021*.
[53] WWF, *Living Planet Report 2022*.
[54] National Centre for Coastal Research (NCCR), *Mangrove Status Report 2020*.

4. Water Scarcity and Contamination: India is in the middle of one of the worst water crises in the world.[55] In areas like Punjab, Haryana, and Uttar Pradesh, aquifer levels are dropping because too much groundwater is being used for farming and city use. Rivers including the Ganga, Yamuna, Godavari, and Sabarmati are still quite dirty because of sewage, industrial garbage, and plastic that hasn't been cleaned up. The Central Pollution Control Board (CPCB) says that some parts of these rivers are "critically polluted zones."[56] People in rural areas that rely on rivers and ponds for drinking water and irrigation are at greater risk of getting sick and their farms are less productive. In cities, polluted water has caused disease outbreaks, such as cholera, diarrhea, and typhoid, to happen from time to time. Climate change makes water stress worse by changing the way rain falls and lowering the amount of meltwater from glaciers.
5. Socio-Economic and Developmental Impacts: Environmental degradation greatly slows down socio-economic growth. Soil degradation, water scarcity, and changes in the weather all make farming less productive.[57] This has a direct effect on the lives of people living in rural areas, making them poorer and compelling them to move. Rising temperatures, flooding and bad waste management are putting a lot of stress on urban infrastructure. Climate events that interrupt businesses can cost money, and the World Bank says that by 2050, India might lose up to 2.8% of its GDP every year because of climate-related effects.[58] Social inequalities also get worse because climate hazards hit marginalized groups like tribal people, coastal communities and people who live in slums worse than other groups. Environmental injustice is clear when the most vulnerable people are the least equipped to adapt and are the most affected by ecological loss.[59]

Legal Framework Governing Environmental Protection: National and Global Aspects

India's environmental protection is based on a strong legal system that includes constitutional requirements, legislative rules, judicial innovations, and international obligations. Over the years, India's environmental governance has changed because of both its own laws and international environmental standards. These frameworks work together to stop environmental damage, encourage sustainable growth, and protect human rights that are linked to environmental health.

A. India's National Legal Framework for Environmental Protection

India has one of the most complex systems for regulating the environment in its own country. It is based on constitutional rules, a large number of laws, judicial principles, and specialized institutions that work together to protect the environment and promote long-term growth.

1. Constitutional Foundations: The 42nd Constitutional Amendment (1976) set the stage for India's environmental ideology. The State is required by Article 48A to safeguard and improve the environment. Article 51A(g) further says that citizens have a duty to safeguard natural resources and be kind to living things. Even while Directive Principles and Fundamental Duties can't be enforced by the courts, they have had a big impact on statutory law and how the courts interpret it. Article 21 (Right to Life) has been read by the Supreme Court to mean the right to live in a clean and healthy environment. Landmark cases like Subhash Kumar v. State of Bihar[60] and MC Mehta v. Union of India[61] show that protecting the environment is a constitutional part of the right to life and dignity.
2. Statutory Framework and Regulatory Legislation: India's environmental regime is supported by sector-specific and umbrella legislations:
   - The Water (Prevention and regulate of Pollution) Act, 1974: Sets up Central and State Pollution Control Boards to stop and regulate water pollution.

[55] NITI Aayog, *Composite Water Management Index*, 2021.
[56] Central Pollution Control Board, *Water Quality Status of Indian Rivers 2021*.
[57] FAO, *Impact of Environmental Degradation on Agriculture*, 2020.
[58] World Bank, *South Asia's Climate & Economic Risk Assessment*, 2021.
[59] UNDP, *Human Development Report 2020 – India*, 2020.
[60] (1991) 1 SCC 598.
[61] (1987) 1 SCC 395.

- ❖ The Air (Prevention and Control of Pollution) Act, 1981: Controls the emissions from vehicles and factories.
- ❖ The Environment (Protection) Act, 1986 (EPA): Enacted after the Bhopal Gas Tragedy. It gives the central government the power to control every part of protecting the environment. It is the main law that sets guidelines for:
  - Hazardous Waste
  - Bio-Medical Waste
  - Plastic Waste
  - E-waste
  - Noise Contamination
- ❖ Forest Conservation Act, 1980: Restricts deforestation and diversion of forest land.
- ❖ Wildlife Protection Act, 1972: Sets up protected areas and protects animals.
- ❖ Biological Diversity Act, 2002: Makes sure that domestic law is in line with the Convention on Biological Diversity. This helps protect biodiversity and make sure that everyone gets a fair share of the benefits.

These laws make a strong but frequently poorly enforced network of legislation.

3. Judicial Principles and Expansion of Environmental Jurisprudence: The Indian judiciary has played a key role in defining how the environment is governed, especially through Public Interest Litigation (PIL). Indian courts have added important international principles to Indian law, such as:

- ❖ Polluter Pays Principle: It was used in the case of Vellore Citizens' Welfare Forum v. Union of India[62].
- ❖ Precautionary Principle: Taking steps to avoid harm even when the science isn't completely clear.[63]
- ❖ Public Trust Doctrine: It says that the state is a trustee of natural resources (M.C. Mehta v. Kamal Nath[64]).
- ❖ Inter-generational Equity—Safeguarding resources for succeeding generations[65].

Judicial activism has filled in the holes left by the government, giving people more rights and ways to get help for environmental problems.

4. Human Rights Aspects of Environment Protection: People in India now see environmental degradation as a violation of human rights.

   The courts have said that Article 21 means that having access to clean air, drinking water, and a healthy environment is necessary for living with dignity. The Oleum Gas Leak Case[66] established the principle of absolute accountability for hazardous companies, enhancing safeguards for impacted populations. When Indian laws aren't enough, the courts often use international environmental principles instead. This makes environmental protection even more constitutional.

5. Environmental Institutions and Ways to Enforce Them: The Ministry of Environment, Forests, and Climate Change (MoEFCC) develops national policy and makes sure that other countries follow it. Pollution Control Boards (CPCB and SPCBs) keep an eye on pollution, give permission, and make sure people follow the rules. The National Green Tribunal (NGT) makes ensuring that environmental issues are settled quickly and in a way that is appropriate for each case.

   Even with these organizations, problems including insufficient enforcement, scientific limitations, bureaucratic slowness and a clash between development goals and environmental protections still exist.

B. International Legal Framework and India's Global Obligations

International treaties, worldwide conferences and multilateral environmental agreements (MEAs) have had a big impact on how India manages the environment. These frameworks affect plans for climate action, regulations in the US and court decisions.

1. Stockholm Conference, 1972: Beginning of Global Environmental Consciousness- The Stockholm Declaration acknowledged the inherent right to a healthy environment and advocated for the incorporation of ecological

[62] (1996) 5 SCC 647.
[63] Principle 15, Rio Declaration on Environment and Development, 1992.
[64] (1997) 1 SCC 388.
[65] *State of Himachal Pradesh v. Ganesh Wood Products*, (1995) 6 SCC 363.
[66] *M.C. Mehta v. Union of India* (Oleum Gas Leak Case), (1987) 1 SCC 395.

considerations in development planning.[67] Stockholm was the start of modern environmental governance for India and it inspired:

- The establishment of the Department of Environment (subsequently MoEFCC)
- The 42nd Constitutional Amendment, 1976 added Articles 48A and 51A(g)
- Strengthening of early environmental legislation.

2. Brundtland Report, 1987: Sustainable Development- The idea of sustainable development—meeting the demands of the present without hurting future generations[68]—changed the way countries around the world deal with environmental issues. Indian courts accepted this notion and saw it as a constitutional requirement, especially in cases where development and ecological had to be balanced (for example, Vellore Citizens' Welfare Forum).
3. Rio Earth Summit in 1992: Global Guidelines for Environmental Governance- The Rio Declaration brought about important ideas that had an effect over the world, such as:
    - Precautionary Principle
    - Polluter Pays Principle
    - Environmental Impact Assessment (EIA)
    - Inter-generational Equity
    - Public Participation

These principles are "soft law," yet they have a big impact on Indian law and policy, especially when it comes to protecting resources and getting environmental clearances.

4. Climate Change Treaties: Paris Agreement, Kyoto Protocol and UNFCCC: The UNFCCC framework and the principles of Common But Differentiated Responsibilities (CBDR) drive India's climate policy.

- Kyoto Protocol (1997): India took part in a lot of Clean Development Mechanism (CDM) initiatives.
- The Paris Agreement (2015): India promised to cut emissions intensity by 33–35% (from 2005 levels), get 40% of its electricity from non-fossil sources and make 2.5–3 billion tonnes of carbon sinks through forests.

India's Nationally Determined Contributions (NDCs) and local climate policies like the National Action Plan on Climate Change (NAPCC) and the International Solar Alliance (ISA) are based on these promises.

5. Multilateral Environmental Agreements (MEAs): India is a member of many international treaties, such as the Convention on Biological Diversity (CBD), the Cartagena Protocol, the Ramsar Convention, CITES, the Basel, Rotterdam, and Stockholm Conventions and the Montreal Protocol (which successfully phased out ODS).
   These agreements have a direct effect on Indian laws, norms and policy.[69]
6. Global Judicial Developments and Customary International Law: International court decisions strengthen environmental standards. The Trail Smelter Arbitration (1941) set the standard for not harming the environment across borders.[70] Modern international courts recognize the connection between environmental degradation and human rights, which is in line with India's rights-based environmental law.

The Way Forward: Strengthening Accountability and Building a Sustainable Future

As India deals with the difficult problems of pollution, environmental damage, and climate change, it becomes more and more evident that protecting the environment needs to go beyond words and become a realistic, enforceable, and participative framework. A sustainable future needs more than just strong laws. It also needs institutions that have power, policies that are based on science, industries that are accountable, and citizens that are involved. The following steps show a complete way to make India's response stronger.

1. Strengthening Environmental Institutions and Regulatory Mechanisms: India's environmental governance is inadequate because Pollution Control Boards don't have enough workers, technology isn't advanced enough, and

[67] United Nations Conference on the Human Environment (Stockholm Declaration, 1972).
[68] World Commission on Environment and Development, *Our Common Future* (1987).
[69] Convention on Biological Diversity; Ramsar Convention; CITES; Basel, Rotterdam & Stockholm Conventions; Montreal Protocol.
[70] Trail Smelter Arbitration (U.S. v. Canada), 1941.

jurisdictions overlap. It is important to make these institutions stronger. Regulatory agencies need enough money, qualified staff, and scientific techniques like AI-based pollution tracking, remote sensing, and real-time monitoring devices. Environmental rules also need to be more open, with the public having access to compliance data and companies having to report their emissions.[71]

2. Prioritising Climate-Resilient Development: Climate change is no longer a concern that will happen in the future; it is happening right now, as shown in extreme weather events, problems with farming, lack of water security, and increased health problems. India has to make climate resilience a part of many areas of life, such as urban planning, farming, transportation, energy, and disaster management. Rainwater harvesting, climate-resilient crops, green roofing, wetland restoration, and heat-action plans are all examples of adaptation methods that should be standard parts of development policy. Policymakers need to make sure that climate risk assessments are a part of all big projects so that environmental integrity is not sacrificed for development ambitions.[72]
3. Environmental Education, Youth Engagement, and Public Participation: We need to teach people about environmental stewardship and get them involved in their communities to create a culture of it. Law schools, colleges, and universities should all teach environmental law, climate science, and sustainability in their classes. Youth-led initiatives, community monitoring, and municipal green audits can all help hold people more accountable. Public involvement is also important for making sure that Environmental Impact Assessments (EIAs) are trustworthy, keeping an eye on contaminated areas, and reporting infractions.[73]
4. Industry Responsibility and the Transition to Clean Technology: In India, industrial activity is still a major source of pollution and emissions. To make sure that industries follow the rules, there should be harsher punishments for not doing so, independent third-party audits, and a requirement to use cleaner technologies. Tax breaks for using renewable energy, green financing, and selling carbon credits are all examples of financial incentives that might speed up the move to sustainable production systems. The goal should not be to stop progress, but to find a balance between economic expansion and taking care of the environment.[74]
5. Citizen Duties and the Constitutional Ethic of Environmental Stewardship: Article 51A(g) of the Constitution says that every person has a duty to protect the environment, not just the State. People need to employ sustainable methods like cutting down on trash, saving water and energy, not using single-use plastics, encouraging habits that are good for biodiversity, and making sure local governments are doing their jobs. When a lot of people do the same thing, it can have a big effect on the environment and encourage everyone to take care of it. A country that wants to be sustainable must teach its people to care about the environment as a shared value, not just as a legal requirement.
6. Integrating Law, Science, and Community for a Just Environmental Future: India is at a very important point in its history. Environmental damage threatens constitutional rights, public health, economic growth, and justice for future generations. To move forward, we need a plan that combines legal strength, scientific progress, and community involvement. To make sure that environmental governance is not broken up but works together, courts, legislators, policymakers, industries, and civil society must all work together. India can only move from being vulnerable to the environment to being strong in the environment if everyone works together.

   A sustainable future will not arise solely from more robust legislation but from enhanced values—values that acknowledge the inherent worth of nature, the dignity of future generations, and the fundamental principle that

[71] Central Pollution Control Board, *Annual Report on Environmental Monitoring and Compliance* (latest edition).

[72] Intergovernmental Panel on Climate Change (IPCC), *Sixth Assessment Report* (2021–2022), on climate impacts and resilience.

[73] Ministry of Environment, Forest and Climate Change (MoEFCC), *Environmental Impact Assessment Notification*, 2006 (as amended).

[74] Government of India, *National Clean Energy Policy* and Ministry of Power, *Renewable Energy Guidelines* (various).

> the health of the environment is inextricably linked to the health of society.[75]

CONCLUSION

Environmental degradation in India is a complex crisis, involving air and water pollution, biodiversity decline, climate change effects, and socio-economic vulnerabilities. Even if there are strong legal frameworks, constitutional requirements, and judicial activism, ecological damage is nevertheless becoming worse because of gaps in enforcement, problems in governance, and development practices that aren't sustainable. India's solution to these problems needs to be both broad and specific, with a focus on legal responsibility, institutional effectiveness, scientific progress, and public involvement.

The judiciary has changed things by broadening the definition of basic rights to include protecting the environment and creating ideas like the polluter pays doctrine, the precautionary principle, and sustainable development. International environmental law, global climate agreements, and multilateral conventions have all helped shape India's laws and policies. This has made India more in line with global standards while still taking into account its own development goals.

To move forward, it is important to strengthen regulatory institutions, encourage development that is robust to climate change, switch industries to clean technology, and encourage civic responsibility. Every citizen has a constitutional duty to protect natural resources and leave a smaller ecological footprint. This is in line with the larger idea of inter-generational justice. To fight pollution, lower climate threats, and make sure that the future is fair and sustainable, everyone—government, business, the courts, and society—needs to work together.

In the end, protecting the environment is not a choice but a must for keeping people healthy, protecting biodiversity, and making sure that future generations survive. Legal frameworks, scientific techniques, and citizen action must unite to shift India's environmental governance from reactive compliance to proactive stewardship, representing a vision where ecological balance, economic progress, and social fairness coexist peacefully.

[75] *M.C. Mehta v. Union of India*, (1987) 1 SCC 395 (recognising environmental protection as part of Article 21 and intergenerational equity).

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[4] United Nations Framework Convention on Climate Change (UNFCCC), 1992.
[5] Kyoto Protocol, 1997.
[6] Paris Agreement, 2015.