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Title of Dissertation

**“Evaluating the role of the Environment
Protection act, 1986 in promoting
Sustainable Development.”**

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ABBREVIATIONS

S.no.	Abbreviations	Meaning
1.	EPA	Environment Protection act, 1986
2.	MoEF CC	Ministry of Environment, Forest, and Climate Change
3.	CPCB	Central Pollution Control Boards
4.	SPCB	State Pollution Control Boards
5.	NGT	National Green Tribunal
6.	GRI	Global Reporting Initiative
7.	BRSR	Business Responsibility Sustainable Reporting
8.	ESG	Environmental Social Governance
9.	CSR	Corporate Social responsibility
10.	UNFCCC	United Nations Framework Convention on Climate Change
11.	CBD	Convention on Biological Diversity
12.	NCAP	National Clean Air Programme
13.	CRZ	Coastal Regulation Zone
14.	GHG	Greenhouse gases
15.	BEE	Bureau of Energy Efficiency
16.	CE	Circular Economy
17.	COP	Conference of the Parties
18.	EIA	Environmental Impact Assessment
19.	EPR	Extended Producer Responsibility

ABBREVIATIONS

S.no.	Abbreviations	Meaning
20.	EU	European Union
21.	FDI	Foreign Direct Investment
22.	GCF	Green Climate Fund
23.	HTL	High Tide Line
24.	IPCC	Intergovernmental Panel on Climate Change
25.	LDC	Least Developed Countries
26.	LTL	Low Tide Line
27.	MSME	Micro, Small and Medium Enterprises
28.	NAAQS	National Ambient Air Quality Standards
29.	NAPCC	National Action Plan on Climate Change
30.	NDC	Nationally Determined Contribution
31.	NDZ	No Development Zone
32.	NGO	Non-Governmental Organization
33.	NPCA	National Plan for Conservation of Aquatic Ecosystems
34.	PCA	Pollution Control Association
35.	PIL	Public Interest Litigation
36.	POPs	Persistent Organic Pollutants
37.	SDG	Sustainable Development Goals
38.	SUP	Single-Use Plastics
39.	UN	United Nations

Chapter: 1 Introduction:

Environmental protection has become one of the most pressing challenges of the 21st century, as rapid industrialization, urbanization, and population growth have placed unprecedented stress on natural resources. To address this growing concern, the Indian Parliament enacted the Environment (Protection) Act, 1986 (EPA), a comprehensive legislation aimed at safeguarding and improving the quality of the environment.

Sustainable development, refers to development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The EPA serves as a crucial legislative instrument in aligning India's developmental goals with environmental sustainability.

This dissertation seeks to evaluate the role of the Environment Protection Act, 1986 in promoting sustainable development. It critically examines its legal framework, its impact on India's environmental governance, and its effectiveness in achieving the objectives of sustainable growth. The study also highlights the gaps, weaknesses, and future directions for strengthening the Act to meet global environmental commitments

“Earth provides enough to satisfy every man's need, but not every man's greed.”

-Mohandas K. Gandhi

1.1 Introduction to Environment Protection act, 1986:

Environment Protection Act, 1986 is an Act of the Parliament of India. In the wake of the Bhopal Tragedy and Union Carbide Corporation vs Union of India¹, the Government of India enacted the Environment Protection Act of 1986 under

¹ Union Carbide Corporation v. Union of India, AIR 1988 SC 1531

Article 253 of the Constitution. Passed in March 1986, it came into force on 19 November 1986. It has 26 sections. The purpose of the Act is to implement the decisions of the United Nations Conference on the Human Environment which relate to the protection and improvement of the human environment and the prevention of hazards to human beings, other living creatures, plants and property.

The Act is an “umbrella” legislation designed to provide a framework for central government coordination of the activities of various central and state authorities established under previous laws, such as the Water Act and the Air Act.

Nearly 12 years since the disastrous Union Carbide Chemical leak in Bhopal and after 5 years of economic resurgence, environmental awareness is high, titled GREEN – India that is Growth with Resource Enhancement of Environment and Nature.²



² The scanned image of an old newspaper “The Indian Express” reporting on Bhopal Gas leak tragedy in 1984.

1.2. Objectives of Environment Protection act, 1986:

The Environment Protection Act (EPA), 1986, was enacted as a direct response to the Bhopal Gas Tragedy and to provide a comprehensive framework for environmental protection in India. Its objectives are designed to be wide-ranging, empowering the central government to tackle environmental issues systematically.

The main objectives are:

1. Protection and betterment of the environment.
2. Prevention of dangers to human beings, flora, and fauna, and property.

It is a comprehensive legislation that encompasses present environmental legislation, strengthens grounds for enforcement, and fills loopholes present within their implementation. All powers vesting in central authority regulate every environmental aspect in the existence of air, water, and land pollution.

The chief objectives are as follows:

1.2.1. Fulfilling International Commitments:

This objective serves to translate global environmental consciousness into national law. The United Nations Conference on the Human Environment held in Stockholm in 1972 was a landmark event that established environmental protection as a global priority.

By codifying these international principles, the EPA aims to ensure that India's development aligns with global environmental standards and responsibilities.

Reason :-

It establishes the Act's legitimacy on the world stage and demonstrates a national commitment to cooperating on global environmental challenges, moving from abstract principles to actionable domestic law.

1.2.2. Establishing Centralized Regulatory Authority:

Prior to the EPA, environmental laws were enforced by multiple agencies, often leading to overlaps and gaps. This objective empowers the central government to create a dedicated authority with the power to set standards, monitor compliance, and take direct, decisive action against polluting industries, including the ultimate step of issuing closure orders.

Reason: -

It addresses the critical need for a single, powerful body to regulate industrial pollution effectively, ensuring that regulations are not just on paper but are enforced with legal authority.

1.2.3. Ensuring Inter-Agency Coordination:

Various laws (e.g., for water, air, forests) were managed by different bodies. This objective designates the EPA as an "umbrella legislation," aiming to synchronize the activities of all these agencies. The central government, under this Act, can create a unified strategy and prevent contradictory directives.

Reason: -

It seeks to eliminate bureaucratic silos and create a cohesive national environmental policy, making governance more efficient and comprehensive.

1.2.4. Enabling Subsidiary Legislation:

The Act itself is a broad framework. This objective grants the government the "rule-making power" to enact specific, detailed regulations (known as Rules) on various issues from hazardous waste management to noise pollution without needing to pass a new law in parliament for every new environmental challenge.

Reason: -

It provides the flexibility and adaptability needed to address emerging and complex environmental threats dynamically, making the law a living instrument.

1.2.5. Deterring Offenders through Punitive Measures:

A law without consequences is ineffective. This objective establishes a strong deterrent by imposing strict punishments, including significant imprisonment (up to 5 years, extendable to 7) and substantial fines (up to Rs. 1 lakh). This creates a direct legal and financial risk for entities that harm the environment.

Reason: -

It gives the law its "teeth," ensuring that violations are treated as serious crimes, thereby compelling compliance and protecting public safety and health.

1.2.6. Mandating Sustainable Development:

This is a core, overarching philosophy of the Act. It moves beyond mere pollution control to mandate that development must meet the needs of the present without compromising the ability of future generations to meet their own needs. It forces a balance between economic growth and ecological conservation.

Reason: -

It shifts the national development paradigm from one of exploitation to one of responsibility, making environmental conservation a non-negotiable part of the planning process.

1.2.7. Safeguarding the Constitutional Right to Life:

The Indian Supreme Court has interpreted the Fundamental Right to Life (Article 21) to include the right to a clean and healthy environment. This objective legally underpins that judicial interpretation. It positions a polluted environment as a violation of a citizen's fundamental rights, elevating environmental protection from a policy goal to a constitutional imperative.

Reason: -

It provides the highest legal justification for the Act's existence, linking a clean environment directly to the basic human rights guaranteed by the Constitution.³

1.3. Historical Background of Environmental Protection:

Following is the background of Environmental Protection law in India:

1.3.1. Pre-EPA Legislative Landscape:

Prior to the enactment of the Environment (Protection) Act, 1986, India's environmental legislation existed in fragmented forms through various laws including:

- The Indian Penal Code
- The Criminal Procedure Code

³ Source: <https://byjus.com/free-ias-prep/environment-protection-act-1986/>

- The Factories Act

-
- The Indian Forest Act
 - The Merchant Shipping Act.

These laws operated in isolation and lacked a comprehensive, focused approach to environmental protection.

1.3.2. International Catalyst: Stockholm Conference:

The 1972 Stockholm Conference on Human Environment served as a crucial turning point, highlighting the necessity for:

- Uniform environmental laws across the country
- Addressing broad environmental problems systematically
- Protecting human health and biodiversity through coordinated legislation

1.3.3. Constitutional Foundation:

India distinguished itself as the first country to constitutionally mandate environmental protection through the 42nd Constitutional Amendment Act, 1976:

Directive Principles of State Policy (Article 48-A):

- Mandates the State to protect and improve the environment
- Requires safeguarding of forests and wild life Fundamental Duties (Article 51-A(g)):
- Imposes duty on every citizen to protect and improve the natural environment
- Includes protection of forests, lakes, rivers, wildlife

- Requires compassion for living creatures

1.3.4. Sector-Specific Legislation:

Prior to the comprehensive EPA, two key laws addressed specific pollution concerns:

- The Water (Prevention and Control of Pollution) Act
- The Air (Prevention and Control of Pollution) Act

However, these acts were limited to addressing only their respective domains of water and air pollution.

1.3.5. The Comprehensive Solution: EPA, 1986:

The Parliament enacted the Environment (Protection) Act, 1986 as an umbrella legislation that:

- Provides comprehensive coverage for environmental protection in its entirety
- Was enacted under Article 253 of the Constitution
- Aims to supplement existing laws on pollution control
- Creates general legislation for overall environmental protection
- Fills regulatory gaps in managing major environmental hazards

This legislation marked a significant shift from fragmented, sector-specific approaches to a holistic framework for environmental governance in India.⁴

⁴ <https://www.nextias.com/blog/environment-protection-act-1986/>

Note: The Environment Protection Act, 1986 (EPA 1986) was enacted under the provisions of Article 253 of the Constitution, which seeks to supplement the existing laws on the control of pollution by enacting general legislation for environmental protection and to fill the gaps in regulations of major environmental hazards.

Hence, India is facing an alarming situation in environmental condition in present day. India ranks the sixth largest and second fastest growing producer of Green House Gases (GHGs) in the world. Three of India's largest cities are considered among world's 10 most polluted cities.



⁵ IQAir, "World Air Quality Report 2025"

1.4 Features of Environment Protection act, 1986:

The Environment (Protection) Act, 1986, is an umbrella legislation designed to provide a comprehensive framework for environmental protection in India. Its key features and the powers it vests in the Central Government are as follows:

1.4.1. Comprehensive Mandate and Definition:

- The Act defines "environment" in a broad, holistic manner to include water, air, land, and the inter-relationships between them, as well as all living organisms. This allows it to address the entire ecosystem rather than isolated elements.

1.4.2. Centralized Authority and Rule-Making Power:

- The Act empowers the Central Government as the supreme authority to plan and execute a nationwide program for pollution prevention, control, and abatement.
- It holds the power to lay down binding standards for the quality of the environment, as well as for the emission or discharge of pollutants from various sources.
- This includes the authority to restrict or prohibit industrial operations or processes in specific geographic areas to enforce environmental safeguards.

1.4.3. Powers of Direction, Regulation, and Restriction:

- The Central Government, or its appointed officers, have the direct power to order the closure, prohibition, or regulation of any polluting industry, operation, or process.

- To ensure compliance, it can further direct the stoppage or regulation of essential services like electricity and water to non-compliant units.
- A general prohibition is imposed, mandating that no entity shall discharge environmental pollutants in excess of the prescribed standards.

1.4.4. Enforcement and Monitoring Mechanisms:

- Powers of Entry and Inspection: Authorized personnel have the right to enter and inspect any premises to check for compliance and can seize any equipment or records that serve as evidence of an offence.
- Handling of Hazardous Substances: The Act mandates that no hazardous substance shall be handled except in accordance with prescribed procedures and safeguards.
- Establishment of Environmental Laboratories: The Central Government is empowered to establish and recognize environmental laboratories for the accurate analysis of samples (air, water, soil), with Government Analysts appointed to interpret the results.

1.4.5. Stringent Penal Provisions and Liability:

- Punishments for Non-Compliance: Contravention of any provision of the Act is an offence punishable with imprisonment of up to five years or a fine of up to one lakh rupees, or both.
- Liability of Companies and Government Departments: The Act incorporates the principle of strict liability. In the case of an offence by a company, every person in charge is deemed guilty unless proven otherwise. Crucially, if a government department is at fault, the Head of the Department is held directly liable.

1.4.6. Provisions for Public Participation and Legal Recourse:

- The Act enables public participation by allowing any citizen to file a complaint in court, provided they give a 60-day prior notice of their intention to do so to the concerned government authority. This opens a channel for public vigilance and legal action.

1.4.7. Focus on Emergency Response and Prevention:

- The wide-ranging powers granted to the Central Government, including the power to swiftly regulate or close industries, allow it to take immediate measures to mitigate environmental emergencies and avert potential catastrophes.⁵

1.5. Effectiveness of Environment Protection Act, 1986:

1.5.1. Protection of public health:

It seeks to prevent, control and abate environment pollution so as to keep the environment clean and safe. This ensures that we get a healthy environment to live in, free from all sorts of pollutants harmful to our health. Thus, the Act aims to protect public health.

1.5.2. Promotes sustainable development:

⁵ <https://www.drishtiias.com/paper3/environment-protection-act-1986>

It seeks to prevent the exploitation of natural resources and preserve them for future generations.

1.5.3. Positively empowers the central government to take concrete steps to protect the environment:

The Central Government has been given immense powers to not only appoint authorities to carry out various functions but also to take all the possible measures to further the objectives of the Act.

1.5.4. Strict penal provisions:

The Act contains penal provisions for the breach of its provisions. It also lays down the liability of companies and government departments for polluting the environment.

1.5.5. Protecting ecological integrity:

By providing for penal provisions and laying down various guidelines for the Central Government to take active steps for environment protection, the Act aims at preserving the ecological integrity by maintaining it in its unpolluted and natural form.⁶

⁶ https://blog.ipleaders.in/environment-protection-act-19862/#Benefits_of_the_Environment_Protection_Act

Chapter- 2: Research Methodology:

2.1 Hypothesis:

While the Environment (Protection) Act, 1986, was enacted with the transformative aim of embedding the principles of sustainable development into India's legal and policy fabric, its practical role has been predominantly reactive and regulatory, rather than proactive and transformative.

The Act has proven more effective in providing a legal toolkit for addressing pollution after it occurs—through mechanisms like penalties and closure orders— than in fundamentally reshaping development planning to prevent environmental degradation. Consequently, its contribution to genuine, holistic sustainable development remains significantly limited.

This limitation is not a failure of the Act's text alone but stems from a critical implementation gap. The hypothesis posits that this gap is driven by three core factors: the consistent prioritization of rapid economic growth over long-term ecological sustainability in political decision-making, chronic institutional weaknesses within the regulatory bodies responsible for enforcement, and a legal framework that often privileges industrial compliance over empowering ecological resilience and community-centric welfare.

Therefore, the Act's potential as an instrument for sustainable development remains largely unfulfilled, operating instead as a sophisticated yet ultimately constrained pollution control statute.

2.2 Sources of data collection:

This research will adopt a mixed-methods approach, relying on both primary and secondary sources to ensure a robust and triangulated analysis.

2.2.1. Primary Sources:

a) Statutory Materials:

The full texts of the Environment (Protection) Act, 1986, The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981, and other relevant legislations.

b) Subsidiary Legislation:

Notifications, Rules, and Guidelines issued by the MoEFCC, including EIA Notifications, Waste Management Rules, and Coastal Regulation Zone notifications.

c) Judicial Pronouncements:

Judgments from the Supreme Court of India, High Courts, and orders from the National Green Tribunal (NGT) that interpret and enforce the provisions of the EPA.

d) Government Reports:

Annual reports of the MoEFCC, CPCB, and SPCBs; audit reports from the Comptroller and Auditor General (CAG); and policy documents from NITI Aayog.

e) Digital Repositories:

Data from official portals such as the PRANA portal for the National Clean Air Programme (NCAP) and the CPCB's environmental monitoring networks.

2.2.2. Secondary Sources:

a) Academic Literature:

Books, peer-reviewed journal articles, and scholarly commentaries on Indian environmental law, policy, and sustainable development.

b) Official Publications:

Policy briefs, discussion papers, and reports from international bodies like the United Nations.

c) News Media and Digital Archives:

Reputable national newspapers and online databases for tracking contemporary environmental debates, policy announcements, and public interest litigation.

2.3 Objectives of the study:

The primary aim of this research is to conduct a comprehensive evaluation of the role and efficacy of the Environment Protection Act, 1986, as a central instrument for promoting sustainable development in India. To achieve this aim, the study will pursue the following specific objectives:

2.3.1. To critically analyze the objectives, features, and legal architecture of the Environment (Protection) Act, 1986, and its interplay with other core environmental laws:

- To deconstruct the stated aims and objectives of the EPA, 1986, and assess its significance as a response to national and global environmental concerns.
- To examine the salient features of the Act, including the extensive rulemaking powers of the central government and the penal provisions for noncompliance.

- To map the legal architecture established by the EPA and analyze its relationship with preceding laws like The Water (Prevention and Control of Pollution) Act, 1974, and The Air (Prevention and Control of Pollution) Act, 1981, to understand its role as an "umbrella" legislation.

2.3.2. To examine the constitutional imperatives and international commitments that form the foundation for India's environmental governance and their integration into the EPA framework:

- To analyse the incorporation of environmental principles into the Indian Constitution, specifically Article 48A (Directive Principles), Article 51A(g) (Fundamental Duties), and the judicial expansion of Article 21 (Right to Life) to include a right to a healthy environment.
- To investigate how international agreements and declarations, such as the UNFCCC, Paris Agreement, and UN Sustainable Development Goals (SDGs), have influenced the interpretation and implementation of the EPA.

2.3.3. To assess the effectiveness of the enforcement and adjudication mechanisms established under the EPA, including the roles of the CPCB, SPCBs, NGT, and MoEFCC:

- To evaluate the structure, functions, and coordination between the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) in regulating pollution.
- To examine the role of the Ministry of Environment, Forest and Climate Change (MoEFCC) as the nodal policy-making and implementation body.

- To analyze the effectiveness of the National Green Tribunal (NGT) as a specialized forum for the expeditious resolution of environmental disputes and enforcement of the EPA.

2.3.4. To evaluate the specific role of the EPA in operationalizing the concept of sustainable development and to identify the persistent challenges in its implementation:

- To trace the integration of the principles of sustainable development (Precautionary Principle, Polluter Pays Principle, etc.) into Indian jurisprudence through the EPA.
- To identify key challenges hindering the Act's effectiveness, such as institutional bottlenecks, inadequate technical capacity, non-compliance by industries, and gaps in monitoring.

2.3.5. To analyze recent governmental initiatives as case studies to measure the Act's contemporary relevance and adaptive capacity:

- To assess the National Clean Air Programme (NCAP) as an initiative driven by the EPA's mandate to improve air quality.
- To evaluate the ban on Single-Use Plastics and Extended Producer Responsibility (EPR) rules as examples of the EPA's evolution in tackling modern waste challenges.
- To examine initiatives like 'Waste to Wealth' and the Green Credit Programme as efforts to foster a circular economy under the broader framework of the Act.

2.3.6. To provide actionable suggestions for legal, policy, and institutional reform to enhance the Act's future effectiveness:

- To propose specific amendments to the legal framework and improvements in enforcement strategies based on the findings.
- To suggest mechanisms for strengthening institutional capacity and promoting inter-agency coordination.
- To explore the potential for integrating global standards like Environmental, Social, and Governance (ESG) reporting and the Global Reporting Initiative (GRI) into the compliance framework under the EPA to enhance corporate accountability and transparency.

2.4 Statement of Problem:

There are multiple environmental issues in India. Air pollution, water pollution, garbage, domestically prohibited goods and pollution of the natural environment are all challenges for India. Nature is also causing some drastic effects on India. The situation was worse between 1947 through 1995.

According to data collected and environmental assessments studied by World Bank experts, between 1995 through 2010, India has made some of the fastest progress in addressing its environmental issues and improving its environmental quality in the world.

However, pollution still remains a major challenge and opportunity for the country. Environmental issues are one of the primary causes of disease, health issues and long-term livelihood impact for India.

2.5 Scope and Limitation of Study:

2.5.1. Scope of the Study:

This research is deliberately bounded by specific thematic, geographical, and temporal parameters to ensure a focused and in-depth analysis,

a) Thematic Scope:

The study focuses on the Environment (Protection) Act, 1986 (EPA) as India's central environmental law. It examines the Act's structure, its relationship with other key laws (Water, Air, Wildlife Acts), and its use in launching recent initiatives like the National Clean Air Programme (NCAP) and plastic waste rules to promote sustainable development.

b) Geographical Scope:

The analysis is conducted at the national level within India. While specific state-level examples may be used for illustration, the primary focus remains on the country-wide implementation and impact of the EPA.

c) Temporal Scope:

The study covers the period from the EPA's enactment in 1986 to the present, with special emphasis on developments in the last decade (2014-2024) to assess its current relevance.

2.5.2. Limitations of the Study:

While every effort will be made to ensure a comprehensive analysis, the research acknowledges the following inherent limitations:

a) Data Accessibility:

The study may be limited by the inconsistent public availability of real-time, granular enforcement and compliance data from all State Pollution Control Boards.

b) Generalizability:

Findings from specific state-level case studies may not be universally applicable across all of India due to significant variations in regional governance and capacity.

c) Evolving Policies:

The dynamic nature of environmental law means that new court rulings or policy changes after the research cutoff date may not be included in the analysis.

d) Methodological Focus:

The research relies primarily on documentary analysis. The lack of large-scale primary fieldwork may limit the depth of certain ground-level insights.

3.1 Concept of Environment and Environmental Pollution

So, what's current situation of Environment in India? Why this problem is important. What are the negative consequences of not addressing this problem?

3.1.1 Major Environmental issues are:

India faces a multitude of interconnected environmental challenges that threaten its natural resources, biodiversity, and human well-being. The key issues include:

- Forests and Agricultural degradation of land,
- Resource depletion,
- Environmental degradation,
- Public health,
- Loss of biodiversity,
- Loss of resilience in ecosystems and □ Livelihood security for the poor.



Floods are a significant environmental issue for India. It causes soil erosion, destruction of wetlands and wide migration of solid wastes.

a) Land Degradation:

This encompasses the deterioration of both forest quality and agricultural land. Causes include deforestation, soil erosion, salinization (due to improper

irrigation), and loss of soil fertility from unsustainable farming practices, leading to reduced food production and ecosystem health.

b) Resource Depletion:

There is rapid exhaustion of vital natural resources, including:

- **Water:** Severe over-extraction for agriculture and urban use is depleting groundwater aquifers.
- **Minerals:** Unsustainable mining practices are leading to the exhaustion of mineral deposits.
- **Forests:** Deforestation for timber, agriculture, and development reduces forest cover.
- **Sand and Rocks:** Illegal sand mining and quarrying for construction are causing riverbank and landscape destruction.

c) Environmental Degradation:

This is the overarching decline in the overall quality of air, water, and soil due to pollution from industrial discharge, vehicle emissions, agricultural chemicals, and improper waste disposal.

d) Public Health Risks:

Environmental pollution is directly linked to serious public health crises, including a high prevalence of respiratory diseases from air pollution, waterborne illnesses from contaminated water sources, and exposure to toxic chemicals.

e) Loss of Biodiversity:

Habitat destruction, pollution, climate change, and poaching are leading to a severe decline in the variety of plant and animal species, causing extinctions and disrupting ecological balance.

f) Loss of Ecosystem Resilience:

The cumulative impact of these issues weakens natural ecosystems (like wetlands and forests), reducing their ability to recover from shocks such as droughts, floods, and cyclones, making them more vulnerable.

g) Threat to Livelihood Security:

The degradation of natural resources directly threatens the livelihood security of the poor, who are often most dependent on them. Farmers, forest dwellers, and fisherfolk face increased vulnerability due to water scarcity, soil degradation, and loss of fish stocks.⁷

3.1.2 Major Sources of Pollution in India includes:

The environmental challenges in India are complex and stem from a combination of factors related to energy use, waste management, industrial practices, and infrastructural limitations. The major sources of pollution include:

a) Rapid Burning of Biomass:

The widespread use of fuelwood, agricultural waste, and dried livestock waste (like cow dung cakes) as a primary source of energy for cooking and heating

⁷ https://en.wikipedia.org/wiki/Environmental_issues_in_India

in many households releases significant amounts of particulate matter and harmful gases into the atmosphere.



9

A satellite picture, taken in 2004, shows thick haze and smog along the Ganges Basin in northern India. More sources of aerosols in this area are believed to be smoke from biomass burning in the northwest part of India, and air pollution from large cities in northern India since the 1980s.

b) Lack of Organized Waste Management:

The absence of systematic garbage and waste removal services in many urban

⁹ A satellite picture, taken in 2004, shows thick haze and smog along the Ganges Basin in northern India.

and rural areas leads to the open dumping and burning of solid waste, causing severe land and air pollution.

c) Inadequate Sewage Treatment:

A large gap exists between the volume of sewage generated and the capacity for treatment. This results in the direct discharge of untreated or partially treated domestic wastewater into rivers and water bodies.

d) Poor Drainage and Flood Control:

The lack of comprehensive monsoon water drainage and flood control systems in rapidly expanding cities leads to waterlogging, which mixes stormwater with untreated sewage and industrial effluents, spreading contamination.

e) Diversion of Waste into Rivers:

The direct channelling of consumer waste, plastic, and industrial effluent into rivers has severely degraded the water quality of major river systems, such as the Ganga and Yamuna.

f) Land-Intensive Burial Practices:

The use of large land areas for traditional burial grounds raises concerns about land use and the potential for soil and groundwater contamination.

g) Polluting Cremation Practices:

Cremation ceremonies performed along the banks of major rivers, often using large quantities of wood, contribute to air pollution and the immersion of ashes and partially burnt materials affects water quality.

h) Aging Public Transport Fleet:

Government policies that protect old, highly polluting public transport vehicles, particularly diesel-powered buses and auto-rickshaws, contribute significantly to urban air pollution.

i) Operation of Old Government Industries:

The continued operation of government-owned (public sector) plants from the 1950s-1980s, which often use outdated, high-emission technologies, is a major source of industrial pollution.⁸

3.2 India's legislative framework: an Umbrella legislation:

The Environment (Protection) Act, 1986, was designed as an umbrella legislation to overcome the limitations of the earlier, piecemeal approach. It empowers the central government to take all necessary measures for protecting and improving the environment, thereby providing a unified and overarching regulatory framework.

The Environment Protection Act is called an 'Umbrella Act' because of the following reasons:

- It establishes the basic framework for planning and executing large-scale strategies to protect and improve the overall environment, rather than focusing on specific aspects.
- It provides for coordination between the Central government, state government, and authorities that are established under various other legislation related to the environment.
- It fills the lacuna created by several other distinct legislation like the Water Act and Air Act. It connects them together and makes them more effective.
- It is broad and comprehensive legislation that covers the definitions, powers, and responsibilities of the central government towards the environment, and penal provisions as well.⁹

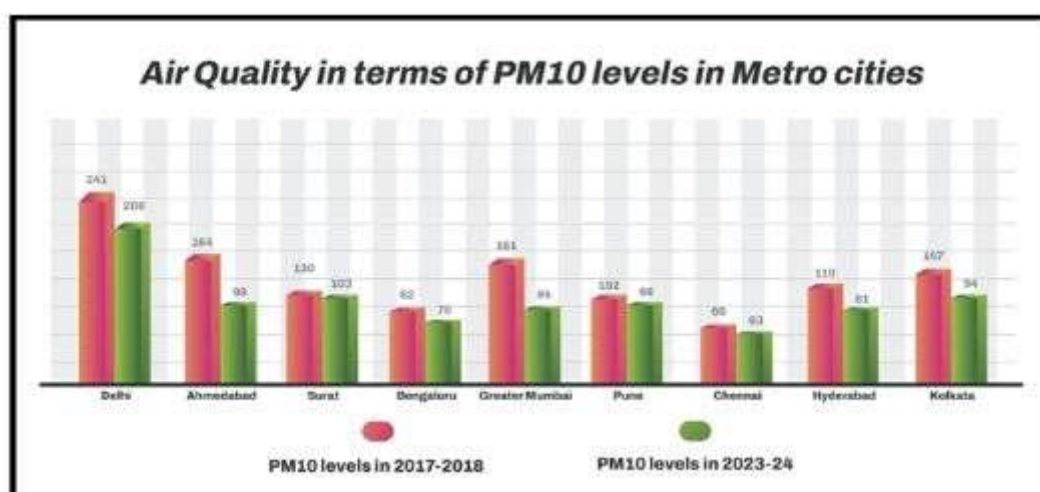
⁸ https://en.wikipedia.org/wiki/Environmental_issues_in_India

⁹ Shyam Divan and Armin Rosencranz, *Environmental Law and Policy in India: Cases and Materials*, 3rd ed. (New Delhi: Oxford University Press, 2015)

3.2.1. The Air (Prevention and Control of Pollution) Act, 1981:

As cities and states grapple with the escalating impacts of pollution, this program is crucial in the quest for cleaner, healthier urban environments.

- Due to efforts made under NCAP, 95 cities out of 131 cities have shown improvement in air quality in terms of annual PM₁₀ concentrations in FY 2023-24 with respect to the baseline of FY 2017-18. 18 cities have met National Ambient Air Quality Standards (NAAQS) for PM₁₀ (60 µg/m³) in FY 2023-24.
- MoEF&CC conducts Swachh Vayu Sarvekshan - ranking of 131 cities covered under National Clean Air Programme (NCAP) among three groups categorised based on population.



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(A) What is an 'air pollutant' and what is 'air pollution'?

- Section 2(a) defines 'air pollutant' as any solid, liquid or gaseous substance that may be harming or injuring the environment, humans,

¹² Central Pollution Control Board (CPCB), *National Clean Air programme [Year]* (New Delhi: Ministry of Environment, Forest and Climate Change, Government of India, [Year of

Publication - <https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=153186&ModuleId=3>
other living creatures, plants or even property. Through the 1987 Amendment, noise was also included in the list of substances that are deemed to be harmful to the environment. Therefore, this Act also provides for the regulation of noise pollution.

- Section 2(b) defines 'air pollution' as the presence of any air pollutant in the atmosphere.

(B) What Boards are set up under this Act?

- Section 2(f) classifies the boards to be set up under this Act under two categories: Central and State Boards.
- Section 2(g) defines 'Central Board' as being the same as the 'Central Pollution Control Board' which has been constituted under Section-3 of the Water (Prevention and Control of Pollution) Act, 1974, which stipulates that this Board shall be set up by the Central Government of India, for the purposes of the Act.
- Section 6 of the Act states that in the case of Union Territories, the Central Board shall exercise the powers of a State Board under that Act, or it may even delegate these powers or functions to any person or body of persons.
- Section 2(0) defines 'State Board' as a board set up in those states where the Water (Prevention and Control of Pollution) Act, 1974 is in effect and where the State Governments have decided to set up these Boards. This Act also applies to States where the Water (Prevention and Control of Pollution) Act 1974 is not in effect. 'State Board' is the same as the 'State Pollution Control Board'.

Therefore, we observe that while the Water (Prevention and Control of Pollution)

Act 1974 in the first instance, applies to only those states in which it has been given effect, the Air (Prevention and Control of Air Pollution) Act 1981 applies to the whole of India in the first instance.¹⁰

(C) Air pollution control areas:

Section- 19- Power to Declare Air Pollution Control Areas:

(1) The State Government may, after consultation with the State Board, by notification in the Official Gazette, declare in such manner as may be prescribed, any area or areas within the State as air pollution control area or areas for the purposes of this Act.

(2) The State Government may, after consultation with the State Board, by notification in the Official Gazette, -

(a) alter any air pollution control area whether by way of extension or reduction;

(b) declare a new air pollution control area in which may be merged one or more existing air pollution control areas or any part or parts thereof.

(3) If the State Government, after consultation with the State Board, is of opinion that the use of any fuel, other than an approved fuel, in any air pollution control area or part thereof, may cause or is likely to cause air pollution, it may by notification in the Official Gazette, prohibit the use of such fuel in such area

¹⁰ *The Air (Prevention and Control of Pollution) Act, 1981* (Act No. 14 of 1981), ss 2(a), 2(b), 2(f), 2(g), 2(o) & s 6. *The Air (Prevention and Control of Pollution) Act, 1987* and *The Air (Prevention and Control of Pollution) Amendment Act, 1987*

or part thereof with effect from such date (being not less than three months from the date of publication of the notification) as may be specified in the notification.

(4) The State Government may, after consultation with the State Board, by notification in the Official Gazette, direct that with effect from such date as may be specified therein, no appliance, other than an approved appliance, shall be used in the premises situated in an air pollution control area.

Provided that different dates may be specified for different parts of an air pollution control area or for the use of different appliances.

(5) If the State Government, after consultation with the State Board, is of opinion that the burning of any material (not being fuel) in any air pollution control area or part thereof may cause or is likely to cause air pollution, it may, by notification in the Official Gazette, prohibit the burning of such material in such area or part thereof.¹¹

• **Judicial Interpretation and Landmark cases:**

M.C. Mehta v. Union of India (1987)¹²- The petition was filed under Article 32 of the Indian Constitution as a Public Interest Litigation in the Supreme Court of India. On 20th December 1986 judgment was passed by the 14th Chief Justice of India Justice PN Bhagwati.

¹¹ https://blog.ipleaders.in/an-overview-of-the-air-prevention-and-control-of-air-pollution-act19/#Salient_features_of_Air_Prevention_and_Control_of_Pollution_Act_1981

¹² MC Mehta Vs Union of India, 1987 AIR 1086, 1987 SCR (1) 819, 1987 SCC (1) 395

The court moved beyond the strict liability principle and established principle of Absolute liability for industries engaged in hazardous word activities. It was held that these industries should bear the absolute and non-delegated duty to ensure the safety of the community with no exceptions allowed.

In this regard, the Supreme Court held the industries liable for all types of damages under the commanding forces of absolute liability.

3.2.2. The Water (Prevention and Control of Pollution) Act, 1974:

The Act came into force in 1974 and is applicable to the states of Assam, Bihar, Madhya Pradesh, Gujrat, Haryana, Tripura, West Bengal, Jammu and Kashmir, Rajasthan, Kerala, and the union territories. It could also be adopted by any state through a resolution passed declaring to adopt the Act. The Water (Prevention and Control) Act, 1974 was introduced to prevent and control water pollution and to restore and maintain the wholesomeness of water for the establishment.

The Act also confers some powers to the established bodies such as the central board and the state board to control pollution of the water bodies.

A. Definitions:

Section 2 of the Act contain certain definitions:

- " Board " means either the central board or the state board.
- Section 2 (e) of the Act defines what is pollution, according to Section 2(e) pollution means any contamination of water or alteration of the physical, chemical and biological properties of

water or disposing of any sewage waste in water which is likely to cause nuisance or renders such water to be harmful to public health or safety or to domestic, industrial or other legitimate use or harmful to the life and health of the animals and aquatic plants.

- Includes- watercourse (flowing or dry), inland water whether natural or artificial, subterranean water or sea or tidal waters as the state may prescribe from time to time.
- According to Section 2 (b) Central Board means Central Pollution Control Board.
- According to Section 2 (h) State Board means State Pollution Control Board.¹³

B. Agencies for controlling Water Pollution:

There are two agencies set up as per the Act for controlling and preventing water pollution.

(a) Central board: Central control Pollution Board:

Section- 16 provides for the functions of Central Board:

1. Advise the Central Government on any matter concerning the prevention and control of water pollution.
2. Coordinate the activities of the State Boards and resolve disputes among them.
3. Provide technical assistance and guidance to the State Boards, carry out and sponsor investigations and research relating to problems of water pollution and prevention, control or abatement of water pollution.

¹³ The Water (Prevention and Control of Pollution) Act, 1974 (Act No. 6 of 1974), s 2, specifically defining "Board" (s 2(a)), "Pollution" (s 2(e)), "Central Board" (s 2(b)), and "State Board" (s 2(h))

4. Plan and organize the training of persons engaged or to be engaged in for the prevention, control or abatement of water pollution on such terms and conditions as the Central Board may specify.

-
5. Organize through mass media a comprehensive program regarding the prevention and control of water pollution.

(b) State Board- State Pollution Control Board:

Section- 17 provides for the function of State Board:

1. To plan a comprehensive program for preventing and controlling the pollution of the wells and streams in the state and to secure its execution.
2. To advise the State Government on matters relating to prevention and controlling water pollution.
3. Collaborating with the central board to train persons employed or to be employed in preventing, controlling water pollution.
4. To lay down, modify the effluent standards of sewage and trade effluents and for the quality of receiving water resulting from the discharge of effluents and to classify waters of the state.
5. The state Board has the authority to set up laboratories to enable the board to perform its function efficiently, including collecting samples of water from any stream or sewage or trade effluents.

C. Prevention and Control of Water Pollution:

According to Section 19 of the Act, the state board has the power to limit the territorial jurisdiction of any order passed by it in matters relating to prevention and controlling water pollution.¹⁴

This means that the orders passed by the state board will only apply in the areas that are affected by water pollution .it is up to the state board to determine which area is to be declared water polluted and which is not, this can be done by making reference to a map or making reference to a line of any watershed or the boundary of any district.¹⁸

¹⁴ The Water (Prevention and Control of Pollution) Act, 1974 (Act No. 6 of 1974), section 16, 17 and 19 specifically defining "Board

Composite Water Management Index report is frightening;
ground water will be zero in 21 cities next year

Water crisis: Indifference will prove disastrous



Vijay Darda

By making public the report of the Composite Water Management Index 2018, the Niti Aayog has opened the eyes of the whole country. Dreadful picture of the future has been painted before the country. The ground water in Bengaluru, Chennai, Vellore, Hyderabad, Indore, Bhatam, Gandhinagar, Ajmer, Jaipur, Jodhpur, Bikaner, Agra, New Delhi, Ghaziabad, Gurugram, Yamunotagar, Ludhiana, Mohali, Amritsar, Jalandhar and Patiala will become zero next year. India will be barely able to meet half of the water requirements of its teeming masses by 2039. Farming and industry will be affected the most. This will have an impact on our economy and the GDP will fall by about 6 percent. The details of the report are more frightening.

I am surprised that there is no one who has expressed any serious concern about this report. There has been some concern in the foreign media

water every year while it rains around 4,000 billion cubic metres. The problem is that we can only use 8 percent of the rain water in almost all cities and villages, wetlands, ponds, wells and local rivers have vanished into thin air. So, the question is where will the rainwater stay? According to the Wildlife Institute of India, about 70

Marathwada regions also figure in this list. Millions of people in the country are not getting pure drinking water. Once upon a time, Chennai had a huge wetland, large lakes but everything has disappeared.

The Government of India has recently formed the ministry of water power. The ministry has announced that a tap connection will be provided to every house in India by 2024. Let's assume that tap connections will be extended but the question is where will the water come from if there is no water? Apart from this, the reality is that the budget of the

the land is used in agriculture and the remaining 9 percent is used for drinking purpose. Two percent is used by industries. On the whole, it shows that 50 per cent of the urban requirements and 85 per cent of water for domestic use in rural areas are drawn from under the ground. Last year, a report of the Central Ground Water Board was placed in Parliament which stated that in 10 years from 2007 to 2017, the underground water level was seriously reduced. Reports from IIT, Khuragpur and Alhambra University in Canada say that we Indians use 230 cubic kilometres of ground water every year. This is about a quarter of the world's consumption.

We are lethargic and apathetic even in the case of reuse of water. Nearly 60 percent of the water that reaches the houses is drained out in the sewers. In contrast to this, Israel recycles hundred percent of the water reaching homes, and 94 percent of the recycled water is then sent for use in homes. Singapore is also doing amazing things in terms of water management. We have to make arrangements like these countries. We have to revive our local water reservoirs so that rain water can be saved and conserved. Rainwater harvesting must be strictly



We do not have much time left now. If we do not bring drastic changes in the field of water conservation and water management within the next five years then the situation will get worse. There will be no drinking water left; and it will have very serious effect on agriculture. Industries will be affected and the GDP will fall by 6 percent.

¹⁸ <https://blog.ipleaders.in/water-prevention-and-control-of-pollution-act1974/>

¹⁹ Water crisis: Indifference will prove disastrous By Vijay Darda | 29-07-2019 Copyright @ <https://www.vijaydarda.in/post-timeline/water-crisis-indifference-will-provedisastrous/> | VijayDarda.in

3.2.3. The Wildlife Protection Act, 1972:

This Act provides for the protection of the country's wild animals, birds, and plant species, in order to ensure environmental and ecological security. Among other things, the Act lays down restrictions on hunting many animal species. The Act

was last amended in the year 2006.¹⁵ An Amendment bill was introduced in the Rajya Sabha in 2013 and referred to a Standing Committee, but it was withdrawn in 2015.

A. Need for the Wildlife Protection Act:

Wildlife is a part of 'forests' and this was a state subject until the Parliament passed this law in 1972. Now it is on the Concurrent List. Reasons for a nationwide law in the domain of the environment particularly wildlife include the following:

1. India is a treasure trove of varied flora and fauna. Many species were seeing a rapid decline in numbers. For instance, it was mentioned by Edward Pritchard Gee (A naturalist), that at the turn of the 20th century, India was home to close to 40000 tigers. But, a census in 1972 showed this number drastically reduced to about 1827.
2. A drastic decrease in the flora and fauna can cause ecological imbalance, which affects many aspects of climate and the ecosystem.
3. The most recent Act passed during the British era in this regard was the Wild Birds and Animals Protection Act, 1935¹⁶. This needed to be upgraded as the punishments awarded to poachers and traders of wildlife

products were disproportionate to the huge financial benefits that accrue to them.

¹⁵ Wildlife amendment act 2006

¹⁶ The Wild Birds and Animals Protection Act, 1935 (Act No. 8 of 1935).

4. There were only five national parks in India before the enactment of this Act.¹⁷

B. Salient Features of Wildlife Protection Act:

This Act provides for the protection of a listed species of animals, birds, and plants, and also for the establishment of a network of ecologically-important protected areas in the country.

a) Constitution of Wildlife Advisory Boards and Appointment of Wildlife Wardens [Sections 5-9]:

The Act provides for the formation of State Wildlife Advisory Boards under Section 5 and the appointment of Chief Wildlife Wardens and Wildlife Wardens under Sections 4, 8, and 9. These sections specify their powers, duties, and responsibilities in managing and protecting wildlife within the state.¹⁸

b) Enabling India's Participation in CITES:

Section 49B explicitly prohibits trade in specimens of endangered species listed in the Appendices of CITES. Furthermore, the entire Chapter VA (Sections 49A-49C) provides the legal framework for regulating international trade in endangered species, thereby enabling India to fulfill its obligations as a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).¹⁹

c) Comprehensive Listing of Endangered Wildlife:

¹⁷ <https://byjus.com/free-ias-prep/wildlife-protection-act-1972/>

¹⁸ The Wild Life (Protection) Act, 1972, Act No. 53 of 1972, ss. 4-9

¹⁹ The Wild Life (Protection) Act, 1972, Act No. 53 of 1972, Chapter VA

For the first time, the Act prepared a comprehensive list of the country's endangered wildlife through its Six Schedules. These schedules, particularly Schedules I, II, and IV, provide a systematic classification of protected plant and animal species based on their conservation status.²⁰

d) Prohibition on Hunting of Endangered Species [Section 9]

Section 9 of the Act provides a general prohibition on hunting any wild animal specified in Schedules I, II, III, and IV. Exceptions are provided under specific circumstances through permits issued by competent authorities under Section 11 and 12.²¹

e) Prohibition on Trade of Scheduled Animals:

The Act prohibits trade in scheduled animal species through multiple provisions. Section 39 vests the ownership of every wild animal in the government, while Sections 43, 44, and 48A regulate transfer and transport. Chapter VA specifically prohibits and regulates trade in endangered species.²²

f) Licensing for Sale and Possession of Wildlife Species [Sections 40-44]:

Sections 40 to 44 provide for licenses and certificates of ownership for the sale, transfer, and possession of certain wildlife species. These provisions regulate the

²⁰ *The Wild Life (Protection) Act, 1972, Act No. 53 of 1972, Schedules I-VI.*

²¹ *The Wild Life (Protection) Act, 1972, Act No. 53 of 1972, s. 9.*

²² *The Wild Life (Protection) Act, 1972, Act No. 53 of 1972, ss. 39, 43, 44, 48A & Chapter VA.*

possession and trade of specified animal articles through a permit system administered by the Chief Wildlife Warden.²³

g) Establishment of Protected Areas [Sections 18-34]:

The Act provides for the establishment of wildlife sanctuaries (Sections 18-34A), national parks (Sections 35-38), and conservation reserves (Section 36A) through a defined legal process, creating a comprehensive network of protected areas across the country.²⁴

h) Formation of Central Zoo Authority [Section 38A-38C]:

Sections 38A to 38C provide for the establishment of the Central Zoo Authority in 1992. This statutory body is responsible for overseeing the management and maintenance of zoos throughout India, ensuring they maintain proper standards.²⁵

i) Six Schedules with Varying Degrees of Protection:

The Act created six schedules which provide varying degrees of protection. Schedule I and Part II of Schedule II species receive absolute protection under Section 9, with offences attracting maximum penalties under Section 51, while other schedules permit regulated hunting or trade.²⁶

²³ The Wild Life (Protection) Act, 1972, Act No. 53 of 1972, ss. 40-44.

²⁴ The Wild Life (Protection) Act, 1972, Act No. 53 of 1972, ss. 18-38.

²⁵ The Wild Life (Protection) Act, 1972, Act No. 53 of 1972, ss. 38A-38C.

²⁶ The Wild Life (Protection) Act, 1972, Act No. 53 of 1972, ss. 2, 9, 51 & Schedules I-VI.

j) Constitution of National Board for Wildlife [Section 5A-5C]

Sections 5A to 5C provide for the constitution of the National Board for Wildlife as a statutory advisory body. This apex body, chaired by the Prime Minister, advises the central government on wildlife conservation policies and approves all matters related to national parks and sanctuaries.²⁷

k) Establishment of National Tiger Conservation Authority [Section 38L-38X]

Sections 38L to 38X provide for the establishment of the National Tiger Conservation Authority. This statutory body gives legal authority to Project Tiger and is mandated to strengthen tiger conservation through supervisory and coordination functions across tiger reserves in India.²⁸

3.2.4. The Forest (Conservation) Act, 1980:

The Forest Conservation Act 1980 is an important legislation enacted by the Government of India to regulate the diversion of forestland for non-forestry purposes. The Act was passed in response to the growing concern over the rapid depletion of India's forests, which had serious environmental and ecological consequences. It was enacted to consolidate the law related to forests, the transit of forest produces and the duty leviable on timber and other forest produce. It came into force on October 25, 1980. The Act deals with the four categories of

²⁷ *The Wild Life (Protection) Act, 1972*, Act No. 53 of 1972, ss. 5A-5C.

²⁸ *The Wild Life (Protection) Act, 1972*, Act No. 53 of 1972, ss. 38L-38X

forests, namely reserved forests, village forests, protected forests, and private forests.

Section 2 of the Act²⁹ lists four criteria where permission of the Central Government is required for any action of the State regarding: o Declaring that any reserved forest ceases to be reserved. o Use of forestland for non-forest purposes. o Leasing Forest to any private person.

o Declaring that any forest land may be cleared of trees that have grown naturally in that land for reforestation.

A. Objectives of Forest Conservation Act 1980:

The Forest Conservation Act 1980 seeks to balance the competing interests of development and environmental conservation. Its key objectives include:

- To conserve forests and ensure their sustainable management.
- To regulate the diversion of forestland for non-forestry purposes, such as mining, industrial projects, or infrastructure development.
- To ensure that any diversion of forestland is done only for a specific purpose and with the prior approval of the central government.
- Compensate for any loss of forest cover that may occur due to such diversions by undertaking afforestation and reforestation activities.³⁵

²⁹ *The Forest (Conservation) Act, 1980* (Act No. 69 of 1980) Section- 2 Definitions. ³⁵
<https://www.studyiq.com/articles/forest-conservation-act-1980/>

B. Salient Features:

The salient features of the Forest Conservation Act 1980 aim to regulate the diversion of forestland for non-forestry purposes, ensure the sustainable use of

forest resources, and promote afforestation and reforestation activities. These include:

a) Central government approval:

The core of the Act, under Section 2 mandates that the diversion of forestland for non-forestry purposes can only be approved by the central government. This requirement ensures that decisions related to forest diversion are made at the national level, with a focus on balancing economic development and environmental conservation.³⁰

b) Compensation for loss of forest cover:

The Act requires the payment of compensation for the loss of forest cover due to the diversion of forestland. The amount of compensation is based on the net present value of the diverted forestland, and the funds collected are utilised for afforestation and reforestation activities.

c) Consultation with state governments and tribal communities: The Act mandates that state governments and tribal communities be consulted before approving the diversion of forestland. The consultation process ensures that the views of local stakeholders are taken into account and their concerns are addressed.

³⁰ The Forest (Conservation) Act, 1980 (Act No. 69 of 1980) Section-2

d) Consultation with state governments and tribal communities:

The Act mandates that state governments and tribal communities be

consulted before approving the diversion of forestland. The consultation process ensures that the views of local stakeholders are taken into account and their concerns are addressed.

e) Mandatory undertaking for compensatory afforestation:

The Act requires that an equal area of non-forest land be afforested or reforested as a compensatory measure for the loss of forestland due to diversion. The undertaking for compensatory afforestation is mandatory, and non-compliance can result in penalties.

f) Deemed forests:

Through the landmark T.N. Godavarman Thirumulpad vs Union Of India³¹ case (1996), the Supreme Court expanded the Act's purview and Act recognises the concept of "deemed forests," which refers to areas that are not officially classified as forests but are ecologically sensitive and have forest-like characteristics. Such areas are also subject to the Act's provisions and require the central government's approval for any diversion.

g) Penalties for violation:

³¹ T.N. Godavarman Thirumulpad vs Union Of India AIR 1997 (2) SCC 267

Sections 3A and 3B of the Act provides for penalties, including imprisonment of up to 15 months and a fine of up to Rs. 10,000, or both, for violation of its provisions. The penalties act as a deterrent and promote compliance with the Act's provisions.³²

3.2.5. The Biological Diversity Act, 2002:

The Biological Diversity Act, 2002 was passed by the parliament of India to protect biodiversity and facilitate the sustainable management of biological resources with the local communities.

The Act was enacted to meet the requirements stipulated by the United Nations Convention on Biological Diversity (CBD), to which India is a party.³³

A. Overview of the Biological Diversity Act 2002:

The Act's main objective is to ensure the conservation of biological diversity, sustainable use of its components and fair usage of its resources in order to prevent overuse or eventual destruction of biodiversity.

Since India is one of the most biologically diverse nations in the world, this act is a necessity to protect its biological heritage.³⁴

B. The salient features of the Biological Diversity Act:

³² The Forest (Conservation) Act, 1980 (Act No. 69 of 1980) Section 3A and 3B

³³ *The Biological Diversity Act, 2002*, Act No. 18 of 2003 section 3(2)

³⁴ http://en.wikipedia.org/wiki/Convention_on_Biological_Diversity

a) Regulation of Access to Biological Resources:

The Act regulates access to biological resources occurring in India by prohibiting any person mentioned in Section 3(2) from obtaining them without prior approval of the National Biodiversity Authority. Furthermore, Section 4 prohibits the transfer of results of any research relating to Indian biological resources without NBA approval, thereby preventing bio-piracy.

b) Conservation and Sustainable Use of Biological Diversity:

The legislation aims to conserve biological diversity, as defined in Section 2(b), and promotes its sustainable use. This objective is furthered by the mandate of the National Biodiversity Authority and State Biodiversity Boards to advise the Government on conservation and sustainable use of biodiversity.³⁵

c) Protection of Traditional Knowledge:

The Act provides mechanisms for protecting the knowledge of local communities, referred to in Section 2(f) as "bio-survey and bio-utilization." Section 36(5) specifically mandates the Central Government to respect and protect the knowledge of local people, while Section 41 empowers Biodiversity Management Committees to document this knowledge.³⁶

d) Equitable Benefit Sharing:

³⁵ *The Biological Diversity Act, 2002*, Act No. 18 of 2003 section 2(b)

³⁶ *The Biological Diversity Act, 2002*, Act No. 18 of 2003 section 2(f), 36(5) and 41

The legislation establishes a framework for fair and equitable sharing of benefits arising from the use of biological resources and associated knowledge. Section 21 mandates the NBA to impose terms for benefit sharing when granting approval for commercial utilization. The funds collected are used for the benefit of the conservers, as per Chapter VII.³⁷

e) Protection and Rehabilitation of Threatened Species:

The Act provides for notifying species which are on the verge of extinction as

threatened species under Section 38, and empowers the Central Government to implement measures for their protection and rehabilitation.³⁸

f) Involvement of State Institutions:

The legislation mandates a decentralized structure for implementation. Section 22 provides for the establishment of State Biodiversity Boards (SBBs), and Section 41 mandates the formation of Biodiversity Management Committees (BMCs) at the local level, ensuring the involvement of state and local institutions.³⁹

C. National Biodiversity Authority:

In order to carry out the provisions of the act, the National Biodiversity Authority

³⁷ *The Biological Diversity Act, 2002*, Act No. 18 of 2003 section 21

³⁸ *The Biological Diversity Act, 2002*, Act No. 18 of 2003 section 38

³⁹ *The Biological Diversity Act, 2002*, Act No. 18 of 2003 section 22 and 41

(NBA) had been set up under the Ministry of Environments and Forest by the Government of India in 2003. The NBA is a statutory, autonomous body headquartered in Chennai. State Biodiversity Boards (SBB) were also created in the 28 states along with biological management committees for each local body.

Under this act, the Central Government in consultation with the NBA:

- Shall notify threatened species and prohibit or regulate their collection, rehabilitation, and conservation. Check out the IUCN Red list to know more about endangered species.
- Designate institutions as repositories for different categories of biological resources.

(a) The functions of the National Biodiversity Authority:

- Monitoring and prevention of actions prohibited under the Act.
- Providing advice to the government on how best to conserve biodiversity in India.
- Prepare a report on how the government can select biological heritage sites.
- Make concrete steps to prevent the grant of intellectual property rights regarding locally used biological resources or allied traditional knowledge.

(b) Structure of the NBA:

- The National Biodiversity Authority consists of the following members to be
- appointed by the central government, namely:
- A Chairperson.

- Three ex officio members, one representing the Ministry dealing with Tribal Affairs and two representing the Ministry dealing with Environment and Forests.
- Seven ex-officio members to represent respectively the Ministries of the Central government dealing with:
 - Agricultural Research and Education.
 - Biotechnology.
 - Ocean Development.
 - Agriculture and Cooperation.
 - Indian Systems of Medicine and Homoeopathy.
 - Science and Technology.
 - Scientific and Industrial Research.

D. State Biodiversity Boards (SBBs):

The SBBs are established by the State Governments in accordance with Section 22 of the Act and deal with all matters relating to access by Indians for commercial purposes.

(a) Functions of SBBs:

- Advising the State Government on matters of biodiversity and its equitable distribution or on matters relating to the conservation, sustainable use or sharing equitable benefits.
- Regulate granting of approvals or otherwise requests for commercial utilization or bio-survey and bio-utilization of any biological resource by people.

(b) Structure of SBBs:

The State Biodiversity Board consists of the following members:

- A Chairperson
- Not more than five ex officio members to represent the concerned Departments of the State Government
- Not more than five members from amongst experts in matters relating to conservation of biological diversity, sustainable use of biological resources and equitable sharing of benefits arising out of the use of biological resources.
- All the members of the SBB are appointed by the respective State Governments.⁴⁰

⁴⁰ <https://byjus.com/free-ias-prep/biological-diversity-act-2002//>

3.2.6. The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016⁴¹: A. Hazardous Waste:

Hazardous waste means any waste, which by reason of characteristics, such as physical, chemical, biological, reactive, toxic, flammable, explosive or corrosive, causes danger to health, or environment. It comprises the waste generated during the manufacturing processes of the commercial products such as industries involved in petroleum refining, production of pharmaceuticals, petroleum, paint, aluminium, electronic products etc.

As per the information furnished by Central Pollution Control Board (CPCB) in the year 2015, the total hazardous waste generation in the country is 7.46 million metric tonnes per annum from about 44,000 industries.

B. Importance of Proper Hazardous Waste Management:

Scientific disposal of hazardous waste through collection, storage, packaging, transportation and treatment, in an environmentally sound manner minimises the adverse impact on human health and on the environment.

The hazardous waste can be disposed at captive treatment facility installed by the individual waste generators or at Common Hazardous Waste Treatment, Storage and Disposal Facilities (TSDFs). There are 40 Common Hazardous Waste Treatment, Storage and Disposal Facilities (TSDFs) available in 17 States/UTs.

⁴¹ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules*, G.S.R. 395(E), (India)

Hazardous waste such as leads acid battery scraps, used oil, waste oil, spent catalyst etc. and other waste such as waste tyres, paper waste, metal scrap etc. are used as raw material by the industries involved in recycling of such waste and as

supplementary resource for material and energy recovery. Accordingly, it is always preferable to utilise such waste through recycling, or for resource recovery to avoid disposal through landfill or incineration. There are about 1080 registered recyclers; 47 cement plants permitted for co-processing; and about 108 industries permitted for utilisation of hazardous waste.

C. Problems of unscientific disposal of Hazardous and other waste:

Unscientific disposal of hazardous and other waste through burning or incineration leads to emission of toxic fumes comprising of Dioxins & Furans, Mercury, heavy metals, causing air pollution and associated health-related problems. Disposal in water bodies, or in municipal dumps leads to toxic releases due to leaching in land and water entailing into degradation of soil and water quality. The workers employed in such unscientific practices suffer from neurological disorders, skin diseases, genetic defects, cancer etc. Hence, there is a need for systematic management of hazardous and other waste in an environmentally sound manner by way of prevention, minimisation, re-use, recycling, recovery, utilisation including co-processing and safe disposal of waste.⁴²

D. Salient features of Hazardous Waste Management Rules 2016:

⁴² <https://energy.vikaspedia.in/viewcontent/energy/environment/waste-management/hazardous-waste/environment-ministry-notifies-hazardous-waste-managementrules-2016?lgn=en>

For the first time, Rules have been made to distinguish between Hazardous Waste and other wastes. Other wastes include: Waste tyre, paper waste, metal scrap, used electronic items, etc. and are recognized as a resource for recycling and reuse.

These resources supplement the industrial processes and reduce the load on the virgin resource of the country.

The salient features of Hazardous and Other Wastes (Management & Trans boundary Movement) Rules, 2016 include the following: -

- The ambit of the Rules has been expanded by including ‘Other Waste’ as defined in Rule 3(33) and specified in Schedule III.⁴³
- Waste Management hierarchy in the sequence of priority of prevention, minimization, reuse, recycling, recovery, co-processing; and safe disposal has been incorporated under Rule 4.⁴⁴
- All the forms under the rules for permission, import/export, filing of annual returns, transportation, etc. have been revised significantly, indicating the stringent approach for management of such hazardous and other wastes with simultaneous simplification of procedure as per Forms 1 to 9.⁴⁵
- The basic necessity of infrastructure to safeguard the health and environment from waste processing industry has been prescribed as

⁴³ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016*, G.S.R. 395(E), rule 3(33) Schedule I, II & III

⁴⁴ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016*, G.S.R. 395(E), rule 4

⁴⁵ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016*, G.S.R. 395(E), Forms 1-9
2016

Standard Operating Procedure (SOPs), specific to waste type, which has to be complied by the stakeholders and ensured by SPCB/PCC while granting such authorisation under Rule 5.⁴⁶

⁴⁶ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules*, G.S.R. 395(E), rule 5 and Schedule IV.

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Procedure has been simplified to merge all the approvals as a single window clearance for setting up of hazardous waste disposal facility and import of other wastes under Rule 6.⁴⁷

- Co-processing as preferential mechanism over disposal for use of waste as supplementary resource, for recovery of energy has been provided under Rule 7.⁴⁸
- The approval process for co-processing of hazardous waste to recover energy has been streamlined and put on emission norms basis rather than on trial basis under Rule 8.⁴⁹
- The process of import/export of waste under the Rules has been streamlined by simplifying the document-based procedure and by revising the list of waste regulated for import/export as per Chapter V.⁵⁰
- The import of metal scrap, paper waste and various categories of electrical and electronic equipment's for re-use purpose have been exempted from the need of obtaining Ministry's permission under Schedule VI.⁵¹
- The basic necessity of infrastructure to safeguard the health and environment from waste processing industry has been prescribed as Standard Operating Procedure (SOPs) specific to waste type under

⁴⁷ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016*, G.S.R. 395(E), rule 6.

⁴⁸ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016*, G.S.R. 395(E), rule 7

⁴⁹ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016*, G.S.R. 395(E), rule 8

⁵⁰ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016*, G.S.R. 395(E), Chapter V.

⁵¹ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016*, G.S.R. 395(E), Schedule VI

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Schedule IV.⁵²

Responsibilities of State Government for environmentally sound management of hazardous and other wastes have been introduced under Rule 20 as follows:

- To set up/ allot industrial space or sheds for recycling, pre-processing and other utilization of hazardous or other waste.
 - To register the workers involved in recycling, pre-processing and other utilization activities.
 - To form groups of workers to facilitate setting up such facilities.
 - To undertake industrial skill development activities and ensure safety and health of workers.⁵³
-
- List of processes generating hazardous wastes has been reviewed taking into account technological evolution in the industries as per Schedule I.⁵⁴
 - List of Waste Constituents with Concentration Limits has been revised as per international standard and drinking water standard under Schedule II.
- The following items have been prohibited for import under Schedule VI:
- Waste edible fats and oil of animals, or vegetable origin;
 - Household waste;
 - Critical Care Medical equipment;

⁵² *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules*, G.S.R. 395(E), Schedule IV.

⁵³ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016*, G.S.R. 395(E), rule 20.

⁵⁴ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016*, G.S.R. 395(E), Schedule I.

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- Tyres for direct re-use purpose;
- Solid Plastic wastes including Pet bottles;
- Waste electrical and electronic assembly's scrap;
- Other chemical wastes especially in solvent form.⁵⁵

State Government is authorized to prepare integrated plan for effective implementation of these provisions, and have to submit annual report to Ministry of Environment, Forest and Climate Change under Rule 20.⁵⁶

- State Pollution Control Board (SPCB) is mandated to prepare an annual inventory of the waste generated; waste recycled, recovered, utilised including co-processed; waste re-exported and waste disposed and submit to the Central Pollution Control Board by the 30th day of September every year under Rule 21.⁵⁷

3.2.7. The Costal Regulation Zone (CRZ) notifications:

Coastal Regulation Zone (CRZ), introduced under the Environment (Protection) Act, 1986, aims to safeguard India's coastal ecosystems while promoting sustainable development. It divides coastal areas into CRZ-I to CRZ-IV balancing environmental conservation with activities like fishing, tourism, and

⁵⁵ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules*, G.S.R. 395(E), Schedule II and VI

⁵⁶ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules*, 2016, G.S.R. 395(E), rule 20

⁵⁷ *The Hazardous and Other Wastes (Management and Transboundary Movement) Rules*, 2016, G.S.R. 395(E), Rule 21

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infrastructure development. Key updates in the 2019 notification reduced the No Development Zone (NDZ) and encouraged tourism in certain areas.⁵⁸

Challenges in CRZ implementation include poor enforcement, conflicting interests, and frequent amendments. In recent years, there have been debates and calls for reforming the CRZ rules to enable more development in coastal regions, but also to make sure the environment is not harmed.

A. Coastal Regulation Zone Meaning:

⁵⁸ *Coastal Regulation Zone Notification*, S.O. 19(E), Ministry of Environment, Forest and Climate Change (New Delhi: 2019).

Coastal Regulation Zone (CRZ) regulates activities along India's 7,516 km coastline to protect fragile ecosystems. The CRZ refers to the set of regulations enforced by the government of India to protect and conserve coastal areas and their ecosystems. These regulations are intended to balance development with environmental protection, especially in areas near the coastline.

Under section 3 of Environment Protection Act, 1986 of India, Coastal Regulation Zone notification was issued in February 1991 for the first time, for regulation of activities in the coastal area by the Ministry of Environment and Forests (MoEF).⁵⁹

B. Coastal Regulation Zone Objective:

Coastal Regulation Zone (CRZ) objective is to protect the fragile ecosystem, promote sustainable development, and ensure the well-being of coastal communities. The objectives of CRZ includes:

- **Environmental Conservation:**

To preserve and protect the unique ecosystems of coastal areas and marine environments.

- **Livelihood Security:**

To ensure the livelihood and well-being of fishing communities and other local populations residing in coastal regions.

- **Sustainable Development:**

⁵⁹ *The Environment (Protection) Act, 1986*, Act No. 29 of 1986, s 3

To encourage development activities based on scientific principles that promote long-term sustainability.⁶⁰

C. Coastal Regulation Zones Types:

The Coastal Regulation Zone (CRZ) Notification was first issued by the Ministry of Environment, Forest and Climate Change (MoEFCC) in 1991, with subsequent amendments. It classifies the coastal areas into different zones, each with specific rules regarding what kind of development is permissible. The CRZ zones are classified as:

CRZ-I: Ecologically Sensitive Areas:

- **CRZ-I (A):** Areas deemed most critical, including:
 - Mangroves, coral reefs, and sand dunes
 - National parks, marine parks, and wildlife habitats
 - Areas of geological or archaeological importance
- **CRZ-I (B):** The intertidal zone – the area between the Low Tide Line (LTL) and the High Tide Line (HTL).

CRZ-II: Developed Areas:

- Areas within municipal limits or other legally designated urban areas that are already substantially built-up.
- These areas have existing infrastructure like drainage, roads, and other services.

⁶⁰ <https://vajiramandravi.com/upsc-exam/coastal-regulation-zone/>

CRZ-III: Rural Areas:

- **CRZ-III (A):** Relatively dense rural areas (with a population density greater than 2,161 persons per sq. km). A **No Development Zone (NDZ)** of **50 meters** from the HTL is maintained.
- **CRZ-III (B):** Less dense rural areas. A larger **No Development Zone (NDZ)** of **200 meters** from the HTL is maintained.

CRZ-IV: Water Areas:

- **CRZ-IV (A):** The aquatic area from the Low Tide Line up to **12 nautical miles** (the limit of India's territorial waters) on the seaward side.
- **CRZ-IV (B):** The water areas and the sea bed of **tidal-influenced water bodies** like creeks, rivers, and estuaries.⁶¹

3.3 Indian Constitutional framework:

Environment and Constitution of India: The protect and improve the environment is a constitutional mandate. It is a commitment for a country wedded to the ideas of a welfare State. The Indian Constitution contains specific provisions for environment protection under the chapters of Directive Principles of State Policy and Fundamental Duties.

3.3.1. 42nd amendment of constitution:

Initially, the Constitution of India had no direct provision for environmental protection. Global consciousness for the protection of environment in the seventies, Stockholm Conference and increasing awareness of the environmental

⁶¹ *Coastal Regulation Zone Notification*, S.O. 19(E), Ministry of Environment, Forest and Climate Change (New Delhi: 2019), paras 2, 3, 4, 5, 6 and Schedule I

crisis prompted the Indian Government to enact 42nd Amendment to the Constitution in 1976. The Constitution was amended to introduce direct provisions for protection of environment. This 42nd Amendment added Article 48-A to the Directive Principles of State Policy.⁶²

3.3.2. Article 48-A:

The Article states: “The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.” The said amendment imposed a responsibility on every citizen in the form of Fundamental Duty.⁶³

3.3.3. Article 51-A, Clause (g):

Article 51-A (g) which deals with Fundamental Duties of the citizens states: “It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures.” Thus, protection and improvement of natural environment is the duty of the State (Article 48-A) and every citizen (Article 51- A (g)).⁶⁴

3.3.4. Article 253:

Article 253 states that ‘Parliament has power to make any law for the whole or any part of the country for implementing any treaty, agreement or convention with any other country. In simple words this Article suggests that in the wake of Stockholm Conference of 1972, Parliament has the power to legislate on all

⁶² The Constitution (Forty-second Amendment) Act, 1976

⁶³ Constitution of India, art. 48A

⁶⁴ Constitution of India, art. 51A(g)

matters linked to the preservation of natural environment. Parliament's use of Article 253 to enact Air Act and Environment Act confirms this view. These Acts were enacted to implement the decisions reached at Stockholm Conference.⁶⁵

The absence of a specific provision in the Constitution recognizing the

fundamental right to clean and wholesome environment has been set off by judicial activism in the recent times.⁶⁶

3.4. Enforcement and Adjudication:

The Ministry of Environment, Forest and Climate Change is the nodal ministry for enforcing the regulatory framework related to the environment, biodiversity, forests, wildlife and climate change in India. It lays down the general policy framework on environmental issues.⁶⁷

3.4.1. Ministry of Environment, Forest, and Climate Change (MoEFCC)⁶⁸:

A. Introduction:

The Ministry of Environment, Forest and Climate Change (MoEFCC) is the nodal agency in the administrative structure of the Central Government for the planning, promotion, co-ordination and overseeing the implementation of India's environmental and forestry policies and programmes.

⁶⁵ Constitution of India, art. 253

⁶⁶ <https://www.indianbarassociation.org/wp-content/uploads/2013/02/environmental-lawarticle.pdf>

⁶⁷ <https://www.lexology.com/library/detail.aspx?g=ee60c873-1bd3-494e-826c0619b0438d90>

⁶⁸ Ministry of Environment, Forest and Climate Change, Government of India

It is the apex administrative body that provides the foundational framework under which other regulatory institutions operate.

B. Functions of the Ministry:

- The primary concerns of the Ministry are implementation of policies and programmes relating to conservation of the country's natural resources

including its lakes and rivers, its biodiversity, forests and wildlife, ensuring the welfare of animals, and the prevention and abatement of pollution.

- While implementing these policies and programmes, the Ministry is guided by the principle of sustainable development and enhancement of human well-being.
- The Ministry also serves as the nodal agency in the country for the United Nations Environment Programme (UNEP), South Asia Co-operative Environment Programme (SACEP), International Centre for Integrated Mountain Development (ICIMOD) and for the follow-up of the United Nations Conference on Environment and Development (UNCED).
- The Ministry is also entrusted with issues relating to multilateral bodies such as the Commission on Sustainable Development (CSD), Global Environment Facility (GEF) and of regional bodies like Economic and Social Council for Asia and Pacific (ESCAP) and South Asian Association for Regional Co-operation (SAARC) on matters pertaining to the environment.

C. Objectives of the Ministry:

The broad objectives of the Ministry are:

- Conservation and survey of flora, fauna, forests and wildlife
- Prevention and control of pollution
- Afforestation and regeneration of degraded areas
- Protection of the environment and
- Ensuring the welfare of animals.

These objectives are well supported by a set of legislative and regulatory measures, aimed at the preservation, conservation and protection of the environment. Besides the legislative measures, the **National Conservation Strategy and Policy Statement on Environment and Development, 1992; National Forest Policy, 1988; Policy Statement on Abatement of Pollution, 1992;** and the **National Environment Policy, 2006** also guide the Ministry's work.⁶⁹

D. Initiatives:

The Ministry of Environment, Forest, and Climate Change has taken many initiatives for the betterment of the Environment, for instances:

Resource efficiency policy:

In August 2019 Ministry of Environment released the Draft National Resource Efficiency Policy.⁷⁰ It is a set of guidelines which envisions a future with environmentally sustainable and equitable economic growth. The policy is guided by principle of reduction in primary resource consumption; creation of higher value with less material through resource efficient circular approach; waste minimization; material security and creation of employment opportunities and

⁶⁹ <https://ntps.nic.in/Public/AboutMoEFCC.aspx#>

⁷⁰ NITI Aayog, *Strategy on Resource Efficiency*, (New Delhi: Government of India, 2017)

business model beneficial to cause of environment protection and restoration. It was based on the report of NITI Aayog and European Union titled, The strategy on resource efficiency. The policy seeks to set up a National Resource Efficiency Authority with core working group housed in the Ministry. It also plans to offer tax benefits on recycled materials and soft loans to set up waste disposal and material recovery facilities.

As of 8 December 2021, some states have received more than Rupees 47,000 crore for afforestation. The states are directed to channel this amount as compensatory afforestation which shall be used for plantations, assisted natural forest regeneration, forest fire-prevention, pest and disease control in forest, and expedite soil and moisture conservation works.⁷¹

3.4.2. Central Pollution Control Boards (CPCBs):

The Central Pollution Control Board (CPCB) of India is a statutory organisation under the Ministry of Environment, Forests and Climate Change, established in 1974 under the Water (Prevention and Control of Pollution) Act and later entrusted with functions and responsibilities under the Air (Prevention and Control of Pollution) Act, 1981. It coordinates the activities of the State Pollution Control Boards by providing technical assistance and guidance and also resolves disputes among them.

⁷¹ https://en.wikipedia.org/wiki/Ministry_of_Environment,_Forest_and_Climate_Change ⁷⁸
The Water (Prevention and Control of Pollution) Act, 1974, Act No. 6 of 1974, s. 3.

CPCB is led by its chairman followed by the Member Secretary, and other members. The CPCB performs its various functions through the following nine major project budget heads.⁷⁸

A. Functions of the Central Board at the National Level: Section-16

- Advise the Central Government on any matter concerning prevention and control of water and air pollution and improvement of the quality of air.
 - Plan and cause to be executed a nation-wide programme for the prevention, control or abatement of water and air pollution;
-
- Co-ordinate the activities of the State Board and resolve disputes among them;
 - Provide technical assistance and guidance to the State Boards, carry out and sponsor investigation and research relating to problems of water and air pollution, and for their prevention, control or abatement;
 - Plan and organise training of persons engaged in programme on the prevention, control or abatement of water and air pollution;
 - Organise through mass media, a comprehensive mass awareness programme on the prevention, control or abatement of water and air pollution;
 - Collect, compile and publish technical and statistical data relating to water and air pollution and the measures devised for their effective prevention, control or abatement;
 - Prepare manuals, codes and guidelines relating to treatment and disposal of sewage and trade effluents as well as for stack gas cleaning devices, stacks and ducts;

- Disseminate information in respect of matters relating to water and air pollution and their prevention and control;
- Lay down, modify or annul, in consultation with the State Governments concerned, the standards for stream or well, and lay down standards for the quality of air; and
- Perform such other function as may be prescribed by the Government of India.

B. Functions of the Central Board as State Boards for the Union Territories:

- Advise the Governments of Union Territories on the suitability of locations for industries that may cause air or water pollution.
- Lay down standards for the treatment of sewage and trade effluents.
- Establish emission standards for automobiles, industrial plants, and other polluting sources.
- Evolve efficient and reliable methods for the disposal of sewage and trade effluents on land.
- Develop economically viable methods for treating sewage, trade effluents, and air pollution control equipment.
- Identify and notify specific areas within Union Territories as air pollution control areas.
- Assess the quality of ambient water and air.
- Inspect wastewater treatment installations, air pollution control equipment, and industrial processes to evaluate their performance.

- Take all necessary steps for the prevention, control, and abatement of air and water pollution.⁷²

C. Delegation of Powers:

As per the policy decision of the Government of India, the CPCB has delegated its powers and functions under the Water (Prevention and Control of Pollution) Act, 1974, the Water (Prevention and Control of Pollution) Cess Act, 1977 and the Air (Prevention and Control of Pollution) Act, 1981 with respect to Union Territories to respective local administrations.

CPCB along with its counterparts State Pollution Control Boards (SPCBs) are

responsible for implementation of legislations relating to prevention and control of environmental pollution.⁷³

3.4.3. State Pollution Control Boards (SPCBs): Section-17:

State Pollution Control Boards are statutory bodies established by state governments in India, responsible for enforcing environmental laws and regulations within their respective states. Their main objective is to prevent, control and abate environmental pollution, focusing primarily on air and water pollution.

SPCBs monitor the quality of air and water, set environmental standards and ensure compliance through regular inspections and monitoring of industrial and

⁷² *The Water (Prevention and Control of Pollution) Act, 1974*, Act No. 6 of 1974, ss. 16

⁷³ <https://cpcb.nic.in/functions/>

other activities. They also provide technical assistance, conduct research on environmental issues and engage in public education and awareness campaigns.

By working in collaboration with the Central Pollution Control Board (CPCB) and other local bodies, SPCBs play a critical role in maintaining ecological balance and safeguarding public health and the environment.⁷⁴

A. Constitution of State Pollution Boards:

A State Board shall consist of the following members, namely:

(a) Chairman is a person has special knowledge or practical experience in respect of matters relating to environmental protection or a person having knowledge and experience in administering institutions dealing with the matters aforesaid, to be

nominated by the State Government provided, that the Chairman may be either whole-time or part-time as the State Government may, think fit.

(b) Such number of officials, not exceeding five, to be nominated by the State Government to represent that Government.

(c) Such number of persons, not exceeding five, to be nominated by the State Government from amongst the members of the local authorities functioning within the State.

(d) Such number of non-officials not exceeding three, to be nominated by the State Government to represent the interests of agriculture, fishery or industry or

⁷⁴ *The Water (Prevention and Control of Pollution) Act, 1974*, Act No. 6 of 1974, s. 4.

trade or any other which, in the opinion of the State Government, ought to be represented.

(e) Two persons to represent the companies or corporations owned, controlled and managed by the State Government.

(f) A full time Member Secretary having such qualifications, knowledge and experience of scientific, engineering or management aspects of pollution control as may be fixed by the State Government.

B. Key Functions of SPCB:

This section discusses the comprehensive functions of the State Pollution Control Boards, as outlined in significant environmental laws like the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981, among others.

Planning and Execution of Pollution Control Programs:

One of the primary responsibilities of the SPCBs is to plan comprehensive programs for the prevention, control or abatement of air and water pollution. These programs are designed not only to meet current regulatory requirements but also to anticipate future environmental challenges.

The boards ensure the effective execution of these plans by coordinating with local bodies, industries and other stakeholders. This proactive approach helps in maintaining a strategic check over environmental degradation and in fostering sustainable development within the state.

a) Advisory Role:

SPCBs serve as key advisors to the state governments on various matters related to air and water pollution. Their expert recommendations are important in shaping state policies on environmental conservation.

This includes advising on the implementation of laws, suggesting modifications to existing policies based on ground realities and helping draft new regulations that address emergent environmental issues.

b) Information Collection and Dissemination:

An important function of the SPCBs is to gather and disseminate information regarding air and water pollution. This involves monitoring pollution levels, maintaining records of environmental data and conducting environmental assessments and audits.

The collected data are important for informed decision-making both at the state and central levels. Moreover, these boards play a vital role in educating the public by providing accessible information on pollution and its effects, thereby fostering a culture of environmental awareness and responsibility.

c) Collaboration and Training:

Collaboration with the Central Pollution Control Board and other agencies is essential for the SPCBs. These collaborations help in organising training programs for individuals engaged in activities related to pollution control. Such training initiatives enhance the capabilities of personnel to tackle pollution effectively and ensure that the workforce is updated with the latest technologies and methodologies in pollution abatement.

d) Technical Assistance and Research:

SPCBs provide technical assistance and guidance to local bodies, industries and research institutions dealing with pollution-related issues.

They sponsor and conduct research on various environmental problems, particularly those that have a significant impact on water and air quality within the state. This function is vital for developing new solutions and strategies to combat pollution effectively.

e) Standards Setting:

One of the critical functions of the SPCBs involves setting, modifying and annulling standards for maintaining the quality of streams, wells and air. These standards are established in consultation with the state government and are important for regulating the quality of natural resources.

They ensure that the emission of pollutants is within the safe limits, thereby protecting the environment and public health.

f) Industrial Location Advisement:

The SPCBs also advise the state government on the suitability and location of industries based on the potential environmental impact. This includes assessing the likelihood of an industry to pollute streams, wells or the air. Proper siting of industries helps in minimising environmental impacts and facilitates the integration of pollution control measures from the planning stage itself.

g) Emission and Effluent Standards:

Setting standards for the treatment of sewage, trade effluents and industrial emissions is another vital responsibility of the SPCBs.

These standards ensure that the effluents discharged into water bodies and emissions released into the atmosphere are treated to remove harmful substances before release, thus safeguarding water and air quality.

h) Pollution Control Areas:

Identifying and declaring certain areas within the state as pollution control zones is a strategic function of the SPCBs. These zones may be designated as either Water Pollution Prevention and Control Areas or Air Pollution Control Areas, depending on the prevailing environmental concerns. Such designations are important for implementing stricter pollution control measures in areas that are particularly vulnerable to pollution.

- i) Augmented Powers under the Environment (Protection) Act, 1986:** The Environment (Protection) Act, 1986, has further extended the powers and responsibilities of the SPCBs, emphasising their important role in environmental management. Under this Act, the boards have enhanced authority to tackle various environmental issues more effectively and to enforce environmental laws rigorously.⁷⁵

C. Following is the List of State Pollution control Boards:

⁷⁵ *The Water (Prevention and Control of Pollution) Act, 1974*, Act No. 6 of 1974, ss. 17.

List of State Pollution Control Boards, Websites		
S.NO.	STATE POLLUTION CONTROL BOARD	WEBSITE
1.	Andhra Pradesh State Pollution Control Board	https://pcb.ap.gov.in/
2.	Arunachal Pradesh State Pollution Control Board	https://apspcb.net/
3.	Assam State Pollution Control Board	http://www.pcbassam.org
4.	Bihar State Pollution Control Board	https://bspcb.bihar.gov.in/
5.	Chhattisgarh Environment Conservation Board	http://www.enviscecb.org
7.	Gujarat State Pollution Control Board	http://gpcb.gov.in
8.	Haryana State Pollution Control Board	http://hspcb.gov.in
9.	Himachal Pradesh State Pollution Control Board	http://hppcb.nic.in
10.	Jammu & Kashmir State Pollution Control Board	https://jkpcb.jk.gov.in/
11.	Jharkhand State Pollution Control Board	https://jspcb.org.in/
12.	Karnataka State Pollution Control Board	https://kspcb.karnataka.gov.in

13. Kerala State Pollution Control Board	https://kspcb.kerala.gov.in/
14. Madhya Pradesh State Pollution Control Board	https://www.mppcb.mp.gov.in/
15. Maharashtra State Pollution Control Board	http://mpcb.gov.in
16. Manipur State Pollution Control Board	https://manipcb.nic.in/
17. Meghalaya State Pollution Control Board	http://megspcb.gov.in
18. Mizoram State Pollution Control Board	https://mpcb.mizoram.gov.in/
19. Nagaland State Pollution Control Board	https://npcb.nagaland.gov.in/?cat=5
20. Odisha State Pollution Control Board	https://ospcbboard.odisha.gov.in/
21. Punjab State Pollution Control Board	https://ppcb.punjab.gov.in/en/
22. Rajasthan State Pollution Control Board	https://environment.rajasthan.gov.in/content/environment/en/rajasthan-state-pollution-control-board.html#
23. Sikkim State Pollution Control Board	https://spcb.sikkim.gov.in/index.html
24. Tamil Nadu State Pollution Control Board	http://www.tnpcb.gov.in
25. Telangana Pollution Control Board	https://tgpcb.cgg.gov.in/
26. Tripura State Pollution Control Board	http://tspcb.tripura.gov.in
27. Uttar Pradesh State Pollution Control Board	http://www.uppcb.com
28. Uttarakhand State Pollution Control Board	http://ueppcb.uk.gov.in
29. West Bengal State Pollution Control Board	http://www.wbpcb.gov.in

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3.4.4. National Green Tribunal (NGT):

The National Green Tribunal, established in 2010, as per the National Green Tribunal Act is a specialised judicial body equipped with expertise solely for the purpose of adjudicating environmental cases in the country.⁸⁴

Recognising that most environment cases involve multi-disciplinary issues which are better addressed in a specialised forum, the Tribunal was setup as per recommendations of the Supreme Court, Law Commission and India's

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<https://lawbhoomi.com/functions-of-the-state-pollution-control->

The National Green Tribunal Act, 2010

boards/#What_are_the_Key_Functions_of_Functions_of_the_State_Pollution_Control_Boards
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, Act No. 19 of 2010 section 3

international law obligations to develop national laws on environment and implement them effectively.

A. What is the Tribunal's composition?

The Tribunal has a presence in five zones- North, Central, East, South and West. The Principal Bench is situated in the North Zone, headquartered in Delhi.

The Central zone bench is situated in Bhopal, East zone in Kolkata, South zone in Chennai and West zone in Pune.

The Tribunal is headed by the Chairperson who sits in the Principal Bench and has at least ten but not more than twenty judicial members and at least ten but not more than twenty expert members.⁷⁶

B. Functions of the National Green Tribunal:

- It is a body that has expertise in handling the disputes related to the environment which includes multi-disciplinary issues as well.
- The Code of Civil Procedure, 1908, shall not bind the Tribunal as it is to be guided by natural justice principles.
- The jurisdiction of the Tribunal shall provide speedy trials of the environment-related matters and help in reducing the burden of cases pending in the higher courts.

⁷⁶ , Act No. 19 of 2010 section 4(3), 5(1) and (2)

The National Green Tribunal Act, 2010

- The tribunal is mandated to dispose off environment-related issues within 6 months of filing the complaint.

-
- The National Green Tribunal need not follow all that is given under the Civil Procedure Code but can regulate the procedure by itself and applies the principle of natural justice in administering justice.
 - It is required to apply principles such as sustainable development at the time of awarding compensation or giving orders.
 - It should have in mind the principle that whoever is found polluting will have to pay i.e. the principle of 'Polluter Pays'.
 - The National Green Tribunal is not bound by the rules mentioned in the Indian Evidence Act.
 - All the proceedings before the National Green Tribunal shall be accorded to the proceedings within the sections of the IPC.
 - The tribunal is allowed to be a civil court to settle the matters.⁷⁷

C. Procedure:

- The Tribunal has framed its own rules since applications to the tribunal are inherently distinct from civil suits or writ petitions. The Tribunal identifies necessary parties as required under necessary statutes mentioned in Schedule I of the NGT Act, 2010 and requires them to promptly respond by email which saves time and cost. Notice is not issued mechanically to every party named as respondents in the application.⁷⁸

⁷⁷ The National Green Tribunal Act, 2010, Act No. 19 of 2010, ss. 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35

⁷⁸ The National Green Tribunal Act, 2010, Act No. 19 of 2010 Schedule I

- The Tribunal entertains letter petitions which bring to light instances of substantial environmental damage. A valid complaint is taken note of even

in the absence of any representation from the aggrieved party and response is sought by email and can be filed even without an advocate.⁷⁹

- Further directions to submit 'factual and action taken' report are issued to identified statutory authorities and/or experts identified by the Tribunal, as deemed appropriate, to investigate the claims of environmental damage. An executable order is passed requiring concerned authority to take steps including restricting pollution, recovering compensation and initiating prosecution.⁸⁰
- Upon adjudication of claims by the Tribunal, select members or committees, including those comprising former high court judges, former chief secretaries or subject matter experts may be appointed to ensure timely execution of the orders, in cases where it is deemed appropriate by the Tribunal.⁸¹

D. Speedy disposal and increased access to justice:

⁷⁹ *The National Green Tribunal Act, 2010*, Act No. 19 of 2010 section 18(2)

⁸⁰ *The National Green Tribunal Act, 2010*, Act No. 19 of 2010 section 19(3)

⁸¹ *The National Green Tribunal Act, 2010*, Act No. 19 of 2010 section 23

- Expeditious decision making is beneficial not only to litigants but also enables prevention of potential environmental damage instead of compensating for damage already caused.
 - By serving the orders and seeking responses by email only saves time and enables the Tribunal to take decisions in a time bound manner.
-

- In the absence of full strength of judicial and expert members in regional benches of the Tribunal situated in Chennai, Pune, Bhopal and Kolkata, the Principal Bench in New Delhi is hearing applications from other jurisdictions remotely by video conferencing to meet the needs of the litigants.⁸²

The Tribunal is tasked with providing effective and expeditious remedy in cases relating to environmental protection, conservation of forests and other natural resources and enforcement of any legal right relating to environment. The Tribunal's orders are binding and it has power to grant relief in the form of compensation and damages to affected persons.⁹²

3.4.5. Importance of role of Environmental Protection Administrative bodies:

The framework for environmental protection in India is a comprehensive and collaborative effort spearheaded by the **Ministry of Environment, Forest and Climate Change (MoEF&CC)** at the central policy level, and implemented on the ground by enforcement and technical bodies such as the **Central Pollution Control Board (CPCB)** and the various **State Pollution Control Boards (SPCBs)**.

These entities are critical players in the nation's environmental conservation and regulatory efforts. Their fundamental mission, which is derived from the laws

⁸² *The National Green Tribunal Act, 2010*, Act No. 19 of 2010 section 19 and 19(4)⁹²
<https://www.greentribunal.gov.in/about-us>

passed by the Indian Parliament, is to protect human health and the natural environment, a role that is indispensable for a developing and democratic

economy like India that is balancing rapid economic growth with ecological sustainability.

(a) Establishes Standards for Environmental Health and Safety:

The Ministry of Environment, Forest and Climate Change (MoEF&CC) and the Central Pollution Control Board (CPCB) are responsible for developing and notifying scientifically-backed national standards for environmental quality. These include the National Ambient Air Quality Standards (NAAQS), Effluent and Emission Standards for industries, and regulations for hazardous waste management. The primary objective of these standards is to establish uniform benchmarks that protect public health and environmental integrity, providing clear compliance guidelines for industries and businesses.

(b) Regulates Industrial Emissions and Discharges:

A core function of the CPCB and State Pollution Control Boards (SPCBs) is to regulate pollutants released from industrial operations. This is achieved through a permitting system—granting Consents to Establish and Consent to Operate under relevant environmental acts. These bodies monitor compliance to ensure that industrial units control and treat their air and water emissions before release, thereby minimizing ecological damage and health risks.

(c) Enforces Environmental Legislation:

The CPCB, SPCBs, and the National Green Tribunal (NGT) form the enforcement backbone of India's environmental regulatory framework. While the pollution control boards monitor and take administrative action, the NGT serves as a specialized judicial body for the expedited resolution of environmental disputes and cases of non-compliance. This multi-tiered system ensures that environmental laws are upheld and violations are addressed.

(d) Conducts and Mandates Environmental Assessments:

The MoEF&CC, through its expert appraisal committees, administers the Environmental Impact Assessment (EIA) process. This requires detailed studies for proposed developmental projects to understand their potential environmental consequences before granting clearances. The findings from these assessments are critical for informed decision-making, shaping project approvals with necessary safeguards.

(e) Promotes Energy Efficiency and Cleaner Production:

While the Bureau of Energy Efficiency (BEE) leads specific programs, the broader policy framework of the MoEF&CC and the Government of India actively encourages industries to adopt energy-efficient technologies and cleaner production methods. Schemes like the Perform, Achieve and Trade (PAT) create a market-based mechanism to drive energy savings and reduce the carbon footprint of industrial operations.

(f) Educates the Public and Drives Awareness:

Indian environmental authorities play a key role in raising public awareness. They disseminate information through annual environmental reports, real-time pollution data from monitoring networks, and public advisories. Initiatives like Mission LiFE (Lifestyle for Environment) are launched to mobilize individual and community action towards sustainable living and conservation.

(g) Aids in Disaster Response and Environmental Emergencies:

In the event of environmental crises such as chemical spills or industrial accidents, the CPCB and SPCBs provide critical technical expertise for containment and remediation. They work in coordination with disaster management forces to assess damage, guide clean-up operations, and mitigate long-term ecological impact.

(i) Facilitates Sustainable Practices and Green Growth:

The government promotes a holistic vision of green growth through various schemes and market-based instruments. The recently introduced Green Credit Programme, for instance, incentivizes and rewards environmentally positive actions by industries, communities, and individuals, fostering a wider culture of sustainability.

(j) Monitors Environmental Change and Drives Climate Strategy:

The MoEF&CC and its affiliated research institutions continuously monitor longterm environmental changes, with a specific focus on climate change, using a network of monitoring stations and satellite data. This scientific evidence forms

the basis for formulating national climate change mitigation and adaptation strategies, ensuring the country's development is climate-resilient.⁸³

3.4.6 Enforcement Mechanism:

A. What are the typical steps in an Investigation?

Authorities like the Central Pollution Control Board (CPCB), State Pollution Control Boards (SPCBs), and other pollution control committees are empowered under various environmental laws to conduct inspections. The typical procedure involves the following steps:

1. Initiation of Inspection:

- The investigation can be triggered based on a complaint received from the public or through the regulator's own cognizance (e.g., routine monitoring, suspected non-compliance).

2. Entry and Facility Access:

- Authorized officers have the power to enter any industrial or commercial facility at any reasonable time for the purpose of inspection.

3. Information Seeking and Collection:

- Officers can seek any information related to the facility's activities, including details about:
 - Effluent discharges
 - Air emissions

⁸³ <https://cleanmanagement.com/blog/the-important-role-of-the-environmental-protectionagency/>

- Hazardous and solid waste disposal □ Raw materials and production processes

4. On-Site Assessment and Sampling:

- This involves a physical survey of the premises.
- Officers are authorized to collect samples of water, air, soil, or waste for analysis at recognized environmental laboratories.

5. Search and Seizure:

- If potential contamination or violation is observed, officers have the power to enter and search any part of the facility.
- They may also seize equipment, records, or other materials that may serve as evidence of an offence.

6. Formal Inquiry and Documentation:

- The occupier (owner/manager) or other relevant persons can be asked to provide further information or statements to aid the investigation.

7. Adherence to Due Process:

- Crucially, all these statutory powers must be exercised in accordance with the procedure prescribed by law (e.g., following rules of evidence, providing necessary documentation) to ensure the investigation is legally sound.⁸⁴

B. What is the procedure for making administrative decisions?

⁸⁴ *The Environment (Protection) Act, 1986*, Act No. 29 of 1986, ss. 9, 10; *The Water (Prevention and Control of Pollution) Act, 1974*, Act No. 6 of 1974, ss. 20-26; *The Air (Prevention and Control of Pollution) Act, 1981*, Act No. 14 of 1981, ss. 24-29.

1. Identification of non-compliance through:

- Site inspection ○ Sample analysis

-
- Online continuous monitoring system reports

2. Issuance of a show-cause notice to the project's occupier or operator for the alleged violations.
3. Submission of a formal response by the occupier/operator to the notice.
4. Regulatory assessment of the submitted response, If the response is found to be unsatisfactory, the authority may proceed towards stringent action.
5. Provision of a final opportunity for the project to demonstrate compliance, the party may submit scientific evidence, including sample analysis reports and other documents, to prove adherence to environmental standards.
6. Issuance of a closure order only if the response remains unsatisfactory and compliance is not proven, concluding that the project is non-compliant.⁸⁵

C. What are the sanctions and remedies that may be imposed by the regulator for violations?

The authorities can issue directions requiring polluters or violators to cease or restrict operations or activities causing pollution until such violations are rectified, pay environmental compensation for the damage caused, install a specified technology or equipment to ensure compliance, etc. They can also

⁸⁵ *The Environment (Protection) Act, 1986*, Act No. 29 of 1986, ss. 5, 6A, 7, 8, 9, 10, 15; *The Water (Prevention and Control of Pollution) Act, 1974*, Act No. 6 of 1974, ss. 20-26, 33A; *The Air (Prevention and Control of Pollution) Act, 1981*, Act No. 14 of 1981, ss. 24-29, 31A.

⁹⁶

disconnect electricity, water or other provisions for such an industry and initiate criminal prosecution against the persons responsible for the business activities of such violators.⁹⁶

D. To what extent may decisions of the regulators be appealed, and to whom?

- An occupier can challenge regulatory directions either before the Appellate Authority (under the Air and Water Acts) or the National Green Tribunal (NGT).
- An appeal to the state's Appellate Authority must be filed within 30 days of receiving the direction.
- Alternatively, an appeal can be made directly to the NGT, also within a 30day window from the date of communication.
- Affected parties also have the option to approach the relevant High Court using its writ jurisdiction to seek a remedy.
- Orders from both the NGT and High Courts can be appealed before the Supreme Court of India, the country's apex court.
- Valid grounds for an appeal include a belief that there has been a violation of the principles of natural justice.
- An appeal is also justified if action was taken against an industry despite it being fully compliant with all applicable laws and consent conditions.
- Specific instances for appeal include situations where the industry's effluents and emissions meet prescribed standards, but the authority failed to properly consider the submitted evidence.

- Another ground for appeal is if the sanctions imposed are disproportionate to the nature of the actual violation committed.⁸⁶

3.5. International agreements and treaties:

3.5.1. United Nations Framework Convention on Climate Change (UNFCCC) & The Paris Agreement (2015):

a) Introduction and Historical Context:

The United Nations Framework Convention on Climate Change (UNFCCC), established in 1992⁸⁷ at the Earth Summit in Rio de Janeiro, represents the principal international treaty for addressing climate change. With 198 parties as of 2022, it provides the overarching framework for global climate negotiations. The convention's ultimate objective, articulated in Article 2, is to achieve "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." This foundational principle directly aligns with India's sustainable development objectives under the Environment Protection Act, 1986, emphasizing the interconnectedness of environmental protection and economic development.

b) Key Agreements and Evolution:

- **Kyoto Protocol (1997-2020):**

⁸⁶ *The National Green Tribunal Act, 2010*, Act No. 19 of 2010, ss. 16, 18, 22; *The Water (Prevention and Control of Pollution) Act, 1974*, Act No. 6 of 1974, s. 28; *The Air (Prevention and Control of Pollution) Act, 1981*, Act No. 14 of 1981, s. 31; Constitution of India, arts. 226, 136.

⁸⁷ United Nations Framework Convention on Climate Change, 9 May 1992, S. Treaty Doc No. 102-38, 1771 U.N.T.S. 107

The protocol implemented the UNFCCC's objectives through legally binding emission reduction targets for developed countries (Annex I parties), operating on the principle of "common but differentiated responsibilities." While the protocol established important market-based mechanisms and compliance procedures, its limitations became apparent as major emitters like the United

States did not ratify it, and developing countries including India had no emission reduction obligations.⁸⁸

- **Paris Agreement (2016-present):**

This landmark agreement represents a significant evolution in the global climate regime, applying to all parties and aiming to limit global temperature rise to well below 2°C above pre-industrial levels, with efforts to cap it at 1.5°C. The agreement introduced a bottom-up approach through Nationally Determined Contributions (NDCs), allowing countries like India to set their own climate targets aligned with national development priorities.⁸⁹

c) Implementation Mechanisms and Institutional Structure:

- **Governance Framework:**

⁸⁸ Kyoto Protocol to the United Nations Framework Convention on Climate Change, 11 December 1997, 2303 U.N.T.S. 162.

⁸⁹ Paris Agreement, 12 December 2015, T.I.A.S. No. 16-1104, 55 I.L.M. 740.

The UNFCCC operates through annual Conference of Parties (COP) meetings, supported by two permanent subsidiary bodies:

- The Subsidiary Body for Scientific and Technological Advice (SBSTA)
- The Subsidiary Body for Implementation (SBI)
- Financial Mechanism - Green Climate Fund

Established as the convention's financial mechanism, the Green Climate Fund aims to support developing countries in climate adaptation and mitigation activities. However, the fund has faced challenges in capitalization and efficient disbursement of resources.

d) Relevance to India's Environmental Governance:

- **Integration with Domestic Framework:**

India's participation in the UNFCCC has significantly influenced its environmental governance structure. The country's climate actions, including its NDCs, are implemented through domestic legislation, primarily the Environment Protection Act, 1986. This integration demonstrates how international commitments are translated into national policy, with the EPA providing the legal basis for various climate mitigation and adaptation measures.

- **Common but Differentiated Responsibilities:**

The convention's acknowledgment of differing national capabilities and responsibilities aligns with India's development context. This principle has enabled India to pursue climate action while prioritizing poverty eradication and economic development, as reflected in its climate policies that emphasize climate justice and sustainable lifestyles.

e) Critical Analysis and Challenges:

Implementation Challenges of UNCCC, The UNFCCC process has faced criticism regarding its effectiveness in reducing global emissions, with concerns about:

- The consensus-based decision-making process that can lead to lowestcommon-denominator outcomes.
- Insufficient ambition in countries' NDCs to meet the Paris Agreement temperature goals.
- Inadequate financial support from developed to developing countries.
- Monitoring and verification challenges in implementation.

f) Effectiveness Assessment:

While the UNFCCC has succeeded in maintaining climate change as a permanent feature of the global political agenda, its effectiveness in driving sufficient emission reductions remains debated. The Paris Agreement's implementation relies heavily on voluntary national actions, and current commitments remain insufficient to meet its temperature goals.⁹⁰

3.5.2. Basel Convention on the Control of Transboundary Movements Of Hazardous Wastes and their Disposal:

a) Introduction and Objectives:

⁹⁰ https://en.wikipedia.org/wiki/United_Nations_Framework_Convention_on_Climate_Change

The Basel Convention, adopted in 1989 under UNEP auspices, is a comprehensive international treaty that entered into force in 1992.⁹¹ Its primary objective is to protect human health and the environment against the adverse effects resulting from the generation, management, transboundary movements, and disposal of hazardous and other wastes. With 188 member countries, including India which ratified it in June 1992, the convention establishes a global regulatory framework for hazardous waste management.

b) Key Provisions and Operational

Mechanisms: The convention operates through several crucial mechanisms:

- **Prior Informed Consent Procedure:**
Requires exporting countries to obtain consent from importing countries before shipping hazardous wastes.
- **Illegal Traffic Prevention:**
Designates transboundary movements without consent as illegal and subject to legal consequences.
- **Environmentally Sound Management:**
Mandates member nations to ensure proper handling of hazardous wastes from generation to final disposal.

c) Waste Classification in Basel Convention:

The convention categorizes regulated wastes through two key annexes:

⁹¹ Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 22 March 1989, 1673 U.N.T.S. 57

- **Annex I:**

Defines hazardous waste categories including biomedical wastes, used oils, lead acid batteries, and Persistent Organic Pollutants (POPs)

- **Annex II:**

Specifies other waste requiring control, covering household wastes and incinerator ash

d) Implementation in India: Domestic Legislative Integration:

India has implemented its Basel Convention commitments primarily through the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016, framed under the Environment Protection Act, 1986. This demonstrates how international treaty obligations are operationalized through domestic environmental legislation.

e) Expanding Scope:

The convention has progressively addressed emerging challenges:

- Electronic and electrical waste (e-waste).
- Ship dismantling and recycling.
- Mercury and asbestos wastes.
- Illegal dumping prevention.

f) Positive Impacts:

The convention has successfully:

- Established global standards for hazardous waste management.

- Reduced North-South waste transfers through regulatory controls.
- Enhanced international cooperation on waste management.
- Promoted development of national legislation in member countries.

g) Relevance to India's Environmental Governance:

The Basel Convention provides essential international backing for India's domestic waste management policies under the EPA framework. It supports the country's efforts to balance environmental protection with industrial development while addressing transboundary environmental challenges. India's active participation and implementation of convention obligations demonstrate the crucial interface between international environmental law and national sustainable development objectives, particularly in managing hazardous substances that pose significant risks to human health and ecological systems.⁹²

3.5.3. Convention on Biological Diversity (CBD), 1992:

a) Introduction and Objectives:

The Convention on Biological Diversity (CBD), adopted at the 1992⁹³ Earth Summit in Rio de Janeiro, represents a landmark multilateral treaty that entered into force in 1993. With 196 parties, it stands as the primary international legal instrument for biodiversity conservation, with three overarching objectives: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from genetic resources.

⁹² <https://byjus.com/free-ias-prep/basel-convention-1989/>

⁹³ Convention on Biological Diversity, 5 June 1992, 1760 U.N.T.S. 79.

The convention recognizes biodiversity conservation as "a common concern of humankind" and establishes a comprehensive framework for integrating conservation with sustainable development.

b) Key Provisions and Operational Framework: The convention

addresses biodiversity at all levels:

- **Genetic Diversity:** Protection of genetic resources and associated traditional knowledge.
- **Species Diversity:** Conservation of species and their habitats.
- **Ecosystem Diversity:** Protection of complete ecosystems and ecological processes.

c) Implementation Mechanisms:

- Development of national biodiversity strategies and action plans.
 - Integration of biodiversity considerations into sectoral planning.
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Environmental impact assessments for proposed projects.

- Promotion of protected area networks.
- Sustainable use of biological resources.

d) Supplementary Agreements:

- **Cartagena Protocol on Biosafety (2003):**

This supplementary agreement addresses the safe transfer, handling, and use of living modified organisms (LMOs) resulting from modern biotechnology, implementing the precautionary approach to potential risks to biological diversity.

- **Nagoya Protocol on Access and Benefit-Sharing (2014):**

This protocol establishes a transparent legal framework for the fair and equitable sharing of benefits arising from the utilization of genetic resources, ensuring that communities providing genetic resources receive appropriate benefits.

e) Implementation in India:

- **Legislative Integration:**

India ratified the CBD in 1994 and has implemented its commitments through domestic legislation, primarily the Biological Diversity Act, 2002, which operates alongside the Environment Protection Act, 1986. This demonstrates how international biodiversity commitments are translated into national legal frameworks.

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Institutional Framework:

- Establishment of the National Biodiversity Authority (NBA).
- Creation of State Biodiversity Boards (SBBs).
- Formation of Biodiversity Management Committees (BMCs) at local levels.
- Development of People's Biodiversity Registers.
- Strategic Initiatives.
- National Biodiversity Action Plan.
- Participation in the Aichi Biodiversity Targets (2011-2020).
- Implementation of the post-2020 global biodiversity framework.
- Integration of biodiversity conservation in development planning.

f) Strategic Developments and Global Cooperation:

- **Aichi Biodiversity Targets (2011-2020):**

The strategic plan included 20 targets organized under five strategic goals addressing the underlying causes of biodiversity loss, reducing pressures on biodiversity, safeguarding ecosystems, enhancing benefits from biodiversity, and facilitating implementation.

- **Post-2020 Global Biodiversity Framework:**

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The new framework aims to transform society's relationship with biodiversity and ensure that by 2050 the shared vision of living in harmony with nature is fulfilled.

h) Critical Analysis and Challenges: Implementation Challenges:

Despite comprehensive provisions, several challenges persist:

- Continued habitat loss and species extinction rates.
- Insufficient financial resources for implementation.
- Limited integration of biodiversity concerns in economic sectors.
- Inadequate monitoring and reporting mechanisms.
- Challenges in ensuring equitable benefit-sharing.

i) Achievements and Progress:

The convention has successfully:

- Elevated biodiversity conservation on global and national agendas.
- Facilitated development of national biodiversity strategies.
- Promoted scientific and technical cooperation.
- Enhanced public awareness and education.
- Strengthened the legal framework for biodiversity protection.

j) Relevance to India's Environmental Governance:

The CBD provides crucial international backing for India's biodiversity conservation efforts under the EPA framework. It supports the country's rich

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biological heritage while addressing the complex interplay between conservation and development. India's implementation of CBD obligations through dedicated legislation and institutional mechanisms demonstrates the vital connection between international environmental law and national sustainable development objectives. The convention's emphasis on sustainable use and equitable benefit-

sharing aligns with India's development needs while ensuring the conservation of its immense biological wealth for future generations.⁹⁴

3.5.4. Other Key International Environmental Agreements:

India's commitment to global environmental governance is demonstrated by its participation in a wide range of multilateral agreements. These treaties often provide the impetus for new rules and regulations under the umbrella of the Environment Protection Act, 1986.

1. Montreal Protocol on Substances that Deplete the Ozone Layer (1987)⁹⁵ A.

Objective:

To protect the stratospheric ozone layer by phasing out the production and consumption of ozone-depleting substances (ODSs) like CFCs, halons, and HCFCs.

B. India's Role & Domestic Implementation:

India acceded in 1992. Its obligations are implemented domestically through the Ozone Depleting Substances (Regulation and Control) Rules, 2000, framed under the EPA, 1986. This is a prime example of a global treaty being directly operationalized through the EPA's rule-making authority. India has successfully phased out key ODSs and is now working on phasing down HFCs under the

⁹⁴ http://en.wikipedia.org/wiki/Convention_on_Biological_Diversity

⁹⁵ Montreal Protocol on Substances that Deplete the Ozone Layer, 16 September 1987, 1522 U.N.T.S. 3

Kigali Amendment.⁹⁶

2. Stockholm Convention on Persistent Organic Pollutants (POPs) (2001)⁹⁷: A.

Objective:

To protect human health and the environment from chemical substances that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts.

B. India's Role & Domestic Implementation:

India ratified the convention in 2006. The Regulation of Persistent Organic Pollutants Rules, 2018, under the EPA, 1986, enforce this treaty. These rules ban, restrict, or reduce the production and use of listed POPs like DDT and PCBs, and manage the disposal of POPs waste.⁹⁸

3. UN Convention to Combat Desertification (UNCCD) (1994)⁹⁹ A.

Objective:

⁹⁶ <https://byjus.com/free-ias-prep/montreal-protocol/>

⁹⁷ Stockholm Convention on Persistent Organic Pollutants, 22 May 2001, 2256 U.N.T.S. 119.

⁹⁸ https://en.wikipedia.org/wiki/Stockholm_Convention_on_Persistent_Organic_Pollutants

⁹⁹ United Nations Convention to Combat Desertification, 14 October 1994, 1954 U.N.T.S. 3.

To combat desertification and mitigate the effects of drought through national action programs that incorporate long-term strategies supported by international cooperation.

B. India's Role & Domestic Implementation:

India is a party and has hosted the COP While not implemented through a single law like the EPA, India's National Action Programme for combating desertification aligns with broader environmental goals under the EPA and intersects with policies on forestry, land use, and water resource management.¹⁰⁰

4. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973)¹¹²: A. Objective:

To ensure that international trade in specimens of wild animals and plants does not threaten their survival.

B. India's Role & Domestic Implementation:

India has been a party since 1976. It is implemented through the Wildlife (Protection) Act, 1972, not directly the EPA. However, it shares the EPA's overarching goal of environmental protection and biodiversity conservation, showcasing a complementary legal framework.¹⁰¹

¹⁰⁰ https://en.wikipedia.org/wiki/United_Nations_Convention_to_Combat_Desertification

¹¹² Convention on International Trade in Endangered Species of Wild Fauna and Flora, 3 March 1973, 993 U.N.T.S. 243.

¹⁰¹ <https://byjus.com/free-ias-prep/cites/>

5. Ramsar Convention on Wetlands of International Importance (1971)¹⁰²

A. Objective: The conservation and "wise use" of all wetlands through local, national, and international cooperation.

B. India's Role & Domestic Implementation:

India has been a party since 1982 and has designated over 75 Ramsar Sites. The Wetlands (Conservation and Management) Rules, 2017, framed under the EPA, 1986, provide the regulatory backbone for protecting these critical ecosystems in line with the convention's goals.¹⁰³

¹⁰² Convention on Wetlands of International Importance especially as Waterfowl Habitat, 2 February 1971, 996 U.N.T.S. 245.

¹⁰³ https://en.wikipedia.org/wiki/Ramsar_Convention

Chapter 4: Concept of Sustainable Development:

The concept of sustainable development represents a fundamental paradigm shift in global environmental thought, moving beyond the traditional view that environmental protection and economic development are mutually exclusive objectives. Historically, environmental conservation was often perceived as a constraint on economic growth—a regulatory hurdle that limited industrial progress and resource exploitation. This perspective treated environmental protection as a standalone goal, focused primarily on pollution control and conservation efforts without integrating them into the broader framework of human development.

However, the limitations of this fragmented approach became increasingly apparent through the 20th century, as rapid industrialization and resource depletion demonstrated that environmental protection alone is insufficient to address the complex

challenges of global development. The growing recognition that environmental degradation, economic inequality, and social injustice are interconnected problems necessitated a more holistic framework—one that could balance ecological integrity with human progress.

4.1. Meaning and Definition of Sustainable Development:

Sustainable development is an approach to growth and human development that aims to meet the needs of the present without compromising the ability of future generations to meet their own needs. The aim is to have a society where living conditions and resources meet human needs without undermining planetary integrity. Sustainable development aims to balance the needs of the economy, environment, and society.

A. Conceptual Foundation and Evolution:

- The modern concept of sustainable development was globally popularized by the 1987 Brundtland Report ("Our Common Future"), which provided its seminal definition: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."
- This concept represents a significant evolution in environmental thought, moving beyond the idea of mere environmental protection to emphasize a balanced integration of economic development, social equity, and environmental conservation.

- The 1992 Earth Summit in Rio de Janeiro (the Rio Process) placed sustainable development firmly on the international policy agenda, establishing it as a guiding principle for global development.

B. Definition and Distinction from Sustainability:

- While often used interchangeably, sustainable development and sustainability are distinct concepts:
 - Sustainable Development refers to the dynamic processes and pathways aimed at achieving a balance between the three pillars (economic, social, and environmental). It is the journey.
 - Sustainability is the long-term goal or endpoint—the vision of a balanced and resilient world where human needs are met without degrading the natural system. It is the destination.
- The concept serves as the foundational framework for the United Nations Sustainable Development Goals (SDGs), a universal set of 17 goals adopted in 2015 to address global challenges like poverty, inequality, and climate change by 2030.¹⁰⁴

Examples of Sustainable Development-

Often, one of the first things that come to mind in terms of sustainable development are some of the environmental aspects of its goals, such as the planting of trees to replace those that have been cut down for wood and timber production. Often companies now look to replace and plant new trees to compensate for the trees that they cut down. A switch to more sustainable wood

¹⁰⁴ Source: https://en.wikipedia.org/wiki/Sustainable_development

types – that are fast growing – and that are in plentiful supply has become preferred. Unfortunately, problems remain such as deforestation of virgin rain forests.

There are two huge factors that affect rainforests and that is that of timber production and the removal or burning of rainforests to create pastureland for cattle and meat production. Dealing with these issues is difficult and plenty still needs to be done to combat these problems. For governments this could be the policy of providing subsidies to developing nations to tackle deforestation, or for

companies, it is ensuring that the wood they use complies with sustainable supply chains and does not make use of timber that has been produced through illegal logging.

Another big topic that most people associate with sustainable development is green energy production and the shift from using fossil fuels to renewable energy sources.

4.2. Nature and Feature of Sustainable Development:

“Sustainable Development” is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

The focus of sustainable development is far broader than just the environment. It’s also about ensuring a strong, healthy, and just society. This means meeting the diverse needs of all people in existing and future communities, promoting personal well-being and social inclusion, and creating equal opportunity.

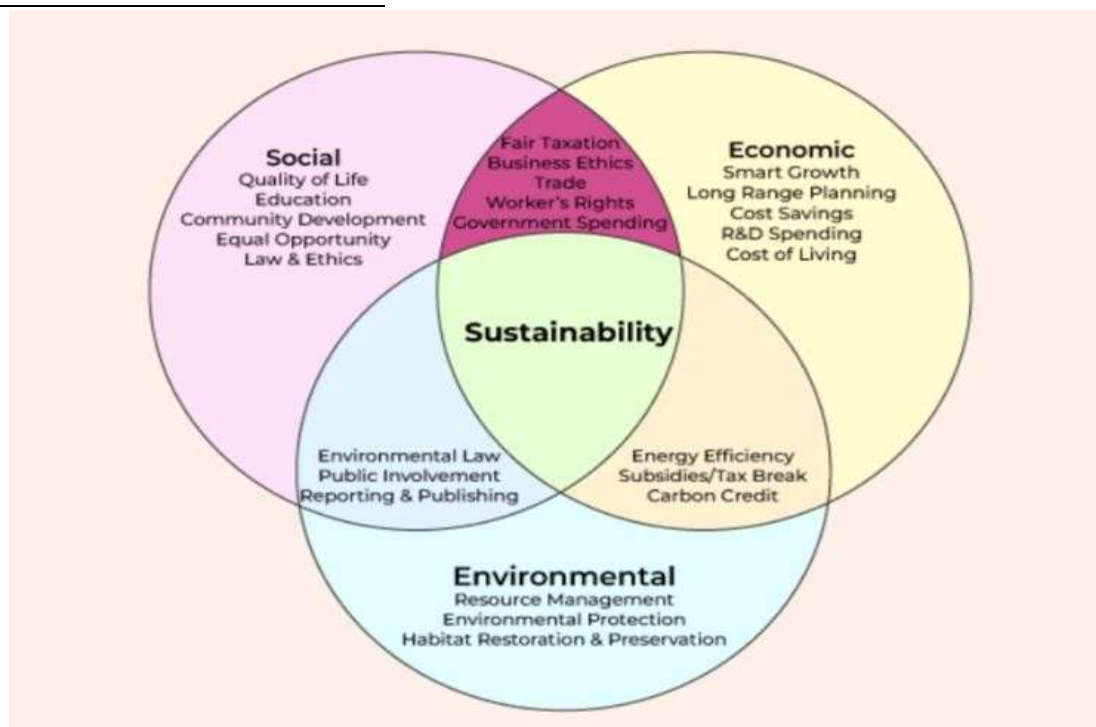
Consisting of three pillars, it seeks to achieve balanced:

- Economic development,

- Social development, and
- Environmental protection.¹⁰⁵

4.2.1. Components of Sustainable Development:

Sustainable development is often referred to as the marriage of economy and ecology, i.e. to attain economic growth without compromising the ecological balance. Some of the components of sustainable development are as follows:



(a) **Environmental:** Environmental sustainability deals with the carrying capacity of natural resources.

- It emphasises increasing forest cover, conserving biodiversity hot spots, protecting watersheds, and adopting a holistic approach.

¹⁰⁵ Source: <https://sumas.ch/5-examples-of-sustainable-development/>

- Environmental-friendly technologies should also be encouraged to mitigate local to global-level environmental problems such as climate change and biodiversity loss.

(b) Economic: Economic sustainability emphasises promoting self-sustaining development projects through adequate and transparent budgeting.

- It should alleviate poverty, increase per capita income, promote income-generating activities, including off-farm employment and green microenterprises, and establish a mechanism for fair benefit sharing.
- Prudence and equity should be considered when building a sustainable economy. However, considering only economic aspects may not promote sustainability.

(c) Social: Social sustainability focuses on public participation in developmental activity and fulfilling basic human needs, such as better education and improved health facilities.

- These can be ensured by increasing environmental awareness and through the capacity development of local communities, with an eye on economically and socially disadvantaged groups. Also, indigenous communities shall be made aware of sustainable ways of resource utilisation.

4.2.2. Key Features of Sustainable development:

Sustainable development encompasses a range of features that aim to balance economic growth, social equity, and environmental protection. Some key features are:

(a) Intergenerational Equity:

Ensures that the needs of the present are met without compromising the ability of future generations to meet their own needs.

(b) Integration of Environment and Development:

This policy promotes the integration of environmental considerations into economic and social policies, recognizing that healthy ecosystems are vital for sustainable development.

(c) Inclusive Economic Growth:

Focuses on creating economic opportunities that benefit all segments of society, reducing inequality and ensuring that economic benefits reach marginalized communities.

(d) Social Inclusion and Equity:

Emphasizes the importance of social equity, aiming to ensure that all individuals have access to essential services, resources, and opportunities, regardless of their background.

(e) Sustainable Resource Management:

Advocates for the responsible use of natural resources, promoting practices that ensure their availability for future generations while minimising waste and environmental degradation.

(f) Participatory Governance:

Encourages stakeholder participation in decision-making processes, ensuring that the voices of local communities are heard and considered in development planning.

(g) Resilience and Adaptability:

This promotes the development of systems that can withstand environmental, economic, and social shocks, enhancing communities' ability to adapt to changing circumstances.

(h) Technological Innovation:

Encourages using sustainable technologies and practices that improve efficiency, reduce environmental impact, and enhance the quality of life.¹⁰⁶

• Judicial Interpretation and Landmark cases:

In the case of Vellore Citizens Welfare Forum v. Union of India (1996), the Supreme Court recognized the Right to a Clean Environment as part of the Right

to Life under Article 21 of the Constitution. The Court held that the tanneries' pollution violated this right and applied the Polluter Pays Principle, making them liable for environmental restoration. A fine of ₹10,000 was imposed on each tannery, and those failing to pay or install Effluent Treatment Plants (ETPs) by the deadline were ordered to be closed permanently and faced liability under the Contempt of Courts Act. This judgment established the Polluter Pays Principle as part of India's environmental law.

In addition to this, Right to Clean Environment was held as fundamental right which is a right included in 'Right to Life' i.e. Article 21.¹⁰⁷

4.3. Sources of Sustainable development:

¹⁰⁶ Source: <https://www.nextias.com/blog/sustainable-development/#Features>

¹⁰⁷ Vellore Citizens Welfare Forum Vs Union Of India & ORS AIR 1996 SUPREME COURT 2715, 1996 (5) SCC 647, 1996 AIR SCW 3399, (1996) 5 COM LJ 40, (1996) 7 JT 375 (SC)

Sources of sustainable development include the United Nations' Sustainable Development Goals (SDGs), which provide a comprehensive framework. Other key sources are the four pillars of sustainability—social, economic, environmental, and cultural—and the "5 Ps" framework (People, Prosperity, Peace, Partnership, Planet). Practices like using renewable energy and adopting sustainable agriculture are also crucial sources of development.

4.3.1. Sustainable Development Goals (SDGs):

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015¹⁰⁸ as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.

The 17 SDGs are integrated—they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability.

Countries have committed to prioritize progress for those who're furthest behind. The SDGs are designed to end poverty, hunger, AIDS, and discrimination against women and girls.

The creativity, knowhow, technology and financial resources from all of society is necessary to achieve the SDGs in every context.¹²¹

¹⁰⁸ United Nations, *Transforming our world: the 2030 Agenda for Sustainable Development*, A/RES/70/1 (New York: 2015)



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A set of 17 interconnected goals adopted by all UN Member States in 2015, covering topics like:

¹²¹ Source: <https://www.undp.org/sustainable-development-goals>

¹²² 17 interconnected goals adopted by all UN Member States in 2015

Source: <https://www.plasticcollective.co/sustainable-development-challenges-andopportunities/>

Goal Number	Goal Title	Goal Description
1	No Poverty	Cleaner environments improve worker health and productivity and increase the number of days worked.
2	Zero Hunger	Better soil quality and uncontaminated land will reap higher quality harvests and help protect humanity's food sources.
3	Good Health and Well-Being	Action on pollution substantially reduces the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
4	Quality Education	A clean environment enables high-quality education, and education enables acquisition of the knowledge and skills needed to promote sustainable development and lifestyles.
5	Gender Equality	Pollution reduction can promote gender equality, for example through reduced burden of fetching clean water, cleaner indoor air quality and better health.
6	Clean Water and Sanitation	Addressing the contamination of water sources will help provide clean water and sanitation for all.
7	Affordable and Clean Energy	The development and dissemination of affordable, clean and efficient sources of energy and transport are key to cleaning the air.
8	Decent Work and Economic Growth	Improved worker health and well-being and toxin-free workspaces lead to increased productivity and economic growth.
9	Industry, Innovation and Infrastructure	Pollution avoidance through the adoption of green technologies and ecosystem-based solutions fosters innovation and sustainability in the industry and infrastructure sectors.
10	Reduced Inequalities	Pollution governance and actions can ensure that no group or community bears a disproportionate share of the harmful effects of pollution.
11	Sustainable Cities and Communities	Sustainable transport, waste management, buildings and industry lead to cleaner air in cities.
12	Responsible Consumption and Production	Proper management and disposal of chemicals and waste, and reduced food losses contribute to sustainable consumption and production practices.
13	Climate Action	Clean energy and low-carbon policies reduce air pollution and mitigate the impact of climate change
14	Life Below Water	Plastic and chemical pollution is causing great harm to all marine life and threatens life below water.
15	Life on Land	Thriving ecosystems require clean land and water sources. Tackling pollution is essential to protecting life on land.
16	Peace, Justice and Strong Institutions	Good Pollution-related governance reduces environmental burdens and injustices and can enhance the availability of 'saved' resources for the undeserved.
17	Partnerships for the Goals	Global partnerships to address pollution can have positive impacts on health, jobs, worker productivity the environment and well-being.

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¹²³ Ministry of Statistics and Programme Implementation, National Indicator Framework for Sustainable Development Goals (New Delhi: Government of India, 2020). And Source:

4.3.2. The 5 Ps of Sustainable development:

A framework that emphasizes the interconnectedness of key components: People (ending poverty and hunger), Prosperity (fostering fulfilling lives in harmony with nature), Peace (promoting just societies), Partnership (implementing the agenda through collaboration), and Planet (protecting natural resources and the climate).



a) People:

The "People" pillar forms the social foundation of the SDGs, focusing on human dignity, equality, and well-being. It drives the mission to eradicate poverty and hunger, ensure access to quality healthcare and education, achieve gender equality, and provide clean water and sanitation for all. By prioritizing social

https://www.icsi.edu/media/webmodules/Academics/ENVIRONMENTAL_SOCIAL_AND_GOVERNANCE_ESG_PRINCIPLES_PRACTICE_14082025.pdf

inclusion, the SDGs aim to lift the most vulnerable and ensure no one is left behind, creating a world where every individual can thrive.

b) Planet:

The "Planet" pillar highlights the critical need to protect Earth's natural systems. It is the driving force behind goals for climate action, conservation of life below water and on land, and the promotion of responsible consumption and production. This focus acknowledges that the health of our environment is fundamental to human survival and prosperity, demanding urgent efforts to preserve ecosystems and resources for future generations.

c) Prosperity:

The "Prosperity" pillar advocates for inclusive and sustainable economic growth that benefits all of society without degrading the environment. It underscores the need for decent work, sustainable industrialization, innovation, resilient infrastructure, and reduced inequalities. True prosperity, in this context, means creating economic opportunities that are both socially equitable and environmentally sound.

d) Peace:

The "Peace" pillar establishes that sustainable development is impossible without just, peaceful, and inclusive societies. It is the impetus for goals that promote the rule of law, access to justice for all, and effective, accountable institutions. By aiming to reduce all forms of violence and conflict, this pillar creates the stable and secure foundations necessary for long-term progress.

e) Partnerships:

The "Partnerships" pillar, encapsulated in SDG 17, recognizes that the scale of the SDGs requires global collaboration. It calls for strong multi-stakeholder alliances between governments, the private sector, and civil society to mobilize resources, share knowledge and technology, and implement effective solutions. This collective action is essential for turning the ambitious 2030 Agenda into a reality.¹⁰⁹

4.3.3. The four pillars:

A conceptual model that sees sustainable development as a balance between four dimensions: social, economic, environmental, and cultural.



¹⁰⁹ <https://www.embracerelief.org/the-un-sustainable-development-goals-the-5-ps-of-a-sustainable-future/>

a) Social Pillar: Ensure Employee Well-being:

This pillar focuses on creating a supportive and inclusive work environment that promotes employee health and satisfaction, directly contributing to social sustainability. Key initiatives include providing mental health support (e.g., counselling, stress management), encouraging work-life balance through flexible hours and remote work options, and fostering an inclusive culture with diversity training and zero-tolerance discrimination policies.

By investing in employee well-being, companies enhance morale, productivity, and retention, gaining a competitive edge while embedding ethical practices into their core operations.

b) Economic Pillar: Strategies for Budget Optimization:

This pillar emphasizes financial sustainability through efficient resource management, aligning economic goals with broader sustainability objectives. Key strategies involve implementing cost reduction initiatives by regularly reviewing and streamlining operational expenses, and investing in technology such as AI and automation to boost long-term efficiency and reduce errors. These approaches help build a resilient business model capable of weathering economic fluctuations and seizing new opportunities.

c) Cultural Pillar: Building Stakeholder Cohesion:

Focusing on the role of organizational culture, this pillar aims to strengthen relationships among employees, customers, partners, and the community to foster shared sustainability goals. Essential practices include maintaining transparent communication to build trust and alignment, and promoting inclusive decisionmaking by involving stakeholders in relevant processes.

A cohesive culture ensures collective commitment and drives unified action toward environmental, social, and economic objectives.

d) Environmental Pillar: Enhancing CSR Initiatives:

This pillar integrates environmental stewardship into corporate strategy, enhancing CSR efforts to benefit both the planet and the business. Key actions include promoting sustainable resource use through renewable energy adoption and recycling programs, and actively reducing the company's carbon footprint via energy-efficient technologies and logistics improvements. These initiatives bolster regulatory compliance, consumer trust, and long-term market positioning while demonstrating a commitment to ecological responsibility.¹¹⁰

By focusing on the environmental pillar within CSR, businesses can ensure a sustainable future for themselves and the generations to come.

- Following are Some examples of Sustainable Development:

- **Wind Energy:**

People have utilized the power of the wind for millennia, dating back to the first recorded windmill in Persia between 500 and 900 AD. Fast forward to the 21st century and, in many localities, energy generated by wind power has become either competitive with or less expensive than coal-generated electricity.

Wind turbines are a great solution for power generation due to their cost and the fact that they require a very small land footprint. Other land uses such as farming, conservation and recreation can happen simultaneously with wind power generation. As the price of wind power technology continues to drop

¹¹⁰ Source: <https://www.train2sustain.eu/the-four-pillars-of-sustainability/>

and energy storage and transmission infrastructure improves, wind energy could significantly supplement or replace entire grid systems.

- **Solar Energy:**

From roof-top solar panels to massive solar farms that can attain the same generating capacity as a conventional power plant, it is clear that there is a renewable energy revolution happening in the world — and it is powered by the sun.

A solar farm can reduce 94% of the emissions that a coal power plant emits. It also eliminates noxious pollutants like sulphur nitrous oxides and mercury which are major contributors to the air pollution responsible for millions of premature deaths every year. Solar technology is getting cheaper and is now cost competitive or less costly than conventional power generation in many parts of the world.

According to the International Renewable Energy Agency, currently 220 million to 330 million tons of annual carbon dioxide are saved due to solar photovoltaics. With solar still making up less than 2% of the global energy mix, this shows the great potential for the growth of solar in the future.

- **Crop Rotation:**

Currently we produce the bulk of our food through industrial agriculture. A system which relies on large farms that monocrop and use enormous amounts of fertilizer and chemical pesticides. Industrial agriculture is immensely damaging to soils, water, air and the climate.

Crop rotation, in contrast, is defined as “the successive planting of different crops on the same land to improve soil fertility and help control insects and

diseases.” This way of farming is not a new practice, but rather a more ancient way of farming chemical-free, whilst maximizing the long-term growth potential of land.

- **Water efficient fixtures:**

Many countries in the world are becoming water stressed and we are beginning to understand that water is not as unlimited as we once believed. In most buildings around the world, essential water usage such as showering, washing hands and sewage conveyance is unavoidable.

However, the amount of water used for these essential services can be drastically reduced by more than 50% with the use of water-saving fittings and fixtures. Some examples of water-efficient fixtures include: low-flow taps and shower heads, dual flush toilets and toilet stops. Interestingly, even industries like hospitality and entertainment are adopting these solutions to reduce environmental impact. These fixtures can be retrofitted easily and affordably into existing buildings or specified for new building projects.

- **Green Spaces:**

Green spaces such as parks, wetlands, lakes, forests or other eco systems are fundamental to sustainably developed urban areas. These areas are essential for cooling cities while trees produce oxygen and filter out air pollution. Well designed green spaces also play a critical role in providing safer routes for those commuting by foot or bicycle and providing safer spaces for physical activity and recreation.

According to the World Health Organisation, “recent estimates show that physical inactivity, linked to poor walkability and lack of access to recreational areas, accounts for 3.3% of global deaths.” Thus, having access to green

spaces can improve health and well-being and even aid in the treatment of mental illness.¹¹¹

4.4. Principles of Sustainable Development:

Sustainable Development has emerged as the guiding principle for long-term global development. The relevant bodies of the United Nations have formulated, clarified and adopted the basic principles at the highest levels. They are as follows:

(a) Holistic Approach:

Most systems are interrelated elements that interact with one another. Any intervention may trigger ripple effects, even in remote systems. Relying on knowledge of the wider environment and global trends can adequately address local challenges.

(b) Social Justice:

The right to adequate living conditions must be recognised, and fundamental human rights must be guaranteed. All people should have equal opportunities to acquire the knowledge and skills required to become worthy members of society.

(c) Inter- and Intra-generational Equity:

Sustainable development interests are focused on people. The development and environmental needs of present generations must be addressed without compromising the ability of future generations to meet their own needs.

¹¹¹ Source: <https://sumas.ch/5-examples-of-sustainable-development/>

(d) Sustainable Resource Management:

Sustainable resource management must consider the environment's carrying capacity limitations. Biodiversity is also a natural resource, and we prioritise its conservation.

(e) Integration:

To elaborate, evaluate, and implement sectoral policies, plans, and programmes, economic, social, and environmental considerations and their relationships must also be considered to ensure they mutually reinforce each other. Moreover, local, regional, and national activities must be coordinated.

(f) Utilization of Local Resources:

Efforts should be made to supply communities' needs on a local level from locally available resources. Local features and diversity should be preserved. Preservation and sustainable utilisation of the man-made environment and cultural heritage are also essential tasks.

(g) Social Responsibility:

Unsustainable production and consumption patterns must be changed to enable sustainable development and ensure a higher quality of life. Businesses' social responsibility and cooperation between the private and public sectors must also be strengthened.

(h) Public Participation:

All must have adequate access to information affecting social and economic life and the environment. In addition, information on decisionmaking processes must be made available to the public.

(i) Polluters Pay Principle:

Prices must reflect the real costs paid by society for activities involved in consumption and production and for their impacts, including the costs of using natural resources. Those engaged in activities that damage or pollute the environment must pay for damage caused to human health or the environment.

(j) Precaution and Prevention:

Wherever the possibility of severe or irreversible damage is perceived, a lack of complete scientific certainty should not be used as an excuse for delaying effective action to prevent damage to the environment or endangering human health. Action must be taken in view of the gravity of the perceived threat.¹¹²

4.5. Role of Environment Protection Act, 1986 in Promoting Sustainable Development:

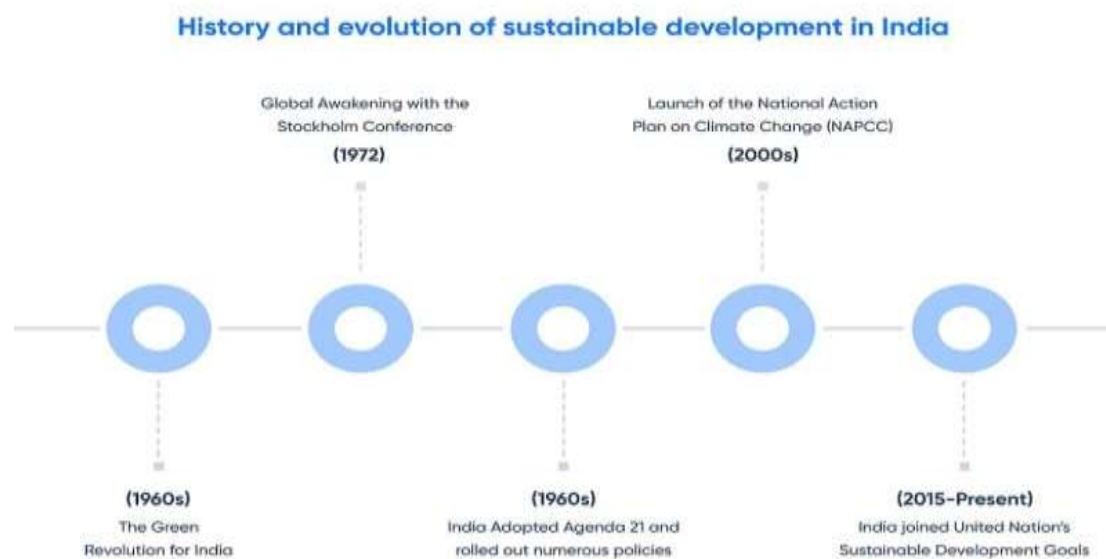
The Environment Protection Act (EPA), 1986, represents India's seminal legislative response to the critical challenge of harmonizing economic development with ecological conservation. The Act transcends its original purpose of pollution control to become the principal instrument for reconciling the often-competing demands of economic growth and environmental protection.

¹¹²

https://www.nextias.com/blog/sustainabledevelopment/#Principles_of_Sustainable_Development

Through its comprehensive framework, the EPA establishes mechanisms to integrate ecological considerations into development planning, protect vulnerable communities from environmental degradation, and institutionalize the principles of intergenerational equity and sustainable resource use. This section examines the multifaceted role of the EPA in promoting sustainable development through its legislative mandate, conflict-resolution mechanisms, poverty-environment linkages, regulatory instruments, and implementation of global commitments,

while also acknowledging the persistent challenges in its effective enforcement.



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4.5.1 Legislative Framework for Sustainable Development:

- The EPA 1986 provides the statutory basis for implementing sustainable development principles in India.

- It empowers the central government to take necessary measures for protecting and improving environmental quality.
- The Act enables the integration of environmental considerations into development planning processes.¹²⁹

4.5.2. Reconciling Environment-Development Conflict:

- The Act establishes mechanisms to balance economic development with environmental protection.

¹²⁸ Source: <https://cleartax.in/s/sustainable-development-in-india>

¹²⁹ *The Environment (Protection) Act, 1986*, Act No. 29 of 1986, Preamble

- Through Environmental Impact Assessment (EIA) notifications, it ensures developmental projects consider ecological impacts.¹¹³
- The precautionary principle embedded in the Act prevents potential environmental harm even in cases of scientific uncertainty.¹¹⁴

4.5.3 Addressing Poverty-Environment Nexus:

- The Act recognizes that environmental degradation disproportionately affects poor communities.
- By regulating industrial pollution and hazardous waste, it protects natural resources crucial for livelihoods.

¹¹³ Ministry of Environment, Forest and Climate Change, *Environmental Impact Assessment Notification, 2006*, S.O. 1533(E)

¹¹⁴ *Vellore Citizens Welfare Forum v. Union of India*, AIR 1996 SC 2715

- Provisions for conservation of vital resources like water, air and land directly support poverty alleviation efforts¹¹⁵

4.5.4 Regulatory Mechanisms for Sustainable Growth:

- The Act enables setting of environmental standards for industries and development projects.
- It provides for restrictions on industrial locations in ecologically sensitive areas.
- The creation of regulatory bodies (CPCB/SPCBs) ensures continuous monitoring and enforcement.¹¹⁶

4.5.5 Implementing International Commitments:

- The Act provides legal basis for implementing India's international environmental commitments
- It enables formulation of rules and regulations aligned with global sustainable development goals
- The framework supports India's participation in global environmental governance.

4.5.6 Challenges in Implementation:

- Despite comprehensive provisions, implementation faces challenges due to development pressures

¹¹⁵ *The Environment (Protection) Act, 1986*, Act No. 29 of 1986, Preamble and ss. 2(a), 3, 5, 6.

¹¹⁶ *The Environment (Protection) Act, 1986*, Act No. 29 of 1986, ss. 3(1), 3(2)(iii), 3(2)(v), 3(3).

- Limited institutional capacity and resources affect effective enforcement
- Balancing immediate development needs with long-term sustainability remains an ongoing challenge

This structure demonstrates how the EPA 1986 serves as India's primary legal instrument for pursuing sustainable development while addressing the fundamental environment-development trade-off discussed in your content.¹¹⁷

4.6. Challenges in promoting Sustainable Development:

Sustainable development is something that can help the entire world's population and it helps supply security for future generations, but it is not without its

challenges. There are a large number of challenges that need to be met if we are to achieve a better future.

Some of these key challenges include the following issues:

4.6.1. Regional Instability and Internal Conflicts:

Ongoing border disputes and internal security issues divert crucial financial resources and political attention away from long-term environmental and sustainable development goals, especially in sensitive regions.

4.6.2. Suitability and Implementation Challenges:

¹¹⁷ Source:

https://www.nextias.com/blog/sustainabledevelopment/#Environment_Development_Trade-off

Applying uniform national environmental standards across India's diverse states is difficult. Less developed states struggle to balance conservation with economic needs, while resource-rich states face conflicts between revenue generation and environmental protection.

4.6.3. Governance and Political Challenges:

Varying political priorities across states and changing government agendas often favor short-term economic gains and job creation over long-term sustainability. This leads to continued support for polluting industries due to political pressure and lobbying.

4.6.4. Poverty and Unemployment:

Widespread poverty, exacerbated by the COVID-19 pandemic, and significant inequality force a focus on immediate survival. This often sidelines environmental concerns, as seen with energy poverty leading to reliance on polluting biomass fuels.

4.6.5. Economic Constraints:

Post-pandemic fiscal pressures and economic recovery needs have limited funding for green initiatives. States dependent on central funds struggle to finance sustainability projects, and global economic shifts further impact these efforts.

4.6.6. Population Pressure:

As the world's most populous nation, India's rapid growth strains natural resources like water and land. Rapid urbanization leads to increased pollution and

waste, creating a constant tension between providing for immediate basic needs and achieving long-term sustainability.¹¹⁸

Chapter 5. Findings and Suggestion

5.1 Findings: Indian Initiatives:

In response to escalating environmental challenges, the Indian government has launched a multi-pronged strategy, combining regulatory action, missionoriented programmes, and green financing to foster sustainable development and create a circular economy.

¹¹⁸ Source: <https://cleartax.in/s/sustainable-development-in-india>

5.1.1. Fostering a Circular Economy: Waste to Wealth

The government is championing a 'Circular Economy' as a core national objective to convert "Waste to Wealth."

- a) **Strategic Planning:** NITI Aayog has developed Circular Economy (CE) Action Plans for 10 critical waste streams, including e-waste, lithium-ion batteries, and end-of-life vehicles.
- b) **Regulatory Framework:** Market-based Extended Producer Responsibility (EPR) rules have been notified for plastic packaging, batteries, e-waste, and waste tyres. These rules set phased targets for recycling, recovery, and the use of recycled content.
- c) **Vision:** This initiative aims to create new business models, generate employment, and formalize the informal waste sector, aligning with the national vision of Mission LiFE.¹¹⁹

¹¹⁹ Ministry of Environment, Forest and Climate Change, *Fostering a Circular Economy: Waste to Wealth* (New Delhi: Government of India, 2021)

ECOLOGIC

Managing Waste Disposal is a Challenge

Waste management has various stages — creation, storage, transportation, segregation and disposal. A city's municipality is usually responsible for collection, transportation and disposal. But the public must also ensure that all steps are carefully executed

Among the many challenges that a city's municipality faces, managing waste disposal is one of the most daunting. It involves various stages — creation, storage, transportation, segregation and disposal. A city's municipality is usually responsible for collection, transportation and disposal. But the public must also ensure that all steps are carefully executed.

The waste management process starts with the creation of waste. This is followed by storage, transportation, segregation and disposal. The municipality is responsible for the collection, transportation and disposal of waste. The public must also ensure that all steps are carefully executed.

The waste management process is a complex one. It involves various stages — creation, storage, transportation, segregation and disposal. The municipality is responsible for the collection, transportation and disposal of waste. The public must also ensure that all steps are carefully executed.



Garbage piled up in the road, a common sight in many cities.

One of the main challenges is the lack of proper infrastructure for waste management. This includes the lack of landfills, incinerators, and recycling facilities. The municipality must invest in these facilities to ensure that waste is disposed of properly.

Another challenge is the lack of public awareness. Many people do not know how to dispose of waste properly. The municipality must educate the public on the importance of proper waste disposal.

The waste management process is a complex one. It involves various stages — creation, storage, transportation, segregation and disposal. The municipality is responsible for the collection, transportation and disposal of waste. The public must also ensure that all steps are carefully executed.

5.1.2. National Clean Air Programme (NCAP):

Launched in 2019, the NCAP is a national strategy to tackle air pollution at city and regional levels.

- Targeted Approach:** The programme has fixed city-wise, year-wise air quality improvement targets for 131 non-attainment cities.
- Implementation & Monitoring:** Financial support of Rs. 7,100 crores has been released, and implementation is digitally tracked through the "PRANA" portal. Technical support is provided by 88 Institutes of Repute (IoRs).

¹³⁷ Managing Waste Disposal is a Challenge." Deccan Herald, 9 Apr. 2016.
Shilpaarchitects.com, shilpaarchitects.com/ecologic-managing-waste-disposal-is-a-challenge/

- c) **Measured Outcomes:** An overall improvement in air quality has been observed in 95 cities in 2021-22 compared to 2017, demonstrating initial progress.¹²⁰

5.1.3. Expansion of Wetland Conservation: Ramsar Sites:

India has demonstrated strong commitment to wetland conservation by establishing the largest network of Ramsar Sites in Asia.

- a) **Milestone Achievement:** With 75 designated sites covering 1.33 million hectares, India now leads the region in this crucial conservation effort.
- b) **Biodiversity Significance:** These sites are vital for conserving global biodiversity, supporting thousands of faunal species, including a significant proportion of India's known bird and mammalian diversity.
- c) **Integrated Management:** The "wise use" principle of the Ramsar Convention is integrated with national policy through the Wetlands Rules 2017 and the National Plan for Conservation of Aquatic Ecosystems (NPCA).¹²¹

5.1.4. Combating Plastic Pollution: Single use of Plastic:

A definitive two-pillar strategy is in place to tackle plastic pollution, combining a ban on specific items with a robust EPR framework.

¹²⁰ Ministry of Environment, Forest and Climate Change, *National Clean Air Programme (NCAP)* (New Delhi: Government of India, 2019)

¹²¹ Ministry of Environment, Forest and Climate Change, *National Plan for Conservation of Aquatic Ecosystems (NPCA)* (New Delhi: Government of India, 2021)

- a) **SUP Ban:** A ban on identified Single-Use Plastic (SUP) items with high littering potential came into force on 1st July 2022.

- b) **Strengthening Regulations:** The thickness of plastic carry bags has been increased to 120 microns to promote reuse.
- c) **Promoting Alternatives:** The ban has spurred innovation and the creation of a market for eco-friendly alternatives, supported by initiatives like the India Plastic Challenge.
- d) **Global EPR Leadership:** India has established the world's largest EPR framework for plastic packaging, managed through a centralized online portal to ensure compliance and drive a circular economy.¹⁴⁰

5.1.5. Green Initiatives in the Union Budget:

- a) **MISHTI:** A mangrove initiative for shoreline habitats.¹²²

¹⁴⁰ Ministry of Environment, Forest and Climate Change, *Plastic Waste Management (Amendment) Rules, 2021*, G.S.R. 130(E)

- b) **Amrit Dharohar:** A three-year scheme to promote optimal use of wetlands for biodiversity and local income generation.¹⁴²
- c) **Green Credit Programme:** A scheme to incentivize environmentally sustainable actions by industries and individuals.¹⁴³

5.1.6. Sovereign Green Bonds:

To meet its climate goals, the Government of India has approved a Sovereign Green Bonds Framework.¹⁴⁴

- a) **Purpose:** The proceeds are earmarked for public sector projects that reduce the economy's carbon intensity.
- b) **Strategic Importance:** This initiative provides a major impetus to attract green investments and fulfill India's NDC targets under the Paris Agreement, aligning with the "Panchamrit" goals announced at COP-26.¹⁴⁵

5.2 Suggestions:

5.2.1. Proposed reforms:

To bolster the effectiveness of the Environment Protection Act (EPA), 1986, in advancing sustainable development and overcoming implementation challenges, the following structural and procedural reforms are proposed:

¹²² Ministry of Environment, Forest and Climate Change, *MISHTI Scheme Operational Guidelines* (New Delhi: 2023)

¹⁴² Ministry of Environment, Forest and Climate Change, *Amrit Dharohar Scheme Implementation Framework* (New Delhi: 2023)

¹⁴³ Ministry of Environment, Forest and Climate Change, *Green Credit Programme Implementation Guidelines* (New Delhi: 2023)

¹⁴⁴ Ministry of Finance, Scheme for Issuance of Sovereign Green Bonds (New Delhi: November 9, 2022) and Reserve Bank of India, Sovereign Green Bond Issuances: Operational Guidelines (Mumbai: RBI, 2022) ¹⁴⁵ Source:

https://www.icsi.edu/media/webmodules/Academics/ENVIRONMENTAL_SOCIAL_AND_GOVERNANCE_ESG_PRINCIPLES_PRACTICE_14082025.pdf

a) Decentralization of Environmental Governance:

Enhancing the powers of state governments and urban local bodies would create a more responsive and context-specific governance model. This approach allows for the integration of local ecological knowledge and regional developmental priorities into decision-making, while the central government maintains its role in setting overarching national standards. Such decentralization is vital for addressing diverse state-level challenges, from industrial pollution to water scarcity, with tailored strategies under the EPA's framework.

b) Streamlining the Environmental Impact Assessment (EIA) Process:

Strategic reforms are needed to balance environmental rigor with procedural efficiency. Key measures include introducing a system of accredited third-party auditors for compliance verification, establishing legally defined timelines for appraisal committee decisions, and creating a transparent digital portal for realtime tracking of clearance conditions. These steps would enhance the credibility of the process and reduce unwarranted delays that hinder sustainable projects.

c) Strengthening Deterrence through a Revised Penalty Regime:

The Act's deterrent capacity must be reinforced. This involves moving to a system of graduated financial penalties that correlate with the severity of the violation,

the financial capacity of the polluter, and the extent of ecological damage caused. Furthermore, introducing provisions for the temporary suspension of operations and permanent revocation of environmental clearances for habitual offenders would give real teeth to the 'Polluter Pays' principle.

d) Institutional Capacity Building for Robust Enforcement:

Environmental regulatory institutions require significant strengthening. This can be achieved through the systematic recruitment of specialists in emerging fields like climate change and circular economy, equipping field staff with advanced monitoring technologies, and instituting continuous professional development programs. A fortified institution is better positioned to implement the EPA's mandate through data-driven and proactive regulation.

e) Promoting Participatory and Transparent Governance:

Sustainable development is strengthened by public involvement. Formalizing mechanisms for community consultation in the EIA process, promoting citizen science initiatives for environmental monitoring, and ensuring mandatory public disclosure of compliance data are crucial steps. This fosters greater institutional accountability and strengthens the social dimension of sustainable development.

f) Judicial Reforms for Expedited Environmental Justice:

To address the critical issue of case backlog, specialized environmental courts should be established at the regional level, staffed by judicial officers with expertise in environmental law. Creating a dedicated hierarchy of environmental tribunals would provide accessible and efficient forums for resolving disputes, thereby reinforcing the legal backbone of the EPA.

These proposed reforms, taken together, aim to transform the EPA into a more dynamic, effective, and just instrument for achieving sustainable development in India.

A. Global Reporting Initiative:

GRI (Global Reporting Initiative) is the independent, international organisation that provides reporting standards for businesses and other organisations to help them be transparent and take responsibility for their impacts. With a vision to build a sustainable future, GRI's Global Sustainability Standards Board (GSSB) follows an independent, multistakeholder process to create a global common language for impact reporting. This enables informed dialogue and decision making around organisational impacts. The GRI Standards have become the world's most widely used and comprehensive standards for sustainability reporting.

• GRI standards:

For more than 25 years GRI has developed and provided globally recognized standards for organizations to communicate and disclose information placing accountability for the impact on environment, economy and people. These standards are inter-connected in a structured manner in order to provide complete disclosures. Any organization, irrespective of size can adopt these standards. These Standards also assist stakeholders and other information users understand what is expected from an organization to report on and use the information published by organizations in various ways.

The GRI Standards are a modular system comprising of:

- a) GRI Universal Standards.
- b) ii) GRI Sector Standards.
- c) iii) GRI Topic Standards.

These Standards consist of structured disclosures, which can include requirements or recommendations. Requirements specify the information company should provide and comply with. Recommendations include a voluntary course of action that is encouraged but not made voluntary.¹²³

a) GRI Universal Standards:

This Standard applies to all organizations and consists of the following:

- **GRI 1:**

Foundation 2021 provides the conceptual understanding like the purpose of these Standards, critical concepts, and clarification for using the Standards. It comprises of principles such as accuracy, balance and verifiability.

- **GRI 2:**

General Disclosures 2021 consists of disclosures like organizational structure, governance, policies, practices, strategy, stakeholder engagement etc. They provide insights into the organization's profile and scale and help in providing a context for understanding an organization's impacts.

- **GRI 3:**

Material Topics 2021 provides the steps through which an organization can determine the topics that are of most relevance to it in terms of impact. It provides the use of sector standards in this process. It also provides disclosures pertaining to material topics, the method of assessing the materiality and the management of every material issue.

¹²³ https://www.icsi.edu/media/webmodules/Academics/ENVIRONMENTAL_SOCIAL_AND_GOVERNANCE_ESG_PRINCIPLES_PRACTICE_14082025.pdf

b) GRI Sector Standards:

These Standards are sector-specific in nature and are created with the intention of increasing the quality, completeness and consistency of reporting by organizations. These Standards have been developed for 40 sectors and they are significant for organizations operating in that particular sector.

They indicate the disclosure requirements on sector-specific issues. If an applicable Sector Standard is available, an organization is obliged to use it when reporting with the GRI Standards.

c) GRI Topic Standards:

These Standards provide disclosures for specific topics. This section includes Standards for topics like waste, occupational health and safety, and tax. The organizations can select the Standards that are related to the material issues that have been identified and the associated impacts.¹²⁴

B. Business Responsibility Sustainable Reporting (BRSR): Environmental Social Governance reporting (ESG reporting):

BRSR is Business responsibility and sustainability reporting, which is a reporting framework by SEBI for listed companies in India. BRSR report is an integrated reporting framework and it aims to increase the level of reporting on environmental, social, and governance (ESG) performance. The BRSR

¹²⁴ Global Reporting Initiative, *GRI Standards* (Amsterdam: Global Sustainability Standards Board, 2023)

report format guides enterprises to report the ESG performance indicators to ensure that they practice responsible business and achieve sustainable development.¹²⁵

(a) The objectives of BRSR report implementation are as follows:

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1. Encourages companies to adopt practices that are sustainable and consider ESG integration into their operations.
 2. Encourages companies to report on the comparability and the quality of non-financial information.
 3. Ensures that companies in India comply with the international frameworks of sustainability reporting.
 4. Encourages that ESG disclosures are made and improves stakeholder engagement while establishing trust.

(b) BRSR Reporting format:

The BRSR reporting format is organised into 3 pivotal sections. The sections are as follows:

1. Management and Process Disclosure:

Primarily focuses on the details of the company's operations. It outlines the policy's procedures and the measures to implement in conducting an ethical business with the promotion of environmental responsibility.

¹²⁵ Securities and Exchange Board of India (SEBI), *Business Responsibility and Sustainability Report by Listed Entities* Circular No. SEBI/HO/CFD/CMD-2/P/CIR/2023/123, 12 July 2023.

2. Principle-wise Performance Disclosure

Requires the businesses to report on how compliant they are with the 9 principles outlined under the National Guidelines on Responsible Business Conduct (NGRBC).

3. General Disclosure:

Provides a brief description of the company, its services, the people who are behind it, its operations, and its compliance with the law.

The questions for each BRSR section above have been divided into essential indicators, which are mandatory and leadership indicators which can be voluntary.¹²⁶

(c) BRSR Principles:

There are various pillars of the BRSR reporting in India:

- **Principle 1:**
Describes how businesses are conducted in an ethical and transparent manner. The focus of principle 1 of the BRSR reporting in India is on a business's transparency in communication and being accountable for their actions.
- **Principle 2:**
Establishes that businesses should provide services and goods in a manner that is safe and sustainable.
- **Principle 3:**
Promotes respect and the well-being of all employees, including those in the value chain in businesses.

¹²⁶ Source: <https://www.banyannation.com/blog/brsr-reporting/>

- **Principle 4:**
Promotes the interest of stakeholders as well all being responsive to the stakeholders.
- **Principles 5:**
Establishes that businesses should promote human rights and respect.
- **Principle 6:**
Encourages businesses to make efforts to restore the environment and protect it.
- **Principle 7:**

Establishes that businesses should engage with and provide value to their consumers in a responsible manner.
- **Principle 8:**
Establishes that businesses should promote inclusive growth and equitable development.
- **Principle 9:**
Promotes engagement within businesses and value addition to their customers in a responsible manner.¹⁵⁰

C. Corporate Social Responsibility (CSR):

It has become a progressive approach in the business sector that corporates invest in initiatives namely Corporate Social Responsibility (CSR), So that a company's environmental and business activities can align to serve the greater needs of the society. The businesses had to look beyond the financial constraints and integrate social concerns of the environment into their strategic management to improve their brand value, providing goods and services at reasonable prices and motivate people for the optimal use of resources.

India understood the need to undertake CSR and became the first country ever to amend the Companies Act, 1956 to Companies Act, 2013¹⁵¹ in which

Section 135 talks about CSR "Every company having a net worth of rupees five hundred crores or more, or turnover of rupees thousand crore or more, or a net profit of five crores or more, during any financial year, shall constitute a

¹⁵⁰ Securities and Exchange Board of India (SEBI), *Business Responsibility and Sustainability Report by Listed Entities* Circular No. SEBI/HO/CFD/CMD-2/P/CIR/2021/562, 10 May 2021, Annexure I: National Guidelines on Responsible Business Conduct (NGRBC) Principles

Original Source: Ministry of Corporate Affairs, *National Guidelines on Responsible Business Conduct* (New Delhi: March 2019)

¹⁵¹ *The Companies Act, 2013* (Act No. 18 of 2013), s 135.

Corporate Social Responsibility Committee of Board consisting of three or more directors, out of which one director shall be an independent director".

It is the commitment towards the society by the shareholders and the stakeholders of a company for a sustainable environment. Companies invested more towards the well-being of the poor sections of society which not only increased the employment opportunities but also people developed new skills.

The increase in the activities of corporate responsibility, business and brands is now recognized by the society and people are now aware of the market and the available brands

This not only helped in recognition of the brand value but the industry now focused more on the quality and quantity of the product.

A. Environmental protection and CSR:

CSR activities are not only about social uplifting but also contribute immensely in terms of environmental protection as day-to-day activities of people increase the level of pollution which releases harmful toxicants. For the sustainable environment and protection of people's interests, the companies have accepted

the legislation framed by the parliament to contribute effectively for the larger benefit of the society.

B. Elements of Protection of Environment and Sustainability under CSR:

Out of all the activities, CSR undertook some major elements of environmental protection that are essential. Various elements are elaborated in this section of the article to understand the implication of the provisions of CSR.

a) Environmental Sustainability:

It is concerned with whether environmental resources will be protected and maintained for future generations. Depleting water levels, non-disposal of toxic and chemical wastes, the supply of clean energy are some of the environmental issues faced globally. CSR has taken initiatives to mitigate the adversities and harm done to the environment by undertaking and promising to protect the integrity of Mother Earth.

b) Ecological Balance:

It is defined as a term that maintains the balance between the environment and the living organisms, if an ecological flow is disrupted then problems such as overpopulation, contagious diseases, depletion of resources, no management of waste would pose a threat to the environment. CSR through activities and conduct surveys to promote the flow of essential and optimum use of resources.

c) Protection of Flora and Fauna:

Fauna refers to the animal life and flora refers to different plants like herbs and shrubs that are present and belong to a particular habitat. Deforestation, illegal

trade, poaching of tigers, loss of habitat, development of industries near the forest reserves, toxic pollutants and fumes polluting air in the forests result in the extinction of certain species and harm the existing plant life, CSR identifies these problems and develop a list of them to target specific areas and zones. The government has also in their various notices and ordinances have declared certain sites to be protected and have taken strict measures against the companies who violate the rules. CSR initiatives correct the wrong and harm done to the environment by undertaking such projects.

d) Animal Welfare:

The life of animals is of equal importance to maintain the balance in the ecosystem so to maintain their physical and mental well-being proper construction of shelter houses, nutrition and food, services of the veterinarian, protecting the needs of the stray animals, strict measures for cruelty against animals, immunization and birth control practices can be broadly undertaken.

e) Agroforestry:

It is a cultivation practice of shrubs, trees, the integration of crops and livestock in an agricultural system which yields higher results based on low-cost equipment. It uses technology that optimally utilizes the resources, it secures the rising demand for agroforestry products like fuel, timber, fodder, fiber, food. CSR activities are taken to further protect the environmental security in continuity to the inflow of essential Agro products.¹²⁷

¹²⁷ *The Companies Act, 2013*, Act No. 18 of 2013, s 135 and Schedule VII; *Companies (Corporate Social Responsibility Policy) Rules, 2014*, G.S.R. 129(E)

(c) Some of Indian Initiatives:

- **Tata Steel:**

TATA Steel along with the State of Odisha incorporated the target "Mission 2020 for Agricultural Development" which aimed at improving the lives of poor farmers by increasing employment opportunities and addressing the issue of poverty and food security. It aimed at increasing the income of 7000 household farmers by giving them proper training and development in the field of horticulture, modern practices of irrigation.

The creation of a self-help group was necessary for the implementation of the project and promotion of employment opportunities for women and the aim to convert three-acre of cropland through irrigational facilities. 344 farmers benefited by the development of ponds and irrigational facilities. 60-acre wasteland under the National Horticulture Mission were converted for the cultivation of cashew, mango, and lemon plantations.¹²⁸

¹²⁸ B Sridhar, "Tata Steel Adopts Green Initiatives," The Times of India, [Date of Publication], [https://timesofindia.indiatimes.com/\[specific-article-path\]](https://timesofindia.indiatimes.com/[specific-article-path]).

Tata Steel adopts green initiatives

B Sridhar | TNN

Tata, which is the world's second most geographically diversified steel producer with commercial presence in over 50 countries and operations in 26 countries, has taken several green steel initiatives to reduce carbon emissions and transition to a more sustainable model.

The company aims to cut CO₂ emissions to under 2 tonnes per tonne of crude steel by 2025 and to below 1.8 tonnes by 2030 in India, company sources said, adding in Europe, Tata Steel plans to produce green steel (steel produced through environmentally sustainable methods that minimise or eliminate carbon emissions) in the Netherlands by 2030 and CO₂-neutral steel in the UK and Netherlands by 2050.

In India, Tata Steel has drawn

out plans to increase use of scrap in steel production from 17% to 30% and has launched a steel recycling business to support a circular economy, according to company sources. A new electric arc furnace in Ludhiana, set to produce 7.5 tonnes of steel annually from 100% scrap, will be operational by 2026.

Tata Steel is exploring biomass in ferrochrome production to reduce CO₂ emissions, the sources said.

"The steel industry accounts for 8% of the world's total carbon footprint. The transition from coal to gas to

hydrogen, even from a supply chain perspective, is a challenge. The cost of this transition necessitates a policy framework and govt support," said TV Narendran, global CEO and managing director of Tata Steel, during an industry body event earlier this year.

- **Coca Cola:**

Coca Cola, a leading beverage company, took the mission "Alag Karo Har Teen Din Bin" which aimed at easy disposal management and segregation of wet and dry garbage. Coca Cola foundation took this project in January 2017 in Gurugram in partnership with NGO Sahass, TetraPak, and GIZ.

Gurugram produces 600 tonnes of waste which was not disposed of in an effective way to segregate the waste at the source itself like homes and

offices the Municipal Corporation gave guidelines on the proper disposal of waste in three categories i.e. wet, dry and rejecting waste.¹²⁹

5.3 Conclusion:

This dissertation set out to evaluate the role and efficacy of the Environment (Protection) Act, 1986, as the cornerstone of India's environmental governance and its capacity to promote sustainable development. The analysis, spanning the Act's legal architecture, its enforcement mechanisms, and its interaction with both domestic policies and international commitments, leads to several definitive conclusions.

The EPA, 1986, has proven to be a remarkably resilient and adaptable "umbrella legislation." Its strength lies not only in its comprehensive provisions but in its enabling nature, which has allowed successive governments to address emerging environmental challenges—from hazardous waste and coastal erosion to climate change and plastic pollution—through a dynamic body of subordinate rules and notifications. The Act successfully provides the statutory backbone for implementing India's commitments under international treaties like the

UNFCCC, the Basel Convention, and the CBD, thereby bridging global environmental norms with national action.

Furthermore, the study finds that the EPA's role in promoting sustainable development is multifaceted. It has moved beyond its initial command-and-control approach to gradually incorporate the core principles of sustainable development, notably the Precautionary Principle and the Polluter Pays Principle, largely

¹²⁹ https://blog.ipleaders.in/environmental-protection-csr/#Corporate_responsibility

through judicial interpretation. The recent policy initiatives analysed— such as the National Clean Air Programme, the push for a Circular Economy, and the ban on Single-Use Plastics—demonstrate a conscious effort to use the EPA's framework to reconcile economic ambitions with ecological imperatives.

However, the research also unequivocally identifies a significant gap between legislative intent and ground-level reality. The challenges are not primarily of law, but of implementation. Inadequate institutional capacity of regulatory bodies, insufficient financial resources, political and economic pressures for rapid development, and uneven enforcement across states continue to hinder the Act's full potential.

Therefore, the journey towards sustainable development, guided by the EPA, remains a work in progress. Its future effectiveness will depend less on further legislative expansion and more on addressing the critical implementation deficits through the reforms suggested: decentralizing power, strengthening enforcement capacity, integrating transparency mechanisms like ESG reporting, and fostering greater public participation. The Environment (Protection) Act, 1986, has provided India with a powerful legal instrument; the task ahead is to sharpen its application to ensure that the nation's developmental pathway is not only rapid but also resilient, equitable, and sustainable for generations to come.

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