



Review of the existing environmental norms

concerning the power sector

Introduction

Electricity is a clean form of energy at the consumption stage. However, the process of generating electricity may involve depletion of natural resources, environmental pollution, displacement of population, health hazards, drastic changes in land use pattern, corrosion of structures, buildings and monuments, reduced yield of crops and loss of forests. The impact of power stations on the environment depends to a large extent on their locations with respect to water bodies, agricultural and forest lands etc. Many adverse impacts of thermal power plants can be offset by right technological control. Judicious siting, necessary control measures and effective environmental management of the operating plants also minimises adverse impact. The MoEF (Ministry of Environment and Forests) is the focal agency responsible for control of environmental pollution and environment conservation.

A policy framework and various legislative instruments guide energy generation and environment conservation. According to the *National Conservation Strategy and Policy Statement on Environment and Development*, (1992, MoEF) the following measures should be taken with regard to prevention and control of pollution and environmental hazards in energy generation and use, as also for encouraging an environmentally benign energy system:

- Environmental impact assessment prior to investment decisions and site selection; choice of practicable clean technologies for energy production and processes and waste utilization, treatment and disposal of solid wastes, effluents and emissions;
- Location of energy generation projects based on environmental considerations including pollution, displacement of people and loss of biodiversity;

- Decentralize small projects for meeting rural energy needs and incentives for use of non-conventional energy sources;
- Incentives and measures (including proper pricing) to prevent abuse and to promote the use of energy efficient devices in the production and distribution systems and for energy conservation in all sectors including households, agriculture, industry, power and transportation;
- Concerted efforts for development and propagation of non-conventional renewable energy generation systems, and;
- Setting up of biogas plants based on cow dung, human excreta and vegetable wastes.

The Directive Principles of State Policy of the Indian Constitution provide the State's commitment to protect the environment. The Constitutional provisions have been given effect through "regulatory" environmental protection laws exemplified in the umbrella Environment (protection) Act, 1986 and the more specific Water (Prevention and Control of Pollution) Act 1974 and the Air (Prevention and Control of Pollution) Act 1981. Among the specific natural resources protection acts are the Forest (Conservation) Act, 1980, and the Wildlife (Protection) Act, 1972. Other legislation like the Factories Act, 1948, the National Environment Tribunal Act 1995, the Public Liability Insurance Act, 1991 and the National Environment Appellate Authority Act 1997 also have an impact on the natural resources and economic activities. In the past decade or so the judiciary, specially the Supreme Court of India has given recognition to concepts such as sustainable development, the precautionary principle, and polluter pays principle. Also, the right to the environmental protection has been recognised as right to life as embodied in Article 21 of the Constitution of India.

In this study the norms applicable to power plants have been discussed with respect to various sectors of the environment. Relevant provisions of various legal instruments have been discussed and interpreted and case law has been used wherever possible. The cases used may not be directly relevant to CERC (Central Electricity Regulatory Commission), however, they have been discussed to show how the Indian courts have been interpreting the law. The general scheme of this paper is as follows:

- Review of the provisions of environmental legislation
- Enforcement of environmental norms (institutional framework)
- Problems in implementation of environmental norms

Review of the provisions of environmental legislation

Table 1.1 Environmental legislation concerning the power sector

General

- Environment (Protection) Act, 1986 and Rules 1986

Notifications issued under the Act

1. Coastal Regulation Zone Notification (1991)
2. Dhanu Taluka) Notification (1991)
3. Doon Valley Notification (1989)
4. Revdanda Creek Notification (1989)
5. Disposal of Fly ash Notification (1999)
6. Taj Trapezium Notification (1998)
7. Ash Content Notification (1997)
8. The Environment Impact Assessment of Development Projects Notification, (1994) and as amended in (1997)

Water

- Water (Prevention and Control of Pollution) Act, 1974 and Rules 1975
- Water (Prevention and Control of Pollution) Cess Act, 1977 and Rules 1978

Air

Air (Prevention and Control of Pollution) Act, 1981, Rules 1982 and Amendment, 1987

Forests and Wildlife

- Forests (Conservation) Act, 1980 and Rules 1981
- Wildlife (Protection) Act, 1972, Rules 1973

Other Legislation

- National Environment Appellate Authority Act
 - Public Liability Insurance Act, 1991
 - Factories Act 1948, Amendment, 1987
 - National Environment Tribunal Act, 1995
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Environment (Protection) Act, 1986 (EPA)

In the wake of the Bhopal Gas Tragedy the Government of India enacted the Environment (Protection) Act of 1986. The Act is an umbrella legislation designed to provide a framework for Central Government coordination of the various Central and State authorities established under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981.

The EPA envisages filling up gaps in the legislative protection to the environment. Some relevant provisions of the Act are discussed below.

EPA, Section 2: Definitions

Environment- Includes water, air and land and the interrelationship which exists between water, air, land and human beings and other living creatures, plants, micro-organisms and property. [Section 2(b)]

Environmental pollutant- Any solid, liquid, or gaseous substance present in such concentration as may be or may tend to be injurious to the environment. [Section 2(c)]

Hazardous substance- Any substance or preparation which by reason of its chemical or physio-chemical properties or handling is liable to cause harm to human beings, other living creatures, plants, micro-organisms, property or the environment. [Section 2 (e)]

Occupier- In relation to any factory or premises, an occupier means a person who has control over the affairs of the factory or the premises and includes in relation to any substance, the person in possession of the substances. [Section 2 (f)]

Section 3(1): Powers to and functions of the Central Government

The Central Government is empowered to take all such measures as it deems necessary, for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution. Specifically the Central Government is authorised:

- to set new national standards for the quality of the environment (ambient standards), as well as standards for controlling emissions and effluent discharges;
- to regulate industrial locations;
- to prescribe procedures for managing hazardous wastes;
- to establish safeguards for preventing accidents; and
- to collect and disseminate information regarding environmental pollution.

The Act empowers the Central Government to establish standards for the quality of the environment in its various aspects, including maximum allowable concentration of various environmental pollutant (including noise) for different areas. These standards are based on ambient levels of pollutants sufficiently low to

protect public health and welfare. Emission or discharge standards for particular industries can be adjusted to ensure that such ambient levels are achieved. The Environment (Protection) Rules of 1986 do allow the State or Central authorities to establish more stringent emission or discharge standards, based on the quality of the recipient system than the current uniform standards prescribed under these rules [Rule 3 (2)].

In the past few years court rulings have facilitated a better implementation of the EPA. In *Vellore Citizens Forum vs Union of India* (Supreme Court, 1996), the Supreme Court directed the constitution of an authority under Section 3(3) of the Act, to deal with the situation created by the tanneries and other polluting industries in Tamil Nadu. Further, this authority was directed by the court to implement both the **polluter pays** and the **precautionary principles**.

Section 5: Power to issue directions

Under Section 5 the Central Government is empowered to issue directions in writing to any person, officer, or any authority.

Section 6: Rules to regulate environmental pollution

The MoEF is responsible for making rules to implement the EPA and has adopted industry specific standards for effluent discharge and emissions for 24 designated industries. Thermal power plants fall in this list. For other water polluters general standards are prescribed.

Section 7: Persons carrying on industry, operations etc., are not to allow emission or discharge of environmental pollutants in excess of the standards

This section expressly states that those persons who are carrying on industry, operations etc., are not to allow emission or discharge of environmental pollutants in excess of the standards.

Section 9: Furnishing of information in certain cases

According to Section 9, in cases where discharge of an environmental pollutant occurs in excess of the prescribed standards, or there is an apprehension of this occurring due to an accident or some other unforeseen event, then the person who is in charge at that particular time is responsible for preventing environmental pollution due to the said discharge. It is the responsibility of the person to intimate the occurrence of the discharge to the CPCB/SPCB (Central/State Pollution Control Board), and provide all possible assistance to the regulatory agencies to

counter the ill effects of the discharge. All expenses incurred by the regulatory agency in undertaking remedial measures may be recovered from the polluter.

In *Indian Council for Enviro-legal Action vs. Union of India* (Supreme Court, 1996), the court held that the Central Government has the power under Sections 3 and 5 of the EPA to levy and recover the cost of the remedial measures. The **polluter pays** principle was also held to be applicable and Sections 3 and 5 of the EPA were held to empower the Central Government to give directions and take measures for giving effect to this principle.

Section 10: Power of search and entry

The EPA empowers authorized officers to enter, at all reasonable times, any place, or premises for determining the infringement of standards and procedures set under the Act, and for testing any equipment, industrial plant, record, register or document or any other material object for determining offences under the EPA. A willful delay or an obstruction of such an inspection is an offence and the person in-charge is liable for prosecution.

Section 11: Power to take samples

The search and seizure authority provided in the earlier section is supplemented with the power to take samples of air, water, soil or any other substance from the factory premises. The person taking the sample is to serve a notice to the occupier or his agent in charge of the place and then, in the presence of the occupier or his agent, place the sample in a container and seal it. The sample containers are to be signed and sealed by both the occupier and the person taking the sample. Collected samples are to be sent without delay to the environmental laboratories. The result of any analysis of a sample taken shall not be admissible in evidence in any legal proceedings if this procedure for collection of the samples is not followed.

The following are empowered to enter and search the premises and take samples of air, water, soil or any other substance from a thermal power plant as per the provisions of Section 10 and 11:

- Director (Pollution Control);
- SPCB and the officers empowered by the State Board under Section 21 and 23 of the Water (Prevention and Control of Pollution) Act, 1974 or under Section 24 of the Air (Prevention and Control of Pollution) Act, 1981;
- CPCB and any officer empowered under Section 23 of the Water (Prevention and Control of Pollution) Act, 1974 or under Section 24 of the Air (Prevention and Control of Pollution) Act, 1981.

Section 12: Environmental laboratories

The samples collected are to be sent to notified laboratories for analysis. Government analysts with specific qualifications are appointed under Section 13. The functions of environmental laboratories and the qualifications of Government analysts are described in the Environment (Protection) Rules, 1986.

Section 14: Evidence

A document, which is a report signed by a Government Analyst, can be used as evidence for any proceedings under the EPA.

Section 15: Penal provision

EPA provides for punishment with imprisonment for a term which may extent to **five years** or with a fine which may extent to **one lakh rupees**, or with both. In case the contravention continues, there may be an additional fine of Rs 5000 for each day of the contravention. If the contravention continues beyond a period of one year after the date of conviction, the offender is punishable with imprisonment for a term which may extent to seven years.

Section 16: Offence by a company

When an offence under this Act has been committed by a company, then every person directly in charge of and responsible to the company at the time of the offence, shall be deemed to be guilty of the offence, unless he or she proves that the offence was committed without their knowledge or that they exercised due diligence to prevent the offence.

Section 17: Offence by Government department

In case a Government department has committed an offence under this Act, then the head of the department is deemed guilty unless he or she proves that offence was committed without their knowledge or that they exercised due diligence to prevent the offence. Any other person other than the head of the department, who has consented to the offence or was in connivance, or neglected their duties in preventing the offence, shall also be guilty under the Act.

Section 18: Protection of action done in good faith

No suit, prosecution, or other legal proceedings lie against the Government or any officer or employee of the Government or any authority constituted under this

Act, or any member, officer or employee of such an authority, in respect of anything which is done in **good faith** in pursuance of this Act, Rules made under the Act and orders and directions issued under this Act.

Section 19: Cognizance of offences (citizen's suit)

A court can take cognizance of an offence only on a complaint made by The Central Government, or any authority or officer authorized or by any person who has given notice of not less than sixty days to the Central Government, or any authority or officer authorized. This **citizen's suit section** appears to give significant powers to the citizens to enforce the EPA. However, under the EPA only Government officers have the power of sample collection, which may be adduced as evidence during proceedings. This particular aspect seems to weaken the Section.

Section 20: Information reports or returns

The Central Government can ask any person, officer, State Government, or other authority to furnish any report, returns, statistics, accounts, or other information.

Section 21: Members, officers and employees of the authority constituted under Section 3 to be public servants

Members, officers and employees of the Authority constituted under Section 3 are to be public servants within the meaning of Section 21 of the Indian Penal Code, when acting under this Act.

Section 22: Bar of jurisdiction

No civil court has the jurisdiction to entertain any suit, or proceedings in respect of anything done, action taken, or order or direction issued by the Central Government or any other Authority or officer in pursuance of any power conferred by or in relation to its or his /her function under the Act.

Section 23: Powers to delegate

Under this section the Central Government can delegate its functions (as specified in Section 3 of the Act). The Central Government's power to constitute an authority [Section 3(3)] and the power to make rules (Section 25) are an exception to this section. Under the Notification of April 10, 1997, power for clearance for some power plants has been delegated to State Governments. For the following types of power plants clearance can be obtained from the State Government:

- For co-generation power plants of any capacity;
- Gas/naphtha-based and coal-based power plants with a fluidised bed technology of up to 500MW capacity; and
- Conventional coal-based power plants of up to 250 MW capacity **except** when located within 25 km of the boundary of reserved forests, biosphere reserves and critically polluted areas or within 50 km of interstate boundary.

The following State Governments have been delegated power for clearance.

- | | |
|---------------------|---------------------|
| 1. Andhra Pradesh | 13. Sikkim |
| 2. Assam | 14. Tamil Nadu |
| 3. Bihar | 15. Meghalaya |
| 4. Gujarat | 16. Punjab |
| 5. Haryana | 17. Uttar Pradesh |
| 6. Himachal Pradesh | 18. Maharashtra |
| 7. Karnataka | 19. Goa |
| 8. Kerala | 20. Jammu & Kashmir |
| 9. Madhya Pradesh | 21. West Bengal |
| 10. Mizoram | 22. Manipur |
| 11. Orissa | 23. Tripura |
| 12. Rajasthan | |

Section 24: Effect of other laws

After the exceptionally stringent penal provisions provided in Section 15, the EPA dilutes the same drastically Section 24. Under this section, where an act or omission constitutes an offence punishable under EPA and also under any other Act, then the offender shall be liable to be punished under the other Act and not this Act. For example, for an offence under EPA as well as the Water Act, the offender shall be punishable under the Water Act (Imprisonment of three months or a fine of Rs 5000) and not the EPA.

There are other problems too, because of two statutes (EPA and Water Act) with different standards and penalty provisions regulating release of the same pollutants. For example, if a factory discharges waste water containing the pollutant at a level higher than allowed under the EPA, but within the allowable limits of the Water Act, then will the EPA provisions apply?

Section 25: power to make rules

The Central Government has the power to make rules for the implementation of the Act. Six months after the EPA came into force the Central Government

formulated the Environment (Protection) Rules 1986. The relevant sections of the rules are discussed later in the paper.

From time to time the Central Government issues notifications under the EPA for protection to ecologically sensitive areas or guidelines for various matters under the EPA. Some relevant notifications are discussed below.

Notifications issued under the Act

1. Coastal Regulation Zone Notification (1991) (CRZ)

This regulates activities along the coastal stretches. The Central Government has declared the coastal stretches of seas, bays, estuaries, creeks, rivers, and backwaters which are influenced by tidal action (the land ward side) up to 500 meters from the high tide line (HTL) and the land between the low tide line (LTL) and the HTL as a Coastal Regulation Zone. The following facts are relevant for power plants under this notification:

- Dumping of ash or any wastes from thermal power plants in the CRZ is prohibited.
- Thermal power plants require environmental clearance from the MoEF, for foreshore facilities for transport of raw material and for facilities for intake of cooling water and outfall for discharge of treated waste water/cooling water, in the CRZ.

2. Dhanu Taluka Notification (1991)

Dhanu Taluka in District Thane in Maharashtra has been declared as ecologically fragile and thermal power plants are not permitted to be set up there.

3. Doon Valley Notification (1989)

This prohibits setting up of an industry in which the daily consumption of coal/fuel is 24 Mt/day.

4. Revdanda Creek Notification (1989)

Under this notification the Central Government has prohibited location of all industries, carrying on of operations or processes in a belt of one kilometer from the high tide mark from the Revdanda Creek (latitude 19 degrees 35 minutes) upto Devgarh point (near Shrivardhan) latitude 18 degrees; as well as along a one kilometer belt along the banks of the Rajpuri creek upto Mhasia.

5. Disposal of Fly Ash Notification (1999)

The main objective of the notification is to conserve top soil, protect the environment and prevent the dumping and disposal of fly ash discharged from coal or lignite-based power plants. The salient features of the notification are:

- No person within a radius of 50 km from coal- or lignite-based power plant shall manufacture clay bricks or tiles or blocks without mixing at least 25 per cent of ash with soil on weight- to weight-basis.
- Every coal- or lignite-based power plant shall make available ash for at least ten years from the date of publication of this notification, without payment or any other consideration, for the purpose of manufacturing ash-based products.
- Every coal- or lignite-based power plant commissioned subject to environmental clearance conditions, stipulating the submission of an action plan for full utilization of fly ash, shall achieve the same within a period of nine years from the publication of this notification.
- The Central and State Government agencies, the State Electricity Board, the NTPC and the management of the thermal power plants shall facilitate utilization of ash. Public works departments, housing boards etc., shall prescribe use of ash and ash-based products in their schedules of specifications.
- All local authorities shall specify in their respective building bylaws and regulations the use of ash and ash-based products.

6. Taj Trapezium Notification (1998)

The Central Government has constituted an authority known as the Taj Trapezium Zone Pollution (Prevention and Control) Authority. This authority is empowered to monitor the implementation of various schemes for the protection of the Taj Mahal and protection and improvement of the environment in the Geographical limits of the Taj Trapezium.

The geographical limits of the Taj Trapezium have been defined in the shape of a trapezoid between $26^{\circ} 45' N$ and $77^{\circ} 15' E$ to $27^{\circ} 45' N$ and $77^{\circ} 15'$ on the west of the Taj Mahal and on the east between $27^{\circ} 00' N$ and $78^{\circ} 30' E$ to $27^{\circ} 30' N$ and $78^{\circ} 30' E$. No power plants can be set up within this geographical limit.

7. Ash Content Notification (1997)

Under this notification the following thermal power plants shall the use beneficiated coal with an ash content not exceeding 34 per cent, with effect from June 1, 2001. This applies to:

- Any thermal power plant located beyond one thousand kilometers from the pit-head.

- Any thermal power plant located in an urban area, sensitive area or critically polluted area irrespective of the distance from the pit-head except any pit-head power plant.

The notification has also defined some terms-

- **Beneficiated coal** means coal containing a higher calorific value but lesser ash than the original ash content in the raw coal obtained through physical separation or the washing process.
- **Pit-head power plant** means power stations with a captive transportation system for exclusive use to transport coal from the loading point at the mining end up to the unloading point at the power station.
- **Sensitive area** means an area whose ecological balance is prone to be easily disturbed.
- **Critically polluted area** means an area where the pollution level has reached or likely to reach the critical level and which has been identified as such by the Central Government or the CPCB or the SPCB.

8. The Environment Impact Assessment of Development Projects Notification, 1994 and as amended in 1997.

Until January 1994, obtaining environmental clearance from MoEF was only an administrative requirement intended for mega projects undertaken by the Government or public sector undertakings. The EIA notification of May 1994, makes EIA (environmental impact assessment) statutory for 29 activities (Schedule I of the notification). Thermal power plants and hydroelectric projects fall into this category. The salient provisions of the notification are as follows:

- All projects listed under Schedule I are required to obtain environmental clearance from the MoEF.
- Projects which fall under the delicensed category of the New Industrial Policy also need clearance from the MoEF.
- All development projects whether under Schedule I or not, if they are to be located in certain notified ecologically sensitive or fragile areas will have to obtain clearance from MoEF.
- Industrial projects where the investment is Rs 500 million or more must get MoEF clearance.
- Industrial projects are further required to obtain a LOI (letter of intent) from the Ministry of Industry, and a NOC (no objection certificate) from the SPCB and the State Forest Department if the location involves forest land. Once the NOC is obtained, the LOI is converted to an industrial license by the State authorities. However, if the project falls under Schedule I of the EIA

notification, it must obtain an environmental clearance from the MoEF. Following the siting guidelines issued by the MoEF facilitates obtaining the necessary approvals.

Procedural Requirements for establishing and operating a New Power Plant

There is a two-stage clearance for site-specific projects like pit-head thermal power plants and river valley projects. Site clearance is given at the first stage and final environmental clearance is given at the second stage. In 1994, in order to delineate areas suitable for industrial siting and for classification of different categories based on their existing environmental features, a project for the preparation of a district-wise zoning atlas has been taken up the CPCB in collaboration with SPCB. It is expected that the zoning atlas for over 100 priority districts shall be prepared by the year 2000. The priority districts are those that face rapid industrialization or environmental problems. These guidelines will also help in identification of appropriate sites for power plants.

Thermal power plants

Stage I

Site Clearance - There is no tight framework for siting of power plants. Siting of power plants is decided on the merits of each case. Relevant facts for siting a thermal power plant are:

- The site (chimney) should not fall within the approach funnel of the runway of the nearest airport.
- The site should be at least 500 meters away from the flood plains of riverine systems.
- The site should be at least half a kilometre away from highways and the main railway line.

Also, while locating thermal power plants the EIA should focus on the environmental impact of the power plant on

- Metropolitan cities
- National parks and wildlife sanctuaries
- Ecologically sensitive areas like tropical forests, biosphere reserves and coastal areas
- Defense installations
- Archaeological sites of national importance

Stage II

The EIA report which is submitted after the site clearance contains the following:

- Description of site, site map
- Land requirements, No objection certificate from State Forest Department if forest land involved
- Rehabilitation plan for displaced people
- Consent to establish from SPCB (regarding effluents and emissions)
- Report on impacts on the environment during construction
- Collection of ambient air quality and meteorological data
- Report on hydrology and water quality
- Report on occupational safety and health
- Details of transport and handling of raw material
- Report of impact on sensitive terrestrial targets

Post commission requirements: After the thermal power plant has been commissioned the following facts are relevant

- Provision for disposal of solid wastes (fly ash)
- Carry out the rehabilitation of the displaced population
- Monitor emissions and effluents obtain consent to operate under the Water Act , Air Act, comply with the standards laid down CPCB/SPCB, apply for renewal of consent after expiry of specified period
- Submit water cess return at regular intervals to SPCB
- Submit an environmental statement to SPCB every year
- Precautionary measures for occupational health and safety
- Preparedness for emergency situations
- Provide for green belt of 50-1000 m

Hydroelectric power plants

While identifying a site for a hydroelectric power plant and making an EIA report the following are considered:

Location aspects

- Impact of the project on biodiversity
- Impact on archeological/religious sites
- Catchment area and treatment of degraded catchment
- pre-impoundment census of endangered biodiversity, land use pattern, mineral resources, groundwater level, living conditions of affected people in the submergence area
- Approval from the state forest department if forest areas involved

Physical aspects

- Possibility of occurrence of landslides on periphery of reservoir
- Siltation
- Potential seismic impact
- Expected water quality over time and impact of the same on biodiversity

Resource linkage Aspects

- Loss of optional land use
- Mineral deposit loss
- Forest reserve/biodiversity loss
- Monuments inundated

Socio-cultural aspects

- Population displacement
- Resettlement dynamics

Public Health Aspects

- Issue of new health problems or vector patterns that may arise due to physical change factors caused by water impoundment

Cost Benefit Analysis

- For compensatory afforestation
- Restoration of land in construction areas
- Control of aquatic weeds in submerged area
- Measures to salvage endangered species/monuments
- Public health measures
- Catchment area treatment/soil conservation measures
- Rehabilitation and resettlement of affected people

Whenever the project is given environmental clearance, a set of recommendations and conditions are stipulated by the appraisal committee. These have to be complied with by the investor once the project is commissioned. Project authorities are required to submit semi-annual compliance reports to MoEF to enable the ministry to monitor the implementations of the recommendations and conditions of the environmental clearance. The six regional offices of MoEF assist in monitoring environmentally cleared projects. Cases of non-compliance are brought to the notice of the SPCB for action.

The Environment (Protection) Rules, 1986

The Environment (Protection) Rules, 1986 have been made by the Central Government under sections 6 and 25 of the EPA. The Rules lay down the procedure for setting standards of emission of discharge of environmental pollutants. They contain detailed norms for the directions that the Central Government can issue. The Rules also prescribe the parameters for the Central Government, under which it can issue orders of prohibition and restriction on the location and operation of industries in different areas. The Rules also lay down the procedure for taking samples, serving notice, submitting samples for analysis and submitting the laboratory report. The functions of environmental laboratories are described under the Rules, and the qualifications for the government analysts are also laid down. A schedule, an appendix and the copies of forms appearing at the end of the Rules contain the procedural format and the information requires under the Rules. Some relevant provisions of the Rules are discussed below.

Rule 3: Standards for emission

Schedules I to VI provide standards for the discharge of environmental pollutants from industry. Schedule I gives the standards specific for certain listed industries. Standards for various parameters for the power plants are provided in Schedule I and Schedule VI. Depending upon the quality of the recipient system the Central Board or the State Board may specify more stringent standards for any specific industry or process. The reasons for the same are recorded by the Central Board or the State Board in writing.

An industry or an operation is given a period of one year to comply from date the norms are prescribed. However, for the general standards provided in Schedule VI the power plants are to comply with the standards for various parameters on and from the January 1, 1994. Also, the Central Board or the State Board may reduce the period of compliance from one year to less, depending on local conditions or the nature of discharge of the environmental pollutant.

For power plants that have been in operation before the commencement of the Environment (Protection) Amendment Rules, 1991, the cutoff date for compliance to the standards is December 31, 1991. For a power plant, which commenced production after May 16, 1981, but before December 31, 1991, the standards have to be complied with by December 31, 1992.

Rule 4: Issuance of specific directions to an industry

The directions specify the nature of the action that is to be taken by the industry and the time within which it is to be complied with. The occupier (as defined in Section 2 of the EPA) is served with a copy of the directions and is given 15 days from the date of the service of the notice, to file objections against the directions issued. In case the occupier has already been heard earlier and directions for stoppage or regulation of electricity or water or any other service have been given as a result of the previous hearing, then no subsequent opportunity for hearing shall be given.

The Central Government is provided with a period of 45 days from the date of receipt of objections to the directions by the occupier, or from the date up to which the opportunity for hearing is given, whichever is earlier, to consider objections if any, and confirm or modify or decide not to issue directions.

In certain cases the Central Government has the discretion to do away with the opportunity of hearing. This can happen when there is a likelihood of grave injury to the environment. In *M/s Narula Dyeing and Printing Works vs Union of India*, several industrial units challenged the action of the State Government taken under Section 5 of the EPA. The State Government gave directions to these industries to stop production activities and take necessary steps to make the waste water being discharged by the units to conform standards specified by the Gujarat State Pollution Control Board. According to the petitioners, the direction under Section 5 of the EPA has been given without their being given any opportunity of being heard, and that the State Government cannot dispense with the hearing before issuing the impugned order.

The High Court of Gujarat held that the Government, in exercise of its powers under Section 5 read with Rule 4 of the Environment (Protection) Rules, 1986 was fully empowered to dispense with the opportunity being given for filing objections against the proposed directions in cases where grave injury to the environment occurred. The release of effluents by the petitioners units had resulted in polluting the irrigation canal causing extensive damage to the crops and the fields.

Rule 4(6) gives directions for serving a notice to a party. In case the notice is served to a company, then it must be sent by registered post or delivered by a messenger to its principle office. In case it is served to a Government officer then along with the officer, copies of the notice must be sent to the head of that Government department and to the Secretary to the Government. The notice again must be sent by registered post or tendered to the person(s).

Rule 5: Prohibition and restriction on the location of industries in different areas

Under this section various conditions are prescribed for location of specific industries. The Notification of June 21, 1999 prescribes siting guidelines for various industries.

Rule 6: The specific procedure to be followed by the officer collecting the samples

This section lays down the procedure for collection of samples of air, water, soil or any other material. The sample is to be collected in sufficient quantity, divided in two equal parts, put in two containers and sealed and marked by both the collector and the person from whom the sample has been collected. One portion is to be handed over to the person from whom the sample is collected and the other is to be sent immediately for analysis to the Government laboratory. Under Section 7 of the Rules, the officer collecting the sample will serve a notice to the occupier in Form I of the Rules, of his or her intention to have the sample analysed.

Rule 8: For procedure for submission of the sample for analysis

The sample taken shall be sent to the Government laboratory through registered post or a special messenger along with Form II of the Rules. Another copy of the form with the specimen seal of the occupier and the officer who collected the samples is to be sent by registered post or special messenger to the Government laboratory. After analysis the Government analyst makes a report in triplicate on Form III of the Rules and sends it to the officer who collected the samples. One copy is sent to the occupier, one is kept in the records and the third is kept to be produced in court if needed.

Rule 11: Manner of giving notice

This section gives the procedure for the '**citizen's section**' i.e. Section 19 of the EPA. A person who wishes to go to court for violation of the EPA follows the procedure as given:

- Send the notice in writing in Form IV by registered post to
CPCB/SPCB/MoEF/State Government
- The notice period, which is sixty days, starts from the date it is received by one of the authorities mentioned above

Rule 12: Furnishing of information

This section supports Section 9 of the EPA. In case there has been an accident and an environmental pollutant in excess of the standards has been discharged, then it is the responsibility of the person in charge to immediately inform the following:

- Officer in charge of the emergency or disaster relief operation in the district
- CPCB/SPCB
- Statutory authorities mentioned in Schedule II of the rules

Rule 14: Environmental audit report

According to this section every person who is carrying on an industry or an operation which requires a consent from the CPCB/SPCB under Section 25 of the Water Act or Section 21 of the Air Act or both, has to submit an **environmental audit report** for the financial year ending on March 31. The report has to be made in the prescribed Form V, to the concerned SPCB, on or before May 15 of each year. This section has been applicable since 1993.

Critique of the Environment (Protection) Act, 1986

The EPA is meant to be an umbrella legislation covering all gaps left by the Air Act and the Water Act. The Act has for the first time defined various terms like environment, environment pollutant etc. The definitions are comprehensive, pragmatic and scientifically sustainable. However, there are a few lacunae in the Act.

- Section 3 provides for collection and dissemination of information regarding environmental pollution. However, the Government has not yet adopted regulatory provisions to implement this power. In the absence of such regulations a community may not be aware that a potentially hazardous operation is situated in their midst. Also, in such a situation the local authorities may not know what possible preparedness may be needed for emergencies.
- Section 19 (Citizen's suit provision) of the Act seemingly gives the public significant powers to enforce the Act. However, only Government officials are given the power under the Act to collect samples needed as evidence of violation of the Act. In addition, during the sixty days notice period required for the Government to decide whether to proceed against the alleged violator, the offending industry has time to clean up and prepare itself for collection of samples.
- Section 24 of the Environment (Protection) Act 1986 is one of its controversial provisions. Generally more recent legislation, which conflicts with the previous legislation, supersedes the previous legislation. Standards established under the

EPA are also dealt with under the Water Act and the Air Act. In case of a violation both under the EPA and Water Act or Air Act, the penal provisions of the Water Act or the Air Act would apply. The high penalties thus provided in the Act are therefore illusory for those violations where Water Act and Air Act also apply.

- There is another potential problem with Section 24. Suppose the Water Act allows discharge of a higher concentration of a particular pollutant than the concentration permissible under the EPA and if a factory discharges waste water containing the pollutant at a level higher than allowed under the EPA but within the allowable limits of Water Act, then whether the Water Act penalty provision applies becomes debatable.

Water pollution

After air pollution the second most serious impact of thermal of power plants is on the water quality of the receiving bodies. The Indian legal system provides four major sources of law for addressing water pollution. They are the Water Act, EPA, public nuisance action against polluters, and the common law right of riparian owners to unpolluted waters. The courts have added to the force of these laws by passing orders for the implementation of these laws.

The provisions of the Water Act facilitate the conceptualization of a thermal power plant, in accordance with the requirements of the EIA notification. The EIA for setting up a thermal power plant is to include details of the source and total requirement of water and the quality of water required for the process, cooling system and the colony etc. The intakes and the final discharge points for cooling water and the choice of the cooling systems are also to be indicated, and the water characteristics of the cooling water and condenser blow down as well as of the effluent from the ash dykes are to be predicted. Details of the proposed liquid effluent treatment system and the impact on the discharge water temperature on aquatic life are also to be shown in the EIA.

The CPCB and SPCB have prescribed standards for treatment of liquid effluents containing oils, grease, resins and other chemicals, and disposal of ash slurry. The CBCP and SPCB have also laid down standards for the cooling of the hot water discharge from the condenser, before being discharged into the surface water. The rise in ambient water temperature from the discharge is to be monitored and regular assessment of water quality by biological indicators (bacteria, algae etc.,) is to be carried out, to prevent water pollution.

Water (Prevention and Control of Pollution) Act, 1974 and Rules 1975

The Water Act of 1974 represents one of India's first attempts to deal comprehensively with an environmental issue. The Act was amended in 1988 to conform closely to the provisions of the Environment (Protection) Act, 1986. The Water Act is comprehensive in its coverage. It applies to streams, inland waters, subterranean waters and sea or tidal waters. Standards for the discharge of the effluent or the quality of receiving waters are not specified in the Act itself. Instead, the Act enables the State Boards to prescribe these standards. The Water Act regulates water pollution through a system of "command and control". Effluent discharge standards are established and persons whose discharges exceed the standards are subject to fines and imprisonment. The Water Act provides for a permit system or consent procedure to prevent and control pollution. A person must obtain consent from the State Board before taking steps to establish any industry, operation or process, any treatment or disposal system or any extension or addition to such a system. Some relevant provisions of the Water Act are discussed below.

Section 2: Definitions

Section 2(d): Occupier- The person who has control over the affairs of the factory or the premises.

According to Section 2(e) of the Act contamination of water or alteration of the physical, chemical, or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water, directly or indirectly, or is likely to create a nuisance, or render such water harmful or injurious to public health or safety or to domestic, commercial, industrial, agriculture or any other legitimate uses, or to the life and health of animals or plants or of aquatic animals, is **water pollution**.

Section 2(k): **Trade effluent**-Any liquid, gaseous or solid substance which is discharged from any premises used for carrying on any industry, operation or process or treatment and disposal system, other than domestic sewage.

Section 3 and Section 4: Setting up of CPCB and SPCB

The Act sets up the CPCB (Central Pollution Control Board) and the SPCB (State Pollution Control Board), and also envisages an innovative mechanism under which two or more states with common borders and resources can establish joint State Pollution control Boards (Section 13). The Central Board and the State Boards are

vested with legal personality by virtue of which they can acquire, hold and dispose of property, sue or be sued.

Section 16: Functions of the CPCB

- Advise the Central Government on matters concerning the prevention and control of water pollution.
- Coordinate the activities of the State Boards and resolve disputes among them.
- Provide technical assistance and guidance to the State Boards.
- Carry out and sponsor investigation and research relating to matters of water pollution.
- Organize training programmes for officers involved in prevention and control of water pollution.
- Collect and publish data.
- Lay down standards in consultation with the concerned State Government.

Section 17: Functions of the SPCB

- Drawing up comprehensive plans for the prevention and control of water pollution in the State.
- Advise the State Government on matters concerning prevention and control of water pollution.
- Organise training programmes for officer involved in prevention and control of water pollution.
- Lay down standards.
- Evolve economical and reliable methods of treatment of effluents.

The SPCB functions under the direction of the CPCB and the State Government, and the CPCB acts under the authority of the Central Government. In cases of conflict between the CPCB and SPCB, the matter is referred to the Central Government for a decision.

Section 19: Power to restrict the application of the Water Act to certain areas

Under this section the State Government in consultation with the SPCB, has the power to restrict the application of the Water Act to certain areas. The SPCB is empowered to lift samples for analysis under Section 21 and have them analysed from Government notified environmental laboratories. A procedure for the same is laid down. (Similar to one given under EPA).

Section 23: Power of entry and search

Under this section, SPCB officials have the power of entry and search.

Section 24: Prohibition on use of streams or wells for disposal of polluting matter.

Section 24 of the Act expressly prohibits the use of streams or wells for disposal of polluting waters. This section defines the offences against the Act. The essence of the offence is causing a qualitative change in the water of a stream or a well.

Section 25: Application for consent

Under this section there is a provision for making an application to the SPCB for establishing an industry which may cause effluent discharge into water bodies. This consent unless given or refused earlier, shall be deemed to have been given unconditionally on the expiry of a period of four months from the making of an application.

In Rajasthan State Electricity Board vs The Cess Appellate Committee, it was contended that the appellant had installed a plant for the treatment of trade effluents. Therefore, the appellant was entitled to a rebate regardless of whether or not the appellant had secured the consent of the SPCB under Section 25(1) of the Water Act. It was further contended that the SPCB's consent became necessary only if an outlet, new or altered was sought to be used for discharge of trade effluent and not otherwise. The court held that the Board's consent under section 25(1) was not imperative, and if it was found that the plant in question was one for the treatment of the trade effluent, the appellant would be entitled to rebate, notwithstanding the absence of consent under section 25(1).

Section 26: Refusal of consent

Under this section the SPCM can refuse consent if it thinks that the industry applying for a permit to establish/operate does not comply with the conditions laid down. These conditions, which are laid down by the SPCB, are reviewed from time to time, and in cases of violation the given consent can be withdrawn.

Section 28: Review by an appellant authority

The SPCB's decisions are subject to a review by an appellant authority appointed by the State Government. Impositions of unreasonable conditions can be annulled or varied by the State Government by giving the SPCB an opportunity of being heard. The Act bars the jurisdiction of civil court to entertain any suit or

proceedings when the appellate authority is determining any action taken or to be taken under this Act.

Section 30: Notice

Under, this section the SPCB can serve a notice to an industry that is not executing the desired activity. If the industry still does not react to the notice, the SPCB can undertake the activity itself and recover the cost from the said industry.

Section 31: Furnishing information in certain cases

An industry is to provide all possible information immediately to the SPCB in case of an accident or an event, which has caused an effluent discharge beyond stipulated standards.

Section 32: Emergency measures in case of pollution of a stream or Well

The SPCB can undertake emergency measures to mitigate water pollution in case there has been an accident or an unforeseen event.

Section 33: Injunction from court

The SPCB can also make an application to the court to seek direction from the court to restrain a person from causing water pollution. In *M/s Delhi Bottling Co. Pvt. Ltd. vs CPCB*, the usage and application of this section has been contested. It was contended by the CPCB that for passing an order under Section 33 by the court, it was not necessary that samples of effluents be lifted and got analysed as per Section 21 of the Water Act. However, the court held that the scheme of the Water Act showed that Section 21 was a provision of general application governing the matter of lifting samples in all cases including the cases of obtaining an order under Section 33 of the Act. The CPCB should, therefore, prosecute the party under Section 41 of the Act for non-erection of the treatment plant.

Section 33 A: Power to give directions for closure

By an amendment in 1988, the SPCB has been empowered to issue directions for closure/regulation/prohibit any industry or order stoppage or regulation of water or electricity or any other service for the violating industry.

Section 41 -50: Penal provisions

The penal provisions provided in the Act are comprehensive, but seem quite ineffective in practice. An offender under the Act shall on conviction be punishable

with imprisonment for a term which may extend to **three months** or with a fine which may extend to **Rs 5000** or with both, and in case the failure to comply continues, an additional fine of Rs 1000, for every day of the violation. The offences under the Act may be as follows:

- Pulling down, destroying or defacing any installation made under the authority of the Board.
- Obstructing any person engaged in discharge of his or her duties under the Act.
- Damaging any property belonging to the Board.
- Failure to furnish information to Board officials.
- Failure to intimate the occurrence of an accident.
- Knowingly giving false information.
- Furnishing false information to obtain the consent of the board.

Section 47: Burden of liability

Where an offence under this Act has been committed by a company, every person who at the time the offence was committed was in charge of and responsible to the company shall be deemed to be guilty of the offence, except when he or she can prove that the offence was committed without their knowledge or that he or she had exercised due diligence to prevent the offence. The Act provides for punishment also to those who give consent to the offensive act or connive in the Act, be it the director, the manager, the secretary or any other official of the company. In the case of *UP Pollution Control Board vs M/s Modi Distillery*, the question was whether the Chairman, Vice Chairman, Managing Director and the Members of the Board are liable to be proceeded against under Section 47 of the Water Act, in absence of prosecution of the company owning the said industrial unit. It was held that all of them could be prosecuted under Section 47, as having been in charge of and responsible to the company at the time of the offence.

Under the miscellaneous provisions the Act empowers the Central and State Government to set up Labs and appoint analysts. The CPCB and the SPCB are also empowered to make rules for the implementation of the Water Act.

The Water (Prevention and Control of Pollution) Rules, 1975 contain detailed schedules and forms for providing information on the administration and establishment each industry is expected to furnish.

Water (Prevention and Control of Pollution) Cess Act, 1977

This Act provides for the levy and collection of cess on water consumed by Schedule I industries. The Cess Act aims to augment the resources of the Central Board and the State boards for the prevention and control of water pollution. The

industries specified in the schedule to the Act (thermal power plants included) are to affix meters and submit reports of consumption in prescribed forms to the Central Board. There is a provision for 25 per cent rebate for industries, which install a plant for the treatment of trade effluents.

Critique of the Water Act

Water is a Subject in the State list; consequently the Water Act was adopted under Article 252 (1) of the Constitution of India, which empowers the Union Government to legislate in a field reserved for the states, where two or more State legislatures consent to a Central law. All the states have approved implementation of the Act of 1974.

The Act was amended in 1988 and the penal provisions of the Act were brought in line with the 1987 amendments to the Air Act. The penal provisions as discussed earlier are in practice ineffective. Also there is the question of conflict that may arise when both the Water Act and the Environment (Protection) Act come into play together.

Under Section 49 of the Act the public can approach the court on violation of the Act. However, like in the EPA the usefulness of this provision is debatable since only the authorized Government officials can collect the samples. Though the State Board is to make available relevant reports to the complaining citizens, it can refuse to do so if it thinks that the disclosures would harm "public interest".

Air Pollution

Thermal power plants generate air pollutants. The ambient air quality must therefore, be measured before establishing the plant. The ambient air quality after the project is established can be predicted if baseline information on existing air quality is available. The existing background ambient air quality levels for SO₂, NO_x, total suspended particulate matter is to be provided in the EIA report. The report must comprise one full season other than the monsoon and information to be collected as per the CPCB guidelines (June 1998). If the results of the mathematical modelling of air quality prediction indicate a significant change in the ambient air quality, it would be necessary to provide adequate air pollution control equipment as well as a system for measuring air quality and emissions. Also CPCB/SPCB prescribes standards for stack height of thermal power plants for better dispersal of pollutants.

Air (Prevention and Control of Pollution) Act, 1981

The Air Act was enacted in 1981 under Article 253 of the Constitution of India which gives power to the Central Government to make laws to implement decisions taken at International Conferences. The Act represents the implementation of the decisions made at the United Nations Conference on the Human Environment held at Stockholm in 1972. Although a Central Act, executive functions under the Act are carried out in the states by SPCBs.

Section 3 and 4: CPCB and SPCB

The most significant feature of the Act is that the Central Pollution Control Board Constituted under Section 3 of the Water Act, acquires jurisdiction under the Air Act. Similarly State boards established under the Water Act similarly acquire jurisdiction under the Air Act. The Air Act provides for State boards even in states which do not have pollution control boards established under the Water Act.

Section 16 and 17: Functions of the CPCB and SPCB

The Central Board under this Act advises the Central Government, plans and executes nationwide programmes, and coordinates the activities of the State boards. The Central Government is given the power to issue binding directions to the Central board and the State boards. The functions of the SPCB similarly consist of implementation of the ground objectives spelt out under the Act.

Section 19: Declaration of restricted areas

Under the Air Act Air pollution is sought to be combated by means of declaration of restricted areas, prohibition of the use of pollution fuel and substances, as well as by regulating the appliances that give rise to air pollution.

The State boards are authorized to implement the standards set by the Central Board, restrict the operation of certain industrial plants and issue consent orders on payment of a prescribed fee, upon conditions deemed necessary for the abatement of pollution. Non-compliance with the conditions will lead to the cancellation of the consent which, in turn, raises the culpability and liability of the offending individual or industry. Every person who has obtained the consent is expected to install control equipment specified by the board. The person concerned is also expected to keep the equipment in good condition.

Section 23: Information to SPCB in certain cases

Under this section the PCBs are to be provided information immediately in case there is an emission more than the stipulated standards because of an accident or an unforeseen event.

Section 24: power of entry

The authorised person can enter any place to obtain information relevant to the Act, examine and test any control equipment, industrial plant or any document.

Section 25: Power to obtain information

The State boards are empowered to ask for accurate information, to have its inspectors enter, enquire and verify compliance of standards, take samples of emissions from any chimney or duct, secure analyses of the sample taken and punish the offenders. Also the State Government is empowered to declare any area within the State as an air pollution control area.

Sections 37-46: Penal provisions

The penalties prescribed under the Act are quite similar to those laid down under the Water Act. They are: imprisonment for three months or a fine which may extend to Rs 10,000, and in case of continuing contravention an additional fine of Rs 5000, for every day of the contravention. The Act applies even to Government departments, but has a provision to protect Action taken in good faith. The punishments imposed are subject to review by an appellate authority, and no injunction is to be granted by any court in respect of any action taken in pursuance of any power conferred under this Act.

The Air Act was amended in 1987. Some of the major amendments related to empowerment of the Central and State Pollution Control boards to meet with grave emergencies of air pollution. The boards were authorized to take immediate measures to meet such emergencies and recover from the persons concerned the expenses incurred in the process. The power to cancel a consent for non-fulfilment of the conditions prescribed is also emphasized under the Air Act Amendment.

Section 31 A: power to order closure, prohibition or regulation of any industry

After the 1987 amendment, the power to issue directions was clarified to the effect that such power includes closure, prohibition or regulation of any industry, and the power to stop or regulate the supply of electricity, water or any other service.

The Air (Prevention and Control of Pollution) Rules have been adopted in 1982. The rules define the procedures for the meeting of the boards, the powers of the presiding officers, decision-making procedures including quorum, the manner in which records of meeting are to be kept etc. The rules also prescribe the manner and purpose of seeking assistance from specialists and the fee to be paid to them.

Critique of the Air Act

There are no apparent lacunae in the Air Act. However, this has not translated into zero air pollution. The reasons for the same are various aspects of enforcement of the Act. This has been discussed in the final section of this paper.

The Forest (Conservation) Act, 1980 (FCA)

The FCA was adopted in 1980 to protect and conserve forests. The Act restricts the powers of the State in respect of deservation of forests and the use of forest lands for non-forest purposes. An advisory committee has been created to oversee the implementation of the statute. The FCA is relevant for the power sector for the siting guidelines for both thermal and hydroelectric power plants, and for passage of transmission through forest areas, since it would involve use of forest land for "non-forest" purposes.

According to Section 2 of the Act "notwithstanding anything contained in any other law for the time being in force in a State, no State Government, or other authority shall, except with the prior approval of the Central Government, make any order directing:

- De-reservation of a reserved forest
- Use any forest land for any non -forest purpose
- Assign any forest land to any private person or entity not controlled by the Government
- Clear any forest land of naturally grown trees for the purpose of using it for reforestation

The term 'non -forest purpose' includes clearing any forest land for cultivation of cash crops, plantation crops, horticulture or medicinal plants and any purpose other than re-afforestation.

FCA applies to any forest land irrespective of whether or not it has been declared reserved. It covers the extended meaning of a tract of land covered with trees; shrubs, vegetation and undergrowth intermingled with trees and pasture, be it of natural growth or man-made forestation. Such extended meaning is justified in order to make FAC effective "as well as to preserve forest land from

deforestation, to maintain ecology and to prevent environmental degradation". Therefore, the term forests includes not only forests in the dictionary meaning but also any area recorded as forests in Government records irrespective of the ownership.

The Forest (Conservation) Rules, 1981 empower the Central Government to constitute a seven-member committee to advise the Central Government on proposal made by a State Government for conversion of a forestland. The rules contain a detailed format for the State Government to follow, while asking for approval from the Central Government. The proposal requires the following:

- Project details;
- Location land involved (legal status, details of flora and fauna, density, vulnerability to erosion, existence of a national park, wildlife sanctuary etc.);
- Details of displacement of people due to the project;
- Details of possible impact on the forest land;
- Cost-benefit analysis; and
- Opinion of the head of the State Forest Department.

Critique of the Air Act

The FCA has considerably helped in preventing degradation of forests. In recent years the Supreme Court has also added force to the Act by giving a very broad-based definition to the term 'forest'. However the Act does not provide for a blanket ban on diversion of forest land for non-forest purposes, and the discretionary powers given to the Central Government does offer scope for diverting forest land for non-forest purposes, for reasons which may not entirely valid.

The Wildlife (Protection) Act, 1972 (WPA)

The Wildlife (Protection) Act, 1972, provides for protection to listed species of flora and fauna and establishes a network of ecologically important protected areas.

The WPA empowers the Central and State Governments to declare any area to be a Wildlife Sanctuary, National Park or a closed area. There is a blanket ban on carrying out any industrial process or activity inside any of these protected areas. In case forest land within the protected areas network is to be diverted for any non-wildlife use, a no objection has to be obtained from the Indian Board of Wildlife and the State Legislature, before the final consideration by MoEF.

Critique of the WPA

Power transmission lines pass through a number of protected areas. There have been instances where wild animals have died due to electrocution from these lines. Though the POWERGRID has laid down guidelines for transmission, there is a need to have specific provisions or rules for transmission of power lines within the WPA itself.

The National Environment Appellate Authority Act, 1997 (NEAAA)

This Act was established to hear appeals with respect to an environmental clearance given under the EPA. The NEAA is located in Delhi and has Judge of the Supreme Court or a Chief Justice of High Courts as its Chairperson.

A person aggrieved by an order granting environmental clearance in a given area for establishing an industry may, within 30 days from the date of such an order, appeal to the NEAA. The timeframe can be extended to 90 days if there are good grounds for delay. The appellant can be a person who owns or controls the project, an association of persons, Central or State Government or any local authority. The NEAA is vested with the powers of a Civil Court under the Code of Civil Procedure, 1908 while trying a suit. It can therefore summon and enforce the attendance of any person and production of documents, receive evidence on affidavits and requisition public records or documents. The NEAA has the power to review its own decisions and decide *ex-parte*.

No civil court or other authority has jurisdiction to entertain any appeal in respect of any matter with which the NEAA is empowered. All proceedings before the NEAA are deemed to be judicial proceedings.

Penal provisions: Failure to comply with any order made by the NEAA is punishable with imprisonment for a term of up to seven years or with a fine which may extend to one lakh or both. The corporate liability is pinned on the person in-charge of and responsible to the company. Ignorance and due diligence are considered adequate defence against corporate liability.

Public Liability Insurance Act (PLIA), 1991

The PLIA deals with Accidents involving hazardous substances and insurance coverage for the same. Where death or injury results from an accident, this Act makes the owner liable to give relief as is specified in the Schedule of the Act. Every owner is required to take out one or more insurance policies to cover such situations. The owner of hazardous substances can be prosecuted in a designated court not lower than that of a metropolitan magistrate or a first class judicial magistrate. The expenses of such prosecution are recoverable from the owner as arrears of land revenue.

Section 2 of the Act gives definitions of the following:

1. **Accident**- An unintentional sudden occurrence while handling any hazardous substances resulting in continuous, intermittent or repeated exposure that could be potentially fatal, of or injury to any person or damage to any property.
2. **Collector**- The Collector who has jurisdiction over the area in which the accident occurs.
3. **Handling** The manufacture, processing, treatment, package, storage, transportation by vehicle, use, collection, destruction, conversion, offering for sale, transfer or the like, of such hazardous substances.

The punishment for violation of the Act is imprisonment for a year, extendable to six years for continued violation or a fine of Rs One lakh. The Central Government has the power to issue directions under the Act to regulate the handling of any hazardous substance and to stop or regulate the supply of electricity, water or any other service to the owner.

The PLIA was amended in 1992. Under Section 7 the Central Government has been authorized to establish the Environmental Relief Fund which can be utilised for making relief payments by the Collector.

In 1991, The Public Liability Insurance Rules were issued. These rules contain the standard administrative procedures for seeking relief and the documents that are required for making such claims. Under the rules the powers of the Collector and the extent of the liability of the owner of the Hazardous substances have been clarified, specially with reference to the contribution of the owner to the Environmental Relief Fund.

Critique of the Act

The Act and the Rules under the Act do not spell out the relationship between these enactments and National Environment Tribunal Act, which has a concurrent jurisdiction over the subject matter. Also, the actual operational ambit of the Environmental Relief Fund is not clear. There is a need for a clarification that the relief under this fund is not limited only to reimbursement of expenses incurred to undo the damage to persons or property, but also extends to short-term and long term damage caused to the environment.

Factories Act, 1948

The Factories Act, 1948 is a post-independence statute that shows explicit concern for the environment. The Act contains a comprehensive list of 29 categories of

industries involving hazardous processes (First Schedule to the Act). Power-generating industries are included in this list.

Section 2 (cb) of the Act defines "hazardous process" as any process or activity in relation to an industry specified in the first schedule, where unless special care is taken, raw materials used therein or the intermediate or finished products, by-products, wastes or effluents thereof would:

- (i) cause material impairment to the health of the persons engaged; and
- (ii) result in the pollution of the general environment.

Whether a power station is treated as a factory

The Factories Act defines 'factory' as any premises where 10 or more workers work on a manufacturing process with the aid of power, or 20 or more workers without the aid of power. The fact that some workers are in the power station and the rest are either in the substations or zonal stations will not make any difference in this respect, as all of them take part in the manufacturing process.

Provisions relating to hazardous processes (Chapter IV-A)

Section 41 -A: Constitution of site appraisal committees

A site appraisal committee is appointed to advise the State Government on applications for grant of permission for location of a factory involving a hazardous process. When the State Government has granted approval to an application for the establishment or expansion of a factory involving a hazardous process, it is not necessary for the applicant to obtain further approval from the CPCB, or SPCB, under the Water Act or the Air Act.

Section 41 -B: Compulsory disclosure of information by the occupier

A factory is to inform the Chief Inspector 30 days in advance if it proposes to engage in hazardous processes. The occupier of such a factory is also to disclose all information to the workers employed, the Chief Inspector, the local authority, and the general public on potential hazards and dangers as also on the quantity and specification of the wastes and their disposal and the measures undertaken to prevent and overcome such hazards. Also, such a factory needs to lay down a detailed policy for the health and safety of the workers and intimate the same to the Chief Inspector at the time of registration of the factory. An on-site emergency plan is also to be drawn up by each owner and approved by the Chief Inspector. The plan is to be made known to the workers and the general public living in the vicinity.

Section 41 -C: Responsibility of an occupier

The occupier is required to maintain a worker's medical records and appoint operations and maintenance personnel experienced in handling hazardous substances.

Section 41 -D: Inquiry committee

The Central Government has the power to appoint an inquiry committee in the event of the occurrence of an accident in a factory engaged in hazardous processes.

Section 41 -E: Emergency standards

The Central Government can ask the Director-General of the Factory Advice Service and Labour Institutes or any institution specialised in related matters to lay down emergency standards.

Section 41 -F: Permissible limits of exposure of chemical/toxic substances

The Second Schedule to the Act Gives the Permissible limits of exposure of chemical/toxic substances.

Section 41 -G: Worker participation in safety management

This section provides for worker participation in safety management in a factory involved in hazardous processes. This implies setting up of a safety committee consisting of equal numbers of representatives from both workers and management.

Section 41 -H: Workers' Right to warn about imminent danger

Workers employed in a factory which involves hazardous processes, have the right to inform the owner or the manager and the inspector about imminent accidents. The owner is to take immediate remedial action on the same and send a report to the nearest inspector. Even if the owner feels that there is no need for action the report of the workers shall nevertheless be sent to the inspector for his final word on it.

Critique of the Act

The Industries (Development and Regulation) Act, 1957 and the Factories Act, 1948, between them encompass almost all of the industrial production processes. To promote sustainable use of resources it is, therefore, necessary that they have a holistic environmental approach.

The Factories Act was amended in 1987 and it was expanded and applied to 'hazardous processes' [Section 2 (ca, cb)]. Though the Act has received an anti-pollution orientation since the 1987 amendment, it still fails to promote the objective of the sustainable use of resources. This could be incorporated within Section 6 where the State Government makes rules for approval, licensing and registration of factories.

National Environment Tribunal Act

The NETA prescribes the procedure and substantive law relating to compensation for the death of, or injury to, a person and damage to property and environment, by any industry wherein a hazardous substance is used or is a by product.

Hazardous substance is defined in the Environment (Protection) Act as "any substance or preparation which, by reason of its chemical or physio-chemical properties or handling, is liable to cause harm to human beings, other living creatures, plants, micro-organisms, property or the environment".

Where death or injury has resulted from an accident due to the hazardous substance, the owner of the source is liable to pay compensation, irrespective of the wrongful act, neglect or default. Where the source of damage is multiple, the liability is split and apportioned on an equitable basis.

A National Environment Tribunal is to be established by the Central Government under NETA. The tribunal would have jurisdiction over matters specified in the Public Liability Insurance Act. The tribunal would receive claims of compensation by the person who has sustained the injury or by his or her legal representative. The application for claim is to be submitted within five years of the occurrence of the accident, otherwise it is liable to be dismissed.

The tribunal is not bound by the Code of Civil Procedure, but is guided by the principals of natural justice. For the purpose of NETA the tribunal is vested with the powers of a Civil Court and can make its own rules of procedure, summon or enforce attendance of any person, examine witnesses on oath, require discovery or production of documents, and receive evidence on affidavits. The tribunal can sit in appeal over its own decisions, and its awards are executable as civil court decrees. Appeals against the award or other orders, lie only to the Supreme Court.

Critique of the Act

The NETA was born on the recommendation of the Supreme Court in its judgement in *MC Mehta vs UOI (Shri Ram Mills Case)*. The Supreme Court recommended the establishment of Environmental Courts to deal with cases of environmental Pollution, ecological destruction and conflicts over natural resources. The National Environment Tribunal Act, however, ignores the Supreme Court's recommendation that an Ecological Sciences Research Group be established and limits its scope to setting compensation claims arising out of accidents occurring in the process of handling Hazardous substances.

The NETA does not provide for compensation for factory workers, who are invariably the first victims in any accident. It is quite likely that the claimants under NETA might obtain better monetary compensation than the workers directly involved. Death and injuries etc., sustained by the workers are governed by the Workmen's Compensation Act 1923.

Section 4 of the Act empowers the Central Government to exempt from the operation of the Act, Government-owned corporations and local authorities. This provision can be "discriminatory" in favour of Government owned industries.

Enforcement of the Environmental Norms

Institutional framework

The Ministry of environment and Forests (MoEF), constituted in 1985 is the nodal agency at the central level for planning, promoting and co-ordinating environmental programmes. The MoEF Formulates legislation to mitigate and control environmental pollution. A number of enforcement agencies assist MoEF in executing its assigned responsibilities. It has six regional offices:

Table 1.2 Regional offices of the MoEF

<i>Region</i>	<i>Regional office headquarters</i>	<i>Jurisdiction</i>
South	Bangalore	Andhra Pradesh, Goa, Karnataka, Kerala, Tamil Nadu, and Union Territories of Lakshadweep, Pondicherry
West	Bhopal	Gujrat, Maharashtra, MP, UTS of Dadra & Nagar Haveli and Daman & Diu
East	Bhubaneswar	Bihar, Orissa, Sikkim, and West Bengal
Central	Lucknow	Rajasthan and UP

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North east	Shillong	Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura
North	Chandigarh	Haryana, Himachal Pradesh, J&K, Punjab and UT of Chandigarh.

The major functions of the regional offices include:

- Follow up the implementation of conditions and safeguards laid down for projects when environmental clearance is given
- Follow up pollution control measures taken by various industries
- Collect and furnish information relating to EIA of projects, pollution control measures, methodology and status, legal and enforcement measures, environmental protection of special conservation areas like wetlands, mangroves and biosphere reserves.

Central Pollution Control Board and State Pollution Control Boards

The CPCB was established in September 1974 for the purpose of implementation of the Water Act. Later, in 1981 when the Air Act came into force the powers of the CPCB and SPCBs were expanded to include enforcement of the Air Act. Executive responsibilities for the prevention and control of industrial pollution are undertaken at the Central level by CPCB, which is a statutory body attached to the MoEF. The functions of the CPCB include promotion of cleanliness of the streams and wells, advising the Central Government on matters concerning abatement of water pollution, and laying down standards for water and air quality, and ensuring compliance with the EPA.

The SPCBs were constituted to implement the Water Act in the states. The functions of the SPCBs include planning and execution programmes for prevention and control of water and air pollution, advising the State Government on matters concerning abatement of water pollution, laying down standards for water and air quality, ensuring compliance with various laws, ensuring legal action against the polluters and evolving techno-economic methods for treatment, disposal and utilization of effluents.

Municipalities and Panchayats

Municipalities and panchayats are expected to play an increasing role in the environmental management at the District level. Under the 73rd and the 74th Constitutional amendments the State Government can delegate certain functions to these bodies. Under the XIth Schedule of the 73rd amendment, panchayats

would also be responsible for soil conservation, water management and non-conventional energy sources. Under the XIIth Schedule Municipalities would also be responsible for water supply for industrial use, solid waste management and protection of the environment. No rules have, however, been made to put this amendment into practice.

National Environment Appellate Authority

The National Environment Appellate Authority was set up in 1997 to act as a vigilant body to deal with the representations, complaints, and appeals made against the decisions of competent authorities established under the EPA, granting environmental clearance under the EIA notification. NEAA is also expected to avoid delays arising out of protracted litigation involving development projects and affected people.

Environmental Standards

Over the last two decades, there has been considerable development in pollution control activities at the national, regional and global level. The mode of controlling pollution, in particular the setting of standards raises debate. In India the standards have generally been challenged for being too lax, too stringent, or simply irrelevant.

The MoEF has stipulated general wastewater discharge standards and emission standards. These standards limit the concentration and volumes of the effluents and emissions released into the atmosphere. There are specific standards for certain industries (thermal power plants included), and the standards are generally more stringent for the new plants than the existing ones. Industry-specific standards stipulated by the MoEF are generally referred to as Minimal National Standards (MINAS).

In 1976 the CPCB developed the concept of evolving industry-specific effluent standards. An attempt was made to identify relevant pollution parameters, their pollution potential, best pollution control technology available and the cost of such a technology. Based on these considerations industry specific effluent standards were decided. The SPCBs based on the environmental sensitivity of the location could make MINAS as well as the emission and effluent standards more stringent. As per the Water Act, MINAS is advisory and is notified under EPA for implementation by the SPCBs. MINAS evolved by CPCB with respect to the emission standards has a legal status under the Air Act.

The CPCB has classified all the major rivers of the country based on the designated best use criteria. The primary water quality criteria for sustaining these uses has also been specified. The CPCB has also specified the National Ambient

Air Quality standards (NAAQS) for residential, commercial, industrial and sensitive zones for the country as a whole. Various State governments ensure that the water quality criteria and ambient air quality objectives are met. This is primarily accomplished by making the effluent and emission standards stricter than those prescribed by the Central Government.

The national ambient air quality is determined on the basis of the impact of pollutants on the human health, vegetation and property. Like the location-specific effluent standards, SPCBs can also make the emission standards stringent on the considerations of the carrying capacity of a specific air-shed and the existing pollution level of ambient air quality. The CPCB has evolved the methodology of emission monitoring systems with respect to air pollutants, which are prescribed under emission regulations.

Implementation and Enforcement Problems

India has an extensive framework of environmental laws. Its legislative commitment to environmental policy objectives is highlighted by the inclusion of the provisions in the Constitution of India. In addition some decisions of the Indian Courts have provided recognition of environmental rights e.g., the recognition of the Right to Environment as an inherent part of Right to Life under the Constitution.

This section discusses the reasons for poor implementation of environmental laws. The conviction rate is extremely poor because of enforcement problems and some lacunae in the laws. The lacunae in specific legislation have already been discussed in Section I of the paper. Some reasons for poor implementation of environmental laws are as follows:

- **Relevance of standards laid down:** The relevance of many of the standards prescribed is questionable because MINAS are not disposal-specific. For Example, a standard for total dissolved solids, chlorine, sulphates, nitrates or flourides has no relevance if the ultimate disposal of the effluent is in marine or estuarine waters. There is also an argument against the effluent standard of 30 mg/l of BOD for industrial effluent considering nine times dilution in the recipient fresh water-body to bring it down to the requirement of 3 mg/l of BOD in the ambient water. The argument against disposal specificity is that dilution is not the solution to the problem of pollution. Industries would tend to gravitate to a place where dilution is available, and in the process the stretch of coastal water, or fresh waster if high dilution will be gradually subjected to fast quality deterioration.

- Inadequate processes for environmental decision-making and dispute resolution: Compliance is an integral part of the process of bargaining by which one gains access to resources. Effective compliance is largely dependent on the extent to which decision-making processes take into account and reflect the interests of the affected groups. An important function of environmental law should be the provision of a process by which decisions relating to the use of environmental resources are taken in a manner that provides a full accounting of all interests, costs and benefits. There is also a need for a process to prevent and mitigate environmental conflicts in an orderly fashion. Environmental disputes are often resolved through the intervention of the judiciary in constitutional litigation. Reliance on litigation places a burden on the court system, and also litigation is not accessible to all the affected groups.
- Insufficient infrastructure in MoEF, CPCB and SPCBs for implementation: Weak dissemination of law and the decisions made thereunder, insufficient monitoring of compliance because of lack of monitoring tools and technical and legal capacity to review compliance, inadequate capacity for effective inspection, taking remedial actions including following up in court, and a lack of continued legal training for the enforcement staff are also the factors responsible.
- Government insensitivity: The Government has failed to show any sensitivity to the needs and constraints of individual industries. It has been more concerned about the process of regulation rather than the impact of regulation. Very little help is forthcoming from the pollution control agencies in identifying the most feasible technology for individual projects.
- Legal infrastructure: The CPCB is essentially a 'technical advisory body', which is required only to lay down standards and give permission. There is very little monetary incentive to lawyers fighting cases for the enforcement agencies. Strengthening the legal infrastructure in the MoEF and in the Central and State Pollution Control Boards, in order to ensure improved inspection and effective monitoring of compliance is, therefore, an immediate need.
- Cost of compliance : Given the nature of the pollution control laws an industry finds that cost of compliance is significantly higher than cost of defiance, making the penalties prescribed under the Acts as ineffective. For example, the penal provisions for violation of the Water Act are imprisonment for a term which may extend to three months, or with a fine which may extend to Rs 5000 or with both, and in case violation continues an additional fine of up to Rs 1000 for every such violation. Penal provisions alone cannot discourage

violations of environmental laws. It will be useful if it is supported by a system of incentives for better compliance.