**Final Report**

A STUDY OF ENVIRONMENTAL PROTECTION MEASURES ADOPTED BY POWER PLANTS IN THE DISTRICT OF WARDHA, MAHARASHTRA, WITH REFERENCE TO LEGISLATIVE PROVISIONS AND JUDICIAL DECISIONS.



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**Executive Summary**

Shortage of Electricity is felt all over India in recent times. With a view to increase the production of Electricity many thermal Power Plants were granted permission all over India. Vidarbha has become a Power house of Central India. In last 3 years almost 132 Power plants[[1]](#footnote-2) with different generation capacity were proposed and most of them have been granted permission and have started production also. In the district of Wardha alone 22 power plants are given permission of which 6 are commissioned and generating power now. With the achievement of these feet of enhancing power generation, environmental concerns were also raised time and again. Environmental impact assessment is must before undertaking any such project but the sad story is this, hardly any post commissioning assessment is conducted either by state Pollution control Boards or Central Pollution Control board. Beside Environmental Protection Act 1984, there are many minor and specialized environmental legislations of State as well as Centre dealing with pollution caused due to different activities and machinery in the Industry. Hon’ble Supreme Court of India have issues guidelines for environmental protection in many landmark cases like, Rural Litigation and Entitlement Kendra v. State of Uttar Pradesh and Others[[2]](#footnote-3), Indian Council for Enviro-Legal Action v. Union of India[[3]](#footnote-4) , these guidelines also form Part of Law of the Land as per Article 141 of the constitution of India. Thus, Post operation environ impact assessment is the problem need to be studied at length.

 Problem of Environmental Pollution have to be looked upon from not only legal point of view but also social, economic, public health and agricultural issues need to be addressed and therefore study proposed have interdisciplinary relevance.

From the United Nations Conference on the Human Environment (also known as the Stockholm Conference) till today i.e. Rio+20 United Nations Conference on the Sustainable Development 20-22 June 2012, Many principles have been developed primarily, Principle of Sustainable development which speaks as “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs[[4]](#footnote-5)” Therefore every state party to these conventions are under obligation to adopt the measures for minimum environmental pollution while undertaking developmental activities.

In order to comply with the International responsibility to conserve and protect the Environment in the year 1986 Environmental Protect Act was brought into existence by the central legislature. The objective of this Act is to provide the protection and improvement of environment (which includes water, air, land, human being, other living creatures, plants, micro-organism and properties) and for matters connected therewith. There is a constitutional provision also for the environment protection. Article 48A, specify that the State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country and every citizen shall protect the environment (51 A). The Environment (Protection) Act is applicable to whole of India including Jammu & Kashmir.

* Environment: It includes water, air, and land and the inter-relationship which exists among and between water, air and land and human beings, other living creatures, plants, micro-organism and property.
* Environmental Pollution: It means any solid, liquid or gaseous substances present in such concentration as may be or tend to be injurious to environment and human being are known as pollutant and presence of any pollutant in the environment in such proportion and concentration that has bearing on health and environment is termed as "Environmental Pollution".
* Handling: In relation to any substance, it means the manufacturing, processing, treatment, packaging, storage, transportation, use, collection, destruction, conversion, offering for sale, etc.
* Occupier: It 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 substance.
* The Act provide power to make rules to regulate environmental pollution, to notify standards and maximum limits of pollutants of air, water, and soil for various areas and purposes, prohibition and restriction on the handling of hazardous substances and location of industries (Sections 3-6).
* The Central Government is empowered to constitute authority or authorities for the purpose of exercising of performing such of the powers and functions (Sec 3), appoint a person for inspection (Sec 4), for analysis or samples and for selection or notification of environmental laboratories. Such person or agency has power to inspect or can enter in the premises or can take samples for analysis (Secs 10, 11).
* According to the section 5, the Central Government may issue directions in writing to any person or officers or any authority to comply. There could be closure, prohibition of the supply of electricity or operation or process; or stoppage or regulation of the supply of electricity or water or any other service.
Section 6 empower the government to make rules to achieve the object of the Act.
* Persons carrying on industry, operation etc. not to allow emission or discharge of environmental pollutants in excess of the standards (Sec 7). Persons handling hazardous substances must comply with procedural safeguards (Sec 8) and occupiers must furnish the information to authority.
* Whoever Person or Owner/Occupier of companies, factories or whichever source found to be the cause of pollution may be liable for punishment for a term which may extend to five years or with fine which may extend to one lakh rupees or both (Sec 15, 16, 17). If not comply fine of Rs. 5000 per day extra and if not comply for more than one year then imprisonment may extend up to 7 years. Section 17 specify that Head of the department/ in-charge of small unit may be liable for punishment if the owner /occupier produce enough evidence of innocence. The CPCB or state boards have power to close or cancel or deny the authorisation to run the factory/institution/hospital whichever is causing pollution. No suit, prosecution or other legal proceedings shall lie against govt. officer who has exercise power in good faith in pursuance of this Act (Sec 18).

Even after 26 years of passing this statutes issues regarding environmental protection are not addressed adequately in India, time and again Hon’ble Supreme Court of India have to intervene in the matters of large scale Environmental Pollution cause by mega projects and industries. In such circumstances an in-depth study into the Environmental issues crop up due to establishment of Power Projects will certainly help in understanding present scenario and will certainly help in designing future course of action.

Power plants are part of infrastructure society and it is essential that these power plant facilities are constructed so as achieve a higher level of reliability. Moreover, it is for the companies involved in this industry to contribute to society by realizing higher performance at lower cost and good technology.

On studying the whole thermal power plant we have come to a curb that though thermal power plant generates electricity but it is troublesome for the environment so we have to deal it with the technique mentioned in our research for reducing its consequences.

Thermal Power Plant affects environmental segments of the surrounding region very badly. Large amount of SOx, NOx & SPM are generated which damage the environment and are highl responsible for deterioration of health of human beings, animal kingdom as well as plants. Emission of SPM & RSPM disperse over 25 Kms radius land and cause respiratory and related aliments to human beings and animal kingdom.

SPM gets deposited on the plants which affect photosynthesis. Due to penetration of pollutants inside the plants through leaves & branches, imbalance of minerals, micro and major nutrients in the plants take place which affect the plant growth severely. Spreading & deposition of SPM on soil, disturb the soil strata thereby the fertile and forest land becomes less productive. Because of continuous & long lasting emission of SOx & NOx, which are the principal pollutants emitted from a coal based power plant, structures & buildings get affected due to corrosive reactions.

**Following finding can be termed major out come of the research**

1. Most of the residents in the vicinity of Thermal Power plants or nearby area believes that increased environmental pollution is the direct result of Thermal power plant.

2. Though EIA is made compulsory and EIA includes details as to impact of Plant on air, soil and water still the people’s participation in the process is minimal.

3. The nature of pollution caused due to Thermal power plants ranges from soil pollution caused due to soil erosions, dumping and deposits of fly ash on the soil in the periphery of the plant to the air pollution with emission of SOx, NOx & SPM.

4. The water also get polluted as hot condensed water may contents the pollutants like mercury and arsenal etc.

5. Though most of the resident felt that environmental pollution is caused but they hardly resort to complaint this to the authorities.

6. Most of the people believes that, it is for the government to take action and they do not feel it their responsibility to bring the issue to the notice of the concerned authorities.

7.The benefits from having plant are much more than the environmental pollution and the people in general are of the opinion that despite the fact of causing environmental pollution the closure of the plants is not at all advisable or acceptable remedy.

8. Environmental impact Assessment is carried out by new as well as old plants in the wake of legal compulsions.

9. The ISO 14001 standard for environmental protection are still a sdistant dream for most of the Thermal power plants.

10. The emission from power plants generally goes beyond permissible limits and this is a harsh reality revealed by this study.

11. The environmental protection regulations for thermal power plants are followed by the plants more on paper than in practice.

12. It was also found that the officials from pollution control board hardly find time to visit the plants for inspection.

13. The authorities at Pollution control board also consider TPP as a new challenge for environmental protection in the region of Vidarbha.

14. The pollution control boards seems to be running out of staff or working with much staff deficit

15. Fly ash utilization is monitored by the Pollution control board with much vigour an monthly basis.

16. Time and again public hearings are conducted by the Pollution control board to now the opinion of the residents of the nearby area.

**Suggestions**

**Following are some of the suggestions to improve the situation**

1. Big power plant shall use closed loop instead of open loop system for water treatment and reuse.
2. Small power plant may use air cooling instead of water cooling and can also Recycle and reuse effluent water with Zero discharge in case of small plant, Demineralised backwash water shall be treated with RO and reuse in process so also Collection of rain water is suggested which can be used for many purposes

**3. Practices to Reduce Transportation Impact**

Encourage bulk transportation by train, Only pollution certified vehicles should be engaged in transportation , Appropriate infrastructure for vehicles such as concrete or pitched road ,Separate approach road for transportation of raw materials such as coal, diesel, caustic etc. shall be used.

**4. Practices for Soil Management**

Provision for topsoil storage and reuse, Separate stacking of topsoil with adequate collection rain all around, Topsoil storage heap should be covered with grasses and bushes to avoid erosion. Removing vegetative cover only from the specific site on which construction has to take place.

**5. Practices for Reducing Noise Pollution**

Design of equipments, Acoustic enclosures / barrier shields, Construction of sound barrier in the form structure , Personal protective equipment i.e. ear plug & ear muffs, More than 33 % of total area shall be under green cover.

**6.** There shall be constant check and monitoring by the pollution control board and at least one visit shall be insured for each plant each month.

**7.** Number of public hearing should be increased to give opportunity for the public to participate in the process.

**8.** The public awareness needs to be increased to minimize the impact of pollution on the flora and fauna.

**9.** The owners and occupiers of such plants must understand there social responsibility.

**10.** Technology shall be made available to the plants at subsidies price..

**11.** NO new permission shall be granted in the area looking at the density of power plant in the region of Vidarbha.

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