Regulating WTE Plants for Human Safety

Introduction

The use of scientific technology for conversion of waste into energy in the conversion plants is being seen as a potential solution for the ever increasing waste and the shortage of power. Realizing the same, India is also initiating various incineration based Waste to Energy Plants (**"WTE Plants"**) which uses municipal solid waste as fuel for its boilers. Such plants have become popular in European and other developed countries like Japan. However, the main reasons behind this are the use of advanced technology and strict emission norms coupled with very high penalties ensuring firm regulatory compliance. The absence of such elements from environmental regulations in developing countries like India and the past experiences shows that such plants may not be very successful in context of environment pollution and may stimulate a number of problems with grave health and environmental implications by way of pollution, health hazards, etc.[1]

The WTE Plants will be developed as per the policy and master plans formulated by the Union Ministry of New and Renewable Energy but this policy is mostly focused on the cost effective development and grant of subsidies for promotion of such projects.[2] In absence of any specific legislative framework in environmental context, such projects would be regulated as per the existing framework of environmental regulations for human safety. The article here analyses the WTE Plants form the human safety angle and reviews various Rules, Regulations and Acts that would be applicable in this context.

1. Environmental Impact Assessment for environment and human safety

The provisions provided under the Environment (Protection) Act, 1986 (**"EPA"**) are such that the "regulatory" environmental protection laws typified in this umbrella legislation covers various aspects of human safety in realm of environmental protection. The notifications under the EPA make certain regulations like mandatory Environmental Impact Assessment (**"EIA"**) applicable to the WTE Projects even before their inception. The EIA report prepared prior to development of WTE Plant will be submitted to Ministry of Environment and Forest for environmental clearances. This report is examined in light of factors like no objection certificate from State Pollution Control Board (**"SPCB"**) regarding effluents and emissions, impacts on the environment during construction, air and water quality, occupational safety and health. There are provision for post construction requirements also concerning disposal of solid wastes, monitoring emissions and effluents,

[1] The assessment of technologies used in WTE Plants in the National Master Plan for Development of Waste-to-Energy in India, the incineration method scored 68 out of 150. The assessment was based on System Configuration, Environmental Aspects, Resource Recovery and Commercial Aspects. See paragraph C (18) of the Technological Memorandum of National Master Plan for WTE plants in India by Ministry of New and Renewable Energy.

[2] The National Master Plan for Development of Waste-to-Energy in India recognizes the need to address the environmental problems but only provides use of appropriate technology as a solution. It is unclear on the question of regulation and liabilities for after effects.

compliance of SPCB standards, annual environmental statement to SPCB every year, precautionary measures for occupational health and safety and impact on public health.[3]

2. Supply and disposal of municipal waste

The WTE Plants will use "municipal waste" as fuel for generation of electricity. The supply of such waste to the plant by the municipal authority, segregation in processing units & disposal of unwanted waste by such plants shall be covered by Municipal Solid Waste (Management & Handling) Rules 2000 (**"MSW Rules"**). The major risks associated with such wastes are the exposition to unhygienic, insanitary conditions and contamination of air & water. To ensure protection from such risks the MSW Rules provide for use of technologies duly approved by the Central Pollution Control Board (**"CPCB"**), thus prior to initiation of WTE Plant the Waste to energy Technology must be approved by CPCB.

The MSW Rules, by way of Schedules II, III, and IV provides for certain standards regarding ground water, ambient air and incineration.[4] Rule 6 provides that compliance of these standards will be responsibility of the State SPCB or the Committee's set up under the Act. Standards like transfer of wastes in covered vehicles to avoid inconvenience to public travelling on same roads and limits for restricting emission of harmful metals & gases have been provided.[5] Further, to check air and water contamination from the disposed unwanted waste, including landfills, the MSW Rules mandates compliance of measures under Schedule III along with prior site authorization for disposal from the State Board or Committee.

The assessment of any request for such authorization will be done in light of suggestions or views relating to the site selection, facilities at the site, specifications for land filling, pollution prevention, water quality monitoring, ambient air quality monitoring and post setup measures by several agencies mentioned in the MSW Rules.[6] The SPCB & Committee have also been empowered to specify any other conditions necessary for ensuring human safety and environment along with the standards already provided under the MSW Rules. The disposal of redundant waste, segregated from the waste used as fuel, will be done as per Schedule IV of the MSW Rules as the waste continues to remain municipal solid waste.[7] However, the disposal of end waste (ash, slurry etc.) by the WTE Plant will be regulated by Water (Prevention and Control of Pollution) Act, 1974 (**"Water Act"**) & Rules 1975 and Air (Prevention and Control of Pollution) Act, 1981 (**"Air Act"**) & Rules 1982.

[3] Available at, http://mpcb.gov.in/images/pdf/Guidelineforconducting.pdf (Last visited on December 23, 2011)
[4] Schedule II, III & IV of the MSW Rules provides for management of municipal solid wastes, specifications for landfill sites and standards for composting, treated leachates & incineration respectively.
[5] Schedule II & IV, supra note 7.
[6] Rule 6(2) provides for views by agencies like State Urban Development Department, the Town and Country Planning Department, Air Port or Air Base Authority, the Ground Water Board or any such other agency.
[7] Standards specified under schedule IV. Such waste may be disposed by the Plant itself or the Municipal Authority.

3. Safe disposal of effluents and emissions

The location of the WTE plant in the urban area of the major cities and the effluent discharged by them would contribute significantly to risks towards human health. The central government, under the EPA has set national standards for the quality of environment (ambient standards) and for controlling emissions and effluent discharges. Such standards for maximum allowable pollutants are at such levels that the public health and welfare can be protected.[8] The emissions by WTE Plants along with the percentage of toxic substances that are harmful to human beings should be within the prescribed limits. The central government has also been empowered under the EPA to regulate industrial locations and to establish safeguards for preventing accidents.[9]

Further the provisions under Water Act and Air Act along with respective Rules therein, facilitate the conceptualization of WTE Plant in accordance with the requirements of the EIA notifications. The CPCB and the SPCB set up under the Water Act have jurisdiction under the Water as well as Air Act. Any emission of toxic metals by the WTE Plant polluting any water body and thereby adversely affecting human health would be regulated by Water Act & Rules. Standards for effluent discharge have been specified by the SPCB and prior consent from SPCB is needed before any such discharge of waste into any water body. [10] In case such limits are exceeded then either fine or imprisonment or both would be imposed[11] and the industrial unit may be shut down.[12] The emissions of toxic substances like dioxin, SO_2 and NO_2 into air by the incinerator based WTE Plants can cause diseases like serious skin irritation, hair fall, liver and lymph damage. To prevent uncontrolled emission of such substances into the air, the Air Act provides for measurement of impact by discharged effluents as per the base line set by the record submitted under the EIA. If the emissions are more than prescribed standards the SPCB and CPCB are empowered under Section 33 A of the Water Act to close, prohibit or regulate such industry.

4. Safety measures for workers

Under the Factories Act, 1948, the "occupier" of any WTE Plant needs to ensure certain safety measures for workers. This Act under Chapter IV mandates implementation of safety measures for workers while working on machinery, means of access, precautions from dangerous fumes & gases and appointment of Safety officers. Such implementation would be ensured by regular safety and health surveys by various officers under this Act.[13] However, the concept of WTE Plants is still in implementation stage and in absence of clear provisions there is an ambiguity over inclusion of such plants under the first schedule of Factories Act i.e. industries using hazardous process. The general thermal and hydroelectric power plants are included in this schedule and the definition of 'hazardous process' is such

[8] As per the Rule 3(2) of The EPA Rules of 1986 the CPCB and SPCB are permitted to establish more rigorous standards for discharge of waste.
[9] Section 3(1) of the Act and Rules 3, 4 & 5 of the Rules
[10] Sections 17, 25 & 26 of the water act
[11] Section 30 of the Water Act provides for notice in case of contraventions and recovery of costs. Section 41 to 50 relates to the penal provisions in case of contravention of water act.
[12] Section 33 A provides for Power to give directions for closure.
[13] Section 91 A of the Factories Act

that WTE Projects are likely to be placed in the same schedule. On inclusion in the said schedule, Chapter IV A would be applicable and the occupier would have to ensure further measures for safety of workers involved in the hazardous process.

Under this schedule the WTE Plant would have to provide prior information to the Authority before engaging in the hazardous process. However the permissions from the SPCB have been dispensed with under the Factories Act if State Government is sanctioning the setting up of such unit by constituting site appraisal committee. Sections 41a to 41h of Factories Act provides for emergency standards, exposure limits to such hazardous waste, etc.

5. Remedies in case of contraventions

In case the administrative agencies created under environmental statutes that are required to implement legislative mandates fail to implement laws, citizen has a choice of three civil remedies to obtain redress: **(i)** Common law torts action; **(ii)** Writ petition to compel the agency to enforce the law and recover clean up and remedial costs from the polluter and **(iii)** In event of damage from hazardous industry accident, an application for compensation under the Public Liability Insurance Act of 1991 or the national Environment Tribunal Act of 1995. Supplementing the redressal machinery is the National Environment Appellate Authority Act of 1997 which creates an appellate forum to test the validity of the environmental clearance for industrial projects granted under the EPA. In addition, if the pollution amounts to a "public nuisance", a remedy under the Criminal Procedure Code of 1973 is also available.

To ensure the compliance of standards the Supreme Court has also made applicable the **Polluter Pays** and **Precautionary principles** in cases of violation.[14] Further the government has also been empowered under Section 3 and 5 of EPA for levying and recovering the cost of remedial measures.[15] Post establishment compliance is taken care by way of Rule 14 of EPA Rules which provides for annual "Environmental Audit Report". Under the EPA, a citizen can approach the court directly in case of any danger to public health & safety after giving a notice to central government for not less than 60 days.

Conclusion

WTE plant is surely a potential solution to the problems of increasing waste and shortage of energy. At the same time human safety and clean environment remain a priority and should not be undermined. The absence of any law specific to human safety in case of WTE Plants raise doubts about the sustainability of such plants in terms of human safety norms in India. More research is needed to quantify the risks associated with such plants and suitable technology for the risk mitigation. The existing environmental conditions should be studied to formulate specific standards for WTE Plants. The state boards should set up base lines for measuring compliance standards by such projects. These state specific standards would definitely help in keeping check on pollution in major cities. The existing rules and

[14] *Vellore Citizens Forum vs. Union of India,* (1996) 5 SCC 647
[15] *Indian Council for Enviro-legal Action vs. Union of India,* (1996) 5 SCC 281

regulation should be relaxed and the option of approaching the courts should be made more feasible. In addition to these the government should grant subsidies for technology transfer from developed countries. This would reduce the burden on the developers and ensure least emission of toxic substances. This would also help in creating a high level liability on the developer of such plant and would justify formation of any provisions for direct imposition of heavy fines in cases of violation without waiting for the adjudication by courts. Since the National Master Plan of WTE Projects is still in early stages there is still scope for addition of human safety clauses or provisions for adherence to certain specific environmental regulations that are already in existence.

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