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WHITE BLACK LEGAL is an open access, peer-reviewed and refereed journal providededicated to express views on topical legal issues, thereby generating a cross current of ideas on emerging matters. This platform shall also ignite the initiative and desire of young law students to contribute in the field of law. The erudite response of legal luminaries shall be solicited to enable readers to explore challenges that lie before law makers, lawyers and the society at large, in the event of the ever changing social, economic and technological scenario.

With this thought, we hereby present to you

POLICIES AND REGULATIONS FOR MANAGEMENT OF THE HAZARDOUS WASTE

AUTHORED BY - C. P. DINESHWARI

INTRODUCTION:

In our day to day life numerous items are discarded as waste due to reduction in their effectiveness or value or due to some toxic properties associated with it or simply because we don't need them anymore. This includes daily household waste, sewage from kitchen, waste water from bathroom and toilets, waste from industrial process, hospital waste, packaging, old cars, tyres and tubes, etc. In the Indian context "waste" are moreover substances or objects or materials which are no longer useful to human beings. Alternatively, waste refers to those materials which are not needed by anyone. In business perspective waste is defined as "anything that does not create value". In a common man's point of view waste is anything that is not required by him anymore or not useful or lost its effectiveness or just left out as garbage or as useless item¹.

All categories of Waste have adverse impacts on the ecology, environment and public health. In some cases, impact may be minor to large and in some cases impact may be slow or quick or immediate. Open dumps of MSW release methane gas in atmosphere generated due to degradation or decomposition of biodegradable waste leading to air pollution as well as fire hazard. Waste dumps also causes odour pollution and seepage of liquid effluents called as leachates which percolates into the soil and ground water table thereby pollutes soil and water. Biomedical waste may cause contagious diseases. Discarded tyres and plastic items at dumps yard are common mosquito breeding sites leading to of diseases like malaria and dengue. Construction debris causes blockage of water flow and chocking of public drains. Air pollutants consist of fine particulate matters and gases like Sulphur dioxide, Nitrogen Dioxide, Carbon Monoxide etc. which are a major cause of pulmonary and respiratory related disease. The impacts of poor waste management on public health are well documented, with increased incidences of nose and throat infections, breathing difficulties,

¹ Bhoyar R.V., Titus S.K., Bhide A.D. and Khanna P. "Municipal and industrial solid waste management in India". Journal of IAEM, 23, p.43-56

inflammation, bacterial infections, anaemia, reduced immunity, allergies, asthma and other various diseases².

Environment Protection has always been a concern from ancient civilization, however specific legal control for environmental protection is a recent phenomenon. So also the relation between man and the environment has varied over the period of time. The concept of environmental jurisprudence is not new and the old Indian civilization embodied responsibility on man to live in harmony with nature. Our country adopted a philosophy where nature is treated as deity and Earth as Mother itself shows a culture of conservation ethics followed in India.

Protection of Environment in Ancient Era:

The Vedas, Puranas, Upanishads and other Hindu scriptures elaborated the importance of trees, forest, water bodies, wildlife etc. in Human life. The Rig Veda elaborates the importance of nature in climate control, fertility of land and overall health of human beings. The Atharva Veda equates trees to various gods. The Yajur Veda emphasized taking care of nature and all its creations. So there was a great amount of check on the protection of the environment from destruction by man. All religions preach the significance of nature to mankind. The Holy Quran emphasized that Nature is created by Allah. Christians are baptized in water which signifies water as the purest form of nature. Sikh religion declares that every creature in this world is the incarnation of God. In fact, all religions in the World give the principle of conservation, preservation and protection of Nature³.

Protection of Environment in Historic Era:

During the Maurya Dynasty the concern for protection of nature was foremost and well enforced. This concern was even predominant during medieval time. The Rules pronounced by various Kings during this period directed on city cleanliness and maintenance of hygiene, protection of forests and animals. The civic sense was also embodied amongst the subject during this era. Notable features which are worth mentioning here was the concept of penalty evolved during this period for an act like

² C.R.R. Environmental Education Centre, New Delhi. Environmental laws of India. Accessed on 13/5/2019 from <http://www.environmentallawsofindia.com/theconstitution-of-india.html>.”

³ HS Sandhu, Environment Protection-Constitutional Framework, Law Journal, Guru Nanak Dev University, Punjab, Vol.XI,2006, p.78-82.

throwing of dirt on roads or water bodies, open defecation in holy places, throwing of dead animals in open areas, etc⁴.

Protection of Environment in Medieval Era:

The trend of environment protection also continued during Moghul Rule in India where aesthetics component of nature was priority which leads to significant contribution in development of gardens, parks, fruit orchards etc. Moghul Emperor emphasized upon protection of Birds and beasts and contributed a lot towards the enrichment of nature. However, it is during the fag end of this era has shown major drift of loss of command towards care for nature⁵.

Protection of Environment in British Rule:

Concept of Civic cleanliness is a major contribution during this period. However, this is also the period when British have exploited the natural resources in India to a large extent. Cutting of forests was rampant during this era for trading purposes. Although the first provisions for protection of the environment in India finds its place in Indian Penal Code, 1860 which includes both prohibitive as well as punitive provisions. Section 268 of the IPC defined “public nuisance” and Section 133 to 144 of IPC. has provisions towards “Abatement of public nuisance”. Further, Sections 269 to 278 of the IPC provides that “a person who is guilty of violating these provisions is liable to prosecution as well as punishment”.

Protection of Environment Post-Independence:

An endeavour towards protection of environment continued with a pace in independent India with a host of Acts, Rules and Regulations in India aimed at protecting the environment from various categories of pollution and hazards. The Environment (Protection) Act, 1986 is an umbrella Act for environment protection and to maintain the ecological balance. Various Governments at Central and state level have launched various plans, programmes, schemes to sensitize the people and arouse their consciousness towards nature and protection and improvement of Environment⁶.

⁴ Dayal, G. (1994), Solid wastes: sources, implications and management. Indian Journal of Environmental Protection, 14(9), p.672-683.”

⁵ “Shantha kumar, Introduction to Environmental Law, Wadhwa, Nagpur, First Edition, 2004, p.434

⁶ Anand, K. Khan and Bhatt, Law, Science and Environment, Lancers: New Delhi, 1987, p.134-145.

In India major revision in waste management Rules was carried out in the year 2016 by the Ministry of Environment, Forests and Climate Change (MoEF&CC). The waste specific Rules are revamped and notified under the Environmental Protection Act, 1986. The management of radioactive waste are notified under the Atomic Energy (Safe Disposal of Radioactive Waste) Rules, 1987 by the Central government.

The Supreme Court of India in the WP (Civil) No. 860 of 1991 in the matter of M.C. Mehta v. Union of India (Environment Education Case) has directed the University Grants Commission to prescribe a course on 'Man and Environment'. Accordingly, the UGC issued a circular to all India Universities to introduce a study course on 'Environmental Education'. Similar instructions were issued to various Educational Authorities and institutions and at present "Environmental Protection" is a curriculum in Indian Educational Sector.

The crucial development in the field of protection of Environment took place after the UNO Stockholm Conference on the Human Environment held in 1972. In the year 1973, the Government of India has set up the National Council for Environmental Policy and Planning with the objective to look after the environment related issues in India which was subsequently converted into the full-fledged Ministry of Environment and Forests (MoEF) in 1985. Presently the same is renamed as Ministry of Environment, Forests and Climate Change (MoEF & CL) having the administrative control of prevention and control of Pollution, regulating and ensuring environmental protection and formulate requisite legal framework in India. MOEF & CL later constituted CPCB, SPCB's and PCC's under the Air Act and Water Act which together constitute as core setup for environment protection in India⁷.

ENVIRONMENT PROTECTION UNDER CONSTITUTIONAL FRAMEWORK OF INDIA:

To live in an environment which is pollution free is not only a basic human right but a prerequisite towards living with dignity and Meaning full life. The word "Environment" or "Ecology" was not found initially in the Constitution of India in 1950. Although, some items in the legislative lists which

⁷ Bhatia , "Human Rights and Human Environment – A Study in the Policy Perspectives", ALJ, Vol. 10 (1990) p.39.

enable the Centre Government and the State Government to make laws in the various connected fields like health, welfare, hygiene, agriculture, sanitation, etc. were enumerated. However, subsequent to the amendment to the Constituency of India, now to protect and improve the environment is a constitutional obligation and commitment. The Constitution of India contains specific provisions for protection of environment under the part IV - Directive Principles of State Policy and part IVA- Fundamental Duties under the Constitution vide 42nd Amendment Act, 1976. A specific provision imposed a responsibility on every citizen in the form of Fundamental Duty. Hence, protection and improvement of environment is the duty of every State under Article 48-A and duty of every citizen under Article 51- A (g)⁸.

The Constitution of India cannot be said to be an inert document. In fact, it is a living document which evolves as well as develops and matures over the period of time. The specific provisions on protection of environment in the Constitution of India by way of subsequent amendments after 1950 are also the result of this developing or evolving nature and growth potential of the fundamental rights in India. The preamble to the Constitution of India set out the aims and objectives it wants to achieve and according it is an ultimate aim of the Constitution of India to provide a decent life and accordingly pollution free environment to its citizens. The Environment (Protection) Act, 1986 defines environment as environment which includes water, air and land and the inter relation amongst them.

The Directive principles under the Indian constitution directed towards building of welfare state. Pollution free environment is also one of the facets of any healthy society and in turns of any welfare state. Article 47 of the constitution of India provides that “the State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties”. The improvement of the Ecology and public health cannot be achieved without the wholesomeness of the environment. Further, Article 48 of the constitution of India deals with protection of agriculture and animal husbandry thereby further provides that the State shall take effective steps to organize agriculture and animal husbandry on modern scientific lines⁹.

The Constitution of India under part III guarantees fundamental rights to the citizens of India which

⁸ Sham Divan, Environmental Law & Policy in India, Oxford University Press, New Delhi, Second Edition, 2001, p.579.

⁹ HS Sandhu, Environment Protection-Constitutional Framework, Law Journal, Guru Nanak Dev University, Amritsar, Vol.XII, 2008, p.97.”

are essential component for the development of every individual and to which a person is inherently entitled as a human being. Right to Ecology and environment or right to pollution free environment also effectively embodied in Part III of the Constitution of India (Fundamental Rights) under article 14(Right to Equality), and 21(Right to Life and Liberty) without which development of individual as a human being and realisation of his or her full potential or as a human being is not possible¹⁰.

The Article 21 (Right to Life and Liberty) of the constitution of India ensures Life and Liberty to its citizen and also to foreigners who are in India. This is the most organic and progressive provision and as such called as the heart of the constitution. Article 21 has received judicial creativity from time to time after the decision of the landmark case by the Supreme Court in Maneka Gandhi vs. Union of India¹¹.

Article 21 guarantees fundamental right to life and this called as most fundamental right conferred by the Constitution of India. Right to health, environment, free of danger of disease and infection, right to pollution free air and water, all such rights exists in core of this right which is most essential and unavoidable. Right to healthy and clean environment is important attribute of right to live with human dignity¹².

The right to live in a clean, pollution free and healthy environment as a component of Article 21 of the Constitution of India was first established in the landmark case called “Dehradun Quarrying Case” or “Dehradun Valley Litigation” in the matter of Rural Litigation and Entitlement Kendra and Ors vs. State of Uttar Pradesh¹³. This is the first case in modern India decided by the SC, involving issues relating to protection of environment and ecological balance against industrial demand on natural resources in which the Court directed to stop the illegal mining activities forthwith under the Environment (Protection) Act, 1986. Also the SC directed to provide funds and administrative oversight for conservation and mitigation measures due to massive deforestation carried out in the region. In M.C. Mehta vs. Union of India, the SC stated that “the right to live in pollution free environment as a part of fundamental right to life”.

¹⁰ Shantha kumar, Introduction to Environmental Law, Wadhwa & Company, Nagpur, Second Edition, 2005, p.86-90.

¹¹ Maneka Gandhi v. Union of India, 1978 AIR 597, 1978 SCR (2) 621.

¹² Sukanta K.Nanda, Environmental Law, Central Law Publications, Allahabad, Third Edition, 2013, p.88.

¹³ Rural Litigation and Entitlement ... v. State of U.P. & Ors 1985 AIR 652, 1985 SCR (3) 169.

Not the absolute right and subject to certain reasonable restrictions. Right to carry out any business or trade or occupation or say operating any Industrial activities does not include absolute right to carry out activity which are detrimental to the ecology and Environment¹⁴. A citizen cannot carry on any operation of factory or industrial activity, if it is causing pollution and health hazards to the society or detrimental to the ecology and environment. Thus safeguards for improvement and taking of environment protection measures in carrying out any Industrial activities are duly recognised in the Constitution of India. The SC, while deciding the matter relating to carrying on trade of liquor in the matter of Cooverjee B. Bharucha Vs Excise commissioner, Ajmer pointed out that, “if there is a clash between environmental protection and right to freedom of trade and occupation, the courts have to balance environmental interests with the fundamental rights to carry on any occupations”¹⁵.

Several Public Interest Litigation Writ Petition were preferred under Article 32 and 226 before the Supreme Court of India and various High Courts resulted in a new approach and new dimension to Environmental Jurisprudence in India. The landmark cases decided by the Supreme Court includes case of closure of limestone quarries in the Dehradun quarrying case, declaration of area as ‘Reserved forests’ in Delhi Ridge Case, protection against hazardous radiations in the Gamma Chamber Case, suspension of polluting Industries in Ganges Pollution Case, removal of encroachment and handing over of land back to the Government in Kamal Nath’s Case¹⁶ are noteworthy cases to be mentioned. In Vellore Citizens Welfare Forum vs. Union of India, the Supreme Court of India observed that “the Precautionary Principle” and “the Polluter Pays Principle” are essential features and having priority over the principle of “Sustainable Development.” And further directed that “the onus of proof is on the Industry to show that his action is environmentally benign “. Class actions has been initiated by the SC under Article 32 and High Courts under article 226 by passing various landmark judgements and orders, thereby creating a practical and implementable Environmental Jurisprudence in India in the form of constitutional right to pollution free environment¹⁷ .

Protection of Ecology and Environment is part of our social, economic and cultural values embodied

¹⁴ “M.C. Mehta v. Union of India, AIR 1987 SC 1086.

¹⁵ Vellore Citizens Welfare Forum v. Union of India (1996) 5 SCC 647 at 659-660.

¹⁶ M.C. Mehta v. Kamal Nath , AIR 1997 SCC 388.”

¹⁷ Environmental Health Criteria, DDT In Indoor Residual Spraying: Human Health Aspects, World Health Organization,2011,p.25-29.

in human beings from time immemorial and traditions. The Right to environment is also a component of human right. In Atharvaveda, it has been pointed out that “Man’s paradise is on earth; this living world is the beloved place of all; It has the blessings of nature’s bounties; live in a lovely spirit”. Our paradise comprises of Earth and atmosphere where we live and we are duty bound to protect our Earth. The constitution of India embodies the principle of protection, improvement and preservation of the ecosystem and environment as a whole without which life cannot be survived¹⁸. The protection and preservation of the environment is now one of the objective of the constitution of India and is also an underlying principle in the environment cases decided by the Supreme Court of India. The right to life is merely not just a right to live but to live without diseases. Waste is one of the reason against which protection and preservation of the Environment emphasised upon.

MANAGEMENT OF HAZARDOUS WASTE AND ENVIRONMENT PROTECTION IN INDIA

Manufacturing sector played key role in overall economic Growth in India. This growth also carries with it HW which is generated in every Industrial process in one form or another. A substance or material becomes waste when it has lost its value or discarded or simply kept aside without expecting to give any benefits. The leakage of poisonous gas from the Industrial Unit “Union Carbide” which was the most fatal environmental disaster in the city of Bhopal in 1981 led to massive loss of lives and adverse health impact which even continues today. Industrial pollution due to HW will continue to be a matter of concern in future with announcement of the mission mode initiatives of central Government like 'Make in India' and “Digital India” program which aims to restructure and transform India into a tag like ‘global manufacturing destination’ and ‘Pharmacy of the World’, etc¹⁹.

have been devised coupled with ‘Ease of Doing Business initiatives’ have been designed to attract foreign direct investment into India. These initiatives will further erode environmental restrictions and regulations for setting up of manufacturing Industries in India. Thus it is now very important to know how industrial development will affect the environmental protection initiatives in India²⁰.

¹⁸ V.N. Paranjape, Environmental Law, Central Law Agency, Allahabad, First Edition, 2013, p.109-123.”

¹⁹ “See Environmental crisis: A challenge ahead by Singh and Aggarwal, Employment news. Vol. XII No.9, 30/5/2019.

²⁰ Gupta Manisha, “India and Climate change Some Policy Issues”, Encyclopedia of Environment and Development, p. 853-854.”

Considering the aspects of sustainability wherein the concern for prevention and control of pollution is shifted to adjudication of losses and compensation to victims. Currently in India even though certain regulations are in force for management of hazardous wastes, in terms of the HWM Rules the open dumping of HW has not been stopped thereby compromising the life and ecology. Under such circumstances, safe and scientific management of hazardous wastes including their effective disposal is a paramount important so as to protect life and overall ecology.

A safe and scientific Management of hazardous waste refers to a well-planned framework for minimisation of HW at the source till final disposal of HW in a sound, effective and efficient manner. It involves various series of steps like generation, treatment, transportation, storage and disposal of hazardous wastes.

The management pathway of HW is carefully devised taking into account the various aspects like quantum of waste, nature of waste, distance from the source to destination considering the principle of risk assessment and mitigation measures with a techno-legal approach of safe handling, scientific, storage, transportation, treatment, and finally disposal of hazardous wastes. The main objective of HWM is to further prevent the HW causing any impact on the environment i.e. to take HW permanently deactivate or inert. Due to the rapid growth in generation of HW, ineffective HWM is a significant problem in India, especially in the highly industrialised states. As industrial production increases, the problems of HWM in India are also rising.

Constitution of the High Power Committee by Supreme Court of India.

In this backdrop, the SC vide order dated 13/10/1997, a High Power Committee (HPC) was appointed under the chairmanship of Prof. MG Menon, Ex-Chairman of ISRO. The other members of the committee were Dr. Paritosh Tyagi, Ex- Chairman of CPCB, P.K Seth, K.R. Rangnathan, and Dr. Claude Alvares. The term of reference of the committee inter alia includes to examine all issues concerning the HWM in India and submit a detailed report and recommendations thereof, are

indicated here below²¹ “.

1. Whether and to what extent the hazardous wastes listed in Basel Convention have been banned by the Govt. and to examine which other hazardous wastes, other than listed in Basel Convention and Hazardous Wastes (Management and Handling) Rules, 1989, required banning.
2. To verify the present status of the units handling hazardous wastes imported for recycling or generating/recycling indigenous hazardous wastes on the basis of information provided by respective States/UTs and determine the status of implementation of Hazardous Wastes (Management and Handling) Rules, 1989 by various States/UTs and in the light of directions issued by the Supreme court.
3. What safeguards have been put in place to ensure that banned toxic/hazardous wastes are not allowed to be imported?
4. What are the changes required in the existing laws to regulate the functioning of units handling hazardous wastes and for protecting the people (including workers in the factory) from environmental hazards?
5. To assess the adequacy of the existing facilities.
6. What is further required to be done to effectively prohibit, monitor and regulate the functioning of units handling hazardous wastes keeping in view the existing body of laws?
7. To make recommendations as to what should be the prerequisites for issuance of authorization/permission under Rule 5 and Rule 11 of the Hazardous Wastes (Management and Handling) Rules, 1989.
8. To identify the criteria for designation of areas for locating units handling hazardous wastes and waste disposal sites
9. To determine as to whether the authorization/permissions given by the State Boards for handling hazardous wastes are in accordance with Rule 5(4) and Rule 11 of hazardous waste Rules, 1989 and whether the decision of the State Pollution Control Boards (CPCBs) is based on any prescribed procedure or checklist.
10. To recommend a mechanism for publication for inventory at regular intervals giving area-wise information about the level and nature of hazardous wastes.

²¹ “M.G.Menon “Report of the High Powered Committee on Management of Hazardous Waste”, Vol I, II,III, New Delhi, 2001.”

11. What should be the framework for reducing risks to environment and public health by stronger regulation and by promoting production methods and products which are ecologically friendly and thus reduce the production of toxics?
12. To consider any other related areas as the Committee may deem fit.
13. To examine the quantum and nature of hazardous waste stock lying at the docks/ports/Inland Container Depots(ICDs) and recommend a mechanism for its safe disposal or re-export to the original exporters
14. Sterilisation and decontamination of ships before they are exported to India for breaking." HPC submitted its comprehensive Report on 20/4/1998 to the SC. The Report had inter alia set out various industrial processes which generates HW. The report has concluded that the HWM situation in India is poor²² .

Disposal of illegally imported wastes

There were several instances of illegal import of HW in India in the guise of raw material for Industries, recycling, etc. The MoEF and CI has authorised the Revenue Authorities and Police to disposed of such HW in consultation with respective SPCB/PCC in a manner prescribed and to recover the amount towards disposal as arrears of land revenue²³

Creation of Mass Awareness

One of the crucial aspect of effective HWM is right to know. The key role played by MoEF is to sensitise people and stakeholders through various medium. Towards this MoEF has carried out mass communication and training programmes to make aware about this modern tome waste. Regular refresher programmes are also conducted for officials of enforcement agencies

R & D initiatives:

The responsibility is entrusted upon the MOEF & CL to undertake research and development initiatives towards various facets of HWM for its safe handling, treatment and disposal mechanism, public safety and hygiene, and futuristic initiatives including setting up of sophisticated state of art

²² "Report of the High Powered Committee Full text is available in 'The Company Law Journal\ vol.1,2005, serial [101]."

²³ Kumar, A. and Samadder, S. R. "A review on technological options of waste to energy for effective management of municipal solid waste. Waste Management",2017, p.407-422".

plants and implementation of best practices of developed nations. MoEF and CI has sponsored research in the various aspects like Effluent treatment plants, Common Effluent Treatment Plants, scientific Treatment of HW, cleaner technologies etc. through Government and private research centres. in research, particularly related to their specific areas of activity e.g. ETPs, CETPs, disposal facilities, clean and cleaner technologies, etc.

Sustainable development initiatives:

The MOEF & CL is closely working with Ministry of Corporate Affairs and Finance Commission in the field of sustainable development. The spending of CSR funds in environmental protection is duly recognised. The setting up of waste energy plants are incorporated in the thrust areas of India. The concept of setting up of TSDF or CHWTF which provides a common facility for Industries located in the region or area can disposed of their HW in a common site thereby saving a cost as well as land by opting for common facilities.

Testing Facility

The MOEF has launched a scheme for strengthening of SPCB's and PCC's so as to augment their testing facilities in line with research laboratories for testing of various pollutants, environmental parameters, purchase of sophisticated testing equipment's and setting up of state air and water laboratory. Under such, MoEF is providing a financial assistance to all SPCB's and PCC's to strengthen such testing facilities. The Ministry is also providing a training to staff of these laboratories which also include training and capacity building in international laboratories.

Issue of Critically Polluted Industrial Estates including CIE before the Supreme Court of India:

The cognizance of alarming situation created by unregulated generation and unscientific dumping of hazardous waste across the Industrial Estates and open spaces resulting in serious and irreversible damage to the ecology and also public health, was taken up by the Hon'ble Supreme Court in WP No. 657/1995(C)179 , and directions were issued for preparation of a comprehensive report on illegal hazardous waste dump sites, inventory of generation of such waste, National Inventory for Rehabilitation of Hazardous Waste.

CONCLUSIONS:

The hazardous waste is a contribution of growing manufacturing Industrial sector in India. Due to the toxic or hazardous characteristics associated with this category of waste, it poses a serious and immediate impact on the environment. The rapid growth in the manufacturing sector in the country has ripple effect in terms of generation of huge quantum of HW. The safe and scientific management of HW involves a highly scientific and techno-legal approach. Since 1980's environmental degradation due to hazardous waste has become the major concern across the World and has invited the attention of even UNO. In the days to come it would be a major challenge with changing technology and with major thrust of Industries on maximization of production capacities leading to threat to very existence of life and ecosystem. Presently 60% of the rivers in India are flowing with hazardous waste released through industrial processes. Industries located in various parts of India are causing water and air pollution. The water quality around dump yards is rendered unsuitable for any purpose.

All natural resources are at threat which may imperil all kinds of life on the Earth. Nearly all States and UT's in India have always promoted diversified industrial sectors with major impetus on manufacturing Industries with further thrust on large scale and heavy Industries. Equally Micro, Small and Medium scale enterprises are contrasting contributed to 30% of total generation of HW in India. Disasters like Chernobyl and Bhopal are evidence of the grave environmental hazards. In reality Measures for Environmental protection have been given too little consideration by Industries over the maximization of profit. The levels of water pollution and air pollution are beyond the permissible limits in many cities of India. The high incidence of increase of chronic ailments like respiratory and pulmonary diseases, skin ailments, kidney failures, cancers etc. are attributed to exposure to air and water pollutants due to HW. These pollutants impair the soil and also seeps into the groundwater table during surface runoff thereby affecting the quality of the ground water even in the remote places in India.

The pollution due to HW is the most fatal compared to any other form of pollutant or pollution which goes on increasing day by day. It often remains out of reach of the law due to a variety of reasons and intricacies associated with the management of HW thereby posing significant threats to Environment in India. However, safe and scientific management of HW like that of the State of Gujarat, will be an

ultimate solution for protection of environment and resource security. If effective action plans are not enforced urgently, with the rise in generation of HW the same will lead to major environmental problems in India.

\One more critical aspects of HWM involved is remediation of critical sites which are sed as dumping yards for several years which in turn has head to compromise of public health. Clear and decisive action is required to divert this legacy waste to TSDF or CHWTDF or remediation of such through process like bioremediation or chemical treatment.

An integrated national plan or protocol along with a coordinated approach and public participation is very much required for the successful and efficient management of HW.

