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NATIONAL LEGAL REGIME ON E-WASTE MANAGEMENT IN INDIA

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ABSTRACT:

The choice of disposal depends not only on the legislative framework of a particular country and its implementation but also on vigilant and aware citizenry of the nation state. E-waste is one of the fastest growing post-consumer waste streams. It can be anticipated that the quantity of e-waste is likely to increase by much higher proportion than ever happened and at the same time it is quite disappointing to know that e-waste management practices and policy level initiatives are at the nascent stage and are still undeveloped. The main difficulty in regulating e-waste is that it's major collection, transportation, processing and recycling is predominantly in the hands of unorganized sector which though well networked but at the same time is totally unregulated and mostly handled by unskilled workers who hardly have any knowledge about the right methods to handle the same. Since all the modern nation states are coming across the problem of e-waste, to deal with this various international agreements and conventions have been enacted and have been signed by the nation states on global level. As far as India is concerned, various issues involved in e-waste management include impact of e-waste on human physiology and environment, issues regarding recycling, massive unorganized sector that deals in e-waste, legal framework implemented so far to control e-waste and lack of awareness among people with regard to disposal of e-waste. The entire paper brought to the knowledge of researcher recent scenario on e-waste management which helped researcher to quote facts and figures wherever required.

1. INTRODUCTION:

Today environment is clearly at high risk from different kinds of harms associated with human origin and development. It includes variety of pollution, ozone layer depletion, global warming, deforestation, global warming, climate change etc. In order to tackle the environmental harms which are primarily caused by human intervention and unmindful use of natural resources, it is extremely important to develop strategies for altering human behavior from harsh conduct towards environmental friendly practices. Though this can be done with intervention of education, sensitization, ethics, family pressure etc. but effectiveness of the same remains in doubt. Whereas law works as a tool of socio-legal transformation its intervention in the sphere of environment is of recent origin. Accordingly

there has emerged variety of national legislations to tackle the growing problems pertaining to environment degradation.

The Department related Parliamentary Standing Committee on Science & Technology, Environment & Forests has clearly mentioned in its 192nd Report (2008) titled as “Functioning of the Central Pollution Control Board (CPCB)” that e-waste is going to be a big problem in the future due to change in lifestyles and increase in living standards of the population.¹ Therefore this report anticipated the rising threat from e-waste. Further, UNEP (2009) on “Recycling from E-Waste to Resources” has examined impact of electronic devices as cooling equipment ozone depletion substances like CFCs on the environment. In addition, National Green Tribunal (NGT) directed the MoEFCC to arrange a meeting of various stakeholders involved and propose a scheme for effective e-waste management.¹ In such context, it becomes important to understand the existing e-waste legal regime and its evolution in India. At the same time it is also vital to make brief comparative analysis of legislative frameworks of developed and developing nations.

2. CURRENT E-WASTE MANAGEMENT SCENARIO IN INDIA:

Majority of the activities associated with management and regulation of e-waste beginning from collection, dismantling, segregation, transportation and dumping are majorly performed by unorganized sector in informal way.² E-waste being a source of rich and expensive metals, its recycling is a good source of revenue or income for many in India. Activities which are carried out in an unorganized sector are performed in informal ways. Informal mechanisms involves manual labor and intensive practices involving rudimentary methods of resource recovery and recycling. Informal sector plays a historic role in waste management practices and e-waste management is no exception to the same with an estimate of 95 per cent of e-waste recycled through the informal sector. India generates approximately 18 lakh tonnes of e-waste in an year and growing with the pace of 30 per cent annually.⁶ Of this, about 5 per cent is brought by 153 approved recyclers and dismantlers while the remaining is picked up by the informal or unorganized sector which extracts maximum profitable metals out of it and dumps the remains of the same into landfills. Currently most of the e-scrap or e-waste goes to scrape dealers and from there it reaches dismantlers and recyclers in the unorganized or informal sector and there they employ rudimentary processes under uncontrolled conditions which contributes in causing environmental degradation.³ Predominance of informal sector in e-waste management is apparent and is further corroborated with the literature available on the subject. The reasons for such predominance are as follows: Absence of adequate infrastructure of waste management;

1. The quantity and composition of materials that are recovered from e-waste and their market value;
2. Provides employment to millions in urban and peri urban sectors;
3. Absence of strict enforcement of legislations specifically dealing with e-waste viz. implementation of extended producer responsibility;
4. A key concern regarding informal sector is primarily based on the hazardous nature of processes and mechanisms involved in recycling process.

¹ “Formulate Scheme for Disposal of E-Waste: NGT to MoEFCC” The Economic Times, August 6, 2015.

²Sushant B. Wath, P.S Dutt, et.al., “E-waste Scenario in India, Its Management and Implications” 172 (1- 4) Environmental Monitoring Assessment 249-262 (January 2011).

³ Dr. Lakshmi Raghupathy, A Handbook on Procedures for E-Waste Recyclers 1-3 (GTZ-ASEM IndoGerman Environment Programme, New Delhi, 2009).

3. DEVELOPMENT OF E-WASTE LEGISLATION IN INDIA:

Waste management has always been an important issue in context of environmental legislations. Development of laws on e-waste management started with indirect legislative measures on the subject such as Rules, 1989. It was a decade back that Government of India formulated regulatory measures to address the concern of e-waste management and disposal directly. Prior to this, there were legislations to tackle environmental pollution coming from improper disposal of only solid wastes. These legislative measures though comprise of strong framework dealing with solid wastes but failed to effectively encompass in itself the mechanism to handle and dispose e-waste. Absence of linkage between measures to handle solid waste and e-waste due to distinctive properties of e-waste made the regulations unproductive in dealing with e-waste disposal.

The issue of e-waste, its handling and disposal assumed importance with progressive stride in sector of information technology. This was first brought to the notice in Parliament on December 23, 2005 through a private Member's Bill on Electronic Waste (Handling and Disposal) Bill, 2005. The Bill was introduced in RajyaSabha by Shri Vijay J. Darda, Hon'ble Member of Parliament from Maharashtra. The Bill acknowledged the fact that when every household is consumer of number of EEE but there are no guidelines on handling and disposal of such EEE which contains toxic wastes.⁴ Once EEE become obsolete or discarded by consumers, these are either thrown into garbage bins or sold to scrape dealers who dismantle the same and extract valuable metals and throw the toxic residue into landfills. Throwing toxic waste like e-waste into landfills is definitely not the right method of handling and disposing the toxic waste and have disastrous consequences on human health and environment.¹³ Therefore the Bill sought to develop proper mechanism for handling and disposal of e-waste by prescribing norms and fixing certain responsibilities on consumers, recyclers and manufacturers for all matters related to it. The Bill however, lapsed in July 2010 with the retirement of the member from RajyaSabha.⁵

In India, it is the MoEFCC, which is the key agency for suggesting, planning, monitoring and regulating the Environmental Protection Programmes including management of e-waste. It is the national authority responsible for waste management and environment protection. CPCB released guidelines in the year 2008 for environmentally sound management of e-waste which were applicable on all those who handle e-waste. A notification on E-waste (Management and Handling) Rules, 2010 was released for safe collection, transportation, handling and disposal of e-waste. Currently Central Government have made Rules, 2016 which came into force on October 1, 2016 and have been amended in 2018 as per the need of hour. These are the exhaustive Rules that have defined responsibilities and duties of every stakeholder involved in use and disposal of EEE Prior to these much awaited Rules, 2016, there were several Rules and Regulations of which some directly and some remotely dealt with e-waste. Each of these rules and regulations had advantages and loopholes which led to the formulation of Rules, 2016. Various provisions and salient features of Rules that ever dealt with e-waste are discussed below:

3.1 Provisions in the Constitution of India:

The Constitution of India imposes certain obligations and duties on both the state and citizens of the country towards conservation and protection of environment. The provisions in Constitution of India on protection of environment came with Forty Second Amendment in 1976 whereby Article 48A under Directive Principles of State Policy and Article 51A(g) in Fundamental Duties were inserted. Though the Directive Principles of State Policy are non-enforceable in nature nevertheless acts as a guidelines in furtherance of objectives of

⁴ Parliament of India, Official Debates of RajyaSabha 'The Electronic Waste (Handling And Disposal) Bill. 2005)

⁵ Ibid

the state. In addition, the Constitution of India provides with Article 21 that guarantees life and personal liberty to every individual. Initially Article 21 was not as much interpreted so as to include the issues of environment protection until the Supreme Court of India gave a broad interpretation to the same so as to include ‘the Right to Wholesome Environment’ in Rural Litigation Case⁶In this case petitioner sought relief for closing down of number of limestone quarries which were causing ecological imbalance and polluting the environment. Respondents objected to the relief sought on the ground it would cause huge financial loss to the owners of such industries and would further leave many in unemployed state. The court accordingly set up an expert committee under Dr. D.N Bharghav for the purpose of examining the limestone quarries under question. The committee classified the industries into three categories Category A, B and C depending on their adverse impact on the environment. The court ordered to close Category C limestone quarries and observed that:

“the consequence of this order made by us would be that the lessees of lime-stone quarries which have been directed to be closed down permanently under this order, would be thrown out of business in which they have invested large sums of money and expended considerable time and effort. This would undoubtedly cause hardship to them, but it is a price that has to be paid for protecting and safeguarding the right of the people to live in healthy environment with minimal disturbance of ecological balance and without avoidable hazard of them and to their cattle, homes and agricultural land and under affectation of air, water and environment.”

Later the interpretation was so widened that the top Court in Tarun Bharat SanghCase⁷intervened to protect wildlife and forest wealth from the dangers of mininghappening in and around Sariska sanctuary in district Alwar of Rajasthan. The court observed that:

“This litigation concerns environment. A great American Judge emphasizing the imperative issue of environment said that he placed Government above big business, individual liberty above Government and environment above all. The issues and concerns in this case far transcend the trivialities and inhibitions of an adversarial litigation. All the parties must be forthcoming in a concerted effort to find a satisfying solution to the problem which, in more ways than one, is typical of the Indian predicament. We are, therefore, entitled to expect that the State Government and the mining-entrepreneurs in their own enlightened self-interest will discard the adversarial litigation stance. The issues of environment must and shall receive the highest attention from this Court.”

Article 32 and Article 226 of the Constitution of India have been handy tools to deal with the issues related to the environment. The powers of the Supreme Court of issuing directions under Article 32 and that of the High Courts to do the same under Article 226 have attained noteworthy significance in development of environmental litigation. Nearly 95 percent of action taken on environmental issues is brought to the notice of Court through PIL. Courts have been using these extraordinary powers to correct or compensate the past maladies or unmindful conduct of the exploiters of natural resources and to check ongoing and future assaults on the environment.

3.2 Environment Protection Laws in India:

The decision to protect environment was taken at Stockholm Convention in June, 1972 in which India participated to take requisite steps for the protection and improvement of human environment.⁸ Participation and ratification of various international conventions on

⁶ Rural Litigation and Entitlement Kendra, Dehradun v. State of Uttar Pradesh, AIR 1988 SC 2187.

⁷Tarun Bharat Sangh, Alwar v. Union of India, AIR 1992 SC 514

⁸ Environment Protection Act, 1986.

environment protection necessitated further action to implement the decision of not only protecting and improving the environment but also prevention of hazards on human beings, other creatures, plants and property. Accordingly, India enacted the Water (Prevention and Control of Pollution) Act, 1974, (**Water Act, 1974**), Air (Prevention and Control of Pollution) Act, 1981 (**Air Act, 1981**) and EPA, 1986.

1. Environment Protection Act, 1986

EPA, 1986 was the first comprehensive legislation in environmental legislations which provides executive with vast Rules and Regulation making powers in order to achieve objectives of the Act. EPA which is considered as pioneer in handling, management and disposal of different kinds of toxic wastes which have dangerous impact on human health and environment. The EPA covers in its ambit pollution caused by hazardous substances and defines the same in Section 2 (e) of the Act, as substance which by reason of its chemical composition can cause harm to human beings, plants, microorganisms, other living creatures, property or the environment. Section 3 of the Act empowers Central Government to take measures in order to protect and improve environment. Section 3(vii) specifically gives power to the Central Government to take all such measures as seem necessary for the purpose of making procedures and safeguards to handle hazardous wastes. Section 6 empowers Central Government to frame Rules in matters mentioned in Section 3 of the Act in addition to matters such as Rules to maintain standards of quality of soil, water and air of certain areas, maximum permitted limits of concentration of pollutants in different areas, processes and safeguards to handle hazardous substances, Rules regarding location of different kinds of industries, procedures and safety measures for prevention of accidents that may lead to environmental pollution. Section 8 further requires persons handling with hazardous substances to comply with certain procedural safeguards. Act also empowers Central Government to make Rules regarding processes and safeguards of handling hazardous substances, restrictions and prohibitions on handling of hazardous substances, guidelines on location of industries, their operations in different areas and requisite procedures and safeguards for prevention of accidents along with the remedial measures to deal with such accidents.⁹

2. Hazardous Waste (Management and Handling) Rules 1989, 2000 & 2003:

In the exercise of rule making power conferred by Section 6,8& 25 of EPA, 1986, the MoEFCC for the first time in the year 1989 enacted Rules, 1989. Need was felt to create a dividing line between various categories of waste and accordingly divided hazardous waste into 18 categories depending upon the constituent elements and quantum of generation. This schedule appended to the Rules did not contain e-waste distinctly. These Rules mandated 1577ecognized1577on from SPCB¹⁰ for performing any activity like collection, segregation, treatment, reception, storage transport and disposal of hazardous wastes in state. Rules also contain guidelines on storage of hazardous waste under which occupiers, reprocessors, recyclers, operators of facilities could were permitted to store waste for a period of not more than 90 days and were also required to maintain record of transfer, storage, sale, reprocessing and recycling of such wastes. SPCBs have power to extend the storage period in certain circumstances such as where quantum of waste stored is up to ten 1577ecog per annum, where generators do not have access to facility or where waste demands storage for recycling and reuse. These Rules also prohibited import of hazardous wastes from any nation to India for the purpose of dumping and disposal.

These Rules were amended once again in 2003 and were called as HW Amendment Rules, 2003 which expressly covered EEE as hazardous waste under Schedule III, on Serial No. A

⁹ Supra note 21, Section 6(2).

¹⁰ Water (Prevention and Control of Pollution) Act, 1974), Section 4.

1180 in List A and Serial Number B1110 in the List B. Regarding the trans-boundary movement of hazardous wastes, amended Rules, 2003 did not prohibit import of e-waste in totality and the same could be easily imported for the purpose of reuse and recycling but hardly any attention is paid to recycling of the same in environmentally sound manner. Further these HW Rules, 2003 were silent on e-waste generated in domestic markets of the country. Schedule I (31) of the Rules deals with wastes generated from electronic industry, which also means that it does not include electronic wastes generated from households, companies or firms, information technology industry. On the other hand, such wastes cannot also be considered in municipal solid waste because it does not fall in the ambit of definition of municipal solid waste as provided in Solid Wastes Rules, 2000.

Therefore till this stage no provision in any Rules and Regulations expressly dealt with e-waste in totality, whether the e-waste generated domestically or imported from other countries.

3. The Hazardous Wastes(Management, Handlingand Transboundary Movement) Rules, 2008:

With the success of introducing e-waste in HW Rules, 2003 and with the further endeavour to frame suitable legislation to deal with illegal dumping of e-waste, Government of India enacted HW Rules, 2007 to ban transboundary movement of hazardous waste as obligated by Basel Convention to a member state. On September 24, 2008 these Rules were notified in as HW, 2008 by the MoEFCC in lieu of Rules, 1989 except in respect of things done or omitted to be done before enforcement of 2008 Rules.¹¹ These Rules contained detailed provisions with regard to handling, disposal and transboundary movement of e-waste. These Rules require the person wanting to start a recycling or reprocessing hazardous waste unit is required to take permission from CPCB. Further the waste generated has to be sent to a registered recycler or reprocessor having system of environmentally sound management facilities to take on the process of recovery. Before granting registration to the recyclers or re processors of waste, Central Pollution Control Board is required to satisfy itself regarding availability of environmentally sound technology, requisite technical capabilities, adequate facilities and equipment for recycling or reprocessing of hazardous waste. The second category which is traded under Open General License includes materials like steel, iron, zinc scrape, waste of copper and its alloys. Lastly, the third category deals with hazardous wastes prohibited from export and import and these include mercury and mercury bearing compounds, wastes containing arsenic, beryllium, thallium, chromium compounds etc. In addition Rules contain provisions for Coordination Committees for the purpose of strong implementation.

Though the Rules seemingly apply to e-waste but primarily deals with industrial wastes and lacked essential elements to deal with complexity of e-wastes. Further lack of clarity and ambiguity in various provisions made their effective implementation impossible and therefore these Rules too were recognized as inadequate.

4. Guidelines for Environmentally Sound Management of E-Waste, 2008

Guidelines, 2008 was another initiative of Government of India through MoEFCC and CPCB taking into consideration the rapidly growing quantity of e-waste due to high obsolescence rate of EEE. These guidelines have been framed in accordance with NEP which encourages recovery and reuse of material in order to reduce the quantity of waste and further ensure environmental friendly recycling of the same waste. These guidelines have been framed with the objective of developing broad network for recognition of various sources of e-waste and mechanism to recycle and dispose the waste in environmentally

¹¹ Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008.

sound manner. These guidelines describes the reasons for requirement of recycling e-waste in environmentally sound manner. It also mentions about the e-waste components and hazardous materials present in each components. In addition these guidelines provide the detail of processes through which e-waste is handled or recycled in India and gives account of best available technologies to manage, dispose and 1579ecogni e-waste. The distinguished feature of these guidelines was its applicability on all those who are involved in handling of e-waste which covers generators, collectors, dismantlers, transporters, recyclers and other stakeholders of e-waste irrespective of their degree of involvement in e-waste.¹²

These guidelines for the first time mentions about Reduction of Hazardous Substances (RoHS) in EEE along with notable feature of EPR. The concept of EPR is highly followed in developed nations where the mechanism to handle e-waste is quite formal and 1579ecognize. Precisely EPR is strategy to protect environment by making producer of EEE responsible for complete life cycle of the product which includes take back from user after use, recycle and final disposal. These guidelines laid emphasis on incorporating EPR strategies in legislative framework which would compulsorily put burden on producer to manage WEEE in environmentally sound manner. Such a mechanism would further ensure proper collection strategies to be formulated by the producers either individually or jointly. The guidelines insisted on creating responsibility on SPCB regarding enforcement. Ministry has also kept provision of providing financial assistance to SPCB for facilitating implementation of these Rules. In addition these guidelines laid emphasis on conducting training and awareness programmes in order to bring awareness about e-waste among masses who are ignorant about e-waste as a polluter.

5. The E-Waste (Management and Handling) Rules, 2011:

Understanding the implications of unregulated e-waste handling and disposal system, Government decided to introduce a special legislation in the form of draft Rules, 2010 governing environmentally sound handling and management of e-waste.¹³ The Rules attempted to take all the stakeholders involved in chain of e-waste in its purview which included every producers, dismantlers, collection centres refurbishers, recyclers, consumers or bulk consumers Rules distinctly laid down responsibilities of each of these stakeholders. The distinguished feature of these Rules was the introduction of concept of EPR. Since the concept was given statutory recognition for the first time in legal framework of management of e-waste and works as a key element of the Rules, therefore it becomes pertinent to exhaustively deals with the concept.

6. JUDICIAL CONCERN ON WASTE MANAGEMENT:

Indian judiciary has always occupied a strong position in nation's governance. Courts have always been 1579ecognized as most powerful bodies whose judges play an unprecedented role in governance. The courts have made significant contributions in all important issues such as politics, matters of administration, safeguarding the constitution, protection of environment. The revolutionary verdicts passed by Supreme Courts have coined new concepts and mechanisms which have played an outstanding role in development of human rights and environmental jurisprudence. This has been done by employing the tool of Public Interest Litigation which is a result of liberal attitude of judiciary when matters involves the larger interests.

On the questions pertaining to protection and improvement of environment, courts have intervened in different ways and have given plethora of landmark verdicts by interpreting Constitution of India in broadest manner. It is established by learned jurists that there exists

¹² Ibid. Guideline 2.3.

¹³ Draft E-waste (Management and Handling) Rules, 2010.

a close linkage life and environment. It is further explained that right to life is worthless if there is no healthy environment. It all started with the Doon Valley case¹⁴ where Supreme Court for the first time recognized the right to live in healthy environment forms a part of Article 21 of the Constitution of India and ordered closure of number of limestone quarries by treating a letter by group of citizens as writ petition under Article 32 as discussed previously. Later in Oleum Gas Leak Case¹⁵ where on the incident of leakage of oleum gas Supreme Court coined the principle of Absolute Liability and impliedly marked that Article 21 covers right to live in pollution free environment. The incident of leakage of oleum gas took place from one of the units of Shri Ram Foods and Fertilisers, Delhi which killed one advocate and hundreds were affected. A writ petition was filed by way of PIL in which top court took view of not following the ancient principle of Ryland v. Fletcher and evolved rule of Absolute Liability in consonance with socio-economic suitability of the nation. Court also expressed its concern regarding the development of laws with the needs of present day social structure and economy in order to meet new challenges emerging with new situations. The new principle laid down by Bhagwati. C.J. states:

“that an enterprise which is engaged in a hazardous or inherently dangerous industry which poses a potential threat to the health and safety of the persons working in the factory and residing in the surrounding areas owes an absolute and nondelegable duty to the community to ensure that no harm results to anyone on account of hazardous or inherently dangerous nature of the activity which it has undertaken. The enterprise must be held to be under an obligation to provide that the hazardous or inherently dangerous activity in which it is engaged must be conducted with the highest standards of safety and if any harm results on account of such activity, the enterprise must be absolutely liable to compensate for such harm and it should be no answer to the enterprise to say that it had taken all reasonable care and that the harm occurred without any negligence on its part.”

This case enacted an absolute and non-delegable rule where an enterprise would not get the defence of applying reasonable care and absence of negligence on its part. The case also created a deterrent effect by setting out measure of compensation depending upon capacity of the enterprise. The same rule was approved by the top court in case of Charan Lal Sahu's Case¹⁶

Further another case was a case of discharge of industrial pollutants into river Bokaro making it unfit for drinking and irrigation purpose. The petitioner sought directions of immediately prohibiting such discharges in order to protect quality of water and at the same time filed an interim application requesting to permit him to collect slurry of the discharges. Respondent's contentions of taking all the effective measures and compliance with directions of SPCBs to prevent such pollutions were accepted by the court leading to dismissal of petition with costs. At the same time court observed that:

“Article 21 of the Constitution and it includes the right of enjoyment of pollution free water and air for full enjoyment of life. If anything endangers or impairs that quality of life in derogation of laws, a citizen has right to have recourse to Article 32 of the Constitution for removing the pollution of water or air which may be detrimental to the quality of life.”

In the present case although the court discouraged the PIL filed with ulterior motive of gaining contract to collect slurry but did not leave chance to express its concern in protection of environment.

¹⁴ R.L & Kendra, Dehradun v State of U.P, AIR 1985 SC 652

¹⁵ M.C Mehta v Union of India, AIR 1987 SC 1086.

¹⁶ Charan Lal Sahu v. Union of India, AIR 1990 SC 1480

India acts proactively when it comes to making legislations on issues to deal with environment but judiciary unquestionably takes a holistic approach in interpretation and implementation of various legislations.

All SPCBs/PCCs to strictly implement time to time directions issued by MoEFCC which includes comprehensive preparation of reports of quantum of hazardous wastes generated in their jurisdiction, regular inspections of the dumpsites, check on water samples to examine contamination status and ensure precautions to prevent the damage;

- Norms to be followed in handling and disposing waste generated by ships which includes classification of wastes generated from ships into hazardous and non-hazardous, authorization to ship breaking industries, ban on burning on beaches etc;
- SPCBs to prepare inventories on generation of hazardous wastes;
- SPCBs to prepare inventories of dump sites of hazardous wastes;
- CPCB to prepare national inventory for rehabilitation of dump sites;
- MoEFCC to make provision for bank guarantee to be submitted by importer while taking permission of import of such wastes;
- To amend legislation to effectively handle and deter the trans boundary movement of hazardous wastes;
- CPCB to check and supervise import of hazardous waste which includes random inspections and checks;
- SPCB to make information available in public domain regarding hazardous wastes;
- Relocation of industrial sites and landfills.
- Further court framed the time period for taking actions against the violations wherever it was not fixed.

5. CONCLUSION:

Today most of e-waste is being discarded in the general waste stream. This waste is causing environmental and health concerns. Therefore this research exhaustively deals with the conceptual framework of e-waste stated in international conventions, legislations, role of international bodies, nongovernmental organizationsetc and has come to the conclusion that definition given in European Union Directive is most suitable. The void in legislative framework and implementation of formal sector of e-waste management adversely affects the effectiveness of E-waste management regime. In addition dominant presence of informal sector affects the working of formal sector of e-waste management. As informal sector employs environmentally unsustainable practices it adversely affects human health and contaminates ecosystem. Therefore there is need of proper disposal of e-waste by formalizing the informal sector for sustainable development and protection of human health and environment.

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