ELECTRONIC WASTE IN INDIA: A STUDY OF PENAL ISSUES

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Abstract

E-waste or electronic waste is a notable waste stream these days occasioning from the eruption of electronic products in the past decades due to rapid developments in technology revolution, consumerism, economic growth, urbanization as well as obsolescence that leads to reduced product lifecycles. Therefore, management and proper regulation of electronic waste has become a point of concern today as it has a harmful impact on environment as well as humans dealing with it. One way of dealing with this menace, produced by informal disposal of electronic waste, is fabrication of penal laws which will have a deterrent effect on the society. Resultantly, in India many environmental legislation and the rules were constituted which are dealing with E-waste either directly or indirectly. Nevertheless, such enactments have, unfortunately, not resulted in preventing environmental degradation as penal provisions in environmental laws dealing with electronic wastes. One significant cause for such environmental degradation due to E-wastes is the inability of the law to deter violators. This paper, therefore, attempts to critically analyze the bearing of these environmental legislations as well as other laws possibly dealing with electronic waste.

I Introduction

E-waste or electronic waste is a major waste stream these days resulting from the explosion of electronic products in the past decades due to speedy advancements in technology innovation, consumerism, economic growth, urbanization as well as obsolescence that leads to reduced product lifecycles. In 2017 it was reported by Global E-waste Monitor report[1] that

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[1] The Global E-waste Monitor 2017: Quantities, Flows, and Resources by United Nations University (UNU), International Telecommunication Union (ITU), and the International Solid Waste Association (ISWA), *available at*: http://collections.unu.edu/eserv/UNU:6341/Global-E-waste_Monitor_2017__electronic_single_pages_.pdf. (last visited on December 26, 2018). This report provides the most comprehensive overview of global e-waste statistics and an unprecedented level of detail, including an

e-waste has increased by 44.7 million metric tonnes (8 percent) from 2014 to 2016. The number is expected to rise to nearly 52.2 million metric tons by 2021 (17 percent) globally. (Image 1)

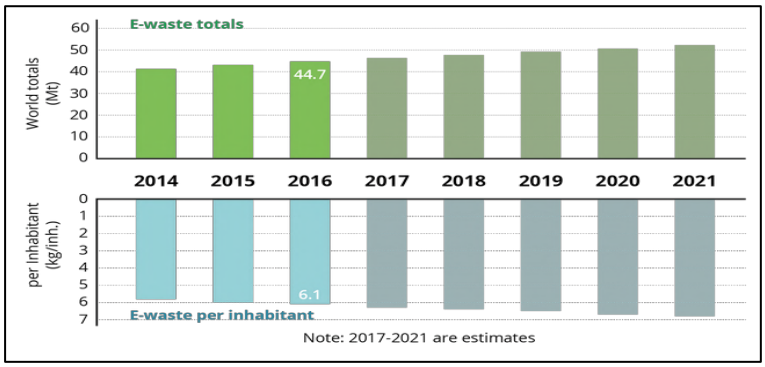

Image 1[2]

Such projections underline the pressing need to address the problem of e-waste in developing countries like India where the assortment and supervision of e-waste and the salvaging procedure is yet to be appropriately structured. In 2016 it was reported by United Nations that 44.7 million tons of electronic waste was produced all over the world in which India's input was a significant 2 million tons.[3]

Therefore, management and proper regulation of electronic waste has become a point of concern today due to its harmful impact on environment as well as humans dealing with it. Because developing nations, like India, are confronting a dual problem because of huge domestic production of e-wastes as well as illegitimate importation/dumping of the same from developed and industrialized countries. This importation from developed nations is seen as a measure of modernization by cheap means and small economic gain. The major purpose behind this kind of transboundary movement of e-wastes from developed to developing world is plenty of low-priced workforce and poor environmental policies in developing nations which permits for such disposal and dumping.

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overview of the magnitude of the e-waste problem in different regions. The report includes up-to-date information on the amounts of e-waste generated and recycled, makes predictions until 2021.

[2] *Id.* at 38. Image 1 shows the trends of E-waste at a global level and the quantity produced per person at a global level.

[3] Jacob Koshy, "What is India doing with its 2 million tonnes of e-waste every year?", The Hindu (2018), available at http://www.thehindu.com/sci-tech/energy-and-environment/indias-toxic-eiffel-towers-we-produce-2-million-tonnes-of-e-waste-every-year-and-the-new-regulations-arent-helping-deal-with-it/article22429947.ece

II Electronic Waste: Evolution of Law

This issue remained insidious and overlooked for a very long time. Up until very recently, no proper estimate was available to determine the amount of E-waste generated neither at a global level nor at national level. The first development at International level emerged at 1989 when

The Basel Convention[4] came into existence, the purpose of which was to reduce the movements of hazardous waste between nations and specifically to prevent transfer of hazardous waste from developed to less developed countries (LDCs). The Convention also ensures environmentally sound management of toxic and hazardous waste and assist LDCs for the same. Basel Convention had an indirect application on electronic waste due to the presence of toxic and hazardous materials till then. The Basel Convention started to address e-waste issues in 2002 through the adoption of The Mobile Phone Partnership Initiative (MPPI).[5] After which the Nairobi Declaration[6] was adopted which gave a mandate to the Secretariat to implement the environmentally sound management of e-waste.

Parallely, at national level, the Environment Protection Act (EPA) came into being in 1986 for protection and improvement of the environment and the prevention of hazards to human beings[7], other living creatures, plants and property in the wake of Bhopal Gas Tragedy. This Act being umbrella legislation dealt indirectly with e-waste as it deals with hazardous substance.[8] Soon after that, the first comprehensive Rules to deal with hazardous wastes were

[4] The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, usually known as the Basel Convention, 1989, *available at:* https://www.basel.int/portals/4/basel%20convention/docs/text/baselconventiontext-e.pdf

[5] The Mobile Phone Partnership Initiative (MPPI) was adopted by the sixth meeting of the Conference of the Parties to the Basel Convention in 2002, available at: http://www.basel.int/Implementation/TechnicalAssistance/Partnerships/MPPI/Overview/tabid/3268/Default.aspx

[6] The Nairobi Declaration on the Environmentally Sound Management of Electrical and Electronic Waste. It was adopted in Eighth meeting of the Conference of the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal in Nairobi in 2006, *available at:* http://www.basel.int/portals/4/basel%20convention/docs/meetings/cop/cop8/nairobideclaration.pdf

[7] Art. 21 of Indian Constitution imposes a duty on the state to protect the life and liberty of the people. The concept of this article has been broadened by judicial pronouncements. In the case of *Subhash Kumar* v. *State of Bihar*, (1991) 1 SCC 598, it was held that 'right to life' includes the right to have pollution-free water and air. Through this case the right to a wholesome environment as part of the Fundamental Right was recognized.

[8] EPA provides for definition of E-waste in s. 2(e) - "hazardous substance" means any substance or preparation which, by reason of its chemical or physico-chemical properties or handling, is liable to cause harm to human beings, other living creatures, plant, micro-organism, property or the environment.

issued by the Central Government[9], in July 1989, called the Hazardous Waste (Management and Handling) Rules 1989, framed under the enabling provisions of EPA, 1986. However, the 1989 Rules suffered from certain inherent limitations. Therefore, the rules have been amended later in the years 2000, 2003 and with final notification of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008.[10]

Meanwhile, a Private Member introduced 'The Electronic Waste (Handling and Disposal) Bill' in 2005 in Parliament of India which lapsed in July 2010.[11] This bill rightly criticized the improper way of disposal of electronic waste which is hazardous to human health and environment and called for a regulation for the same.[12] Therefore, to deal with this ever growing concern of disposal and recycling of electronic waste, Ministry of Environment, forests and Climate Change (MoEFCC), for the first time, notified a set of rules known as Electronic waste (management and handling) Rules in 2011 under section 6 of Environment (Protection) Act, 1986.[13] These rules were transported in to tackle the safe and environment friendly management, transporting, storing, recycling of e-waste and also to diminish the usage of hazardous substances during manufacturing of electrical and electronic equipments.

E-waste rules were later revised in 2016 and became E waste (management) Rules, 2016. For the first time, the concept of *'Extended Producer Responsibility (EPR)'* was also introduced which made manufacturers liable for safe disposal of electronic goods. The E-Waste Management Rules, 2016 have lately been modified by the Centre; vide notification G. S. R. 261 (E)[14], dated 22nd March, 2018 to expedite effective implementation of the environmentally sound management of e-waste and it also amended the collection targets under EPR provision.

[9] Art. 48- A and art. 51-A (g) of Indian Constitution puts a duty on the State as well as the citizens of India to protect and conserve the environment.

[10] Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008, *available at:* http://cpcb.nic.in/displaypdf.php?id=aHdtZC9taHRydWxlczIwMDgucGRm

[11] It was introduced by Shri Vijay J. Darda, who is a Member of Parliament from Maharashtra in 2005.

[12] Rajya Sabha of India, Report by research unit on E waste in India (June, 2011), *available at:* https://rajyasabha.nic.in/rsnew/publication_electronic/E-Waste_in_india.pdf. (last visited on December 27, 2018).

[13] S. 6 of EPA, 1986 - Rules to regulate environment pollution- (1) The Central Government may, by notification in the Official Gazette, make rules in respect of all or any of the matters referred to in s. 3.

[14] E waste (management) amendment rules, 2018, *available at:* http://cpcb.nic.in/uploads/Projects/EWaste/ewaste_amendment_notification_06.04.2018.pdf (last visited on December 27, 2018).

On the other hand, Judiciary has played an equally important role in the development of environmental jurisprudence in India while protecting the environment from the very beginning. Judiciary has given many landmark judgments related to protection of environment and also embarked upon the Right to life and accorded a wider interpretation to include right to healthy environment.[15] However, Judiciary has not dealt with the punitive issues related to electronic waste which results in a legal vacuum. This gives one an insight into the significance given to this issue in India. So far there is no data on the convictions under EPA related to electronic waste which has been discussed in detail in the latter part. Judiciary at different levels has dealt with very few issues related to e-waste mostly related to customs[16] and impact of electronic waste on environment and human health.[17]

III Electronic Waste - Definition

Due to the speedy advancements in technology at every single breath we take, it becomes very difficult to give a very precise definition of 'e-waste' as it could range from the most uncommon thing to the most common thing we use in our daily life cycle. Even then several definitions have been proposed so far. E-Waste (Management) Rules, 2016 defines e-waste as "any electrical and electronic equipment, whole or in part discarded as waste by the consumer or bulk consumer as well as rejects from manufacturing, refurbishment and repair processes".[18] This definition seems to be an inclusive one as it includes all sorts of electronic components.

This definition could be equated by the one proposed by European Union (EU) Directives which attempts to explain "waste electrical and electronic equipment" (WEEE) as "an electrical or electronic equipment which is a waste including all components, sub-assemblies and consumables which are part of the product at the time of discarding".[19]

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[15] *Subhash Kumar* v. *State of Bihar*, (1991) 1 SCC 598; *Rural Litigation and Environment Kendra, Dehradun* v. *State of Uttar Pradesh*, 1985 SCR (3) 169.

[16] *Commissioner of customs, Kochi* v. *Divine International, Kerala HC*, W.A. No. 784 of 2012; *Om Shivay Enterprises* v. *The Chief Commissioner of Customs, Delhi HC*, W.P(C) 2512/2014 and CM No. 5213/2014 (directions).

[17] *Nagrik Upbhogta Margdarshak Manch* v. *State of Madhya Pradesh*, MANU/GT/0017/2015

[18] Electronic waste (management) Rules, 2016, s. 3(1)(r).

[19] Art. 3(1) of Directive 2008/98/EC, *available at*: https://eurlex.europa.eu/legalcontent/EN/TXT/?uri=CELEX:32012L0019

On the other hand, Basel Action Network (BAN) tried to define the term 'E-waste' more expansively as it uses the term "wide and developing" and it is comprehensive in nature. It explains the range of E waste which goes from large appliances to consumables ones. Therefore, the definition highlights and include the imminent technological evolutions. As per BAN, "E-waste includes a wide and developing range of electronic appliances ranging from large household appliances, such as refrigerators, air-conditioners, cell phones, stereo systems and consumable electronic items to computers discarded by their users". This definition is an illustrative definition as it put forth various instances so as to paint a clearer picture.

Further, United Nations Environment Program (UNEP) and Organization for Economic Cooperation and Development (OECD) put forth the shortest and the most exhaustive definitions so far. UNEP defines 'E-waste' as "any electrically powered appliance that fails to satisfy the current owner for its originally intended purpose"[20] and for OECD, "any household appliance consuming electricity that has reached its end of life is E-waste."[21] The use of the word 'any' in the definitions makes them very extensive, practical and suitable for the needs of the present as well as future because it is open to interpretation and is too broad to include anything and everything that uses electricity.

Lastly, it can be concluded that E-waste is an electronic appliance or electrical equipment which has been discarded and is of no use. E-waste includes everything that uses electricity in one way or other. For instance, computers, mobile phones, printers, chargers, televisions, air conditioners, refrigerators, etc.

IV Nature and Composition of Electronic Waste

E-waste normally comprises of diverse materials and some of them are valuable and some are potentially toxic materials. Consequently, E waste can be broadly divided into two categories of hazardous and non-hazardous depending on multiple factors such as the type of

[20] UNEP, Division of Technology, Industry, and Economics, Sustainable Consumption & Production Branch, *E-Waste Management, available at:* http://www.unep.fr/scp/waste/ewm/faq.htm (last visited on January 3, 2019).

[21] G. Gaidajis, K. Angelakoglou and D. Aktsoglou, "E-waste: Environmental Problems and Current Management", 3 *JESTR* 193-199 (2010), *available at:* http://www.jestr.org/downloads/volume3/fulltext342010.pdf (last visited on January 3, 2019).

electronic device, the model, manufacturer, date of manufacture, and the age of the scrap.[22]

Largely, any electronic equipment consists of ferrous and non-ferrous metals, plastics, glass, wood and plywood, printed circuit boards, concrete, ceramics, rubber and other items. A proper classification has been shown through a pie chart below (Image 2). Non-ferrous metals consist of metals like copper, aluminum and precious metals like silver, gold, platinum, palladium and so on.[23] For instance, a mobile phone contains more than 40 elements, base metals such as copper (Cu) and tin (Sn); special metals such as lithium (Li) cobalt (Co), indium (In), and antimony (Sb); and precious metals such as silver (Ag), gold (Au), and palladium (Pd).[24] Circuit boards found in most of the electronic devices may contain arsenic (As), cadmium (Cd), chromium (Cr), lead (Pb), mercury (Hg), and other toxic chemicals.

E-waste turns out to be hazardous in nature because of its certain composition and presence of elements like lead, mercury, arsenic, cadmium, selenium, hexavalent chromium, and flame retardants including polybrominated biphenyls, polyvinyl chloride, polychlorinated biphenyls, and polybrominated diphenyl ethers beyond threshold quantities. These substances which are potentially toxic and hazardous in nature can create irremediable harm to the environment as well as human health upon improper disposal.[25] For instance, the Cobalt-60 radiation incident in Mayapuri, Delhi which led to radiation poisoning and consequent death of an individual.[7]

E-wastes are very precarious and hazardous in nature which is why they demand specialized waste disposal mechanisms and shouldn't be dealt with by conventional waste disposal. For instance, obsolete computers pose the most significant environmental and health hazard among the e-wastes.[26]

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[22] Daniel Mmereki and Liu Hong, "The Generation, Composition, Collection, Treatment and Disposal System, and Impact of E-Waste" in Florin-Constantin Mihai, *E-Waste in Transition: From Pollution to Resource* (In Tech Open, 2016), *available at*: https://www.intechopen.com/books/e-waste-in-transition-from-pollution-to-resource/the-generation-composition-collection-treatment-and-disposal-system-and-impact-of-e-waste (last visited on January 4, 2019).

[23] Amit Jain, "Global e-waste growth" in Rakesh Johri, *E-waste: Implications, regulations and management in India and current global best practices* 3 (TERI, New Delhi, 2008).

[24] Liu Q, Li KQ, *et.al.,* "The global challenge of electronic waste management" 16 *ESPR* 248-249 (2009).

[25] The Basel Action Network (BAN) and Silicon Valley Toxics Coalition (SVTC), Exporting Harm: The High-Tech Thrashing of Asia, February 25, 2002.

[26] *Supra* note 3.

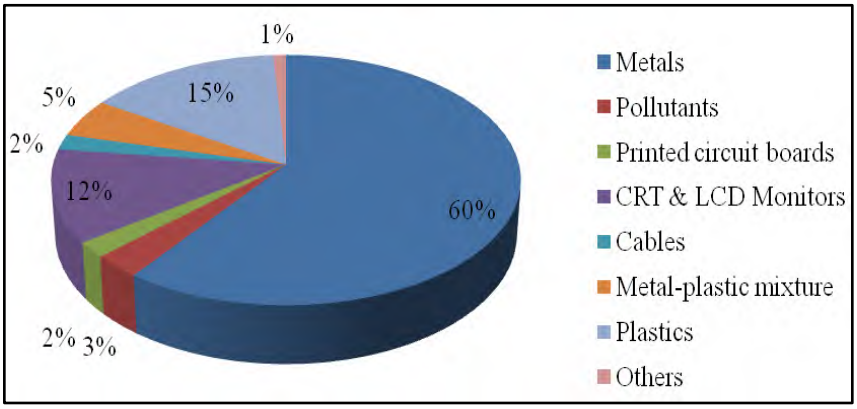

Image 2 - The basic composition of an electronic or electrical equipment[27]

V Impact of Electronic Waste

It is highly imperative that e-waste gets recycled in a safe, appropriate, and efficient manner. Conversely, the scenario in most developing countries like India is quite unsettling. The reasons for this situation is poor infrastructure, lack of awareness and ineffective implementation of legislation, as a very small percentage of the total e-waste generated gets recycled in India. Most of the electronic waste is being sold as scrap and is further smashed, dismantled and recycled by the informal sector.

Currently, a majority of e-waste in India is being managed by the large organized informal sector which does not have the adequate means or awareness to deal with E-Waste appropriately. Informal sector indulges essentially in manual dismantling where they end up in open burning to recover precious materials used in E-waste, and open dumping of residual. This manual recycling process by the informal sector is often known as "backyard recycling syndrome", which is prevalent in almost all the developing countries to an extent. Moreover, the materials which are retrieved from E-wastes are often re-sold and re-exported to other countries. Therefore, this in turn leads to ineffective e-waste management which actually causes huge damage to the environment as well as human health. It has been noticed that informal recycling is the most pressing environmental issue associated with e-waste due to inherent dangers of toxicity.[28]

[27] F.O. Ongondo, I.D. Williams and T.J. Cherrett, *How are WEEE doing? A global review of the management of electrical and electronic wastes*, Waste Management, Volume 31, Issue 4, April 2011, *available at:* https://www.sciencedirect.com/science/article/pii/S0956053X10005659 (last visited on January 6, 2019).

[28] Eric Williams, Ramzy Kahhat and Braden Allenby, "Environmental, Social and Economic implications of Global Reuse and Recycling of Personal Computers" 42 *IJEST* 6446-54 (2008).

The organized informal sector extract and recover valuable materials from E-waste with the use of the primitive tools and methods of extraction such as open burning of plastic waste, exposure to toxic solders, and acid baths. It has been reported that about 95 percent of electronic waste in India is treated and processed in urban slums, where untrained workers carry out practices unsafe for human and environmental health as it results in the pollution of the land, air, and water.[29] Seelampur is the largest informal sector of e-waste dismantling in India. Mandoli, a region near Delhi is a similar place where e-waste burning takes place.[30]

Accidental leakages and evaporation of these substances occur at the electronic wastes dumping sites.[31] As a result, most of these salvageable materials escape into the soil, polluting big areas of lands and making them unhealthy for farming. Moreover, metals such as mercury, cadmium and lead, which are usually discovered in device circuit boards, may percolate into groundwater, triggering devastating health issues.[32] First-hand reports of the Alaba Computer Village in Lagos, Nigeria, disclosed lead, mercury, cadmium, arsenic, antimony trioxide, polybrominated flame retardants, and selenium, chromium, and cobalt contents in soil samples at rates far greater than usual.[33]

There are numerous health effects also of these crude methods of disposal of E-waste. For instance, reports have shown that continued contact and exposure to these hazardous materials of E-wastes ends in negative birth consequences, cancer, long-term and permanent neurologic damage, and end-organ disease of the thyroid, lungs, liver, and kidneys.[34] It has been reported by the Centre for Occupational and Environmental Health at Maulana Azad Medical College in New Delhi that extreme level of lead, mercury and chromium is discovered in the bodies of these recyclers and dismantlers. This subsequently has a bearing

[29] V. Ranganathan, "Health hazards caused by unorganized e-waste disposal" (June, 2018), *available at*: https://yourstory.com/2018/06/unorganised-e-waste-disposal-dangers/ (last visited on January 7, 2019).

[30] Miles Park, "Electronic waste is recycled in appalling conditions in India" *The Conversation*, Feb 15, 2019, *available at:* https://theconversation.com/electronic-waste-is-recycled-in-appalling-conditions-in-india-110363 (last visited on February 16, 2019).

[31] Kurian Joseph, "Electronic Waste Management in India–Issues and Strategies", Proceedings of the Eleventh International Waste Management and Landfill Symposium, Italy (October 2007), *available at*: http:// www.swlf.ait.ac.th/UpdData/International/NRIs/Electronic%20waste%20management%20in%20India.pdf (last visited on January 8, 2019).

[32] V Ranganathan, "The Electronic Menace: Why E-waste is a Major Concern Today", *Entrepreneur* (December, 2018), *available at*: https://www.entrepreneur.com/article/324789 (last visited on January 9, 2019).

[33] Olagbaju Abioye, "Electronic Waste Management in Nigeria: A Great Challenge", 3 *IULR* 84 (2003).

[34] Xijin Xu, Yulin Zhou, *et.al*., "Birth outcomes related to informal e-waste recycling in Guiyu, China" 33 *Reproduction Toxicology* 94-98 (2012).

on their bodies and results in damage to the respiratory, urinary and digestive systems. It also damages the immune system and have been associated to certain kinds of cancer.[35] Therefore, the need of the hour is proper handling of electronic wastes to avert human suffering and in the foreseeable future, the long-term degradation of our environment and ecosystem is averted as well.

Image 3[36]

VI Penal Provisions Dealing with Electronic Waste

It is a well-known fact that the environmental quality is dwindling at a very fast pace due to such informal, unplanned and untrained treatment of E-wastes. And as has been discussed earlier, various reasons could be assigned for such deterioration. But one significant cause for such environmental degradation due to E-wastes is the inability of the law to deter violators. In many countries there are now legislations and statutes in place specifically to deter such crimes.[37] In India also many environmental legislations and the rules are there which are dealing with E-waste either directly or indirectly. Such legislations have, inopportunely, not resulted in preventing environmental dilapidation as penal provisions in environmental laws dealing with electronic wastes are weak, lenient, hard to impose, and unlikely to affect 'business as usual'. The situation is aggravated by other problems like slow justice delivery system, poor monitoring and enforcement capacity of regulators, and lack of comprehensive

[35] Kirsten Zeller, "E-Waste: A Burden on Human Health and our Ecosystem Alike" Reset (2013), *available at*: https://en.reset.org/blog/e-waste-burden-human-health-and-our-ecosystem-alike (last visited on January 9, 2019).
[36] Image is depicting the harmful impact of burning, *available at:* https://www.slideshare.net/blaznrunners/e-waste-management (last visited on January 9, 2019).
[37] Refer next chapter of this research paper.

databases to evidence violations, among others.

There are various legislations/rules dealing with E-wastes in environmental laws either directly and indirectly, to name a few are –

1. Electronic waste (management) Amendment rules, 2018.
2. Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
3. The Environment (Protection) Act, 1986
4. The Air (Prevention and Control of Pollution) Act, 1981
5. The Water (Prevention and Control of Pollution) Act, 1974

Out of these legislations and legal provisions, only few legislations provide for penal provisions to deal with the menace produced by improper disposal of electronic waste. Improper disposal like burning and segregating electronic waste in open areas and not in the manner which environmentally sound causes leakage in the environment which results in pollution to the air, water and soil. This action of pollution attracts the application of legislations discussed above.

The most important legislation directly dealing with electronic waste is the Environment (Protection) Act, 1986 in which three penal provisions are given i.e., section 15, 16 and 17. The Environment (Protection) Act, 1986 is an umbrella act and E waste rules are the product of EPA only. Therefore, penal provisions of EPA directly apply to the E waste rules as well. In fact, section 15 clearly mentions that it provides for the contravention of the provisions of the Act, rules, orders and even directions passed under EPA.

Section 15[38] deals with the liability of individuals, section 16[39] created the liability of the companies and section 17[40] creates liabilities on government departments. The first important

[38] Environment Protection Act, 1986
"S. 15 - Penalty for contravention of the provisions of the Act and the rules, orders and directions.
(1) Whoever fails to comply with or contravenes any of the provisions of this Act, or the rules made or orders or directions issued thereunder, shall, in respect of each such failure or contravention, be punishable with imprisonment for a term which may extend to five years or with fine which may extend to one lakh rupees, or with both, and in case the failure or contravention continues, with additional fine which may extend to five thousand rupees for every day during which such failure or contravention continues after the conviction for the first such failure or contravention.

penal provision to deal with the electronic waste is section 15, which prescribes for imprisonment for a term which may extent to five years or with fine which may extend to one lakh rupees, or with both. In case of failure, additional fine can be imposed up to five thousand rupees.

Other legislations dealing with E-wastes indirectly are the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974. The Air Act consists of five penal provisions which are section 37, 38, 39, 40 and 41 and along with these provisions section 21, 22 and 31A are of immense importance. Section 37, 38 and 39 deals with individual liability and seeks to punish a person who fails to comply with the provisions of section 21 and 22 of the Act and directions issued under section 31A of the Act. Section 40 is meant to create liability on the part of the companies and section 41 is meant to create liability of the government departments.

Similarly, the Water Act has seven penal provisions and they are section 41, 42, 43, 44, 45 A, 47 and 48 and along with these provisions, section 20(2), 20 (3), 24, 26, 32(1)(c), 33(2) and

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(2) If the failure or contravention referred to in sub-section (1) continues beyond a period of one year after the date of conviction, the offender shall be punishable with imprisonment for a term which may extend to seven years."

[39] Environment Protection Act, 1986

"S. 16 - Offences by Companies

(1) Where any offence under this Act has been committed by a company, every person who, at the time the offence was committed, was directly in charge of, and was responsible to, the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly:

Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly."

[40] Environment Protection Act, 1986

"S. 17 - Offences by Government Departments

(1) Where an offence under this Act has been committed by any Department of Government, the Head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly.

Provided that nothing contained in this section shall render such Head of the Department liable to any punishment if he proves that the offence was committed without his knowledge or that he exercises all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a Department of Government and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any officer, other than the Head of the Department, such officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly."

33 A are important too as they are made the basis of several offences under the Act. These provisions have an implied application as improper dismantling and recycling of the electronic wastes result in the contamination and pollution of the Air as well as Water.

Section 37 of the Air Act prescribes for an imprisonment for a term not less than one year and six months but which may extend to six years and with fine, and an additional fine which may extend to five thousand rupees in case of failure. In fact, the maximum punishment prescribed is two to seven years of imprisonment and fine. Here, in comparison to EPA a minimum amount of punishment has been prescribed.

On the other hand, the situation is much worse with section 41 of the Water Act as it prescribes for even lesser degree of punishment and penalty i.e. imprisonment for a term which may extend to three months or with fine which may extend to ten thousand rupees only. The maximum punishment ranges from two to six years only here as well.

Section 37 of the Air Act, 1981[41] and section 41 of Water Act, 1974[42] are the most important penal provisions and are based on the same footing as the provision relating to penalty has been provided in section 15 of the Environment (Protection) Act, 1986.

[41] S. 37 of Air Act, 1981
"S.37 - Failure to comply with the provisions of s. 21 or s. 22 or with the directions issued under s. 31-A
(1) Whoever fails to comply with the provisions of s. 21 or s. 22 or directions issued under s. 31-A, shall, in respect of each such failure, be punishable with imprisonment for a term which shall not be less than one year and six months but which may extend to six years and with fine, and in case the failure continues, with an additional fine which may extend to five thousand rupees for every day during which such failure continues after the conviction for the first such failure.
(2) If the failure referred to in sub-section (1), continues beyond a period of one year after the date of conviction, the offender shall be punishable with imprisonment for a term which shall not be less than two years but which may extend to sever years and with fine."

[42] S. 41 of Water Act, 1974
"S.41 - Failure to comply with directions under sub-section (2) or sub-section (3) of s. 20, or orders issued under clause (c) of sub-section (1) of s. 32 or directions issued under sub-section (2) of s. 33 or s. 33A
(1) Whoever fails to comply with the direction given under sub-section (2) or sub-section (3) of s. 20 within such time as may be specified in the direction shall, on conviction, be punishable with imprisonment for a term which may extend to three months or with fine which may extend to ten thousand rupees or with both and in case the failure continues, with an additional fine which may extend to five thousand rupees for every day during which such failure continues after the conviction for the first such failure.
(2) Whoever fails to comply with any order issued under clause (e) of sub-section (1) of s. 32 or any direction issued by a court under sub-section (2) of s. 33 or any direction issued under s. 33A shall, in respect of each such failure and on conviction, be punishable with imprisonment for a term which shall not be less than one year and six months but which may extend to six years and with fine, and in case the failure continues, with an additional fine which may extend to five thousand rupees for everyday during which such failure continues after the conviction for the first such failure.
(3) If the failure referred to in sub-section (2) continues beyond a period of one year after the date of conviction, the offender shall, on conviction, be punishable with imprisonment for a term which shall not be less than two years but which may extend to seven years and with fine."

Now if one would look at these provisions critically, one would find various ambiguities within these provisions. First, the penalty and punishment provided in section 15 of EPA, 37 of the Air Act and 41 of the Water Act provides for is neither stringent nor strict. Rather the penalty seems to be very lenient one looking to present day gigantic problem of environment pollution. The quantum of pecuniary penalization that has been contemplated under this law also doesn't seem to be rigorous enough for the present time. Rather, the proportionality of the penalization in case of violation of this law should be subjective in nature. It should be decided on a case to case basis keeping in background the degrading impact that these informal recycling activities have on the environment. This is also not in consonance with the "Polluter Pays Principle" of International Environmental Law, which states that the polluter should pay in proportion to the damage caused to the environment.[43]

The degree of discretion given in all the penal provisions dealing with environmental degradation is also one of loopholes that can be easily identified. As the language of section 15 of EPA only suggests that the imprisonment is extendable to five years or with fine which may extend to one lakh rupees, is extremely discretionary. Section 16 and 17 of EPA also shows higher degree of discretions is in hands of judges as the text of the legislation says that the offenders should be *punished accordingly*. In all the penal provisions of EPA and Water Act no minimum amount of punishment has been prescribed. In Air Act minimum amount of punishment has been prescribed but it is very less and rarely awarded. Consequently, these penalty provisions don't result in significant deterrence for the defaulters.

Secondly, the terminologies used in the statutes are not clear in establishing the culpability of a person as the penal provisions lack clarity in the determination of *mens rea* which is important for courts for punishing a person. For instance, provisions of EPA nowhere use clear terminology to imply the degree of *mens rea* attached to a particular offence. Section 15 uses the term "whoever fails to comply" only, which nowhere includes the terms like intention/knowledge/negligence to indicate the degree of *mens rea*. Further, section 16 in its sub-section (1) again isn't clear with *mens rea* part and seems more like a strict liability

[43] Principle 16 of The Rio Declaration on Environment and Development (1992) -
"National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment."

offence than a criminal conduct on a plain reading. But the proviso brings back the element of *mens rea* through the words "without his knowledge". Furthermore, section 17 again lacks clarity in the determination of *mens rea*. Same is the situation with other legislations as well as they have all been drafted on the same lines.

Thirdly, the legislations prescribe no minimum amount of punishment and use common phrase i.e. "shall be liable to be proceeded against and punished accordingly". This leaves a place for ambiguous interpretation as to decide whether an offence is cognizable or non-cognizable.

Fourthly, one of the most important aspects of criminal law which sets the process of criminal justice in motion is missing. The individual victims of pollution and health hazards produced by mishandling of electronic waste cannot file an FIR against the accused persons. Therefore, cognizance of offence can only be taken by the central government or any authority or officer authorised in this behalf by that Government. In a case when an individual has to file a complaint, he has to give a notice of not less than sixty days, in the manner prescribed, of the alleged offence and of his intention to make a complaint, to the Central Government or the authority or officer authorised.[44] This makes the complaint mechanism complex and often delayed due to lack of motivation among the concerned authorities. It also results in discouragement among the people to take up such matters to the concerned authorities and ultimately produces a hindrance in creation of environment-sensitive surroundings.

Fifthly, the pollution control boards (PCBs) which deal with air and water pollution were created only in the 1970s. They do not have execution officers, no means to address grievances and have no policing roles. They just issue permits.[45] In most cases, the PCBs just issue a show-cause notice to the entities concerned, and do not register cases with the magistrate. This is why the data does not represent the real extent of such crimes.

[44] Refer s. 19 of EPA, s. 49 of water Act and s. 43 of Air Act.
[45] Ragini Bhuyan, "The gap in environmental crime statistics" *Live Mint*, Dec. 26, 2015, *available at*: https://www.livemint.com/Opinion/aE8vmBDeBKOJCODKhBwctN/The-gap-in-environmental-crime-statistics.html (last visited on January 16, 2019).

These arguments could be substantiated by a critical analysis of the report of National Crimes Records Bureau (NCRB) of 2016[46], which shows the cases reported under EPA, Air Act and Water Act in environment related offences. The report categorically shows how many environments related offences were reported out of which how many were investigated and how many are still pending. As per the report, number of cases which were reported and even investigated under EPA, Water Act and Air Act are the lowest in all environment related legislations when the real state of the environment continues to be gloomy. This could be interpreted in following ways- 1) higher degree of discretions provided in the provisions 2) poor implementation 3) under reporting of cases of pollution 4) inadequate coverage of laws.

One can't rely on this report completely as there are few limitations of this report. This report doesn't provide for detailed information as in how many cases were reported in a particular provision of legislation. Also, there is no data on cases reported under electronic waste rules as such, which is a shortcoming of this report and is only helpful to an extent. In comparison to other legislations a very limited attention has been given to the offences related to environmental crimes. This only manifests the gravity and weightage given to environmental matters in India when these matters need immediate attention.

On the other hand, on analysis of the rules dealing with E-wastes, few loopholes can be identified. To start with, E-waste rules talks about only manufacturers, producers, collection centers, dealers, refurbishers, recyclers, dismantlers and consumers. Further, it provides for the mechanism of the collection and channelization of E-wastes through these stakeholders and tries to enforce a duty upon them to recycle the waste in an environmentally sound manner. But at the same time, the rules miserably defines the term "environmentally sound manner".[47] Moreover, the rules don't blatantly address the issue of recycling and dismantling done by the informal sector which is recycling 90 percent of the electronic wastes.

Further, the rules put forth a mandate of seeking an authorization from the concerned State Pollution Control Board (SPCB) for all the facilities to work and about extended producer's

[46] Ministry of Home Affairs of India, Report by National Crime Records Bureau on Crime in India (2016), *available at:* http://ncrb.gov.in/StatPublications/CII/CII2016/pdfs/NEWPDFs/Crime%20in%20India%20-%202016%20Complete%20PDF%20291117.pdf (last visited on January 20, 2019).

[47] S. 3(1)(O) of Electronic waste (management) Amendment rules, 2018 – "environmentally sound management of e-waste' means taking all steps required to ensure that e-waste is managed in a manner which shall protect health and environment against any adverse effects, which may result from such e-waste."

responsibility (EPR). Therefore, technically speaking these rules seem to cover only the formal sector working for recycling of electronic waste. Though, in reality, formal sector doesn't really exist. The informal sector which actually exists and is doing majorly all the work related to the recycling and dismantling of electronic wastes is being ignored here.

There are no provisions delegating a duty upon the State authorities to provide for proper infrastructures as well as awareness and skill trainings to these informal sectors. Moreover, no penal provision or penalty could be imposed on these unofficial and informal workers as they have been ignored very conveniently. And this is the lacunae of the rules as well as the only piece of legislation concerning this subject matter.

The above analysis of the offences under the subject statutes provides a very simple conclusion that all the pollution control laws are neither clear nor effective.

Penal Provisions in IPC dealing with E-waste

The different provisions were enacted during British rule to deal with environmental crimes and deterioration. At that time there was no specific law to deal with protection of environment for which many reasons could be allocated like low rate of awareness, less hazards to environment, less pressure on environment due to less population and industrialization, etc. Also, earlier environment protection was a part of religious practice for which moral injunctions were imposed.

Later, Indian Penal Code (IPC) was enacted in 1860. Chapter XIV[48] of IPC has various provisions dealing with offences related to pollution of environment and some of these provisions can be applied to pollution by electronic wastes also. For instance, sections 268, 269, 270, 277, 278, 284 and 290 deals with offences relating to public health and safety and are applicable to E-wastes also to an extent.

Public Nuisance has been defined in section 268 as:

> "A person is guilty of a public nuisance who does any act or is guilty of illegal omission which causes any common injury, danger or annoyance to the public

[48] Chapter XIV - Of offences affecting the Public Health, Safety, Convenience, Decency and Morals.

> or to the people in general who dwell or occupy property in the vicinity, or which must necessarily cause injury, obstruction, danger, or annoyance to persons who may have occasion to use any public right."

The section further explains that a common nuisance is not excused on the ground that it causes some convenience or advantage. The public nuisance covers all types of pollutions i.e. pollution of land, water, air, noise pollution etc. This provision could very well be applied to the pollution produced by open burning and dumping of electronic waste and exposure of electronic waste to toxic solders and acid baths.

As regards water pollution, section 277 provides that:

> "whoever voluntarily corrupt or fouls the water of any public spring or reservoir so as to render it less fit for the purpose for which it is ordinarily used, shall be punished with simple or rigorous imprisonment for a term extending to three months or fine of five hundred rupees or with both."

Section 269 of I.P.C. also could be invoked against a water polluter. The section provides-

> "whoever unlawfully or negligently does any act which is, and which he knows or has reason to believe to be, likely to spread the infection of any disease dangerous to life, shall be punished with imprisonment of either description for a term which may extend to six months, or with fine, or with both." There are similar other sections as well which are applicable to electronic waste."

Unlike environmental laws mentioned above these provisions state the element of *mens rea* in a very clear and concise manner. Also, all these provisions are cognizable which gives power to the police officers to take an action voluntarily. It authorizes individuals also to file an FIR in case of violation of any of the provision.

Yet, the number of complaints regarding environmental issue filed under these provisions is very low like in environmental laws. As per a little survey done by this research paper,[49] around 400 cases were scanned which were filed under above stated provisions. Out of these

[49] Survey was done through the help of a Research tool "Manupatra". At manupatra one can find all the case laws filed under a particular section/provision.

400 cases only 8 to 10 complaints[50] have been filed under these provisions for environment related issues.

since the enactment of the Indian Penal Code. This essentially indicates that environmental matters aren't taken as seriously as other offences are. Reasons behind this low rate of complaints are unawareness about the law and impact on environment due to the pollution caused by mishandling of electronic waste. Also, the weak side of these provisions is that the penalty specified for the above cited infringements are too inadequate considering to contemporary day enormous problem of environment pollution.

VII Laws in Other Countries

1. USA

There is no federal legislation in the USA directly dealing with electronic waste unlike India. There is one federal legislation, The Resource Conservation and Recovery Act (RCRA), 1976. This federal legislation regulates the flow of hazardous waste which is why it is indirectly applicable to electronic waste. RCRA is enforced by the Environmental Protection Agency (EPA) through both civil and criminal mechanisms.[51] Section 6928 (d) is dealing with criminal provisions related to treatment, storage and disposal of hazardous waste,[52] transportation of hazardous waste,[53] Illegal export of hazardous waste,[54] etc. The quantum of punishment varies from 2 years of imprisonment to 15 years of imprisonment along with fine of $50,000[55] to $250,000[56] or $1,000,000[57]. Yet every electronic waste article doesn't fall within the definition of hazardous waste. Therefore, the responsibility to deal with the disposal and management of electronic waste is currently left in the hands of state governments. From 2003 to 2011, at least one state each year adopted comprehensive legislation surrounding e-waste recycling. Today, a total of 25 states have created statewide

[50] Some cases are *Thressiamma Mathew* v. *State of Kerala*, MANU/GT/0018/2017, *R. Rajendran* v. *The Tamil Nadu Pollution Control Board*, MANU/GT/0083/2016, *Subhash Shirodkar* v. *State of Goa*, 2015 (1) Crimes 304 (Bom.), *Om Prakash Dhanuka* v. *The State of Bihar*, 2012 (2) PLJR 379, *Maneka Gandhi* v. *Union Territory of Delhi*, (1995) ILR 1 Delhi 49, *Law Society of India* v. *Fertilizers and Chemicals Travancore Ltd*., AIR 1994 Ker 308 and *The Member-Secretary, Kerala State Board for Prevention & Control of Water Pollution, Kawadiar, Trivandrum* v. *The Gwalior Rayon Silk Manufacturing (Weaving) Company Ltd., Kozhikode*, AIR 1986 Ker 256.

[51] See 42 U.S.C. s. 6928(d).

[52] S. 6928(d)(2)(A) and 6928(d)(2)(B) and (C).

[53] S. 6928(d)(5).

[54] S. 6928(d)(6).

[55] 50,000 USD is equivalent to 34,48,425 INR.

[56] 250,000 USD is equivalent to 1,72,42,125 INR.

[57] 1,000,000 USD is equivalent to 68968500 INR.

e-waste programs since 2003.[58] California was the first state to come up with a legislation on electronic waste in 2003.[59]

A Bill called the Responsible Electronics Recycling Act (RERA)[60] has been introduced in the congress in 2013 which tends to add a new section to RCRA. This legislation, if came into being, seeks to prohibit the export of restricted electronic waste from the U.S. to countries that are not members of the Organization of Economic Cooperation and Development (OECD) or the European Union (EU).[61] Unfortunately, this Bill has not been reintroduced in the subsequent (114th) Congress session.

It is worthwhile to examine the similarity and differences between India and USA model. In both places there are central legislation dealing with environment protection. However, the legislative model in USA is very different from what we have in India. At federal level in USA there is no law in the form of electronic waste rules while we have in India there is E-waste Management Rules, 2016.

The responsibility to deal with electronic waste has been vested within states in USA and in India. But, the quantum of punishment provided in environmental laws of USA is way too high and stringent in comparison to India as discussed earlier. India may borrow think of borrowing this.

2. South Africa

South Africa being a developing nation has much comprehensive legislations to deal with electronic waste. The oldest piece of central legislation to deal indirectly with electronic waste is Hazardous Substances Act, 1973.[62] Though the Act defines "electronic product" under section 1[63]. The Act sets requirements on the prohibition and control of the

[58] Refer, United States legislations, *available at:* https://en.wikipedia.org/wiki/Electronic_waste_in_the_United_States and https://www.usa.canon.com/internet/portal/us/home/about/environment-sustainability-initiatives/state-e-waste-laws (last visited on January 29, 2019).

[59] The California Electronic Waste Recycling Act, 2003, *available at:* https://www.boe.ca.gov/pdf/pub13.pdf (last visited on January 29, 2019).

[60] 113th CONGRESS 1st Session, H. R. 2791, July 23, 2013, *available at:* https://www.congress.gov/113/bills/hr2791/BILLS-113hr2791ih.xml (last visited on January 30, 2019).

[61] *Available at:* http://www.electronicstakeback.com/wp-content/uploads/Bill-Summary-HR-2791.pdf, http://www.electronicstakeback.com/wp-content/uploads/Section-Analysis-of-Responsible-Electronics-Recycling-Act-2013-HR-2791.pdf (last visited on January 30, 2019).

[62] Hazardous Substances Act, 1973 (Act No. 15 of 1973), *available at:* http://www.opbw.org/nat_imp/leg_reg/south%20africa/hazsub.pdf (last visited on January 31, 2019).

[63] S.1 of Hazardous Substances Act
"electronic product means--

importation,[64] manufacture, sale, use, operation,[65] application, modification, disposal or dumping[66] of hazardous substances which includes electronic waste to an extent. This Act further provides for rules specifically in respect to electronic waste and those are Regulations to provide for the institution of an advisory committee on electronic products which came in 1979[67] much before it came in India, which shows that the issue of electronic waste got attention much earlier there. The Act provides for penal provisions as well which provides imprisonment from 6 months' time period to 10 years along with fine.[68]

The another piece of legislation to deal with electronic waste is The National Environmental Management Act, 1998 (NEMA)[69] which necessitates for co-operative environmental control by establishing principles for decision making on matters touching the environment and works in consonance with other environment related legislations. Waste management is provided for in the Act with principles such as polluter pays and cradle to grave. NEMA refers to avoidance or minimization and remediation of pollution, including waste reduction, re-use, recycling and proper waste disposal which will apply to electronic wastes to an extent.[70] NEMA provides for offences[71] and penalties in relation to electronic waste which ranges from1 year of imprisonment to 10 years of imprisonment.[72]

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a) any manufactured product which, when in operation, contains or acts as part of an electronic circuit; and--
i) emits (or in the absence of effective shielding or other controls would emit) electronic product radiation; or
ii) would, as a result of the failure or breakdown of any built-in safety measure or shielding, pose an electrical, mechanical, chemical, biological, ergonomic or other hazard, or cause excessive temperature, excessive pressure or ignition of flammable material, which may cause injury, ill-health or death to human beings; or
b) any manufactured article which is intended for use as a component, part or accessory of a product described in paragraph (a) and which, when in operation--
i) emits (or in the absence of effective shielding or other controls would emit) such radiation; or
ii) would, as a result of the failure or breakdown of any built-in safety measures or shielding, pose an electrical, mechanical, chemical, biological, ergonomic or other hazard, or cause excessive temperature, excessive pressure or ignition of flammable material, which may cause injury, ill-health or death to human beings;"

[64] S. 3A.
[65] S. 3.
[66] S. 9A and 29.
[67] *Available at:* https://cer.org.za/wp-content/uploads/2016/10/National-Advisory-Committee-on-Electronic-Products.pdf (last visited on February 3, 2019).
[68] Refer s. 18 and 19 of Hazardous Substances Act, 1973.
[69] The National Environmental Management Act, 1998 (Act No. 107 of 1998), *available at:* https://cer.org.za/wp-content/uploads/2014/02/NEMA-107-of-1998.pdf (last visited on February 4, 2019).
[70] *Available at:* http://www.ee.co.za/wp-content/uploads/legacy/E-waste%20legislation.pdf (last visited on February 5, 2019).

Other important law to deal with electronic waste is National Environmental Management: Waste Act, 2008.[73] This Act standardizes the waste management in order to protect health and the environment by providing equitable measures for the impediment of pollution and ecological mortification and for securing environmentally sustainable development. It provides for detailed waste management measures for the licensing and control of waste management activities. This Act also provides for corrective measures under chapter 7.[74]

In comparison to India, South Africa seems to have a very comprehensive law to deal with environmental degradation. And again, on the scale of severity and gravity the punishment is harsher and stringent then it is in India.

3. China

In 1989, Environmental Protection Law of the People's Republic of China[75] was adopted. This law was established to protect and improve environment, prevent and control pollution and other public hazards, preserve public health, stimulate ecological civilization, advance and expedite sustainable economic and social development. Chapter V of the Act talks about the legal liabilities wherein fine and criminal investigation has been prescribed for the offenders. This Act, though, creates a legal vacuum as it doesn't really prescribe the amount of fine in clear words.

In 1995 Law of the People's Republic of China on Prevention and Control of Environmental Pollution by Solid Waste[76] was adopted by National People's Congress and was promulgated by the President of the People's Republic of China on December 29, 2004). This law was

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[71] "S. 49 A(e) (f) - (e) unlawfully and intentionally or negligently commits any act or omission which causes significant pollution or degradation of the environment or is likely to cause significant pollution or degradation of the environment;
(f) unlawfully and intentionally or negligently commit any act or omission which detrimentally affects or is likely to detrimentally affect the environment;"

[72] S. 49 B of NEMA.

[73] National Environmental Management: Waste Act, 2008 (No. 59 of 2008), *available at:* http://www.lawsofsouthafrica.up.ac.za/tabledocs/59of2008/GNR777/GNR%20777_Policy.pdf (last visited on February 6, 2019).

[74] S. 67 and 68.

[75] *Available at:* https://www.chinadialogue.net/Environmental-Protection-Law-2014-eversion.pdf (last visited on February 7, 2019).

[76] *Available at:* http://www.npc.gov.cn/englishnpc/Law/2007-12/12/content_1383723.htm (last visited on February 7, 2019).

legislated for the purpose of preventing and governing environmental pollution by solid waste, safeguarding human health, preserving ecological safety and encouraging the sustainable development of the economy and society. This law doesn't deal with electronic waste directly but chapter IV of this act talks about "Special Regulations for Prevention and Control of Environmental Pollution by Hazardous Waste". Therefore, chapter IV indirectly deals with electronic waste and is applicable to an extent. This law has penal provisions dealing with collection, storage, transportation, carrying with passengers, failing to treat hazardous wastes, etc. wherein the offender is imposed with a penalty of ranging from 10,000[77] yuan to 500,000[78] yuan.[79] In cases where a serious environmental pollution accident happens that leads to grave consequences resulting in heavy public or private property losses or serious personal injury or death, the wrongdoer will be investigated for criminal responsibility as per criminal law of the land.[80]

Recently an Amendment has been proposed in this law[81] to include "Extended Producer Responsibility (EPR) and Product and Packaging Recycling". The recommended amendment entails the establishment of EPR programs for electronic and electrical "as well as other products."[82]

The Chinese Law has been drafted more or else on the same line of thought in comparison to India. China's Environmental Protection Law of the People's Republic of China is very similar to India's Environment Protection Act. The only difference which can be found in India is E-waste rules which are quite different from Solid Waste Laws of China. India seems to have a specific law in that sense which is inclusive of "extended producer's responsibility".

4. Israel

In 2012 the Knesset passed the Electrical and Electronic Equipment and Batteries Law[83]

[77] 10,000 CNY is equivalent to 1,03,010 INR.
[78] 500,000 CNY is equivalent to 5150500 INR.
[79] Refer chapter 5. S. 59, 64, 65 and 67.
[80] S. 72.
[81] *Available at:* https://www.lexology.com/library/detail.aspx?g=9a775580-59e8-488e-b66d-152565b85611 (last visited on February 8, 2019).
[82] Proposed art. 42.
[83] *Available at:* http://www.sviva.gov.il/English/Legislation/Documents/Environmental%20Treatment%20of%20Electrical%20

(hereafter: the "E-waste Law"), which was based on the WEEE directive. Following the WEEE, the Israeli law applies the "Extended Producer Responsibility" (EPR) principle, charging producers and importers of e-waste with properly handling end-of-life products, in accordance with the law's requirements.

The Act provides for imprisonment from six months[84] to one year's[85] time period in case of an individual and double in case of a corporation along with fine in accordance with the penal law of the country. The Israeli law is very much on the same lines as India.

This Act has one unique feature in comparison to all other jurisdictions that have been mentioned above. The Act introduces a new concept of "Financial Sanction" which has to be imposed by the administrator and it ranges from 20,000[86] New Israeli Shekels to 600,000[87] New Israeli Shekels. Financial Sanctions are being imposed by the administrators[88] on producers and importers for non-compliance with collection and recycling targets. It basically requires producers and importers to keep records and to present reports, both quarterly and annually to the administrators. This works as an important tool which empowers the employees of the Environmental Protection Ministry as inspectors under the law.[89] This feature is not in any of the Acts mentioned above including India.

VIII Conclusion

Electronic waste has become a huge problem for the world as we continue to grow the technology and become their slaves. If an instant action is not taken right away, it will continue to grow and will become a much bigger problem for the planet. Also, it has a massive bearing on environment and human life if not handled in an environmentally sound manner. There has to be sufficient rights for citizens to take legal recourse for damages caused to their health, environment and property.

Therefore, it has become the necessity of the time to manage the electronic waste in an

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and%20Electronic%20Equipment/EnvironmentalTreatmentOfElectricalAndElectronicEquipmentLaw-2012.pdf (last visited on February 9, 2019).

[84] Section 43(b).

[85] Section 43 (c).

[86] 20,000 ILS is equivalent to 3,85,948 INR.

[87] 6,00,000 ILS is equivalent to 1,15,78,428 INR.

[88] S.2 defines "Administrator" as – The person appointed as responsible for the field of equipment and batteries at the Ministry, pursuant to section 60.

[89] Chapter 9 of the Act deals with "Financial Sanctions".

organized and safe manner with sustainable recycling technologies. There is a need for stringent penal provisions and robust monitoring mechanisms to deal and match up with electronic waste of present times. It is imperative to have strict penalties like other countries analyzed here have because according to deterrence theory, people are most likely to be dispirited from committing a crime if the punishment is instantaneous, evident and severe. Also, there is a need to adopt effective strategy to encourage re-use, refurbishing or recycling of e-waste in specialized facilities to prevent environmental contamination and human health risks.

The setback that we are facing today is – one, the lax or zero enforcement or implementation of existing regulatory framework. As it could be concluded after the detailed analysis of this research paper, that we have enough laws to deal with electronic waste be it Environment Acts (EPA, Water Act and Air Act) or IPC. Only problem is that they have not been implemented well. If an individual cannot file a complaint directly under any of the Environment Act, one can take an action under IPC. But it seems that even that has not been used properly which is quite apparent from the case laws filed under these provisions so far.

Second, low level of awareness and sensitization among individuals as well as officials. Society and officials should be informed about the importance of the environment and impact of electronic waste on environment. Need of the hour is to imbibe in minds of the people the spirit of service and harmony with environment so that the errors of the past are not repeated.

Thirdly, inadequate work-related safety is there for those who are involved in these processes which aggravates e-waste management. Fourth, central and state pollution control boards must be strengthened in terms of powers over all the environment related matter. There must be establishment of manpower and expertise is very well required.