E-WASTE IN INDIA AND WORLD

Written by ***Vivek Soni***

3rd Year BA LLB Student, Indore Institute of Law

Abstract

This research is on Waste Electrical and Electronic Equipment [WEEE] or we can call "The E-Waste", this is the area of research where a limited data is produced, people aren't aware of this type of waste that is how it is exploiting their health, E-Waste managing isn't easy at all ,at a global scenario the developed countries are using developing and poor countries to bury their waste and exporting WEEE illegally, In India we have many rules and regulations but aren't used by the states themselves, Supreme court declared this fact.

Introduction

The First electronic device was invented around 1835 by an American scientist called Joseph Henry, he developed a remote Switch called a Relay. Worked magnetism and currents later on used in telephones. That device helped in invention of telephone to graham bell, and then bulbs were invented by Thomas Edison and later on televisions, computers were discovered. It feels very proud to hear that we humans are Enhanced so much in the technology, but at what cost at the cost of environment degradation, all this devices later on came to use of general public but due to technological enhancement sometimes it became useless or due to its life incompetency it gone into garbage and after phones and personal computers were discovered it became mostly used technique to throw away old devices to approach new ones after the end of the lives of old devices or due to technological enhancement, no one thought about what happens when these devices are thrown in dustbins if they cannot be recycled , this was the United nations and U.K.'s approach in India and specially in China these waste are Reused recycled and reduce as extent as possible, and whichever device doesn't seems to be recycled dumped in the earth there. From the beginning of the necessity of these things to be dumped Asia was the land that was considered to be the best place as here the countries were underdeveloped and hence they are least bothered about their nature. Later on west Africa is

considered as best place to become one of them. United Kingdom is the one of the highest E-waste producer and China however is the second largest of this list imports all this e-waste.

Definition of E-Waste

Electronic Waste or E- waste or also known as Waste Electrical and Electronic Equipment (WEEE) are the amount of waste which includes the devices whose lives are over they have become useless , Like old Television, Computers, Hard drives and circuit boards, Cellphones, keyboards , mice, monitors, printers, cables, lamps clocks, digital cameras, Flashlights, dvd players, MP3 and cd Players Etc. Which aren't in use or which have been stopped working, all these items comes under E-waste.

According to WHO "Any Appliance using an electric power supply that has reached its end-of-life"

According to the E-Waste (Management and Handling) Rules, 2011 section 3(k) "e-waste means waste electrical and electronic equipment, whole or in part or rejects from their manufacturing and repair process, which are intended to be discarded."[1]

All these wastes whichever considered to come under technology which were the things once working as machines. By the term Electronic waste itself we can say that the waste which are electronic in nature that is the machineries or boards or wires which are made of iron, copper lead mercury cadmium etc.

In United states the dumping of e waste is totally banned and therefore whichever waste is difficult to recycled there they send all waste to China, India , and Africa. Which seems 10 times less cost then to be recycled by their own heavy machineries.

Nature of E-Waste

Nature of E-Waste is in parts firstly it is valuable in nature such as gold plated chips and copper and platinum plated chipsets, chromium etc. Secondly it is recyclable in nature whatever waste can be recycled will be recycled, this recyclable includes all three R's Reuse , Reduce and Recycle. It is Partly Hazardous in nature that is substances like lead mercury etc. are dangerous.

[1] Sec. 3(k)The E-Waste (Management and Handling) Rules, 2011

Lastly it is increasing at a very fast rate, E- waste is increasing day by days the technology is advancing and as the production of devices is increasing the waste will definitely increase.

International statistics and Laws

According to an executive summery on The Global E-Waste Monitor 2017 by United Nations University(UNU) , In 2016, 44.7 Million metric tons of e-waste were generated. This is equivalent of almost 4500 Eiffel towers, and only 20% that is 8.9 Mt waste is documented and collected and properly recycled whereas 80% of it that is 35.8Mt is not documented. Asia produces the largest amount of e-waste that is 18.2 Mt. is followed by Europe(12.3 Mt.), the Americas(11.3 Mt.), Africa(2.2 Mt.), and Oceania (0.7 Mt.), Following to this trend in near 2021 is expected to increase to 52.2 Million metric tons, or 6.8 kg/inh.[2]

In Asia, China, India, Japan, Hong Kong, South Korea, Viet Nam, Bhutan, Cyprus and Turkey have national E-waste related laws. The top three Asian countries with the highest e- waste generation in absolute quantities are China, Japan, and India. Japan is the first country worldwide to implement an EPR (Extended Producer Responsibility) based system for e-waste.[3]

In Europe, Germany, The United Kingdom, France and Russia are the three largest producers of e-waste.[4]

In Americans, The top three countries in the region with the highest e-waste generation are United states, Brazil, and Mexico.[5]

In Africa, The top three countries in the region with the highest e-waste generation are Egypt South Africa and Nigeria[6]

In Oceania, the three countries with the highest generation of e-waste are Australia, New Zealand, and Papua New Guinea [7]

[2] Balde, C.P.,Forti,V.,Gray,V.Kuehr,R.,Stegmann,p., *The Global E-Waste Monitor 2017 Executive summery*, page no. 6,United Nations University, Unites Nations(2017)
[3] Balde, C.P.,Wang,F.,Kuehr,R.,Huisman,J., *The Global E-Waste Monitor 2014*, page no.42 ,United Nations University, Unites Nations(2014)
[4] Ibid at 44
[5] Ibid at 40
[6] Ibid at 38
[7] Ibid at 46

Disposal of E-Waste

"Exporting e-waste to Asia worked out 10 times cheaper than processing it in within these countries"[8] says an article on the Hindu by Divya Gandhi, she described what is presumed by the other countries these waste is exported illegally to the Asian countries such as india china Pakistan who are poor and where they can send it easily, these countries(Importers) then send their people and search for the useful waste that is the metals in these waste like platinum copper etc., left all the non-expensive and useful waste is later on dumped in the land which increases toxicity in the environment, these hazardous metals like lead, mercury, & cadmium are toxic if directly dumped into land.

Let us first explain the way how e waste is generated from raw material and how raw material is brought from e waste, First of all the raw material is extracted from nature secondly raw material is processed and thirdly it is sent to the manufacture for manufacturing a product, on fourth it is given in the hand of user to use it and after the use the device's life ends and this is how on fifth stage the e waste is generated.now after e waste generated this e waste is searched for the devices which can be repaired and can be sent directly to 4th stage that is use, if the device is found which can be re-manufactured in 3rd stage of it that is sent to manufacturing, lastly whatever is leftis recycled accordingly and sent to second stage that is processing of the raw material and then the process conitues.

There are several ways to dispose the E-Waste, E-waste can be disposed for the betterment of environment and securement of nature, E-Waste have several ways of disposal which are-

Reduce , Reuse and Recycle- Whatever waste or any part of that waste if is useful than must be reduced, reused and recycled accordingly, first priority of disposal of that waste should be these three R's so that with minimum loss to the economy and the nature we can dispose the waste accordingly.

Official Take-Back System- The devices which are manufactured by a company after its life it must be taken back for the disposal of that device ,as they are the manufacturers of that device they must know and develop the technique to dispose of it easily and without harming to the

[8] Divya Gandhi,*India a victim of e-waste crime*, available at http://www.thehindu.com/sci-tech/energy-and-environment/india-a-victim-of-ewaste-crime/article7202265.ece last seen at 08/02/2018

environment. Any machinery for recycle to produce a new and useful material should be setup by these companies.

Municipal corporations- It is the duty of regional Municipal Corporation to properly dispose the waste given by the people, they must not just dump it into the land but should dispose off that waste with proper care of not harming the environment.

Take backs by individual Company- In developed countries this practice is common, there are certain companies established there which take back these waste and then traded through various channels, this trade includes Metal recycling, Plastic recycling, specialized E-waste recycling and also Export.

These were the legal ways of disposing the waste we also have the illegal way of disposing this waste which is-

Direct dumping- This waste which is exported to the developing countries is tried to search for the useful material in it and then all the left and dangerous material is dumped in the land as landfills this is illegal but is always preferred as the best way to dispose off the waste, the hazardous things which are buried in it with this waste like lead, mercury, Hexavalant chromium, plastics and cadmium etc. are the causes of toxicity of land.

Left aside- These waste which are now of no use is left aside in an open land and no procedure is followed to dispose off that waste this type of disposal is majorly done by small waste traders who are unable to bear the cost of duping as well.

Direct Burning- some of the waste is directly burned which is so harmful that if inhales the gases which are released by that fire can cause killing diseases like cancer and respiratory diseases this burn also harms the surrounding people who lives nearly to that area who are innocent and still cause for their life just like the Bhopal tragedy.

Throwing into water- People living near the river bank throw their wastes into water directly when it seems to be of no use, people find it quit easy and no proof is left beside hence it was a popular technique.

The Hazardous Components in E-Waste

The Main hazardous components present in E-Waste are-

1. Chromium - commonly found in data tapes and floppy disks is used for preventing corrosion and to increase conductivity of electrical Impulses. Chromium (IV) can cause Respiratory problems, rashes, Kidney and liver damage etc.[9]

2. Mercury- Mercury is found in thermometers, Fluorescent, mercury wetted switches is very harmful if inhaled directly.

3. Lead – Commonly found in batteries, is hazardous to health. Young children are particularly vulnerable to the toxic effects of lead and can suffer profound and permanent adverse health effects, particularly affecting the development of brain and nervous system.[10]

4. Brominated flame retardants or polychlorinated biphenyls (PCBs)- PVC Plastic is often used in devices for the show or to beautify the look of the device however some of the devices are totally made of it such as keyboards mice etc. this plastic can release chlorine gas which if combines with water makes hydrochloric acid. Flame retardants are also used in wired airplanes etc. which are also harmful for human health.

5. Cadmium- Cadmium is used in electroplating and may represent hazardous while sprayed, and it is too dangerous to human life, it can cause symptoms like chills, fever and muscle ache.

6. Lithium – lithium is present in batteries this is a highly toxic liquid which affects the flow of sodium which is responsible for nerve impulses and this causes damage to them and also causes damage muscle cells.[11]

7. Polycyclic Aromatic Hydrocarbons (PAHS)- they damage DNA and this will lead to cancer as well.

Legal aspects

In India there are some of the laws which are specially made for WEEE which are-

1. The E-Waste (Management and Handling) Rules, 2016(earlier 2011)[12]- Its main objective is to enable the recovery and reuse of useful material from waste, Electrical

[9] Chromium, available at https://www.lenntech.com/periodic/elements/cr.htm last visited on 09/02/2018
[10] Lead, available at www.who.int/mediacentre/factsheets/fs379/en Last visited on 09/02/2018
[11]BJ Neller, Common harmful substances, Available at http://www.securewaste.com/2016/11/common-harmful-substances-in-e-waste/ last visited on 09/02/2018

and Electronic Equipment (WEEE) and therefore reducing the disposal of hazardous objects into the earth or from polluting the environment.it came into force from the 1st day of October,2016.

This statute is applied to all the Producers, Consumers, Manufacturers, Bulk Consumers, Retailors, Dealers and all the chain holders in it. It will not be applied in the cases of the used lead batteries, Micro Enterprises and Radio Active Wastes.

After this Responsibilities are given in chapter II, First is of the Manufacturer and Producer that is "The Extended Producers Responsibility [EPR]" this is the official take backs of their products after the end the life of device and then securely recycle it to make new products. Then comes the responsibility of the "Collection Centre" to properly collect and get them recycled with authorization given by board, then responsibility of dealer is shown that is to collect them from the user of that device, then responsibility of Bulk Consumers to give it to specified dealers or to the authorized collection centers, same with the case of Dismantler and recycler to take the devices and recycle them in procedure where environment isn't harmed. After all of the above main responsibility is written which is of State Government is to take care of the procedures and put an eye on all the above in any kind of misconduct must cancel the license.

2. Hazardous Waste(Management and Handling)Rules, 1989 (amended in 2003)- Schedule 2 of this act can be applied for the disposal of e-waste. Schedule 3 Regulated waste electrical and electronic assemblies (For EXIM i.e. Export Import) Schedule 3 Electrical and electronic assemblies not valid for direct re-use but for recycling (For EXIM)
3. Environmental protection rules, 1986 – Sec. 3 (2)(vii) gives power to central government for laying down procedures and safeguards for the Handling of hazardous substances.
4. Factories Act 1948 - Several contaminants arising out from manufacturing or recycling of electronic components are listed in this Act.
5. Hazardous and other Waste(Management and Transboundary Movement)Rules,2015- This is the another statute passed by the legislation of the country which is applied on to the Waste-Water and Exhaust gases, the Wastes arising out of ships, Radio-Active Wastes, Bio-Medical Wastes, and Municipal Solid Wastes.

This act also provides responsibility to the occupier of the waste to manage the hazardous and other wastes. Some steps are provided in the law – a)Prevention b)Minimization c)Reuse d)Recycling e)Recovery f)Safe Disposal.

Responsibility of the state in this statute is to take care of the pollution of the state by hazardous wastes, that it should not increase, they shall apply for authorization by State Pollution Control Board(SPCB) and state after all the documental needs should provide for it.

These rules also put a ban on the illegal Import and Export that is if imported illegally shall "Re-Export" Within 90 days, and all the non-Traceable imports will be sold by the customs and the state board.

Supreme Court and National Green Tribunals on E-waste

As per an article in Economic times India By PTI on Feb 06,2018, The apex court warned Centre for dumping "Junk" before providing with an 845 page incomplete affidavits about solid wastes across the country. The court directed Government to file a chart within 3 weeks for the information of state level constituted boards in accordance to provisions in States and Union Territories.[13]

A disclosure was also exposed in the court that the law was passed in year 2000 but no state followed it yet. Some of the Union Territories haven't even found State Level Advisory Body yet.

A case was also discussed in between in which a 7 years old boy died of dengue and his parents in that shock committed suicide, it was claimed that this is caused due to no proper settlement of waste in Delhi.

In another article in Times Of India By PTI on may3, 2017,National Green Tribunal(NGT) announced that whoever is found dumping e waste near the Ramganga river in Moradabad in Utter Pradesh have to pay fine of 1Lakh Rupees as environment compensation. This announcement is done at Delhi in a Bench headed by Chairperson Justice Swetanter Kumar, also constituted a committee to remove the waste near the river bank and sought a detailed

[13] PTI, *We are not Garbage collectors, Supreme Court tells Centre*, Economic times India on Feb 06,2018 Available at https://economictimes.indiatimes.com/news/politics-and-nation/we-are-not-garbage-collectors-supreme-court-tells-centre/articleshow/62802545.cms last visited 09/02/2018

report within two weeks. During that period they found the river to dirty due to dumping of waste near the river. [14]

Suggestions

- The State Pollution Control Board must become strict about this topic of E-waste where after all there strictness the importers are exploiting the land by landfilling and occupiers are dropping this waste into dustbins, some of the customers aren't aware of the fact that they should drop it to the dealers or give it to the collection centers or to the municipal corporation which properly deal with that solid waste.
- Consumers or the Bulk Consumers must be aware of the right of them that is the producer have to take back the dead device for recycling, and Government should strictly study and form a report on which producers aren't taking back there dead devices and why.
- If found on roads the owner must be found and punished as this waste is harmfull for the environment.
- Proper banning on throwing these harmful waste in garbage should be planned by the Government that it State Pollution Control Boards.
- Proper advertisement for official Take backs by the producers, manufacturers, dealers, Collection Centre and Municiple Corporation so that people will become aware of giving this waste to them so that a proper recycle of that harmful substance may be done.
- The NGT must form a National Committee which must work actively on to the import –export and dispose of solid Waste Electrical & Electronic, Equipment [WEEE]

Conclusion

I hereby conclude my research by giving my personal views on this topic as listed in points below-

[14] PTI, *Anyone dumping e-waste near Ramganga river to pay Rs. 1 lakh:NGT*, Times Of India on Available at https://timesofindia.indiatimes.com/city/lucknow/anyone-dumping-e-waste-near-ramganga-river-to-pay-rs-1-lakh-ngt/articleshow/58497221.cms last visited 01/02/2018

- Waste Electrical & Electronic, Equipment [WEEE] are very dangerous the substances which are contained by these wastes can harm a life of the nature, but in today's scenario only laws are made but no actions are taking place the apex court according to that article is standing today for the laws which are made in 2000, so we can think how the destruction to nature is occurring since then, many of the union territories aren't having there committees made which is compulsory to be made, we aren't aware of these official take back scheme of the producers and also about the job of municipal corporation to take back these devices and safely recycle them.
- Importers of e waste are freely doing it because the government isn't aware of it, dumping of these hazardous materials is happening because we aren't aware of the fact that will ultimately harm us and our children.
- The developed countries are exporting that waste easily because it costs them ten times less to export that to developing nations then recycling it in there nation and developing nation is getting there waste dumped in there land without knowing the circumstances that how much danger will it create from dumping or burning will make.