Introduction and Management of E-waste

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Abstract - **E-waste like, computer and mobile will soon become a mammoth task in India as users of it are increasing day by day. There is an urgent need to take strict step by govt. as well as by public to recycle and reuse of e-waste. Collection, transportation, treatment, disposal reuse of e-waste should be started from regional levels. It should be done in such a manner that it has minimal hazardous effect to environment as well as on human health. Model technologies at every level (regional sate and material) should be established for management of e-waste. Policies of e-waste should be developed and implemented strictly of govt. Target of e-waste management should be given to the general public. Time to time conference has to be done to make aware of recycle and reuse of e-waste. New technologies should be made and implemented by scientist so that it give minimum adverse effect to environmental and human health. Management of e-waste should be given priority than manufacturing of new electronic products.**

keywords - **E waste, E Management , Technologies.**

Introduction

From last few decades electronic industries are flourishing as world's largest and fastest growing industry. Now a day electronic items specially mobile are becoming status symbols in society. Upcoming new technologies are making life style very lazy. So, use of differing electronic items are developing of "Nano" technology is a rising field that is used for manufacturing of different e-product which is very useful. But major defect of it is that electronic products can't be repaired as a result e-waste is increase fast. It is becoming a problem as well as business opportunity for government. E-waste is an solid waste which contain valuable as well as hazardous pollutants.

E-waste means the waste of electronic products which are not fit for use anymore or reached to end of life. This products includes electronics products, which can be divided into three categories

    a.   Brown goods consumer electronics like mobile battery.
    b.   Grey goods like computer, printers, mouse, CD.
    c.   White goods like domestic appliances –television, air conditioner etc.

All type of a waste has valuable material like cupper (CU), Silver, gold and platinum which can be recycled. E-waste also contain different types of toxic material which provide adverse effect to human health specially in nervous and respiratory system.

Motherboard of computer contains beryllium which gives adverse affect to lungs and spine whereas computer batteries contains cadmium and gives affects to kidney and liver. Mobiles are discarded in 1-3 years whereas white goods are discarded in every 10-15 years. Imports of e-waste in some countries are banned. Government of India has different views about e-waste. After extracting the useful material e-waste is dumped into landfills. Extraction of E-waste is not done in India as a result it has hazardous effect on environment and health. In India nobody is doing separate collection of e-waste and no data is available by government of India for quality and quantity of such disposed off e-waste.

Electronic waste can cause widespread environmental damage due to the use of toxic materials in the manufacturer of electronic goods (Mehra, 2004). Different materials like mercury, lead, barium, bromine, cadmium, beryllium, etc have adverse impact on health.

Despite a wide range of environmental legislation in India there are no specific laws or guidelines for electronic waste or computer waste (Devi etal 2004).

According to waste rule (1980) e-waste cannot be treated as waste until and unless it does. Certain some hazardous material, But it is seen in maximum e-products contain PCB's and CRT's material beyond limits.

Govt. is taking different steps for collection and recycling of e-waste. Even waste rule has been amended in 2000 and 2003. Due to this amendment for importing e-waste land permission has to taken by ministry of environmental and forest. Different seminars are organized at large level to spread awareness among people how to deal with e-waste. Time to time technical guideline is also published by minister of communication and Information Technology to make aware and manage e-waste.

There are different abstracts in managing e-waste. i.e. improper data, lack of knowledge, method of recycling system, disposal management of e-waste. Loop hole e-waste, rules and regulation regarding e-waste, environmental protection while recycling and dumping e-waste.

The future of e-waste management depends not only on the effectiveness of local government, the operator of recycling services, but also on the attitude of citizens and the key role of manufacturers and bulk consumers to shape and develop community participation(Kurian Joseph).

There are different Methods to recycle and reuse e-waste. Cathode ray tubes (CRT's) can be recycled and reused manually as well as mechanically. CRT's contain glass metal and copper. In manual case it is broken and material separated by hands. If this work is done for long time it can be toxic. Whereas its mechanical case material's of CRT's are separated in closed chamber in control of human being. These products are reused by bangle maker, non branded television maker or manufacturer of CRT's.

Other different e-waste like circuit, board, micro chip, contains different type of valuable material like gold plated brass pins. This is recycled and reused by heating and condensing it. If done by manually for a longer duration it can cause many different health problems. People do not take precaution while doing it manually and therefore it become hazardous.

In India e-waste is managed and recycled in Delhi, Mumbai, Hyderabad. These metro cities are centre of IT industry where e-items are used in great quantity.

E-waste composition: E-waste contains wastage of all electronic items and appliances which are of no use. Material used in these appliances and items can be recycled and reused e-waste can be broadly divided into two category i.e. harmful and non-harmful waste. In this about 50% of the waste is of iron and steel. In harmful waste ferrous metals are included which have adverse impact directly on the health. The contribution of e-waste is more of industry than of household.

Strategy for management of E-waste:

Government of India is serious and strong about management of E-waste. Different rules and laws are amended by government. India's ministry of Environment and forest is play important role in reducing and recycling of e-waste in rules 2011. (www.recycleinginternational.com)

These rules were amended in year 2016. There are different silent feature of the e-waste amendment rules 2018. Due to this public and manufacturer are becoming more aware of recycle of e-waste. Awareness and orientation programmes are also made by the government of India from time to time for safety. Different technical guidance are also published so that it can reduce negative effect on health to who are handling the e-waste.

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