

# A study on Analyzing Multidimensional issues of E-Waste Management Practices in Uttar Pradesh

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## Abstract

Humans are fast paced creatures always wanting and needing what they desire as quickly and efficiently as possible. This attitude that our society possesses has created the desire for the human race to always have the latest technologies irrespective of its consequences on the environment. Over the past two decades, the global market of electrical and electronic equipment (EEE) continues to grow exponentially, while the lifespan of those products becomes shorter and shorter. Therefore, business and waste management officials are facing a new challenge, and e-Waste or waste electrical and electronic equipment (WEEE) is receiving considerable amount of attention from policy makers. The paper highlights the associated issues and strategies to address this emerging problem, in the light of initiatives in India. The paper presents a waste management system with shared responsibility for the collection and recycling of electronic wastes amongst the manufacturers / assemblers, importers, recyclers, regulatory bodies and the consumers.

**Keyword-** Electrical and Electronic equipment (EEE), waste electrical and electronic equipment (WEEE), issues and strategies

## Introduction

Globalization and information technology are being widely recognized as main drivers of the human civilization in the later part of twentieth century and the 21st century. The Information Technology (IT) has been the power house of the global economy particularly since early 1990s. Software and hardware part of IT has touched most of the parts of social, technical, economic and natural environment. Exponentially increasing production of computer hardware has posed major challenges of proper disposal of the waste (e-waste) produced by this industry. Current study focuses on the effect of usage, dumping and recycling of the electronic waste on the natural environment. E-waste is a highly complex waste stream, as it contains both very scarce and valuable as well as highly toxic components. Mobile phones, for instance, consist of up to 1000 different components, many of which contain toxic elements such as lead, cadmium or brominated flame retardants. When burned, these elements release toxic emissions. Many detrimental health effects are connected to the recycling and disposal of e-waste when performed

without the necessary safety precautions. For instance, lead affects the nervous and blood system. Its effects on children are particularly negative, damaging their brain development. In addition, landfilled WEEE seriously affects the environment, causing contamination problems such as the pollution of groundwater through the leakage of toxins.

## Definition of E- Waste

As a popular and informal term, electronic waste (e-Waste) is loosely referred to any white goods, consumer and business electronics, and information technology hardware that is in the end of its useful life. Specifically, Puckett defines e-waste as “a broad and growing range of electronic devices ranging from large household devices such as refrigerators, air conditions, cell phones, personal stereos, and consumer electronics to computers which have been discarded by their users”. According to Sinha-Khetriwal, “e-Waste can be classified as any electrical powered appliance that has reached its end-of-life”. Meanwhile, a list of prevalent definitions has been provided by Widmer.

## E Waste in UTTAR PRADESH-

According to U.P Pollution Control Board-

"Environmental problems are really social problems. They begin with people as the cause, and end with people as victims. They are usually born of ignorance and apathy. It is people who create a bad environment and a bad environment brings out the worst in people. Man and nature need each other, and by hurting one we wound the other....."

Edmund Hillary

"ECOLOGY 2000"

U.P Pollution Control Board is a statutory organization entrusted to implement Environmental Laws and rules within the jurisdiction of the state of Uttar Pradesh, India. U.P. Water Pollution Prevention and Control Board, constituted on February 3, 1975, initially under the Water (Prevention and Control of Pollution) Act., 1974, was consequently rechristened as U.P. Pollution Control Board on 13th July, 1982, subsequent to the enactment of the Air (Prevention and Control of Pollution) Act, 1981. The Board was also entrusted with the powers and functions under the Water (Prevention and Control of Pollution) Cess Act, 1977 along with other responsibilities under the Environmental Protection Act, 1986.

Principal functions of the Board, as spelt out in the Water Act, 1974 and Air Act, 1981 is the prevention, control and abatement of water and air pollution. The main effort of the board is to assist the industries and entrepreneurs to discharge their daily basic obligations to safe guard environment. The Water and Air Quality monitoring is an important part of the Environmental Management. It also provides background data needed for industrial siting and town planning. Board is regularly quality monitoring the major surface water bodies at 34 places and ambient air quality at 19 places in the state.

U.P. Pollution Control Board function's through its 25 Regional Offices spread all over the state along with its Head Office at PICUP Bhawan, B-Block, III Floor , Vibhuti Khand , Gomti Nagar, Lucknow (India).

### **FUNCTIONS OF THE BOARD:**

The following are the major functions being carried out by the U.P. Pollution Control Board in exercise of the duties conferred on it under the Water Act, 1974; Water cess Act, 1977; Air Act, 1981; and Environment Protection Act, 1986.

- Issue of No Objection Certificates from the environmental pollution point of view including adequacy of the site from the environmental angle.
- Issue of Consent under provisions of section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974.
- Issue of Consent under provisions of section-21 of the Air (Prevention and Control of Pollution) Act, 1981.
- Assessment and collection of Water Cess, under provision of Water (Prevention and Control of Pollution) Cess Act, 1977.
- Identification and assessment of industrial and municipal pollution sources and control thereof.
- Assessment of ambient air quality.
- Assessment of quality of inland surface waters.
- Mass awareness programmes.
- Notification of effluent and emission standards.
- Development of Pollution Control technologies.
- Instituting legal action against defaulters.
- Issue of Authorization under the Hazardous Waste Management Rule, 1989.

- Identification of isolated storages, onsite crisis management plans etc. under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.
- Implementation of Biomedical Waste Rules, 1998.

## Forms of E-Waste

Electronic Waste (e-waste) is the term used to describe old, end-of-life electronic appliances such as computers, laptops, TVs, DVD players, mobile phones, mp3 players etc. which have been disposed of by their original users. Technically, electronic waste is only a subset of WEEE (Waste Electrical and Electronic Equipment). According to the OECD any appliance using an electric power supply that has reached its end-of-life would come under WEEE. Acknowledging the benefits of IT revolution this section presents darker reality of information technology. Very speed of innovation that lies at the heart of computer manufacturer leads to the product obsolescence. The reality of computer life cycle reveals a hazardous life cycle. The dark side of high technological development of electronic industry, especially computer technology, is revealed in the form of polluted drinking water, waste discharges that cause harm to fish, birth defects, high rate of miscarriage and cancer among cluster workers. Rapid changes in computer technology and the emergence of new electronic goods, the growing dependence on information technology, increasing rates of consumption of electronic products have led to disastrous environmental consequences.

## Effects of e-waste on human health and environment

E-waste is highly complex to handle because of its composition. It is made up of multiple components some of which contain toxic substances that have an adverse impact on human health and environment if not handled properly that is if improper recycling and disposal methods are deployed. So there is a need for appropriate technology for handling and disposal of these chemicals. Basel Convention characterizes e-waste as hazardous when they contain and are contaminated with mercury, lead, cadmium, polychlorinated biphenyl etc. Wastes containing insulation or metal cables coated with plastics contaminated with or containing lead, coal tar, cadmium, Polychlorinated Biphenyl (PCB) etc are also characterized as hazardous wastes. Also precious metal ash from printed circuit boards, glass waste from cathode-ray tubes, LCD screens and other activated glasses are classified as hazardous wastes.

Effects of some of the prime hazardous components in of e- waste are mentioned below<sup>1</sup>:

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<sup>1</sup> Study Paper On e-waste management By Ram Krishna, DDG(FA), TEC , New Delhi & Ms.SampaSaha, Director (ER), RTEC, Kolkata  
[tec.gov.in/pdf/Studyaper/e%20waste%20management\\_11.08.pdf](http://tec.gov.in/pdf/Studyaper/e%20waste%20management_11.08.pdf)

**1 Arsenic**-Can affect skin and can decrease nerve conduction velocity. Chronic exposure to arsenic may cause lung cancer and sometimes be fatal.

**2 Lead**- May affect kidneys, reproductive systems, nervous connections. May cause blood and brain disorders, sometimes may be fatal.

**3 Barium**- Can affect heart muscle.

**4 Chromium** Can damage liver, kidneys and may cause asthmatic bronchitis and lung cancer.

**5 Beryllium** May cause lung diseases.

**6 Mercury** Affects the central nervous system, kidneys and immune system, it impairs foetus growth. May cause brain or liver damage

**7 Cadmium** May cause severe pain in the joints and spine. It affects the kidneys and softens bones.

**8 BFR (Brominated flame retardants)**-Can harm reproductive and immune systems, may cause hormonal disorder.

**9 Chlorofluorocarbon (CFC)**-May affect the ozone layer. It may cause skin cancer in human and genetic damage in organisms.

**10 Polychlorinated Biphenyl (PCB)**-May cause cancer in animals; can affect the immune system, reproductive system, nervous system, endocrine system. PCBs persistently contaminate in the environment and cause severe damage.

**11 Polyvinyl Chloride (PVC)**-PVC contains upto 56% chlorine and when burnt, produces Hydrogen chloride gas which in turn produces hydrochloric acid that is dangerous to respiratory system.

**12 Dioxin** These are highly toxic to animals and can lead to malfunction of foetus, decreased reproduction and growth rates, affect immune system.

## Conclusion

Most waste is inherently dangerous. It can degrade to produce leachate, which may contaminate ground water, and create landfill gas, which is explosive. In addition, because of the dangers associated with landfill sites, there are now very strict requirements on the construction, operation and aftercare of such sites. Solid waste management in India is becoming more complicated with the addition of e-waste, particularly computer and waste. There exists an urgent need for a detailed assessment of the current and future scenario including quantification, characteristics, existing disposal practices, environmental impacts etc. Institutional infrastructures, including e-waste collection, transportation, treatment, storage, recovery and disposal, need to be established, at national and/or regional levels for the environmentally sound management of e-waste. Based on the literature survey, following are the salient conclusions:

- The e-waste increase every day is much higher than the recycle, recovery and disposal. E-waste is produced by both formal and informal sectors.

- More pollution are produced while recycle, recovery and disposal of e-waste by formal and informal sectors if it is not handled properly.
- Finally, to creating awareness among formal, informal and public for disposal of waste.
- The discarded material collect, separate and transport by the informal sector and recycling, recovery and disposal by the formal and informal sectors is the way of reduction of pollution.

## References

1. Agarwal R. (1998) India: The World's Final Dumpyard!, January, Basel Action News, Vol.1 at [www.ban.org](http://www.ban.org) accessed on 14<sup>th</sup> September 2006.
2. Ammons J and Sarah B. (2003) 'Eliminating E-waste: Recycling through Reverse Production' at [www.lionhrtpub.com](http://www.lionhrtpub.com) accessed on 7<sup>th</sup> September 2005.
3. CII (2006). "E-waste management", Green Business Opportunities, Vol.12, Issue 1, Confederation of Indian Industry, Delhi.
4. Shagun, Kush Ashwani, and Arora Anupam : 'Proposed Solution of e-Waste Management', International Journal of Future Computer and Communication, Vol. 2, No. 5, October 2013
5. Oomman P Usha: 'a survey of consumer behaviour towards e- waste management in The city of Mumbai', IMPACT: International Journal of Research in Applied, Natural and Social Sciences (IMPACT: IJRANSS) ISSN(E): 2321-8851; ISSN(P): 2347-4580 ,Vol. 2, Issue 8, Aug 2014, 1-10
6. Joseph Kurian: 'Electronic Waste Management In India–Issues And Strategies', Proceedings Sardinia 2007, Eleventh International Waste Management and Landfill Symposium S. Margherita di Pula, Cagliari, Italy; 1 - 5 October 2007
7. Bhoi N.Vijay and Shah Trupti: 'E-Waste: A New Environmental Challenge', International Journal of Advanced Research in Computer Science and Software Engineering, Volume 4, Issue 2, February 2014, ISSN: 2277 128X
8. Yoheeswaran E. : 'E-Waste Management in India', GRA - Global Research Analysis , Volume : 2 , Issue : 4 , April 2013 , ISSN No 2277 - 8160