

A Comprehensive Review on National Scenario of E-Waste Environment

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Abstract - This paper deal with the overall scenario of e-waste in India. How a technological advancement and increased usage of Telecom, IT, Electronic digital equipments become a challenge for Environment and human heath, at a same time e-waste also create a business opportunity of increasing significance ,the volume of e-waste being generated and the content of both toxic and valuable materials in them such as iron, copper, aluminum, gold and other metals in e-waste is over 60%, while pollutants comprise 2.70%, due to this dual nature of e-waste makes its management so difficult. The Basel Convention has identified e-waste as hazardous and developed a framework for controls on transboundary movement of such waste. The Basel Ban, an amendment to the Basel Convention that has not yet come into force.

Keywords - E-Waste, Basel convention.

I. INTRODUCTION

In a digitized information technology world, the use of computers, cell phones, consumer electronic appliances and electronic toys the like have reached enormous proportions and have become an integral part of routine lifestyle. Due to modern equipment and fast changing technology give rise to replacement of equipment as well as rapid grown in e-waste. It is reported that in India, about 1,46,180 tons of e-waste is generated from computers, TVs, refrigerators and washing machines during 2005, which is expected to exceed 8,00,000 tones by 2012. Sixty-five cities in India generate more than 60% of the total e-waste generated in India. Ten states generate 70% of the total E-waste generated in India in which Maharashtra is no 1 for generation of e-waste then Tamil Nadu, Andhra Pradesh, Uttar Pradesh, West Bengal, Delhi, Karnataka, Gujarat, Madhya Pradesh and Punjab, if we talk about the top e-waste generating city then as per survey Mumbai is rank one followed by Delhi, Bangalore, Chennai, Kolkata, Ahmadabad, Hyderabad, Pune, Surat and Nagpur. The growth rate of computer has been estimated to be 25% because of the technical growth of global and local market the consumer behavior toward electronic product has been changed, now new product is cheaper than repairing old one, there is number of option available into the market at the low cost.

II. BASEL CONVENTION

The Basel convention control of transboundary movements of hazardous wastes and their disposal was designed at the 1989

to eliminate the risk which is arising from the transboundary movements of hazardous and other waste by transportation, handling, recycling, and disposal of waste. Fig.1 shows the scenario of Basel Convention across the globe.

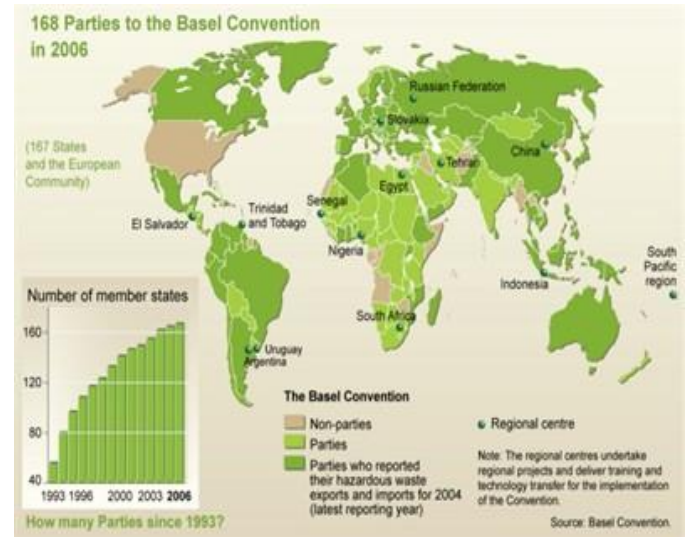


Fig.1: Basel Convention across the world

This convention required a prior informed consent that must be followed before any further export and import processing that means exporting country needs to notify the receiving country and any transit countries of the proposed shipment. Basel convention contain two main restrictions on waste movements. First the export of waste is requires that export of waste occur only under the following circumstances:

- If the exporting country does not have sufficient disposal capacity.
- If the exporting country does not have disposal sites that can dispose of the waste in an environmentally sound manner.
- If the wastes are required as a raw material for recycling industries in the importing company.

The basic purposes of Basel convention are to guarantee that all stats have full ability to protect their own environment from the adverse effect of wastes.

III. WASTE RULE IN INDIA

In India many rules and policies clearly says that waste picker and kabaries should be a part of every state municipality. Well if we talk about rules about waste then there is no. of waste rules in India according to the type of waste, some of them are

- Plastic waste (management and handling rules)2011,deals with plastic bags and plastic packaging such as namkeen, biscuit and other packaging, rule, in section 6(c) states that municipality is responsible for almost the following
- To engage agencies or groups which are working in waste management included waste picker, and to ensure that open burning of plastic waste is not permitted.

Electronic-waste(management and handling rule),2011: the electronic waste (such as pc, mobile and other appliances) rules include the informal sector by emphasizing that association can also act as collection center. Collection center means a center which is established, individually or jointly or by a registered society

IV.E-WASTE CHALLENGES AND OPPORTUNITIES IN INDIA

Economic growth over the past decade increases the consumption of resources cause increase waste generation .because of rapid technology growth large no. of electronic product has become obsolete and there replacement produce a large no. of e-waste, which contain toxic material so proper management of such type waste or material also necessary the rising volume of e-waste around the world is an unavoidable so this should be manage properly otherwise improper management of such highly toxic waste may pose a serious threat to environment and human health. To overcome e-waste problem every country has certain set of rule or certain set of goals, in developed countries e-waste is handled by more of mechanized and systematic way, where as in developing countries like India, the waste management approach is manual and labor Intensive. It shows the close relationship between e-waste and health of human.

V. E-WASTE SCENARIO IN INDIA

New innovation in technology day by day and globalization of the economy has made a whole range of product and equipment affordable to the people changing their life style significantly. The projected growth for e-waste generation for India is about 34% year on year’ says Sinha (Associate Director of Toxics Link) [8]. India becoming a e-waste dustbin, more than 70 percent of e-waste of electronic waste (e-waste) collected in Delhi recycling units is actually dumped by developed countries like US. As per study it is the fastest growing sector of municipal solid waste, equals to 4% of solid waste. In developing countries e-waste grow from .1% to 1%

every year according to United Nations Environment Program (UNEP, 2005) [7].

Table 1 shows the quantity of e-waste generated by Indian states according to an assessment study conducted by the International Resource Group Systems South Asia Pvt. Ltd (IRGSSA) in 2005. The study is primarily based on the average national penetration levels of computer in the population. Quantity of WEEE (Waste Electrical and Electronic Equipment) generated in Indian States [6].

TABLE 1: E-WASTE QUANTITTY (STATE-WISE)

State/UT WEEE	(Tonnes)
Andaman and Nicobar Islands	92.2
Andhra Pradesh	12780.3
Arunachal Pradesh	131.7
Assam	2176.7
Bihar	3055.6
Chandigarh	359.7
Chhattisgarh	2149.9
Dadra and Nagar Haveli	29.4
Daman and Diu	40.8
Delhi	9729.2
Goa	427.4
Gujarat	8994.3
Haryana	4506.9
Himachal Pradesh	1595.1
Jammu and Kashmir	1521.5
Jharkhand	2021.6
Karnataka	9118.7 [6]

Researchers such as Brett Robinson, a professor of soil and physical sciences at Lincoln university in new Zealand warns that disperse toxic particles which are released by open burning of e-waste enter the "soil-crop-food-pathway" "one of the most significant routes for heavy metals exposures of humans. These chemicals are not a biodegradable. They present in the environment for a long periods of time [4].

Some results found in study of exposure to e-waste including –change in the thyroid function, adverse neonatal outcomes, change in temperature and behaviors, decreased lung function. Children between age 8-9 year living in e-waste exposure had a less forced vital capacity than those living in a non-toxic or control environment [10].

VI. CONCLUSION

The future of e-waste recycling in India is bright in India as there is a gap of proper solution providers that can handle the growing demand of electronic appliances consumption. With growing amount of consumers, this sector will keep on giving positive returns if proper management of e-waste perform. Only strict implementation and enforcement of the laws along with government support will help the e-waste recycling sector flourish.

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