

Dumping of Industrial Waste Leads to Violation of Human Rights

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Abstract - “Geneva International Labour office (ILO) says work kills more people than war”. The major problem that the human race is facing now is the effects of the E-pollution caused by the electronic waste/ Industrial waste. The rate at which the e-waste is growing can cause serious damages in 2015. So an immediate solution has to be drawn to reuse or reduce the e-waste/ Industrial waste and its effects on humans. An economic solution is designed to achieve an optimal source to reuse and reduce the e-waste. An economic solution and implementation of law (Implementations of Labour Law, Industrial Law, Environment Law, Administrative Law & IPC-Sections) are designed to achieve an optimal source to reuse and reduce the Industrial waste.

Keywords: E-pollution, Backyard recycling, Energy re-usage, Innovation, Implement- Labour Law, Industrial Law, Environment Law, IPC

I. INTRODUCTION

The Electronic products comprise of Industrial waste / e-wastes which have reached their end-of-life stages, like televisions, PCs, mobile phones, electrical appliances, etc. The e-waste is one of the fastest growing types of waste in the developed world. In view of the growing threat of e-waste generation and large scale involvement of the unorganized sector in processing e-waste in an environmentally unsound



Fig. 1 E-waste/ Industrial waste transportation

and occupationally hazardous nature is a very big problem today. In current situation urgent technological innovation and market intervention in tackling the problem is a must.

II. E – WASTAGE / INDUSTRIAL WASTE SURVEY

Early survey of 2007, which is used as a base for e-waste quantities generated, reveals that e-waste is growing at a rate of around 10 percent annually and is likely to touch 4,34,000 metric tonnes in 2009. It is likely to grow even more as most electronic goods like televisions, mobile phones etc. which are experiencing high growth rates and even faster replacement cycles as consumers outgrow older models due to rapid technological obsolescence in this sector

A.Energy Usage

If data centers are 20 percent competent, we could save 22 million tonnes of carbon dioxide Intel's 45nm and next generation 32 nm products are all 100 percent halogen-free and employ lead-free technology. 170billion kilowatts are being wasted by consumers due to insufficient power usage information and 30 percent of energy consumed by buildings is being wasted per annum.



Fig. 2 Heap of e-wastes

Semiconductor industry and much of the electronics industry is actually a chemical industry using some of the most toxic chemicals known. India can be a global leader in semiconductor production. The use of white clothes worn by the workers and work in “clean rooms” are exposed to serious health risk. The development of semiconductor production has been accompanied by an increased use of toxic production material and an increased release of potential toxic wastes, which are harmful to health and environment.

If you arise one question where are obsolete computers? 75 percent computers are stockpiled in homes, 11 percent computers are buried in land filled and 14 percent computers are recycled or reused. The composition of e-wastes in USA are 55.6 percent TVs, 17.9 percent packaging 10.1 percent commercial electronics, 5.9 percent monitors 4.4 percent PCs(Fig. 4).

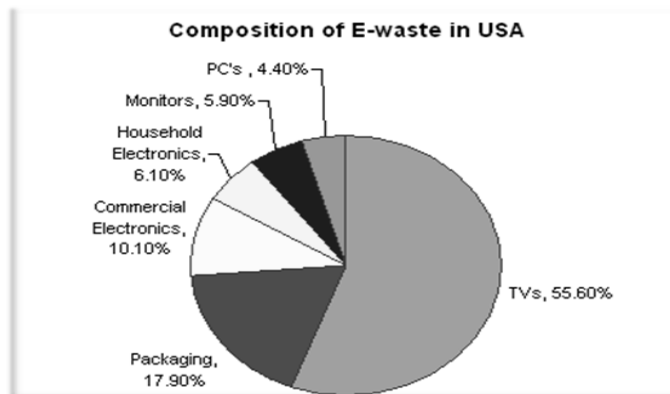


Fig.4 Graph depicting composition of e-waste in USA

According to the new forecast, worldwide semiconductor revenue is expected to stand at Rs. 9.67 lakh crore in 2009 and 2.1% decline from 2008. The Asia-Pacific chip market is projected to grow by 9.6% in 2010.

B.Problems With E – Wastage/ Industrial waste

There are no harmless substances. There are only harmless ways of using substances. E-waste/ **Industrial waste** putting children at risk(Fig. 3) is estimated that 50 percent of all used e-waste is “dumped” into India, China and African countries, where it is a common practice for children (and some adults) to make money “backyard recycling” scrap electronic products over open fires to remove reusable components. Electronic waste is the major issue in India. It affects many people either directly or indirectly. E-waste/ **Industrial waste** creates a lot of economic and environmental losses to our country.



Fig.3 Children working with toxic waste

“Geneva International Labour office (ILO) says work kills more people than war”.

C. E- Wastage / Industrial waste In Foreign:

China and Hong Kong remains the largest overall chip market in Asia. But the region is expected to show an annual growth of only 1.1% from 2008 to 2013. India will grow the fastest at 5.9% during the same period. Malaysia, Singapore, South Korea and Taiwan are expected to expand by 1.7%, 11%, 5.6% and 8.9% respectively.

The risks are increasing because e-waste is one of the fastest growing type of waste developed in this world It is estimated that about 50,000tonnes of e-waste is imported illegally to India from other parts of the world (countries) There are about 94 types of electronic products are re-selling illegally by recycling methods. It is estimated that there are about 8,000tonnes of e-wastes are produced by Bangalore city per annum.

D.Toxic Waste

The term e-waste is applied to all waste from or caused by electronics, which is often toxic waste. It is a major concern with respect to wireless technology and computers, which are readily discarded due to rapid technological change, low initial cost and planned obsolescence. The various solutions including recycling, re-use, standardization of technologies and implementation of law for less rapid obsolescence are applied.

The development of semiconductor products has been accompanied by an increased release of potential toxic wastes, which are harmful to health and environment.

In India, 133crore inhabitants generate 3.3lakh metric tones of e-waste per year that is 0.29kg of e-waste per person (fig 6 and fig. 7) per annum-an astounding figure. A recent survey shows that e-waste amounting to21.8kg per annum is already being produced in India. The e-waste imbroglio in India stood at 3,000tonnes per day in 2007 and is projected to reach 10,000tonnes per day by 2012. In 2015 the e-waste is produced above 16000 tonnes per day, as we expect. So steps are to be taken to tackle this problem.

TABLE I COMPARISON OF E-WASTE PRODUCTION FOR RECENT YEARS

Sl.no.	Years	E-Waste (metric tonnes)
1	2007	$Y_0 = 330000$
2	2008	$Y_1 = 382000$
3	2009	$Y_2 = 434000$
4	2010	$Y_3 = 486000$

The above table (Table 1) shows the e- waste generated during the year 2007 to 2009. It is challenging task to calculate the e-waste generated during the year 2010 In order to calculate Y_3 the Newton’s shifting method formula is used

Newton’s shifting Method

$$(E-1)^2 y_k=0 \dots\dots\dots 1$$

$$(E^2-2E+1) y_k =0 \dots\dots\dots 2$$

Put $k=0$

Substitute the value of k in equation 2

$$(E^2-2E+1)y_0=0$$

$$E^2 y_0-2E^1 y_0+ y_0=0$$

Apply the shifting techniques

$$y_3-2 y_2+ y_1=0$$

$$y_3 = 2 y_2- y_1$$

$$y_3 = 2 * 434000 - 382000$$

$$= 868000-382000$$

$$y_3 = 486000 \dots\dots\dots 3$$

III. E-WASTE HAZARDS- PRIMARY MATERIALS

The following are the primary materials identified as the E-waste / Industrial waste / which are the most hazardous in nature.

- Heavy metals (Lead, mercury, cadmium)
- Batteries containing cadmium
- Cathode ray tubes with lead oxide and barium.

- Brominates flame-retardants are printed circuit boards, Cables and plastic casing
- PVC-coach copper cables and plastic cases
- Mercury in switches and flat screens.
- Poly chlorinated Biphenyl’s (PCB’s) in older Capacitors Transformers

A. E- Waste / Industrial waste Metals

Fishes, plants and animals take up cadmium from the environment. Cadmium stays in the body a very long time and can build up from many years of exposure to low levels. Eating foods containing it, low levels in all foods (highest in shell fish, liver and kidney meats). Lead is a naturally occurring element is used almost since the beginning of the civilization. Mercury is the naturally occurring metal .It is the only metal on the Earth which is liquid at room temperature, types of mercury are Elemental or metallic mercury, Organic mercury compounds and Inorganic mercury compounds

Short-term, high-level exposure to Chromium (VI) produces irritation at the site of contact including ulcers of the skin, irritation of the nasal mucosa, perforation of the nasal septum, irritation of the gastrointestinal tract, impairment of olfactory sense, and discoloration (Yellowing) of teeth and tongue

E-waste / Industrial waste contributes approximately 40 percent of the lead, 70 percent of the heavy metals, and a significant portion of the organic pollutants to the US dumps. Varying susceptibility-High risk groups are children, young, pregnant women, elderly and old, preexisting illness, smokers and Alcohol consumption, poor nutritional status.

Cadmium, Lead, mercury, chromium, etc.. These metals cause various side effects to the human body, soil contamination and atmospheric pollution. These things cause economic downfall either directly or indirectly.

B. E-waste / Industrial waste Generation-Regional Spread

Among the total e-waste generation in all over the world, Northern hemisphere contributes about 21 percentage, East takes up to 14 percentage, West handles over 35 percentage and the remaining 30 percentage moves to Southern hemisphere(Fig 8).

IV. SUMMARY OF FINDINGS

1. Lacks of tonnes of E-waste / Industrial waste electronic waste (E-Waste) from obsolete computers and TVs are being generated in India each year in huge

2. amounts – an estimated 50% to 80% collected for recycling -- are being exported. Remaining 50% to 20% are disposed to the dumping places.
3. The developed countries like (US,China) has been using the nation(India) as the dumping places ,which would leads to the violation of laws in India.
4. There are about 94 types of electronic products as reselling illegally by recycling methods.
5. The illegal dumping would causes the soil impact and environmental impact due to accumulation of E-waste / Industrial waste on the soil .The soil could not abosrb the water content and will imbalance the equilibrium condition on climate .
6. The E-waste / Industrial waste recycling and disposal operations found in India is extremely polluting and likely to be very damaging to human health. Examples include open burning of plastic waste, exposure to toxic solders, river dumping of acids, and widespread general dumping.
7. The health impact negatively affects the total throughput of the humans which will affect the economic conditions in India.
8. Contrary to all principles of environmental justice, the United States, rather than banning exports of toxic Ewaste to developing countries, is actually facilitating their export.
9. India has banned the import of E-waste / Industrial waste yet the United States refuses to honor that ban by exports from them.
10. Due to the lack of proper responsibility from the part of the Indian government, the electronics industry, consumers, recyclers and local governments are causing the chance of growth of E-waste / Industrial waste.
11. From my research I found that in 2020 the formation of E-waste / Industrial waste will be above 40000 tones per day in India, which would negatively affect the total economic criteria to the entire new generations in India.

E-waste / Industrial waste recycling is the process of converting these wastes into usable things which is good for the economy due to six main reasons.

They are as follows,

- a. Safe disposal of electrical and electronic wastes can be done.
- b. Materials like precious metals, plastics etc., can be recovered and also can be reused.
- c. More employment opportunities can be made separately for this process.

- d. Environmental and commonly all other pollutions can be controlled to a considerable amount because of this process.
- e. Economical down flow can also be controlled by using this recycling process.
- f. The various solutions of E-waste / Industrial waste including recycling, re-use, standardization of technologies and implementation of law for less rapid obsolesce are applied.

V. RECOMMENDATIONS

- (i) Governments should set up regulatory agencies in each district, which are vested with the responsibility of co-coordinating and consolidating the regulatory functions of the various government authorities regarding hazardous substances.
- (ii) Governments should be responsible for providing an adequate system of laws, controls and administrative procedures for hazardous waste management (Third World Network. 1991). Existing laws concerning e-waste disposal be reviewed and revamped. A comprehensive law that provides e-waste regulation and management and proper disposal of hazardous wastes is required. Such a law should empower the agency to control, supervise and regulate the relevant activities of government departments. Under this law, the agency concerned should
- (iii) Governments must encourage research into the development and standard of hazardous waste management, environmental monitoring and the regulation of hazardous waste-disposal.
- (iv) Governments should enforce strict regulations against dumping e-waste in the country by outsiders. Where the laws are flouted, stringent penalties must be imposed. In particular, custodial sentences should be preferred to paltry fines, which these outsiders / foreign nationals can pay.
- (v) Governments should enforce strict regulations and heavy fines levied on industries, which do not practice waste prevention and recovery in the production facilities.
- (vi) Polluter pays principle and extended producer responsibility should be adopted.
- (vii) Governments should encourage and support NGOs and other organizations to involve actively in solving the nation's e-waste problems.
- (viii) Uncontrolled dumping is an unsatisfactory method for disposal of hazardous waste and should be phased out.
- (viii) Governments should explore opportunities to partner with manufacturers and retailers to provide recycling services.

“We Recommend that our country elaborate and implement the policies and/or programmes to ensure that waste be managed in an environmentally sound and economically efficient manner. Domestic policies and/or programmes implemented under this Recommendation shall not lead to or create unnecessary obstacles to international trade of waste destined for recovery operations.

VI. INDUSTRIAL WASTE CONTROL BY LAW

IPC-485: Making or possessing of any instrument for counterfeiting a trade-mark or property mark.^[13] Whoever makes or has in his possession any die, plate or other instrument for the purpose of counterfeiting a property mark, or has in his possession a property mark for the purpose of denoting that any goods belong to a person to whom they do not belong, shall be punished with imprisonment of either description for a term which may extend to three year, or with fine, or with both

IPC-487: Making a false mark upon any receptacle containing goods.^[14] Whoever makes any false mark upon any case. Package or other receptacle containing goods, in a manner reasonably calculated to cause any public servant or any other person to believe that such receptacle contains goods which it does not contain or that it does not contain goods which it does contain, or that the goods contained in such receptacle are of a nature or quality different from the real nature or quality thereof shall, unless he proves that he acted without intent to defraud, be punished with imprisonment of either description for a term which may extend to three years, or with fine, or with both.

IPC-488: Punishment for marking use of any such false mark.^[15] Whoever makes use of any such false mark in any manner prohibited by the last foregoing section shall, unless he proves that he acted without intent to defraud, be punished as if he had committed an offence against that section.

IPC-489: Tampering with property-mark with intent to cause injury.^[16] Whoever removes, destroys, defaces or adds to any property-mark, intending or knowing it to be likely that he may thereby cause injury to any person, shall be punished with imprisonment of either description for a term which, may extend to one year, or with fine, or with both.

IPC-472: Making or possessing counterfeit seal, etc. with intent to commit forgery punishable under Sec.467 of the Indian penal code^[17].-Whoever makes or counterfeits any seal, plate or other instrument for making an impression, intending that the same shall be used for the purpose of committing any forgery which would be punishable under Sec.467 of this code, or with such intent, has in his possession any such seal, plate or other instrument, knowing the same to

be counterfeit, shall be punished with³ [imprisonment for life], or with imprisonment of either description for a term which may extend to seven years, and shall also be liable to fine.

IPC-473: Making or possessing counterfeit seal, etc. with intent to commit forgery punishable otherwise.^[18] Whoever makes or counterfeits any seal, plate or other instrument for making an impression, intending that the same shall be used for the purpose of committing any forgery which would be punishable under any section of this chapter other than Sec.467, or with such intent, has in his possession any such seal, plate or other instrument, knowing the same to be counterfeit, shall be punished with imprisonment of either description for a term which may extend to seven years, and shall also be liable to fine.

IPC-475: Counterfeiting device or mark used for authenticating documents prescribed in Sec.467 or possessing counterfeit marked material^[19].-Whoever counterfeits upon, or in the substance of any material any device or mark used for the purpose of authenticating any document described in Sec.467 of this code, intending that such device or mark shall be used for the purpose of giving the appearance of authenticity to any document then forged or thereafter to be forged on such material, or who, with such intent, has in his possession any material upon or in the substance of which any such device or mark has been counterfeited, shall be punished with [imprisonment for life], or with imprisonment of either description for a term which may extend to seven years, and shall also be liable to fine.

IPC-476: Counterfeiting device or mark used for authenticating documents other than those described in Sec.467, or possessing counterfeit marked material.^[20] Whoever counterfeits upon, or in the substance of, any material, any device or mark used for the purpose of authenticating [any document or electronic record] other than the documents described in Sec.467 of this code, intending that such device or mark shall be used for the purpose of giving the appearance of authenticity to ¹ [any document or electronic record] then forged or thereafter to be forged on such material, or who, with such intent, has in his possession any material upon or in the substance of which any such device or mark has been counterfeited, shall be punished with imprisonment of either description for a term which may extend to seven years, and shall also be liable to fine.

IPC-477: Fraudulent cancellation, destruction^[22]. of will, authority to adopt, or valuable security^[21] Whoever fraudulently or dishonestly, or with intent to cause damage or injury to the public or to any person, conceals, destroys or defaces, or attempts to conceal, destroy or deface, or secrets

or attempts to secrete any document which is or purports to be a will, or an authority to adopt a son, or any valuable security, or commits mischief in respect to such document, shall be punished with. [imprisonment for life], or with imprisonment of either description for a term which may extend to seven years, and shall also be liable to fine.

IPC-263: Erasure of mark denoting that stamp has been used.^[23] - Whoever, fraudulently or with intent to cause loss to Government, erases or removes from a stamp issued by Government for the purpose of revenue, any mark put or impressed upon such stamp for the purpose of denoting that the same has been used, or knowingly has in his possession or sells or disposes of any such stamp from which such mark has been erased or removed, or sells or disposes of any such stamp which he knows to have been used, shall be punished with imprisonment of either description for a term which may extend to three years, or with fine, or with both.^[24]

IPC-265: Fraudulent use of false instrument for weighing.^[25] - Whoever fraudulently uses any instrument for weighing which he knows to be false, shall be punished with imprisonment of either description for a term which may extend to one year, or with fine, or with both.

IPC-269: Negligent act likely to spread infection of disease dangerous to life^[26]. - 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^[27].

IPC-257: Making or selling instrument for counterfeiting government stamp.^[28] - Whoever makes or performs any part of the process of making, or buys or sells, or disposes of, any instrument for the purpose of being used, or knowing or having reason to believe that it is intended to be used, for the purpose of counterfeiting any stamp issued by government for the purpose of revenue, shall be punished with imprisonment of either description for a term which may extend to seven years and shall also be liable to fine^[29].

VII. CONCLUSION

Industrial waste recycling is the process of converting Industrial wastes into usable things which is good for the economy due to five main reasons. They are as follow.

1. Safe disposal of Industrial waste & electrical and electronic wastes can be done.

2. Materials like precious metals, plastics etc., can be recovered and also can be reused.
3. More employment opportunities can be made separately for this process.
4. Environmental and commonly all other pollutions can be controlled to a considerable amount by this process (Implementations of Labour Law, Industrial Law, Environment Law, Administrative Law & IPC).
5. Economical down flow can also be controlled by using this recycling process (Administrative Law, Financial Law).
6. The various solutions including recycling, re-use, standardization of technologies and implementation of law for less rapid obsolescence are applied.
7. In 2020 the formation of Industrial waste will be above 40000 tonnes per day
8. Following the four R's resource use to control the Industrial waste : Refuse, Reduce, Reuse, and Recycle.

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