

# Initiatives Needed To Control Electronic Waste

Mamta Gupta,  
Junior Engineer, Power Development Deptt.Jammu (J&K) , INDIA

[mamta.g.123@gmail.com](mailto:mamta.g.123@gmail.com)

**Abstract** - As per United Nations Environment Programme (UNEP) report, by the year 2020, E-Waste may rise by 500% from old computers, no. of discarded refrigerators will get doubled or tripled while the rate of discarding mobile phones will be 18 times higher as compared to 2007 levels. In order to avoid high cost of E-Waste treatment and disposal, developed countries like USA, UK and Japan have been trying to send such waste overseas to developing countries like India, China and Africa. The Basel Convention, an international treaty that was designed to reduce the movements of hazardous waste between nations, and specifically to prevent transfer of hazardous waste from developed to less developed countries. The Indian government thus needs to introduce a legal industrial set-up for disposal and recycling of E-waste. This in turn would increase the employment opportunities also. With the help of state municipalities the E-waste assessment needs to be done at the national level. The private entrepreneurs should be encouraged to open collection centres. Both the assessment and collection centres should be established in the metro cities on the priority basis. Under Extended Producer Responsibility (EPR) approach, the global brands using developing countries as markets for the sale of their products should be compelled to start Take Back services also. Most of the current processes followed for recycling by the informal sector need improvement while some need to be abolished due to severe risks for health and environment. Above all, working groups comprising Regulatory Agencies, NGOs, Industry Associations, experts etc are required to create awareness among consumers regarding the potential threat to public health and environment by electronic products, if not disposed properly.

## 1 INTRODUCTION

95% of this hazardous waste is processed and recycled by an informal sector, characterised by small-scale, labour-intensive, largely unregulated and unregistered, low-technology manufacturing or provision of services. Such enterprises do not pay taxes, have no trading license and are not included in social welfare or government insurance schemes. In the context of municipal solid waste management (MSWM), the informal recycling sector refers to the waste recycling activities of scavengers and waste pickers.

Informal waste recycling is carried out by poor and marginalised social groups who resort to scavenging/waste picking for income generation and some even for everyday survival. This is widespread throughout urban areas of the developing world and it is reported that up to 2% of the population in Asian and Latin American cities depend on waste picking to earn their livelihood. Application of inefficient and non scientific methods increase the risk of environmental and occupational hazards. Samples collected from and around recycling facilities available in India at Seelampur, Jafrabad, Shastri Park, Mayapuri, Burari and adjoining areas of Delhi establish that lead, cadmium, acids and

organic contaminants were being released into the environment.

According to Toxics Link, more than 10,000 people—again, including children—work in the “informal” recycling industry in Delhi alone, breaking equipment; using acid baths; and openly burning wires and plastic casings to reclaim gold, copper, and other valuable materials..

Since the informal sector operates without any government intervention, people from the lower strata of society employed in these recycling units are prone to various health problems due to lack of protection (no masks, no gloves). Long-term exposure to metals like lead, cadmium, chromium, mercury and polyvinyl chlorides (PVC) can severely damage the nervous systems, kidney and bones, and the reproductive and endocrine systems, and some of them are carcinogenic and neurotoxic.

## 2 HOW CURRENT PRACTICES EFFECT HEALTH & ENVIRONMENT?

In developing and transition countries, “backyard recycling” with open sky incineration, cyanide leaching, cooking of circuit boards etc. lead to toxic emissions in the

environment. One of the major challenges in solid waste management in developing countries is to improve their livelihood, working conditions and efficiency in recycling. Inappropriate recycling generates significant hazardous emissions, with severe impacts on health and environment. In this context, three levels of toxic emissions have to be distinguished:

- **Primary emissions:** Hazardous substances that are contained in e-waste (e.g. lead, mercury, arsenic, polychlorinated biphenyls (PCBs), fluorinated cooling fluids etc.).
- **Secondary emissions:** Hazardous reaction products of e-waste substances as a result of improper treatment (e.g. dioxins or furans formed by incineration/inappropriate smelting of plastics with halogenated flame retardants).
- **Tertiary emissions:** Hazardous substances or reagents that are used during recycling (e.g. cyanide or other leaching agents, mercury for gold amalgamation) and that are released because of inappropriate handling and treatment.

Health and safety risks associated with informal recycling include occupational health risks posed to scavenger/waste pickers and community health risks posed to the related community or general public. These risks can originate from the nature of the waste or the process of collecting, processing, recycling and disposing of it. Informal waste pickers are undoubtedly exposed to increased risks as basic principles of occupational health and safety are disregarded. Scavenging in open dumps is considered to be the most detrimental to health.

### 3 STEPS OF ACTION REQUIRED

Introducing a legal industrial set-up for disposal and recycling of E-Waste would not only remove the threat to environment and public health but also generate an opportunity of employment. For the purpose, a consumer-manufacturer collaboration is the key.

**Awareness Building** –Creating awareness among the consumers about the growing problem should be the first step towards finding the solution to it.

Working Groups comprising Regulatory Agencies, NGOs, Industry Associations, experts etc are required to create awareness among consumers regarding the potential threat to public health and environment by electronic products, if not disposed properly. In order to dispose E-Waste scientifically, partnerships of municipal bodies with manufacturers and retailers can help in starting recycling services.

Government should promote Information, Education and Communication (IEC). Such activities in schools, colleges, industry etc. to enhance the knowledge base on E-waste management.

**Policy Level Interventions** - An integrated IT waste management policy is the need of hour. A separate set of rules need to be implemented to control the processes.

E-Waste Assessment should be carried out at national level with the help of state municipal bodies.

Establishment of E-Waste collection, exchange and recycling centers should be encouraged in partnership with private entrepreneurs.

Categorization of E-Waste components for testing and separation of harmful materials is required so that effective precautionary measures should be taken to save the environment

Regulations for ensuring occupational health safety norms for the current informal sector of E-waste recycling can prevent the work force from severe health hazards.

**Restructuring Recycling** - Most of the current processes followed for recycling need improvement while some need to be abolished due to severe risks for health and environment. Technical intervention must be sought

for creating electronic components and peripherals of bio degradable material.

**Take Back Policies** -Under Extended Producer Responsibility (EPR) approach, the global brands using developing countries as markets for the sale of their products should be compelled to start Take Back services also. End of life Management has to be a priority for companies putting new electronic products in market.

In order to cater to this emerging problem , some authorized recycling companies have come up in India in the last few years like Attero Recycling Plant – Roorkee , Ash Recyclers – Banglore, E Waste Agency (EWA) – Banglore etc. In such centres, heavy metals are safely extracted in a plant and everything else is recycled. But the irony is the authorized e-waste recycling facilities in

India capture only 3% of the total e-waste generated; the rest makes its way to informal recycling yards in major cities like Delhi, Mumbai, and Bangalore. This is because businesses sell their discarded IT and other equipment to informal recyclers for quick money without realizing the hazardous implications it has on health and environment.

## 4 CONCLUSION

Though the growing E-Waste Management happens to be a big challenge but if tackled judiciously it can be a way of recovering valuable resources from the waste as well as generating employment from E-Waste Treatment and Processing. Conventional methods must pave way for scientific recycling of E-Waste to avoid environmental and occupational hazards.

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