



ELECTRONICS WASTE: SUSTAINABLE RESOURCES

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ABSTRACT

The rapid increase of global warming and green house effects ahead the world into great problems. In spite of that the modern world meets Giant problems like Electronic waste (E-Waste) which contains hazardous substances such as lead, mercury, beryllium, cadmium, chromium and brominated flame retardants, etc., that can pollute the ecosystems associated with the health risk of wildlife and humans. Dumping of e-waste from developed countries and also own e-waste dumping made a huge concern to the e-waste management of India. The disposal of e waste presents a serious challenge in front of the environment. e-waste problems have adverse effects on human health, such as inflammation and oxidative stress ,cardiovascular disease, damage of DNA and possibility of cancer. Electronic waste generated by the end-of-life of electrical and electronics goods. Worldwide almost 20–50 million tons of e-waste is generated every year. China exports a huge proportion of e-waste world wide. Many pollutants, such as persistent organic pollutants and heavy metals, are emits from e-waste, which can easily accumulate in the human body through the inhalation of contaminated air. We all should find out a solution for this giant problems.



KEYWORDS: e waste, recycling, problems, solution, India.

INTRODUCTION

Electronic waste produced after the end of life span of electricals & electronics instruments. The examples of electronic wastes are used and broken Mobiles, laptops, televisions, desktops, pendrives etc. Due to production of newer electronic equipment the old are replaced very fast. The technology also rapidly growing and newer equipments are in front of us. Various studies shows that gathering of e-waste increases exponentially every year .

.Developed countries gives high priority in e-waste management, but in developing countries it is ignored. There is some problems also lack of investment, technically skilled human resources lack of infrastructure and absence of appropriate legislations specifically dealing with electronic waste.

Increasing demand for electronic devices is creating the world's fastest-growing waste stream. Some forms are growing exponentially. The United Nations calls it a "tsunami of e-waste."

A more digital and connected world will help us accelerate progress towards the United Nations "Sustainable Development Goals (SDGs)", offering unprecedented opportunities for emerging economies.

Get it right and we will see a lot less of our precious minerals, metals and resources dumped into landfill. That's why tackling this issue head-on is now seen as a crucial task for a number of global

agencies, including the International Telecommunication Union (ITU), the International Labour Organization (ILO), the United Nations Environment Programme (UNEP) and other members of the E-waste Coalition. These agencies, along With the help of World Economic Forum and the World Business Council for Sustainable Development these agencies have released a joint report which calls for a new circular vision for the sector. The economic arguments are strong. If we look at the material value of our spent devices, globally this amounts to \$62.5 billion, three times more than the annual output of the world's silver mines. An annual GDP is lower than the value of our growing pile of global e-waste for more than 120 countries.

50 million tones of e-waste are produced each year and left unchecked this could more than double to 120 million tones by 2050.

Only 20% of global e-waste is formally recycled. The remaining 80% is often incinerated or dumped in landfill. Many thousands of tones also find their way around the world to be pulled apart by hand or burned by the world's poorest workers.

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REVIEW OF LITERATURE:

European Union (EU) reported one-third of electrical and electronic waste separately collected and appropriately treated. The EPR scheme in 2003 was the most important step in South Korea. 70 % of e-waste was collected by producers and at the same time 12% of e-waste reused and 69 % recycled. Rest 19% was sent to landfill sites or incineration plants.

According to Mmereki, et al., 2016 China, Peru, Ghana, Nigeria, India, and Pakistan are the biggest recipients of e-waste from industrialized countries.

e-waste inventorisation study conducted in association with the Indian Chamber of Commerce (ICC) and GIZ in 2009-10, it was estimated that the e-waste generation in the Kolkata Metropolitan Area (KMA) was 25999 MT for 2010 of which 9290 MT was available for recycling while only 2022 MT was actually recycled. The total waste quantum for the study area was predicted to grow to 144823 MT in 2019-20. Only seven types of equipment had been considered in the survey – desktop computers, laptops, printers, televisions, DVDs and mobile phones

Issues of electronic waste in India:



Villagers stand among piles of e-waste in the village of Sangrampur, located south of Kolkata in northeast India. Globally, an estimated 50 million tons of e-waste are produced annually, and much of it ends up in countries like India. Image by Sean Gallagher. India, 2013.

The garbage of damaged refrigerators, computers, monitors, TVs, mobile phones, e-toys and other products with a battery or electrical cord worldwide will be huge that could fill large numbers of trucks. Mohammed Moinuddin, an e-waste recycler, sitting in his small village near Kolkata in northeast

India told that "At first, we dealt with record players, radios, VCRs and black-and-white TVs. Later on, CD and DVD players. When computers arrived, we started business with e-waste.

Among the multicolored piles of plastic and metals, women, young men and children use small hammers and chisels to pick away at the various circuit boards, breaking them down into very smaller pieces, and these small pieces are then separated and collected together.

As a relatively young industry, e-waste recycling occupations are plagued by associated risks that are only now becoming more apparent. e-waste mainly composed of metals such as lead, mercury, cadmium and arsenic. Those workers who spend endless days exposed to dangerous levels of toxic elements with little or no protection while breaking electronics down by their own hand, are at great risk.

All around the world, an estimated 50 million tons of e-waste are produced per year, with residents of the U.S. and the U.K. producing the highest rates worldwide at 30 kg and 22 kg per person, respectively.

According to Mahesh there are two main sources of the electronic waste that has begun accumulating in India. Mahesh also told that "I think the problem is compounded mainly because of the way it's handled in this country, the toxicity is known to everybody, but when [the toxicity] is handled in the informal sector in a bad or improper manner, it leads to a lot of problems not just for the environment but for people's health."

On the busy streets of Chandni Chowk, in the heart of Kolkata, the streets are thronged with people weaving their way between hundreds of electronics stores.

This is the city's center for electronics goods and among the retail stores offering the latest cell phones, laptops and gadgets are a small army of second hand salesman, mostly operating out of small stalls on the street and tiny rooms squeezed in between the narrow alleyways.

This is where you are likely to find Prosenjit Singh, a 28-year-old secondhand electronics waste dealer who is one of the few operators trying to make the transition from informal to formal, government-approved recycling.

According to Prosenjit Singh "We are collecting material, by tender position, from many companies like LG and Samsung. Before we were collecting materials from those companies and selling those parts [such as] PCBs (printed circuit boards), plastics, iron and selling it on to others,"

For those like Singh, who hope to make the change from informal to formal, the transition is proving difficult. The business of Prosenjit Singh is on hold as he waits to become one of the first informal recyclers in the state of West Bengal to be granted official permission to handle e-waste.

New national regulations introduced by the government in 2008 and 2011 have laid out stringent requirements for those who wish to formalize their recycling business. It's an encouraging sign, but start-up costs of over \$15,000 are proving to be prohibitively expensive for most who work in the city's informal sector.

There is no support from the government." He is still waiting for approval after a year and a half of following due to the application process, "Ultimately, we have to clean [up] our nation," lamented Singh. "That is the important thing. When I came into this sector, I didn't know anything. We realized what we are doing to nature and also to people who are working with us. The government has to help all the informal sector formalize. We have to do this for people, to save nature and save the people."

In Sangrampur village, pollutions occur due to the sound of hammering and plastics cracking combine with frogs croaking in a nearby pond. Before the workers can finish however, a small tricycle appears from around the corner of a building. A new batch of computers has arrived for processing.

Hopping off his tricycle, a villager starts unloading his cargo. Children carry the electronic goods from the road to their nearby homes where the electronics will be broken down.

It's a familiar site in the village where children, along with their siblings and parents, collectively dismantle and handle the growing piles of waste.

Children are particularly susceptible to exposure to toxic metals, but the long-term effects of this exposure are still to be seen in this community and many others like it across the country. It is the

right time to put a stop to it and see that it doesn't increase and impact the health of lots of people who are employed in this area."

There are two types of E-waste economy one the unorganized sector and the other the organized sector:

The untrained workers maintains the recycling operations in the un-organized sector. Mainly the urban slums of are the unskilled workers. They are used for reducing cost. Child labour is also included for this purpose. Wire cutters pliers used to separate the circuit board parts. For removing gold and platinum nitric acid is used. Strict rules and regulations are required to process E-Waste through organized sector.

E-Waste Recyclers Association was formed in July 2009 to face the problems of organised sector. But powerful informal sector affects the proper collection and disposal of e-waste. **Government assistance for the treatment storage and disposal facilities (TSDF):**

There are 28 TSDF which have been set up. Centre has provided financial assistance. There are Memorandum of Understanding signed between MOEF, SPCB and entrepreneur and Utilization certificate and progress report have been taken annually. E-waste management and handling rule, 2011 came into effect from 1st may, 2012.

The concept of Extended Producer Responsibility (EPR) – has taken. The EPR is an environment protection strategy. By applying EPR to the product recycle and disposal is fully responsible of the producer. The guideline should be applied by the State Pollution Control Boards.

CONCLUSION:

All over the world e-waste problems are very alarming and amount of e-waste is increasing rapidly in almost every countries. e-waste needs proper recycling and if not recycled properly it will threat our environment. To solve the problems of e-waste in our society various awareness programme is the need of the our. Central and State Government should work together to solve the problems of e-waste. In school, colleges and universities, various workshops and seminars on e-waste problems must be organized so that students be aware of e-waste problems. Electric and electronics instruments makers company must take necessary steps to reduce the use of environment friendly materials and also to increase the use of environment friendly materials. Various research work should be done for proper recycling of e-waste. Government and Semi Government institutions must monitor properly for the e-waste recycling and re-use of e-waste materials. To solve the problems of e-waste Government and Private sectors must work together.

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