An Overview on Rapid Growth of Electronic Waste in Chittagong City, Bangladesh

Md. Ashraful Islam
Student, Department of Urban & Regional planning
Chittagong University of Engineering & Technology (CUET).
E-mail: ai_rony@yahoo.com

Kutub Uddin Chisty
Student, Department of Urban & Regional planning,
Chittagong University of Engineering & Technology (CUET).
E-mail: chisty_cuet10@yahoo.com

Introduction

In recent years, as a result of fast growing access to technology and the rapid growth of the economy, a market has emerged for computers, electrics and home appliances. Electronic waste defined as secondary computers, electronics device, mobile phones, and other entertainment items such as television, refrigerators, whether sold or discarded by their original owners. According to the global trend in Bangladesh also the market for electronic goods in having exponential growth due to rising disposable income and increasing demand for the latest electronics products. A large proportion of waste generation in our country comprise E-waste. In Bangladesh generally e waste includes cell phone, television, telephone, washing machine, air conditioners, electronic toys, etc. But in addition to this waste electronic products such as printer, compass, light, radio, horn, etc. generated from ship breakage industry also constitutes a significant quantity of E-waste in Bangladesh. According to BEMMA Bangladesh consumes around 3.2 million of electronics products each year. Of this amount only 20 to 30 percent is recycled and the rest of the waste is released in to landfills, rivers, drains lakes, canals, open spaces which are very hazardous for the health and environment. Chemical such as lead, mercury, copper found in computer scene and TVs and berylliums in motherboards are poisonous. It can lead to fatal disease like cancer kidney failure and damage the environment through soil water pollution (Sinha at al. 2007. Most of this electronic products are recycle by the informal sector that's mainly located in Dhaka and Chittagong city.

E-waste management

E-waste management presents a huge challenge to everyone, including government, manufacturers and international organisations. Developed countries have relatively

greater contribution both in creating and managing e-waste. Sometimes, developed countries export these rejected equipment to developing countries under the guise of aid. Among developing countries, China is well ahead in producing e-waste from others. Big corporations in different economies are taking actions to handle e-waste in a number of ways, from changing product designs to offering reuse and recycling programmes. Role of consumer awareness is crucial for e-waste management. Buying more responsibly made products contributes to reduce the problem of e-waste. Developed countries at least make it a point to impose fine on consumers who do not follow the laws. But, in developing nations, there are no strict rules and people are not much aware about the negative consequences and dangers of the improper disposal methods. In this connection, Bangladesh featured by exponential increase in e-waste; the lack of regulations regarding its safe disposal; the absence of a management infrastructure; and the lack of institutional capacity and general awareness to tackle the problem.

Bangladesh situation

According to a study more than 500 thousand computers were in use in 2004 and this number has been growing 11 percent annually (Hossain 2007). If the figure of 500 thousands were taken as the base line that many pc would contains approximately 30646 tons of waste in 2013 containing deadly plastics lead mercury etc. Bangladesh is a signatory to the Basel convention on trans-boundary movements of hazardous waste. Currently there has no specific regulation & rules dealing with e-waste management. The ministry of environment and forest (Moef) is in process of formulating the rules on e-waste management. As the reported low level of knowledge on hazardous item found in e waste they showed a very positive attitude towards development of hazard free e-waste management system. The aggregate value of the willingness to pay (WTP) for the e-waste management was BDT 1.13 billion (USD 16.16 million) (Ahmed, 2010).

Medical Waste Management Rules, 2008 addresses the waste management issues for the medical sector. As Bangladesh is a signatory to Basel convention, import of any kind of waste requires government's permission. In the National ICT Policy, 2009, environment, climate and disaster management is identified as one of the ten objectives and aims to ensure safe disposal of toxic waste. There are some scattered interventions where people have tried to rescue some parts of used PCs and reuse them in assembling a product for the local market in Bangladesh. One such initiative involves the conversion of monitor into television in the southern district of Bagerhat. Few corporate offices have taken initiative to distribute computers to different organizations for reuse. For example, Standard Chartered Bank has distributed their used PCs to schools. Some NGOs and Computer Jagat, an IT magazine, have been working to develop awareness to redistribute the used

computers to schools in remote areas. In Bangladesh, Nokia tried to promote its green technology campaign in order to collect used mobile phones for its recycling plant.

Chittagong scenario

Chittagong the Port city which generates the high quantity of e-waste due to existence of ship breaking industry and other heavy industry. The recycling process of this sector in Chittagong most of second hand electronic products are purchase by recycling shop owner from auction. The auction held in the vatiary area of the Chittagong city.

Recycling flow

The recycling process of the E-waste followed by all the market mentioned is almost similar. The shop owners buy the old electronics products from the auction held in shipyard. This auction accumulates various items salvaged the end of life ship as scarp. After buying and taking this delivery they clean and repair the electronic products. The repaired useable products are sold to retailer, and wholesalers. The non-recoverable item are also valuable as include metal such as iron steel, bronze cables etc. Then these are sold to scrap dealers. According to the shop owner and workers almost all the purchase item are either sold by repairing or sold as scrap. A very small quantity is thrown away as a waste.

E-waste hotspots in Chittagong

There are different areas in Chittagong that handles second hand electronics products, following are the key areas dealing with e-waste recycling among them.

- CDA market
- Coxy market
- Ice factory road
- Vatiary
- Kadamtali

CDA Market Chittagong.

CDA market area is one of the biggest markets in Chittagong which handling electronic second hand products. This informal market has around 50 shops. They buy the electronic products from auction in the vatiary shipyard resulting from ship breakage. It handles electronics products such as auto pilot, printer and ship navigation related products. After buying this product from the auction they clean

and repair this products. From the shop owners it was revealed that the shop can salvages 50 percent of the purchase products. These products sells to buyer at home and abroad. The rest of non-recoverable item such as steel iron cable are sold as scrap.

Coxy Market, Chittagong

Coxy market area is another small second hand electronic products handling market in Chittagong. This informal market has around 15 shops. They buy the product from auction. This market is not as CDA market and has mainly fridge and air conditioner. They also flow the common procedure of recycling shops. According to the shop owners they can salvage approximately 90 percent of the purchased products and sell these to retail buyers. The rest of the non-recoverable item are sold as scrap.

Ice Factory Road, Chittagong

The market locate in ice factory area is a medium size market. Here mostly buy the product from auction in shipyard from ship breakage. It deals with electronic products such as generator hydraulic pump, panel board, and compressor. After buying this product from the auction they clean and repair this products. The shops can salvage approximately 50-60 percent of the purchased products and sell these to local wholesale market.

Vaiary, Chittagong

Vatiary is another big electronic product recycling market. It's located inside naval base. It has 80 shops. This market has wide variety of electronic products ranging from different types of light to horn, radio, television etc. after buying this product from the auction in the shipyard they clean and repair this products. The shops can salvage approximately 70-80 percent of the purchased products. The rest of the huge non-recoverable item are sold as scrap.

Kadamtali, Chittagong

Kadamtali is another electronic product recycling market in Chittagong having approximately 20 shops. Is market has fan, printer, washing machine, IPS etc. electronic products. According to the shop owners they can salvage approximately 50 percent of the purchased products and sell these to retail buyers. The rest of the non-recoverable item such as cable plastics etc. are sold as scrap.

Conclusion

At the end, to ensure hazard free recycling of e waste Comprehensive and sustainable laws are needed. Which will be based on polluter pay principle,

government should enact rules for e waste management and handling. In our country waste are not separated before disposal. Initiatives should be taken to separates garbage in to burnable, non-burnable and e-waste. This will help to segregate waste easily and isolate e waste which will in turn increase recovery by reducing wastage. This is an important to establish to an e-waste treat plant. Government can support and encourage manufacturers to incorporate waste recycling plants as part of their production. Consumers need to know more about what to do with electronic waste. Very importantly, Bangladesh needs to enact laws and build infrastructure to ensure safe disposal of e-waste. While the problem of e-waste were widely discussed and it is to help policymakers with appropriate policy instrument.

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