Consumer Electronic Waste and Their Recycling Issues: A Big Challenge of Today

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With the increase of technology with time, the use of electronic devices has also increased and became a necessity for human beings. Along with the facilities science also comes with some bane and here the problem is that the life of these consumer electronic devices is too short and decreasing continuously as a result of rapid change. The devices are considered as the electronic waste or in short e-waste at the end of their useful life. E-waste is thus the name given to all electronic and electrical appliances which are at the end of its life. The increasing volumes of e-waste, in combination with the complex composition of these items and the resulting difficulties in treating them properly, are some of the causes of concern. Even though e-waste is a problem, it is also true that it contains a rich source of metals such as gold, silver, and copper, which can be recovered and brought back into the production cycle. Regaining these metals from e-waste could reduce the total global demand for the new metal production to a certain extent. E-waste recycling also helps to reduce the amount of material disposed of in landfills. It is a well-known fact that incineration and landfilling of e-waste are very dangerous for the environment. The typical life cycle of an electronic product is a linear progression among manufacturing, customer usage, storage, and waste disposal.

Predictable waste management policies well-matched to handle traditional waste types cannot be applied in the case of the e-waste due to its characteristic of containing highly noxious substances which pose a danger to health and environment along with the fact that some important metals that can be recovered. In the previous years, there has been an increase in the number of environmental policies and legislation focusing on the product development process to reduce the environmental impacts resulting from the products. All the amendments were done to achieve an effective method for the management of e-waste. Making of law is not beneficial until it is implemented with its full impact. This cannot be done alone by the government or the companies until and unless the consumers are not ready to contribute to the initiative. As, in India, there are no collection centers for e-waste, and no clear data about the quantity of e-waste disposed of every year available there is a tremendous environmental risk associated. E-waste from the developed countries finds an easy way into developing countries in the name of free trade which makes the situation even worse. But this is not the scenario of developing or underdeveloped countries. Even developed countries like the USA also do not have a proper treatment facility for e-waste. According to a report, only 15%-20% of waste is tracked and recycled while 80% goes to landfills in a country like USA even.

Efficient management of e-waste is thus regarded as a major task for today's world. The major challenges faced are definitely lack of e-waste management practices. Most of the developing countries are still struggling for specific policy direction on e-waste, while one of the fastest-growing economies and a large producer of e-waste countries, China and India could have finalized their legislation in very recent times; the implementation results are yet to have come. Policies and regulations such as Extended Producer Responsibility (EPR) have been executed to potentially increase the recycling rate of e-waste. Various studies have been done on the effective collection and treatment of e-waste. While e-waste management has been studied from many angles, there is still a need for a general approach for depicting the cost and environmental impact of e-waste end-of-life management that accounts for the involvement of waste collection, variation in the e-waste stream, and differences in e-waste processing steps.

Keywords: Consumer electronic waste; e-waste management; e-waste disposal; recycling of e-waste.

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