

# **Management of Toxic and Hazardous Chemicals from Electronic Devices Using Supply Chain Concept**

**Shahrin Iqbal**

Department of Electrical and Electronic Engineering  
Shahjalal University of Science and Technology  
Sylhet, Bangladesh  
Email: shahrin19emma@gmail.com

**Salma Akhter**

Department of Chemical Engineering and Polymer Science  
Shahjalal University of Science and Technology  
Sylhet, Bangladesh

## **Abstract**

Electronic devices used in Bangladesh has played a critical role in promoting the economy and improving life of the people across the nation .The global market of electrical and electronic equipment has grown exponentially but the lifespan of these products becomes short. Certain components of electronic products contains toxic chemicals which can generates a threat to human health and environment thus creating a new challenge to the policy makers. Computer, mobile phones and television monitors contain toxic chemicals lead, cadmium and mercury. Circuit boards contain nickel, beryllium and zinc and the casing of the electronic devices are made from polymer such as PVC. They are directly land filled or incinerated and thus increasing risks of cancer and neurological disorders. However, handling and storage of toxic chemicals can pose safety and security risks to human health and environment which need to be mitigated. This paper presents the mitigation of toxic and hazardous chemical using the supply chain concept. It shows that the producers are responsible for their products entire life cycles starting from design to disposal. The paper also shows that the recovery of the toxic chemicals from the disposed electronic parts can be achieved by using chemical methods or hydrometallurgical methods. Besides it shows that the process could be monitored by the application of a developed software. Thus minimizing the risk of cancer and neurological disorders and increasing the safety and security to human health and environment. Finally it will reduce the quantity of waste/used electronic products for dumping.

## **Keywords**

Toxic, Hazard, Chemicals, Mitigation and Supply Chain.