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ELECTRONIC WASTE MANAGEMENT PRACTICES - A STUDY WITH SPECIAL REFERENCE TO KOZHIKODE CITY

Anupama A.K

Guest Higher Secondary School Teacher, Govt.HSS Chullikode, Malappuram

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ABSTRACT

E-waste is the most rapidly growing problem in waste stream due to its quantity, toxicity, and carcinogenicity. Often, the toxic metal is improperly disposed and thus poses a threat to human health and environment. This study was there for undertaken with the aim to find out the electronic waste management practices in the Kozhikode city, Kerala. The most important reason to conduct e-waste management surveys is that they provide the ability to identify and resolve potential problems before they become serious. Material and methods: the study was conducted in Kozhikode city; one hundred self-structured schedules were filled with the cooperation of electronic shop owners.

The electronic shop owners were selected randomly from different areas of the Kozhikode city. The study was conducted for 30 days from 1st January 2021 to 30th January 2021. Shop owners were interviewed by using pre-structured schedule which including method of e-waste collection, their own disposal mechanism...Etc.

Keywords: *e-waste, toxicity, carcinogenicity, disposal mechanism*

1. INTRODUCTION

E-waste is a collective name for discarded electronics devices that enter the waste stream from various sources. It includes electronics appliances such as television, personal computers, telephones, air conditioners...Etc. The list of waste is very large and can be further widened if we include other electronic waste emanating from electrical appliances such as lifts, washing machines, and refrigerators...Etc. driven primarily by faster technological innovation and consequently a high obsolete rate , this catalogue of new wastes poses a direct challenge, for its proper disposal or recycling in the present set up is expensive and technical. The issue has assumed serious global dimensions like community and environmental problems, lack of workers to dispose e-waste.Etc.

E-waste has been categorized three main categories, i.e, large household appliances, IT and Telecom and consumer equipment's. Each of these e-waste item has been classified with respect to 26 common components found in them. These components form the "building blocks" of each item and therefore they are readily identifiable. These components are metal, motor, cooling, plastics, LCD, external electrical cables. Etc. the composition of e-waste is very diverse and differences in products across different categories. It contains more than 1000 different substances, which fall under hazardous and non-hazardous categories.

A report of UNEP (2010) on the topic "e-waste the hidden side of it equipment's manufacturing and use", the main findings of this report is, the production of electrical and electronic devices is the fastest growing sector of the manufacturing industry in industrialized countries. At the same time, technological innovation and intense marketing engender a rapid replacement process. Every year, 20 to 50 million tons of electrical and electronic equipment waste (e-waste) are generated worldwide, which could bring serious risk to human health and the environment. It makes some suggestions for the disposal of e-waste like land filling, storage, reuse, and recycling.

Refurbishes and recyclers send 605.2 tons of e-waste disposal. The rest of the waste is left to accumulate in the environment for various reasons which include:

- Rapid pace of emerging technologies
- Donations: -e-waste disposed by developed countries in the form of used electronic equipment with short life span.
- Producer bears responsibilities for disposal

A major reason for the rapid generation of e-waste and the resulting growth of the recycling market can be found in the high rate of obsolescence in the electronics market. Most electronic goods, especially in the west, have a very short life span. such goods are routinely at least every two years, and then

either simply discarded or exported to developing countries where there is still a demand for second hand merchandise (source: Jayanthi Gosh 'Digital Dumps', frontline, vol.25, issue 05, march 01-14-2008)

In India most of activities like collection, transportation, segregation, dismantling…etc is done by unorganized sectors manually. Being rich sources of reusable and precious material, e-waste is also a good source of revenue generation for many people in India. In India, most of the operations related to e-waste such as collections, segregation, dismantling, recycling and disposals are performed manually. In the absence of the adequate technologies and equipment, most of the techniques used for the recycling/treatments of e-waste are very raw and dangerous.

Despite a wide range of environmental legislation in India there are no specific laws or guidelines for electronic waste. As per the Hazardous Waste Rules (1989), e-waste is not treated as hazardous unless proved to have higher concentration of certain substances. E-waste is included under List A and List B of schedule-3 of the hazardous waste rules 1989, as amended in 2000 and 2003. The import of this waste therefore requires specific permission of the ministry of environment and forests.

Despite several initiatives such as clean Kerala mission nothing much has changed as far as solid waste management is concerned. It may also be viewed as these plans are not sufficient to address the issue of e-waste management in Kerala. While media and the general debates and experiments on waste management continue, Kerala still stinks from village to village and from city to city.

KOZHIKODE CITY

Kozhikode city declared India's first litter free city in 2004. Uniformed women doubling up as auto drivers and household lit ter pick up girls; handle over 300 tone of city's solid and e-waste. The Rs. 6.13 crore solid waste management projects is funded jointly by the union ministry for environment and forest, state pollution control board and Kozhikode municipal corporation. And citizens pay Rs. 30 per month per household. In this study, the researcher has focused to study on electronic waste management practices- A study with special reference to Kozhikode city, Kerala, India.

2. AIM AND OBJECTIVES OF THE STUDY

The aim of my study is to identify the different disposal mechanism related to e-waste.my study attempt to highlight problems of different disposal mechanism used in the Kozhikode city, Kozhikode district of Kerala, India. The following are the main aim and objectives behind the study:

- To assess the initiatives taken by the electronic shop owners for the disposal of e-waste.
- To interpret the measures taken by the Kozhikode corporation for disposing e-waste.
- To examine whether the e-waste management system is eco-friendly
- To evaluate the hindrances of an effective e-waste management system in Kozhikode corporation.

3. SCOPE OF THE STUDY

The current study is confined to the electronic waste management practices followed in Kozhikode municipality only. The most important reason to conduct e-waste management surveys is that they provide the ability to identify and resolve potential problems before they become serious.

4. RESEARCH METHODOLOGY

The survey design was adopted for this study. This design was deemed appropriate because it makes comparisons and evaluation of existing conditions as well as collection of factual information through the use of schedule. The population of the study comprised of 100 electronic shop owners from Kozhikode city, Kerala. Judgment sampling techniques use to select 100 electronic shop owners.

The study was conducted by:

- Study of currently available national and international literature on the subject
- Carrying out survey amongst electronic shop owners and officials in the Kozhikode corporation
- By analyzing the data using appropriate statistical methods

5. REASERCH DESIGN

This research is descriptive in nature.

Sample design is determined before data is collected. Random sampling method is used to collect data from the population. The study is designed as a descriptive one on survey method. Simple random sampling method is used to collect data. Data are collected directly from the electronic shop owners and collects opinions from officials from Kozhikode Corporation, Kerala.

Population and sample size:

Population comprises of electronic shop owners and officials in the Kozhikode Corporation, Kerala.

The study was conducted for 30 days 1st January 2021 to 30th January 2021.

Tools for data collection:

Both primary and secondary data are used for the study. Primary data was collected directly from electronic shop owners and their through a structured schedule. Secondary data was collected from journals, articles, website…etc.

Tools for analysis:

Data was analyzed by using simple statistical tools like percentage method, tables, and bar diagrams.

Findings of the study :

My study consists of total 100 electronic shop owners in the Kozhikode city.

Table1: E-waste disposal practices (n=100)

Disposal method	Electronic shops	
	No. of respondents	Percentage (%)
Burning method	96	96
Land filling	0	O
Re-use	4	4
Total	100	100

(Source: Field study)

Figure: 1 Distribution of respondents based on different disposal mechanism

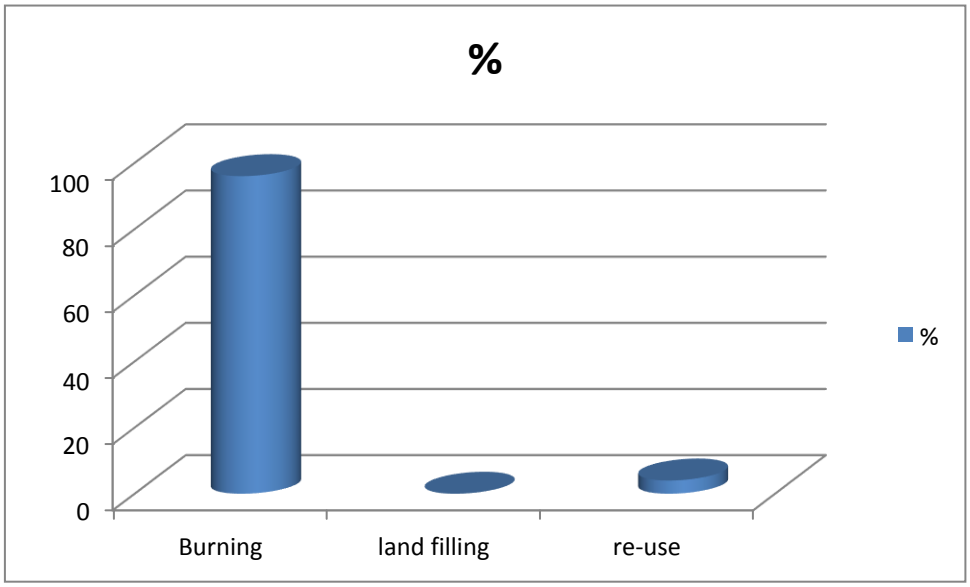

Table: 2 e-waste management response of corporation officials

Variables	Present /absent
e-waste with solid waste	Present
Items of e-waste	CPU, fan, mixy
Locality where presents of e-waste is frequent	Residential
e-waste disposal mechanism in the corporation	Absent
Alternative collection mechanism by private agencies	Present

(Source: interview with officials from Kozhikode Corporation)

- Majority of respondents in electronic shops is give e-waste to the private scrap collectors and some of the e-waste is collected by general waste collectors.
- After giving e-waste to the scrap collectors and general waste collectors, the remaining e-waste is disposed by themselves. They use burning method.
- Majority of electronic shops in Kozhikode city have not e-waste management policy.
- Disposal system of e-waste is not eco-friendly in Kozhikode city.
- It was found that the lack of infrastructure, policy, absence of recycling facilities and high cost are the major obstacles of proper recycling of e-waste in Kozhikode Corporation.

6. SUGGESTIONS AND RECOMMENDATIONS

Based on the findings of the study, the following suggestions are made to improve e-waste in Kozhikode city.

- firm should develop their own policy to reduce e-waste by adhering the guidelines provided in pollution control board in 2011
- The role of coordinating the efforts of waste disposal mechanism should be entrusted with corporation.
- Government with the help of ngos should arrange awareness programmes for shop owners for proper disposal of e-waste.
- Through awreness programmers, the culture of prolonged use of material can be inculcated in the minds set of people.
- Government should take steps to install adequate recycling facilities and eco-friendly mechanism for disposal of e-waste.

7. CONCLUSION

Various studies about e-waste management have elicited problem like lack of infrastructure, absence of recycling facilities, high cost..Etc. In this study, it is found that majority of respondents of electronic shop owners are not aware about the guidelines of PCB. Officials in the Kozhikode Corporation never visit in the electronic shops and they never give any guidelines for the disposal of e-waste. Most of the electronic shop owners generate income by giving e-waste to the scrap collectors. It is worthwhile to note that there is scope for improvement of the e-waste disposal mechanism not only from the side of the electronic shop owners but also from the government and Kozhikode Corporation.

8. LIMITATIONS OF THE STUDY

- Some of the results of the study cannot be generalized to other areas of the state and country as it is highly subjective.
- Some shop owners did not fully disclose details as they fear this may affect their shop.
- The accuracy of the study is based on the response received from the respondents. Even though efforts were made to elicit accurate information, situational bias may affect the results.

Key word: PCB (pollution control board)

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