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"A Study of E-Waste: Mentality of People toward E-Waste and E-Waste Management"

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Abstract

This research is based on how many people's are prefer recycling and what is impact of e-waste on the human health and environment. For this research work, I am referring the data collection method is via questionnaire, based on that final results are prepared. I did the survey of this questionnaire by personally meeting the individuals and then collecting secondary data for the research paper. This paper suggest some key factors responsible for e-waste and suggest some methods that if properly managed and implemented can change this problem to a profitable opportunity.

Keywords:*Electronic waste, impact of e-waste, e-waste management, recycling e-waste.*

INTRODUCTION

Many people's are use the electronic equipment unnecessarily, if some problem in their equipment so that time they do not recycle it, and dispose it. This disposal method is very harmful for environment and human health.

Electronic waste may be defined as all secondary computers, mobile phones, television and others are sold, donated or discarded by their original user. This definition includes used electronics which are destined for re-use, resale, recycling or disposal.

E-waste treatment and disposal method

Disposal of e-waste is particular problem faced in many regions across the globe. E-waste can be very harmful to humans and

animals. It is concern due to the toxicity of substances if processed improperly. There are two disposal method which very harmful to human and environment [1]

Land filling

It is one of the most widely used methods for disposal of e-waste. In land filling, trenches are made on the flat surfaces. Soil is excavated from the trenches and waste material is buried in it, which is covered by a thick layer of soil [1].But land filling produces contaminated lactates which eventually pollute the groundwater.

Incineration

It is a controlled and complete combustion process, in which the waste material is burned in specially designed incinerators at a high temperature (900-1000oC). But Incineration can emit toxic fumes and gases, thereby polluting the air [1].

E-waste has been categorized in different categories,

Table.1 Category of e-waste

Sr.no.	**Category**	**Examples**
1.	large house hold appliances	Refrigerators, Freezers, Washing machine, Microwave, etc.
2.	small house hold appliances	Vacuum cleaner, toasters, grinders, etc.
3.	IT and Telecommunication Equipment	Computers, printers, and telephones, etc.
4.	consumer Equipment	Radio, TV, and video camera, etc.
5.	electrical and electronic tools	Drills, sewing machines, etc.
6.	Medical devices	Ventilators, analyzers, etc.
7.	Lighting equipment	Fluorescent lamp and sodium lamp.
8.	Monitoring and control instruments	Healing regulators, other industrial monitoring and control instrument.
9.	Automatic dispensers	Hot and cold bottles and solid products.

Health and Environment impact of electronic waste

Electrical and electronic equipments are made of components that are toxic substances may have direct impact on human health and environment, if they are not use properly [2].Toxic substances like lead, mercury, cadmium, arsenic, beryllium, chromium, lithium, nickel, zinc, selenium, etc. Lead exerts toxic effects on body system such as central and peripheral nervous system. Mercury causes damage to the brain, kidney, and fetus. Cadmium causes lung damage. Toxic substances are divides into two sections,

Hazardous - lead, cadmium, beryllium,etc.
Non-Hazardous- lithium, nickel, zinc, etc.

RECYCLING OF E-WASTE

Monitors & CRT, keyboards, laptops, modems, telephone boards, hard drives, floppy drives, Compact disks, and mobiles, fax machines, printers, CPUs, memory chips, connecting wires & cables can be recycled [3]

Table.2 Effect of e-waste on human health

Sr. no.	**Substance**	**Effect on human health**
1.	Arsenic	Lung and skin cancer
2.	Cadmium	Lung damage and eventual health
3.	Lead	Anorexia, muscular pain
4.	Chromium	Carcinogenic when it’s inhaled
5.	Mercury	Brain and kidney damage
6.	Beryllium	Respiratory inflammation
7.	Lithium	Damage to the central nervous system
8.	Nickel	Lung cancer
9.	Zinc	Corrosive to skin and lungs
10.	Selenium	Hair loss problem

Recycling involves dismantling i.e. removal of different parts of e-waste containing dangerous substances like PCB, Hg, separation of plastic, removal of CRT, segregation of ferrous and nonferrous metals and printed circuit boards [1].

Re-use

It constitutes direct second hand use or use after slight modifications to the original functioning equipment. It is commonly used for electronic equipments like computers, cell phones etc. To achieve this, buy back of old electronic equipments shall be made mandatory. This can considerably reduce the volume of e-waste generation [3].

E-WASTE SCENARIO IN INDIA

There is no separate collection of E-waste in India. It has been observed in most cases, electronics items are stored unattended because of lack of knowledge about their management [4].

PURPOSE

The processing of electronic waste in developing country causes serious health and pollution problem because electronic equipment contains some very serious contaminants such as lead, beryllium, and brominates flame retardants. That's why I want the people go for recycling. Even in developed countries recycling and disposal of e-waste may have involves significant risk to workers and a great care must be taken to avoid the unsafe exposure in recycling operations.

In our country, may have developed the laws requiring the electronic e-waste and implement the e-waste regulation, so we can control on electronic waste disposal.

WHY CHOOSE THIS TOPIC?

Some of the people do not aware about of what happens to the electronic equipment which they have discarded and what is impact of that on the environment and human health. I don't want the people suffering from such kind of impact that's why I am suggest to people for prefer recycling. That is better way of electronic waste disposal. One of the best way is Re-use is also control on e-waste.

METHODOLOGY

For research paper, I am referring some papers and questionnaires related with electronic waste based on that final questionnaires is prepared for my research like what is biggest problem behind the e-waste, how many people's are prefer recycling, what is impact of e-waste on human health and environment, hoe to control on e-waste, and etc. So, there is

more number of involvement of people's in my survey of questionnaires, based on that some secondary data was getting. On that secondary data I'm performing some statistical analysis based on that some results are being obtained, is given as follows.(see figure)

Fig.1 shows most of the people have to know the hazardous substances is biggest problem behind e-waste because it pollutes the air and water and nearby toxic substances has get impact on human health

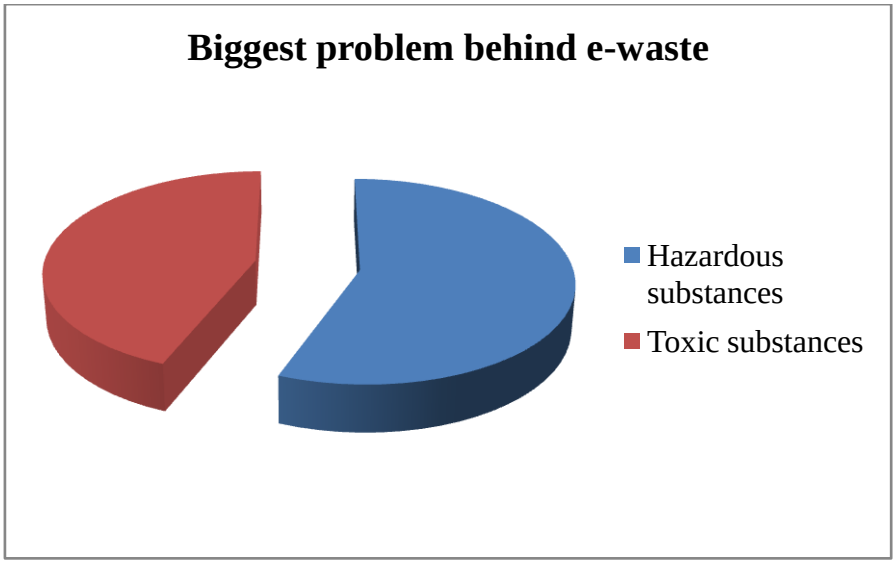

Fig.1 biggest problem behind e-waste

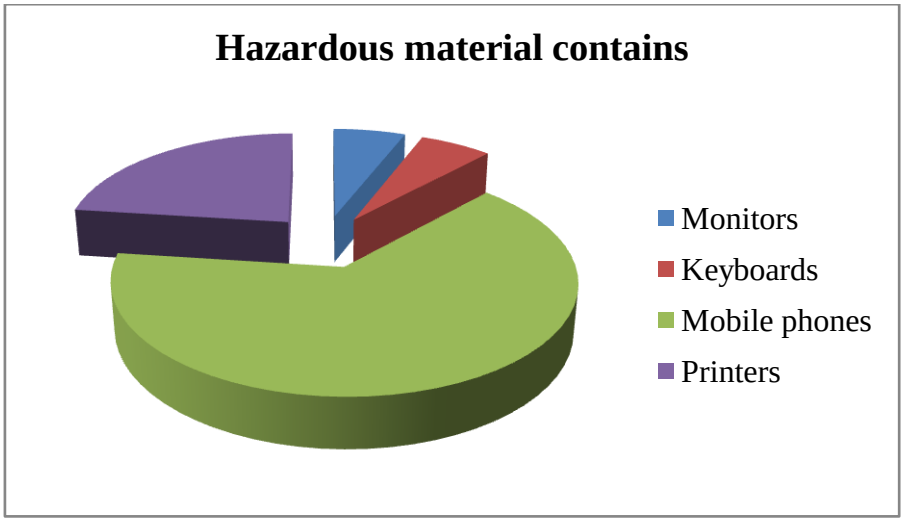

Fig.2 Hazardous material contain

Fig.2 shows most of the hazardous material contains in Mobile phones and less than in printer. Monitors and keyboard contains less no. of hazardous material than mobile phones and printers**.**

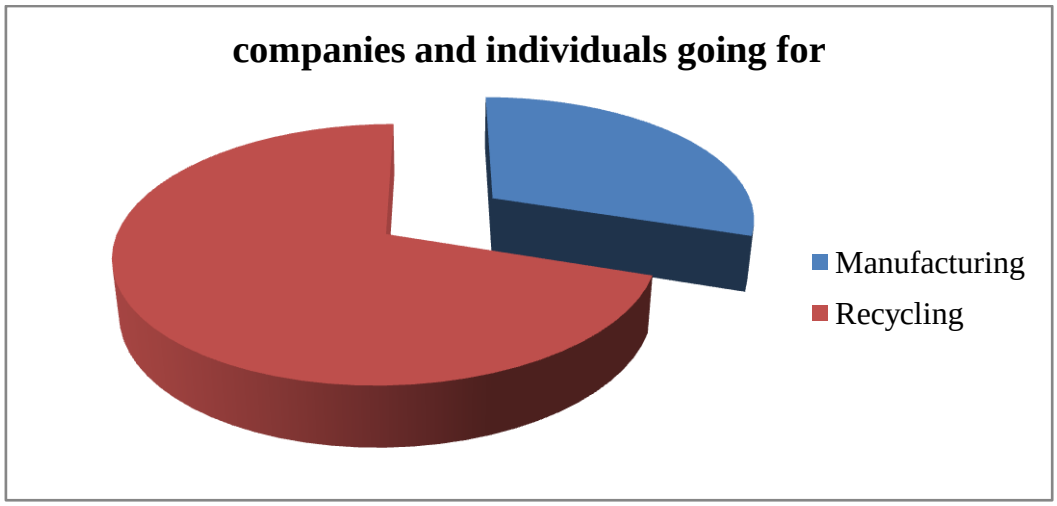

Fig.3 companies and individuals going for Recycling

Fig.3 shows for dispose the devices, more no. of companies and individuals going for manufacturing the devices and less no. of companies and individuals going for recycling thedevices.

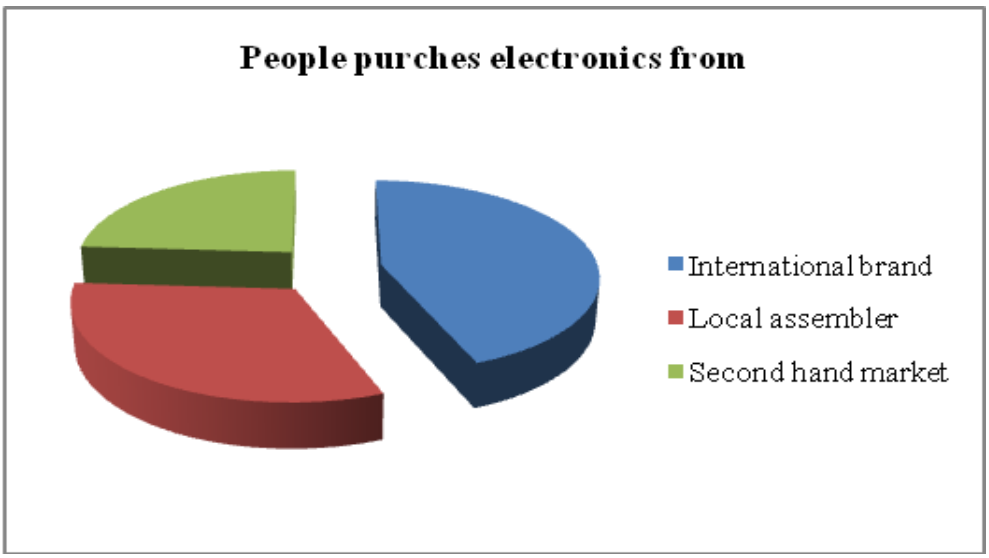

Fig.4 People purchase electronics from branded shops

Fig.4 shows more no. of people purchasing the electronics directly from producer of international brand and some people purchasing form local assembler with own brand. The very less number of the people are purchasing the electronics from second-hand market.

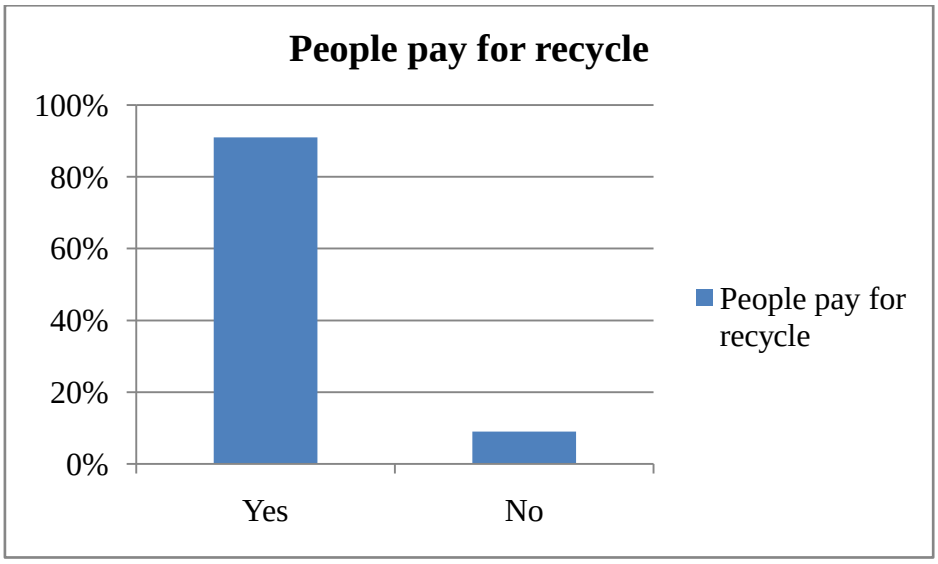

Fig.5 people pay for recycle

Fig.5 shows more no. of people goes for recycling the electronic equipment and vey less people don't prefer recycling.

Fig.6 shows more no. of people can control on e-waste in our country by develop the laws requiring for recycling the e-waste and less no. of people control by implement e-waste.

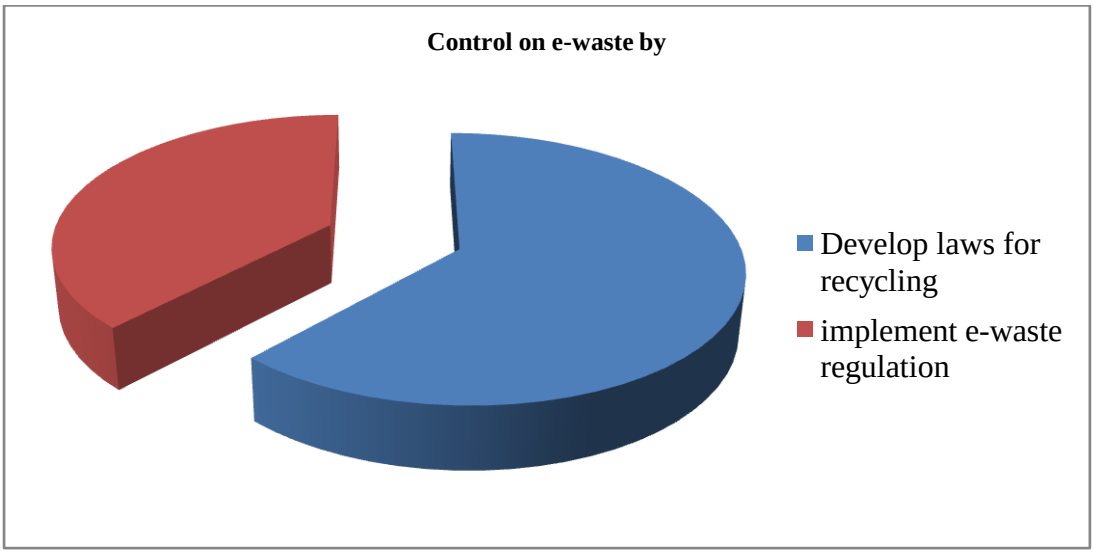

Fig.6 Control on e-waste by

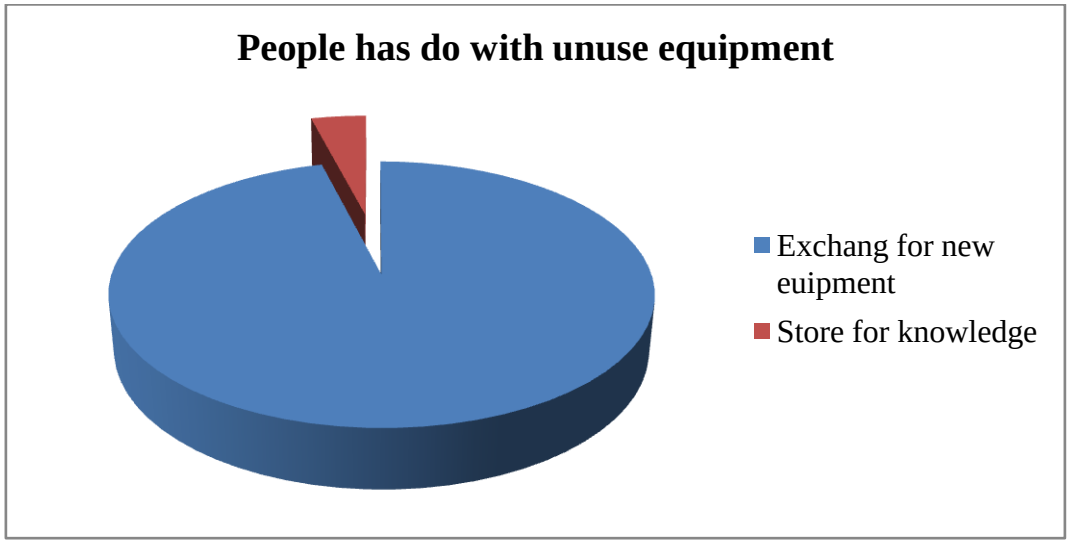

Fig.7 People has do with unused equipment

Fig.7 shows most of the people have to give the unused equipment back to exchange for new equipment and less no. of people has to store for lack of knowledge.

CONCLUSION

As per survey people can choose to go for recycling the electronic waste. Electronic equipment and therefore e-waste are everywhere in society. They are characterized by complex chemical composition and difficulty in quantifying their flows at the local and international level. The pollution caused by their irregular management substantially degraded the environment mostly in poorer countries, receiving them for recycling and recovery of their valuable metals. The challenges of managing e-waste in our country are very different from other countries, both the developed and developing. As per my survey we want to implement a protocol for the workers in e-waste disposal and educating public about this emerging issue posing a threat to the environment as well as public health.

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