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E-waste Recycling- Informal versus Formal

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INTRODUCTION

E-waste is a major source of waste generated in the recent years which involves health hazards, financial investments and effects on the environment.

The e-waste is widely generating aspect in India and currently, it acquires a lot of financial investment. Presently, most of the electronic wastes are being generated in the general stream by both residential and non-residential sources (Borthakur and Singh, 2012). On the other hand, the e-waste has caused the enormous hazardous impact on the environment and human health as well. From the beginning of 21st century, e-waste has become a matter of concern. As the new advanced technology and communication revolution have shaped human lives with convenience while delivering a quite number of issues for the society as well. Apart from this, the residential and non-residential e-waste amount has led to wider problems like the lack of proper e-waste generation management, and other waste generated electronic products (G. Gaidajis et al. 2010). The purpose of this study is to discuss the procedure in which e-waste generation is being managed in India depending on the residential and non-residential sources.

AIM AND OBJECTIVE

The aim of this paper is to evaluate the sources of e-waste generation in India and how the e-wastes are being managed that is collected from the residential and non-residential areas. On the other hand, it also intends to evaluate details regarding the residential and non-residential e-waste generation while manifesting the facts that are causing environmental and health hazardous among the people in the society (Chatterjee & Kumar, 2009). Thus, the objectives of this study are as under.

- i) To assess the sources of e-waste generation in India.
- ii) To evaluate the process and relative aspect of residential and non-residential e-waste generation in India.
- iii) To present the statistical report of residential and non-residential e-waste generation in India.

Current issue/ Present Scenario

Though India has been recognised as the fifth largest market in the world to produce e-waste but due to lack of proper management, it has become the matter of concern for the government now days. Here, in order to state the problem regarding the study, it can be asserted that the most prominent and common problem in the context of e-waste generation is that there is no proper legislation working behind the management of e-waste generation in India. On the other hand, there is no proper citation of the acute system through which the electronic wastes are being managed or handled by the authorised retailers and e-waste handlers (Pradhan, 2013). So this study would be exploring the generation process of e-waste generation from residential and non-residential sources and along with that it also sheds light on the process and legislation regarding residential and non-residential e-waste management.

DISCUSSION

Residential and non-residential e-waste generation in India

With the increased economy of India, the amount of usage of electronic products by the consumers is also changing especially towards the electronic products in India. But along with this, the amount of e-waste is also increasing day by day. In this component relevant literature in relation to the e-waste generation in India from residential and on residential sources are being discussed. It is an evident fact that increasing economic growth and electronic items consumption the rate of electronic waste disposal has increased. Thus, in the following components, the relative facts are being discussed in details for better understanding (Saoji, 2012). From both the residential and non-residential sources more than 400 lac tonnes are being accumulated in which there is a combination of household appliances and commercial computers and fax machines, CPUs can be detected. In India, the amount of e-waste is increasing rapidly with 20% annually. According to the report of the global electronic market solely could acquire 11% of the shares in the global electronic market, which eventually increases the e-waste generation rate annually. The increasing rate of the e-waste is posing threat to the environmental safety and health aspects as well as 90% of the e-waste generation takes place through the unauthorised Sectors in India (Saoji, 2012). According to the report, it is realised that total around 70% of the e-waste is acquired by the residential e-waste that includes TV, refrigerator, computer CPU and so on.

On the other hand, in the case of the non-residential e-waste generation, it is realised that India generates around 88% of the total waste from the non-residential or the commercial e-waste market. Those e-wastes include the computers, monitor and waste CPUs that are the result of the increasing economy. But many companies are emerging with an idea to recycle those e-wastes in a manner that can deliver profit to the companies as well as to the environment and society (Yoheeswaran, April 2013). In Bangalore, organisations like has concentrated on utilising the e-waste and turning into some profitable aspect with \$6 million profit each year

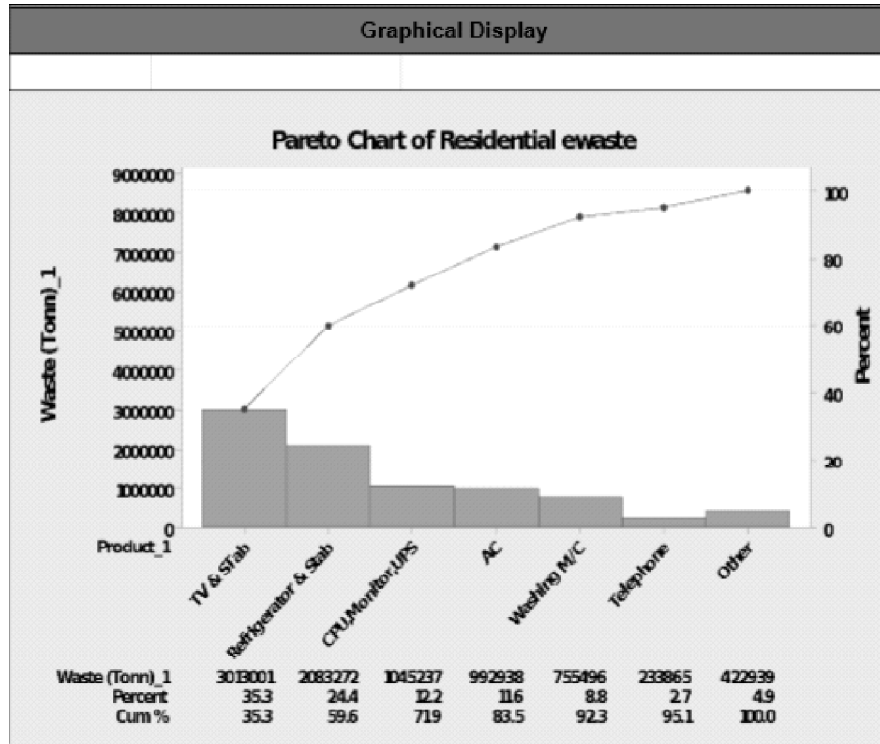


Figure: pareto report on residential e waste

Source: Yoheeswaran, April 2013.

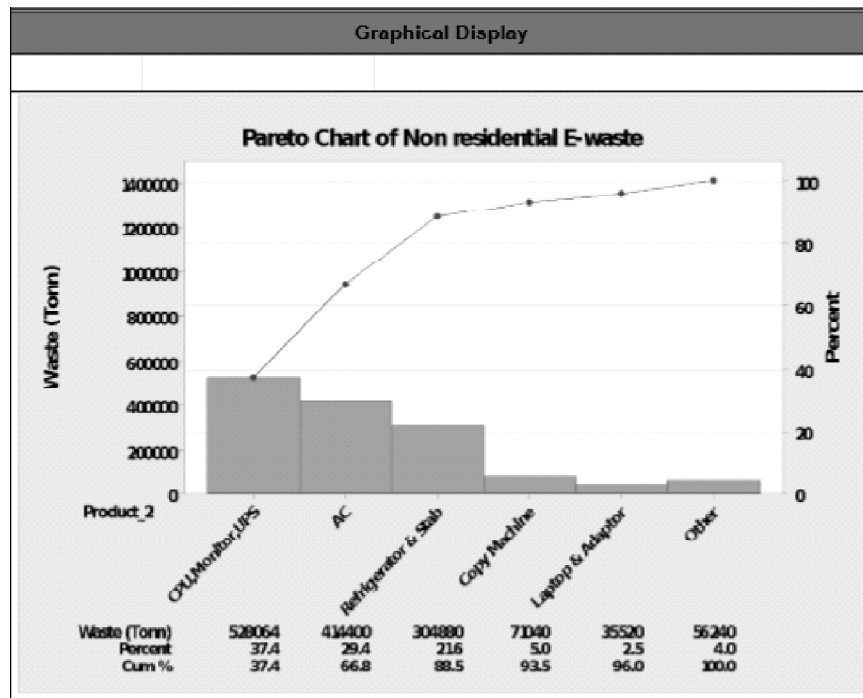


Figure: pareto report for non-residential e waste

Source: Saoji, 2012.

Thus, it is evident that both residential and non residential sources of e waste have contributed in developing India as the fifth largest e waste possessor in India. From the below pie chart the contribution of both the sources in e waste generation can be actualized.

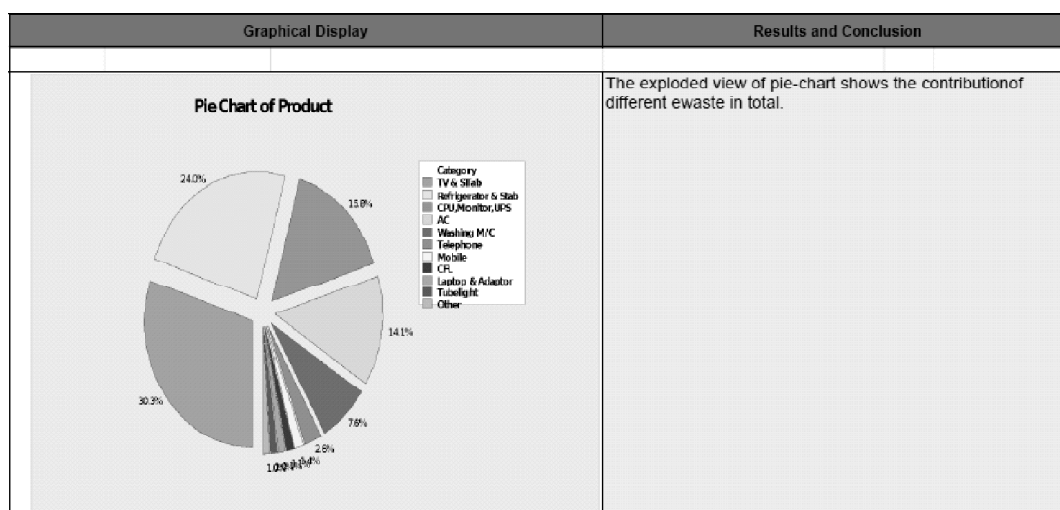


Figure: pie chart showing the contribution of different types of e waste generation.

Source: (Yoheeswaran, April 2013).

Regarding residential and non-residential e waste generation

In a general sense, the e-waste is categorised in two different aspects residential and non-residential. In residential e-waste the major household appliances like refrigerator, TV, washing machines, mobile phones, whereas the non-residential e-waste involves dealing with commercial computers, CPUs and other products. Since India has introduced itself as the information technology giant and due to modernisation, the disposal of electronic products has increased as the consumers are offered with new innovative ideas in an electronic product (Gupta, *et al.* December 2011). In this regard, no firm legislation can be recorded in relation to e-waste generation and management. Instead of the fact Factories Act 1948, environment protection act 1986, and hazardous waste rule 1989 are recognised as the implemented legislations in this regard, but never utilised in a proper manner. From the recent critical legal analysis, it is realised that almost 70% of the states in India are not implementing the laws in relation to the e-waste generation and management (G. Gaidajis *et al.* 2010). On the other hand, except legislation implementation, the uncontrollable import policies are one of the reasons behind piling e-waste in India.

Residential and non-residential e-waste generation process

In India e-waste mainly generates due to the desire for new and more advanced technology acquisition and disposal of the unused electronic products without considering the aspects related to environmental safety and economic safety as well. In the case of residential e-waste, the electronic products are being disposed of annually with 65% (Borthakur and Singh, 2012). In the process, the residential e-waste like TV acquires the 30.9% as new models and features in TV are constantly being introduced in the market and consumer are prone to get attracted to new things while getting rid off to their old electronic products. On the other

hand, other products like the refrigerator with 24.5%, washing machine with 7.8%, desktop computers with 16.5% have acquired the 70% of the e-waste generation process. Apart from this, the non-residential e-waste obtains the highest rate like 88% as products like laptops 1.09%, mobiles 2.24% and so on (Chatterjee & Kumar, 2009). Here due to demand of high level of performance in the industrial scenario the organisations or the non-residential sources are compelled to dispose old electronic equipment and adopt new technologies. Thus, in such manner, the residential and non-residential e-waste are being generated which could better be delivered through the below figure.

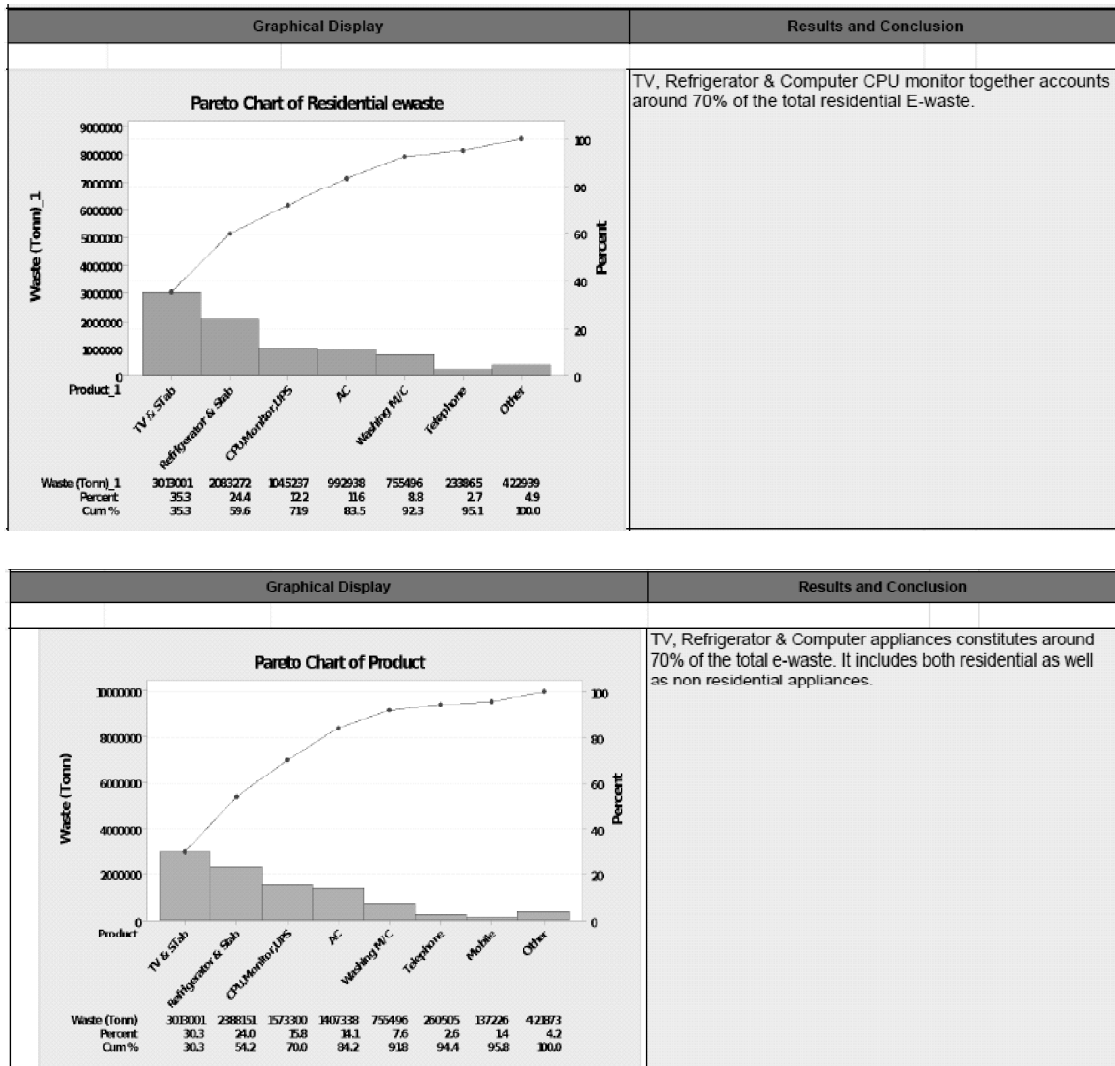


Figure: the figure showing the sources of residential and non residential electronic waste.

Source: (Chatterjee & Kumar, 2009).

CONCLUSION

It can be asserted that India has been recognised as the fifth largest e-waste market in the world and annually it is growing with 20%. But there is a difference between the e-waste types such as residential e-

waste that are being collected from the households and residents and the other types are the non-residential and the industrial e-waste that comes from the industrial sources. It has been realised that almost 70% e-waste belongs to the residential sectors where as the 88% of the e-waste are from non-residential sources. Apart from this, several legislations have been detected but none of them is being practice with almost 70% states in India. Thus, through several suggestive notes further solution to such situation can also be stated in the following Recommendation

Though there are several legislations and rule book incorporated in the course of e-waste management in India by the government, but instead of the facts, specific areas still need to be rectified such as,

- Creating awareness is an essential aspect in the course of e-waste disposal among Indian inhabitants. For the people living in residences, e waste management programmes can be conducted.
- For non-residential e-waste, the rate of import policies should be controlled.
- The rule book regarding e-waste management should be revised in order to implement the rules with effectiveness.
- With such recommendation it can be expected that the awareness about e waste management could effectively preached among Indian residents to protect the environment and economy at the same time.

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