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Topic of Research: A Study of Recycling Practices of E-Waste Management in India

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Findings

Recycling of e-waste is an incredibly important issue on regulators' agendas as it has an adverse impact on the environment and public health if improperly disposed. But, the same recycling can be a possible solution if it is managed properly. Environmental sound management of WEEE occupies central stage as it can conserve energy, water, and other material footprints; and also boost the growth of the economy. In India, demand for electronic gadgets has increased over the years. Electronic devices like mobile phones, laptops, personal computers, smart TVs, washing machines and air conditioners are purchased by the consumers frequently. Market size of (EEE) Electrical and Electronic Equipment are increasing due to higher consumption rates of EEE, short life cycles, little availability of repair options and pandemic hit the world. This is amongst the key factors that lead to the massive growth of electronic waste (commonly called e-waste or WEEE). Through review of literature it was evident that E-waste consists of, not only toxic heavy metals such as Pb (lead), Cr (chromium), Ni (nickel), Cd (cadmium) and Hg (mercury) etc. but also valuable metals such as Ag (silver), Au (gold) and Pt (platinum) which have a high resale value. In India, EEE user's/consumers consider WEEE as economic benefit after its useful life and sell it to informal sector for monetary gain. The e-waste which is sold to the informal recyclers are handled and processed in the urban slums of the country by scrap dealers, dismantlers, and kabadiwalas. Unskilled workers, including women and children, extract precious metals like gold, silver, platinum, copper, iron, and aluminium without personal protective equipment. They are exposed to a variety of toxic chemicals through dermal contact, inhalation, and ingestion, which are not only detrimental to their health but to the environment also. The need of the research study was piles of WEEE generated every year with informal sector process of WEEE practicing hazardous recycling practices not only detrimental to the health of the people but also to the environment. So, in this research "A study of Recycling Practices of E-Waste Management in India" the awareness level of EEE users and the recycling practices by formal and informal sector were examined. Through review of literature variables of formal and informal sector were identified and examined including hazardous recycling practices, exposure to toxic chemical, disposal of toxic chemical, impact on health of the workers, socio-economic status, awareness about usage of safety gears, awareness of law & regulation and impact of monetary constraint, challenges faced by informal workers and pollution of land & water. For EEE users/consumers variable were examined including awareness about WEEE, convenience to consumer, monetary incentive to consumer, and preference toward informal sector. The results of this study

corroborate the hypothesis. Lack of awareness, convenience and money benefits are the key factors which influence the disposal behaviour of the EEE users. The result showed that even educated people and who have high awareness level still prefer informal sector for the disposal of their WEEE. This is due to the convenience provided to them by informal sector and monetary gain for selling their end-of-life equipment (EoL). In addition, hazardous recycling practices, exposure to toxic chemical, disposal of toxic chemical, impact on health of the workers, socio-economic status, awareness about usage of safety gears, awareness of law & regulation and impact of monetary constrain of formal and informal sector were examined and the results corroborate the hypotheses. The informal sector follow hazardous recycling practices and its expose them to toxic chemical, impact their health, The wage rate of the workers at informal sector are often low due to which processing cost is low and they command dominance over the formal sector in the low cost processing of WEEE. It was also revealed that awareness about usage of safety gears and law & regulation are also low so they are unaware about the grave impact of WEEE on their health and environment. Further, it was also revealed that due to monetary constrain they along with the wife and children spend their whole life in this industry. Government alone cannot address the issues by drafting legislation or taking punitive action against the violators. It is the responsibility of all the stakeholder's in the e-waste management including manufacturers, EEE user/consumers and government. All the stakeholders have to be on the same page to resolve the issue. The manufacture should be responsible of using less toxic chemical in the manufacturing of EEE and after its useful life collecting all the EEE manufactured by them either by themselves or by employing specialized agencies who can work on their behalf. The EEE user/consumers should understand their responsibility and always disposed their e-waste with the authorised collection agents and lastly, government should act as a watchdog and time to time take measures which would help in managing e-waste. In a nutshell, the focus should be on developing a holistic approach through which we can efficiently tackle e-waste recycling without compromising the health of the public and polluting environment.