European Union's Directive on Waste Electrical and Electronic Equipments (WEEE) and its Influence on E-waste Policymaking in India

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Waste Electrical and Electronic Equipments (WEEE) or E-waste has observed a considerable intensification in the recent decade rendering its management a major challenge to the contemporary world. India is no exception. Contemporary India is engrossed with massive challenges concerning environment and resource-friendly management of Electronic waste (E-waste) or Waste Electrical and Electronic Equipments (WEEE). E-waste signifies one of the major and fastest-growing global pollution problems. With growing consumer dependence on electrical and electronic equipments (EEEs) in every walk of life coupled with the information technology boom, E-waste becomes a significant waste stream both in terms of quantity and toxicity. Unprecedented growth of India's consumer electronics market (including the IT sector) leads to an increasing penetration of electrical and electronic equipments into the country. Once obsolete, these equipments become E-waste, contributing significantly to the country's toxic waste stream. E-waste contains considerable portions of hazardous chemical toxicants and precious metals. While precious metal components (including gold and silver) present in E-waste provide significant incentives for recycling, hazardous chemicals (mainly in the form of persistent organic pollutants and heavy metals) pose serious threats to the human health and environment if not meticulously managed. Thus, the already existent solid waste management problem in India has been aggravated manifolds with the advent of domestically generated and illegal imported E-waste. Managing responsibly this considerable volume of E-waste is a mammoth task. India is already an E-waste hub. It has been estimated that annually 1.8 million tonnes of E-waste is domestically generated and 50,000 tonnes of WEEE is dumped into the country by several industrialized nations. The recent trend of rapid obsolescence due to technological developments/innovations and growing incentives for consumption decline the functional life of EEEs and contribute to the ever-increasing volume of WEEE in India. A joint report by United Nations Environment Programme (UNEP) and United Nations University (UNU) predicts that by the year 2020, a growth of 500 % would be observed in India with respect to E-waste from old computers alone. During the same time, an overwhelming 18 times increase in E-waste production would be observed from discarded mobile phones in the country than its 2008 level. The Indian government's recent policy initiatives directed towards the development of an 'information society' or a 'smart society' with initiatives such as 'Digital India', 'Make in India' etc will further boost the EEEs surge in the country and pose serious challenges to sustainable WEEE management initiatives.

Considering the complexities associated with this toxic stream of waste, this paper is an attempt to review the existing E-waste governance in the emerging economies, taking into consideration the evidence and experiences of India. The paper particularly evaluates the influences of European Union's (EU) landmark WEEE and RoHS Directives in E-waste policymaking in India. We attempt to problematize the E-waste policy concerns in the country through queries such as: what are the policy approaches currently in place in the India? How effective these policy responses have been in solving the E-waste problem in the country? Is there any difference in the E-waste policy approaches 'within' the emerging economies, considering the somewhat similar growth trajectories of these nations which classify them as 'emerging economies'? We especially focus on the legislative and regulatory measures that are in place in the emerging economies in general and India in particular which are indispensable for ensuring effective and responsible E-waste management. In-depth literature reviews and expert interviews were carried out as a part of the study.

The results of our study illustrate that over the last decade, India has devised and implemented policies to specifically deal with the E-waste produced in the country. In the year 2008, Ministry of Environment and Forest (MoEF) in India introduced a guideline for environmentally responsible E-waste management in the country, titled as the "Guidelines for Environmentally Sound Management of E-Waste". The first legislation on E-waste came into existence in the country in the form of "E-waste (Management and Handling Rules), 2011". This is followed by the "E-waste (Management) Rules, 2016". One common aspect of all these rules and legislations has been the influence of EU's WEEE and RoHS Directives. Nevertheless, we argue that the policy approach of a particular country towards addressing a complex category of waste stream such as E-waste necessitates a local-

specific approach where all the inherent socio-cultural, economic, political and environmental considerations of that country is taken into consideration while devising the policy. Further, it is imperative to have a systematic, organize and stepwise approach towards formulating and implementing the E-waste policies. Such approaches have proven to attain significant success in countries such as South Korea and China. India should take hints from such approaches and formulate its E-waste policies based on the local circumstances. Given the complex socio-economic structures of India, it is essential to review and re-review the policy efforts constantly at regular intervals to locate possible gaps in implementation. The country had revised its yearly collection targets set in the 2016's E-waste Rules in the year 2018 in order to ensure maximum potential success. In the revised rules, the collection targets for the initial years were reduced while keeping the final collection target from the year 2023 onward constant. Overall, although the EU's influence on India's E-waste policymaking is evident, it is imperative that the country structure its policies based on the local socio-economic and environmental conditions.

A part of this study has been published as:

1. Borthakur, Anwesha. (2020). Policy approaches on E-waste in the emerging economies: A review of the existing governance with special reference to India and South Africa. *Journal of Cleaner Production (Elsevier)*. 252: 119885.
2. Borthakur, Anwesha., Govind, Madhav. (2017). Emerging Trends in Consumers' E-waste Disposal Behaviour and Awareness: A Worldwide Overview with Special Focus on India. *Resources Conservation & Recycling (Elsevier)*. 117 (B): 102–113.