WEEE from the Source: An Empirical Investigation

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Abstract

In Malaysia, the population is increasing rapidly, reaching 32.8 million in 2021, generating a tremendous amount of solid waste, estimated to be 38,427 metric tonnes per day in 2021 (1.17 kg/capita/day). Of these, 82.5 percent are disposed in landfills. On top of that, households' electronic waste estimates– from 463,866 metric tonnes in 2011, almost doubling to 832,692 metric tonnes in 2020. The use of electronic devices has proliferated in recent decades, and proportionately, the number of electronic devices. Electronic waste, or e-waste for short, is a generic term embracing various forms of electric and electronic equipment that have ceased to be of any value to their owners. Managing WEEE or e-waste from the source, i.e., households is quite complex and requires a strategic approach from the waste operators. Therefore, it is the epitome for the local authorities to design the WEEE flow from the source so that the waste material is not cross-contaminated with the solid waste residual (general households' bins). The study used a mixed-methodology approach to addressing the fundamental questions and objectives for the sustainable approach to managing WEEE from the source. It is expected to address the underpinning concept of the feasible solution in handling this waste stream. The method of inquiry was a qualitative and quantitative approach suitable for a multidisciplinary study (Waste; Logistics and Behaviour). Investigating situational and personal factors in tandem to seek the overarching values in addressing human behavior in e-waste recycling from the source. Therefore, a holistic framework of the e-waste recapture model (Recycling E-Waste Framework) could be a reference point for stakeholders, including Local Authorities and E-Waste Collection Operators, which currently was vague and not conclusive.

Keywords:
WEEE, Reverse Logistics, Recycling, Solid Waste Management