

Material Flow Analysis for Household e-Waste: Case Study in Kuala Lumpur

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Problem Statement: The rapid generation of Waste of Electrical and Electronic Equipment or e-waste, calls for the urgent need of sustainable e-waste management. Not only e-waste endangers our environment, its hazardous content poses great hazard towards human's health. For Malaysia, the absence of dedicated household e-waste regulation, poor infrastructures, and lack of public participations are hindering the efforts towards sustainable handling of e-waste. This dire situation is even critical in Kuala Lumpur, the capital of Malaysia, as its population continue to grow in tandem with booming economy. **Objective:** In rectifying the ineffective e-waste management, the flows of five common household electrical appliances (televisions, refrigerators, air-conditioners, washing machines, and desktop computers) are evaluated to ascertain the current status and sustainability of e-waste management system. **Methodology:** Information from secondary data sources, household survey, and interviews with e-waste contractors was utilized to construct the material flow of household e-waste. **Results:** The results indicated that the common e-waste disposal practices among household are: i) sell to e-waste collectors, ii) storage, and iii) discard alongside residual waste. Formal collection structures such as recyclables collection day, recycling centers, and drop-off locations are largely unpopular and often overlooked. Under the official system, majority of e-waste received by e-waste contractors originated from government institutions and businesses; whereas household e-waste comprised only 20-30% of their total inventories. Ensuing collection activities, dismantled e-waste from partial recyclers is delivered to material recovery facilities, where recyclables are processed into secondary materials such as metal ingots and plastic resins. On the other hand, hazardous substances and residues undergo treatment before being sent to landfill or incineration plants. **Conclusion:** All in all, the establishment of household e-waste in Kuala Lumpur is still rudimentary where effective legislation, coordinated recycling mechanism, and appropriate incentives are required for sustainable e-waste management to transpire.