

Disconnect between Policy and Practice in Developing Countries: E-Waste Management Strategies in South Eastern Nigeria

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Uncontrolled transboundary movements of hazardous wastes, some of which declared as economic goods, have its final stop in developing countries. E-waste or Waste Electrical and Electronic Equipment (WEEE) are some of the closest source for generated hazardous wastes in Nigeria and other West African nations. The global concerns about WEEE arose following its proliferation in recent decades and the rapid growth in quantities that requires disposal throughout the world. There are insufficient management functions that begins with planning, institutional arrangements, and handling of e-waste activities in Nigeria. Modern trends, like recycling, still fall short of global practices. This research concept was driven by the Pongrácz's theory of waste management. The study examined the Waste Electrical and Electronic Equipment (WEEE) management strategies in South Eastern Nigeria with a view to suggesting appropriate implementable measures. It conducted an inventory on the WEEE generated; as well as determined the factors affecting the trend of WEEE generation and collection. The study used primary and secondary sources of data. The primary data were gathered through administration of structured questionnaire, in-depth interview and observation. The secondary data

were mainly information from documents, reports and publications on WEEE types in the study area. A total of 280 pre-tested questionnaire were administered using purposive sampling technique on 200 Consumers/End-users of WEEE, 40 officials of Monitoring/Control Agencies, and 40 entrepreneurs who deals, markets or refurbishes e-waste in South Eastern Nigeria (Okorhi, 2015). In-depth interviews were conducted on senior/coordinating officers from the Monitoring and Control Agencies. Observations in course of the survey were also noted. Data collected were analysed using appropriate descriptive and inferential statistics.

After analysing the data collected, the empirical results showed that the management strategies for WEEE in South Eastern Nigeria were tied to strategic planning, legal and regulatory framework, public education and participation, Institutional arrangements, funding of scheme, WEEE generation and handling, as well as technical planning and design of WEEE management systems. The inferential statistics revealed that WEEE management strategies are inadequate ($\beta = -1.024 < p = 0.657$ and $\beta = 0.608 < p = 0.764$) (Okorhi, 2015). This is so because the management systems for WEEE are poorly founded along with everyday management of municipal solid waste. Still, the inventory on WEEE generated in South Eastern Nigeria suggested ten main categories and a total of 128 types of e-waste captured (NESREA, 2011; Okorhi, 2015). The categorisation is in comparison with those in the National Environmental (Electrical/Electronics Sector) Regulations, 2011 and those of the Swiss and Europe Union (EU) legislations. There is no significant relationship between the type of WEEE generated and the method of disposal ($\beta = -1.554 < p = 0.463$ and $\beta = -1.771 < p = 0.622$) (Okorhi, 2015). Furthermore, the study revealed that the factors determined as affecting the trend of WEEE generation and collection cut across cheaper pricing of WEEE, availability of

WEEE, quality/superiority of certain E.o.L EEE to newer ones, durability of device, low income consumers as well as the accessibility of end-users to WEEE. Some identified factors influencing the final disposal of WEEE includes high cost of disposal, lack of storage space for stockpiling, monetary rewards for WEEE, obsolesce of E.o.L EEE, unavailability of formal recycling facilities, and cost of recycling WEEE. The monetary provisions and public participation does not have significant relationship with WEEE generation and collection ($\beta = -1.258 < p = 0.389$ and $\beta = 0.049 < p = 0.878$) (Okorhi, 2015).

Conclusions and Policy Recommendation

Following the data collected and analysed for this study, the tested hypotheses have proven that the monitoring and control agencies relied mostly on poorly structured management strategies meant primarily for municipal solid wastes in managing WEEE. Also the analysis revealed that there are 128 types of WEEE present in South Eastern Nigeria. The tested hypotheses also proved that monetary provisions and public participation does not have significant relationship with WEEE handling and disposal. Therefore, the study concluded that WEEE management strategies in South Eastern Nigeria are inapt and poorly implemented. Hence, it recommended that in an attempt to ensure implementation of sustainable WEEE management strategies, first, the regulatory bodies should urgently embrace and domesticate appropriate management strategies like those contained in the National Environmental (Electrical/Electronics Sector) Regulations S.I. No. 23 of 2011 (NESREA, 2011). This should be structured on a model of strategic planning, legal and regulatory framework, public education and participation, institutional arrangements, funding of scheme, and the generation, storage, disposal and design

of WEEE schemes (Okorhi, 2015). Secondly, that during the implementation process, adopted management strategies should be separated from those used for general municipal solid waste. This is because, in global perspective, e-waste is classified as hazardous waste and therefore needed to be strategically handled and disposed. Thirdly, there should be periodic inventory on WEEE types and quantity. This would enable policy makers to assess, project and proffer workable management strategies that are evident-based. Furthermore, government should set-up and enforce standards for frontier facilities for the disposal of e-wastes. This would serve as a guide in building modern recycling plants, landfills and incinerators, as well as acquiring other new technologies for the purpose of final disposal of WEEE, thereby protecting the environment and encouraging the formal setting up of green-businesses for recyclers, smelters, scavengers (dismantlers) etc. Finally, the study recommended that the socio-economic drivers of E.o.L EEE in South Eastern Nigeria should be checked and catered for through the importation of new, cheaper, superior and durable EEE instead of WEEE.

References

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