

Socio-economic Assessment on E-waste management in South Eastern Nigeria

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Nigeria is said to consider the problem of Waste Electrical and Electronic Equipment (WEEE or e-waste) more on the part of its socio-economic benefits rather than the long-term environmental impact. End-of-Life (E.o.L) Electrical and Electronic Equipment are rather stockpiled when they are not disposed of with regular household waste. Governments have failed to establish specific management plans for the high rising quantities of e-waste. Conversely, the mounting volume of WEEE, though an emerging problem, can be a very valuable source of secondary raw materials if they are sorted and handled correctly. Many waste materials can be recovered, recycled, reuse as, or be converted into viable industrial, manufacturing and construction materials thereby conserving natural resources and energy, and mitigating the harmful effects of the waste on the environment. In many nations with sustainable policy frameworks for e-waste management, there are entirely new business opportunities evolving around trading, source reduction, reuse, recycling, repairs and recovery of materials from WEEE (Öko-Institut and Green, 2010). This is because the large volume of e-waste generated is said to contain several quantities of valuable materials such as precious metals. Hence, this article attempts to assess the socio-economic factors influencing the trend of WEEE generation and handling.

The main sources for WEEE and Used Electrical and Electronic Equipment (UEEE) influx in Nigeria has been traced to the container market and the roll-on-roll-off (RoRo) market (in the case of co-loading cars and trucks) particularly at seaports. In the ports of landing, UEEE are often declared as “second-hand goods”, “private goods”, “miscellaneous”, “for personal use”, “for charities” and “personal effects”. In order to disguise these illegal exports, the labelling of UEEE are manipulated and customs’ declarations are lately referred to the competent authorities. An approach based on consideration that solutions to the e-waste problem in Nigeria do not only rely on combating illegal imports, but also on ways to improve the management of domestically generated WEEE through the collection, refurbishing and recycling of e-waste is now being considered an idea for evaluating the socio-economic impacts of the E-waste Sector (Basel Convention, 2011). Since the old approach of “dilute and disperse” concept of waste disposal no longer works, and the newer concept of “concentrate and contain” is giving way to the concept of Integrated Waste Management, waste is now considered as resources out of place. Therefore, the concept for this article identified key strategic aspects relative to socio-economic assessment of WEEE management. It used investigative approach through questionnaire administration. Twenty local government areas were purposively selected from 5 mutually exclusive strata. A total of 280 copies of pre-tested questionnaire were purposively administered among the three categories of respondents (Okorhi, 2015). These were the Monitoring and Control Agencies; Dealers, Marketer, Retailers, and Refurbishers/Recyclers of WEEE, as well as; the Consumers or End-Users. Data from 201 respondents were analyzed using linear multiple regression and percentage. The assessment revealed that the commonest measure used in the final disposal of e-waste by many households and businesses

was the direct disposal of WEEE along with everyday municipal solid waste – 70.07%. Other measures adopted included reselling of E.o.L EEE and WEEE – 23.36%, and stockpiling – 15.33%. In few instances, consumers were found to abandon their faulty e-devices with technicians who sometimes refurbishes or recycles valuable components in them – 15.33%. In similar manner, some end-users disassemble simple e-devices and reuse functional parts – 18.25%. While others donate to people, friends, schools, nongovernmental organizations (NGOs) and so on – 13.89%. Furthermore, it was observed that whatever strategy option(s) chosen by an end-user, the condition of the E.o.L EEE or WEEE was certainly taken into account for its disposal. 72.99% respondents said that e-devices that are damaged beyond repairs would be disposed of. Whereas, only 2.92% respondents agreed that they would dispose of faulty e-devices which could be repaired. Another 24.09% respondents suggested that old E.o.L EEE would also be disposed of. In addition to these decisions reached, 66.42% respondents agreed that they rarely apply any specific classification or stratification for e-waste before final disposal in waste streams. Also, the study revealed the key factors influencing strategies adopted for final disposal pattern to include: obsolete device; damaged beyond repair components; the cost of maintenance; unavailability of spare-parts and unwarranted EEE. Other factors included the likely expansion of business, business innovation, low-processing speed of an e-device, low storage capacity of e-device, power surge faults and faulty EEE resulting from lightning. Whereas, the factors identified and considered as possible economic drives that determines the disposal pattern of E.o.L EEE and WEEE were cheaper EEE, availability of EEE, inferior EEE and superior EEE. The rise in attractiveness of UEEE or (WEEE) was due to its cheaper price - 79.66%; durability of device - 54.24%; low income earners -43.50% respondents;

accessibility to product - 46.33% respondents; and WEEE quality, reparability and superiority to new EEE. In addition, this is also swayed by high cost of disposal - 24.29%; lack of storage space for stockpiling - 21.47%; monetary reward by cart operators for collecting WEEE - 25.99%; obsolescence of E.o.L EEE - 23.73%; as well as the unavailability of formal recycling facilities, and huge cost embedded in formal recycling of WEEE.

Conclusion and Policy Recommendations

The revealed factors affecting the trend of WEEE generation, collection and disposal cut across cheaper pricing of WEEE, availability of WEEE, quality/superiority of certain E.o.L EEE or UEEE to newer ones, durability of device, low income consumers as well as the accessibility by the end-users. Factors influencing the final disposal of WEEE includes high cost of disposal, lack of storage space for stockpiling, monetary consideration of WEEE, obsolescence of E.o.L EEE, unavailability of formal recycling facilities, and high cost of recycling WEEE. The study therefore recommended that the socio-economic drivers of E.o.L EEE should be checked and catered for.

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