

The assessment of electronic-waste generation and management in selected institutions in Nairobi, Kenya.

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Abstract:

Disposal of computers, mobile phones and its accessories in developing countries including Kenya adds to the waste management problem. The study was carried out from September 2009 to March 2010. The aim of this study was to quantify e-waste generated by the institutions, to identify the methods currently employed in the management and disposal of e-waste by the selected institutions, to evaluate current e-waste management policies and strategies implemented and recommend strategies that may be used to improve the management of the e-wastes by the institutions. The respondents were drawn from the major potential e-waste generators in the city including: medium to large scale computer and mobile phone importers and assemblers, end users of computers and its accessories, formal e-waste recyclers and key ICT and e-waste management institutions such as the CCK and NEMA provided key information. The researcher administered questionnaires to key informants, used observation record sheets, and secondary data from relevant institutions as the main sources of information. Analysis of data focused on generating-waste flow stream, quantifying the amount of e-waste generated and evaluating national and institution policies on e-waste management. T-test was used to quantify the amount of e-waste generated by the stakeholders. The results showed the tonnage of mobile phones and computers that remained undistributed by importers was statistically significant at 95% confidence level ($t= 6.52$, $df = 2$; $p= 0.00456$) and ($t =-0.63294$, $df = 2$; $p=0.0322$), respectively. In the category of end users the tonnage of e-waste generated was insignificant at ($t=8.4$, $df = 2$; $p>3.18$) for universities and ($t=7.97$, $df = 2$; $p>3.18$) for ministries. This could be attributed to the long period of possession of equipment by end users. Analysis of the results further showed that tonnage of e-waste generated by recyclers was statistically significant at 95% confidence level ($t=-13.82$, $df = 2$; $p=0.00089$). Further analysis of the e-waste flow stream from the importer to recycler has showed that significant amount of e-waste is being generated importers in comparison to other stakeholders. This means that a high percentage of equipment brought into the country by importers is potential e-waste due to the high amount of electronic equipment that remains undistributed and this poses a great threat to the environment. The methods employed for disposing e-waste included dropping off old IT technology at garbage collection point, storing in offices room, selling scrap, donation and re-use, selling to staff, friends, family or public, take back schemes and extended producer responsibility. The implication of these methods used is that e-waste generation is likely to increase downstream as a result of channeling e-waste to end users and recyclers. Approximately 75% of the stakeholders in the study lacked a policy on e-waste management and only 36.1 % planned to have a policy in place. While the Government has recognized the challenges posed by-waste, the level of preparedness in terms of policies and legislation is low. The study recommends that specific policies and regulations on e-waste be developed. These should govern e-waste from collection to final disposal, and licensing of key actors. A national collection system needs to be developed, and consumer awareness enhanced. Capacity building programmes should be launched in the sector, possibly funded by fees levied on importers of second-hand equipment.