Consumer Behaviour and Socio-Cultural Implications of E-Waste Management in Kenya: a Case of Kisii County

Dr. Callen Nyamwange
Kisii University, Kenya

Abstract
The objectives of the study were; Investigate consumer behaviour on electrical/electronic waste in Kisii County, Kenya, to establish socio-cultural practices that affect the generation, collection, transportation and disposal of e-waste in Kisii County, Kenya; determine the implication of consumer practices as regards e-waste management in Kisii county, Kenya. The present report is based on both secondary and primary data. Secondary data was obtained through desk research while Primary data was collected via an observation checklist and an interview schedule. It was found that there are very many Informal mobile phone repair shops in Kisii town that buy EoL phones for spare parts. The researcher noted there were heaps of e-waste and solid waste in Municipal disposal bins, there were e-waste damped outside electronic repair shops and repair shops had heaps of electronic items which continue to gather dust seemingly for overstaying unrepaired or unclaimed. The study recommends that specific policies and regulations on e-waste be developed, national collection system needs to be developed, and consumer awareness enhanced, capacity building programs be launched in the sector, possibly funded by fees levied on importers of second-hand equipment, a need to educate people on how to manage e-waste and reduction of unsafe e-waste.

Keywords: e-waste, Sustainable Consumption, Consumer Behavior, Environment

Introduction
Electronic industry is the world's largest and fastest growing manufacturing industry. During the last decade, it has assumed that role of providing a forceful leverage of the socio-economic and technological growth of a developing society. The consequence of its consumer oriented growth combined with rapid product obsolescence and technological advances are a new environmental challenge to the growing menace of "E-Waste" (Toxics Link, 2003). It is an emerging problem as well as a business opportunity of increasing significance, given the volumes of e-waste being generated and the content of both toxic and valuable materials in them. Obsolete computers from the business sector are sold by auctions. Bianchi and Birtwistle (2012), noted that comprehensive typology of disposal choices in the extended channel involves a combination of non-altruistic behaviors such as keeping, throwing away, selling/swapping as well as altruistic aspects such as giving away and donating to relatives or even friends. Chronic keepers sometimes referred as to ‘pack rats’ have a tendency to hoard items. This has been regarded as an example of obsessive-compulsive behavior largely governed by personality traits (Mburu & Tuduets, 2013). Disposal of electronic waste can be problematic and hazardous. For example, mobile phones contain heavy metals such as mercury and other toxic elements that make them unsuitable for
land filling while burning them releases dioxins and furans (Hageluken, 2007). If the mobile phones or the information and communications technology (ICT) equipment end up in landfills or dumpsites as is the case in many African countries, they can cause long term pollution of the environment including ground water and soil; with the likelihood of having serious human health effects.

The methods employed for disposing e-waste included dropping off old IT technology at garbage collection points, storing in offices, 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. Musical equipments like the woofers influence the young people as they learn from other cultures. Most youth get excited about home theatres organized in some communities especially among the Luos of Kenya who have extended functions after a wedding or a burial for the sake of enjoying music- leads to generation of more waste. The World Health Organization places deaths of children under five from environmentally related illnesses worldwide at 4.7 million a year- big disaster. Most donations by developed countries are a way of disposing e-waste as the electronic equipments have a short span lifespan. Producers do not bear any responsibility for disposal of old computers /equipment due to inadequate collection & disposal mechanisms. Infrastructure disruption, such as damage to access roads by heavy vehicles occurs. Equally being e-waste equipments throne in the environment they get washed downstream and since they contain hazardous can damage human health and the environment.

Figure : 1

Hazardous substances thrown by the roadway

Radioactive contamination—presence of radioactive substances on surfaces or within solids, liquids or gases, contamination may affect a person, a place, an animal, or an object such as clothing (Schiffman, 2013). Radioactive contamination can enter the body through ingestion,
inhalation, absorption or injection- Nagasaki and Hiroshima. Methane is naturally generated by decaying organic wastes in a landfill. It is a potent greenhouse gas, and can itself be a danger because it is flammable and potentially explosive.

Figure 2:

Exposure to such waste is hazardous

There are no laws to tame counterfeit electronic items which increase generation of e-waste; they are cheap but have a short lifespan (Faubert, 2013). E-waste is burnt and disassembled with no safety or environmental considerations since there is no policy to guide generation, recycling, re-use and disposal of e-waste. Unfortunately not every electronic recycler follows environmentally sound recycling practices; however, responsible electronics recyclers and refurbishers can now become certified by demonstrating to an accredited, independent third party that they meet available standards on responsible recycling practices. EPA encourages all electronic recyclers to become certified and all customers to choose certified recyclers.

E-waste is generated by institutional and commercial users as well as offices, industrial and household users. At the household level when someone is upgrading an electronic item (e.g. mobile phone), the old item is either passed on to another household member or sold to interested buyer or second hand shops. Non-functional electronics often end-up with scavengers (iterant waste pickers) who dispose it by selling to junkshops, that eventually sell to formal recycler for dismantling, recovery of precious metals and for further processing. It is estimated that Kenya generates the following amounts of e-waste annually:— 11,400 tones from refrigerators, 2,800 tones from TVs, 2,500 tones from personal computers, 500 tones from printers and 150 tones from mobile phones (Press Release UNEP, 2010).
Experts are concerned at the environmental damage being caused by solid waste deposits in Kisii town and its environs and are calling for concerted efforts to curb the menace before it gets out of hand (Nyasato, 2015). The ever green town and its environs are in quandary with experts warning that residents are threatened by pollution due to wanting solid waste management. Raising the red flag, (Nyasata, 2015), a waste management consultant based in Kisii County said the garbage with toxic substances filters to water sources thereby endangering the lives of residents. The study sought to investigate consumer behaviour on electrical/electronic waste in Kisii County, Kenya, establish socio-cultural practices that affect the generation, collection, transportation and disposal of e-waste in Kisii county, Kenya. Determine the implication of consumer practices as regards e-waste management

Statement of the Problem
E-waste is the most rapidly growing problem in waste stream due to its quantity, toxicity and carcinogenicity. Often, the toxic material is improperly disposed and thus poses a threat to human health and the environment. E-waste affects people’s health (e.g. lead poisoning and cancer), time usage in this age referred to as screen age and social media- positive and negative influence, Socio-culture- a lick on a button on a screen life changes very fast, music of other cultures, Changing technologies such as Shifting from keypad to android phones has aggravated e-waste management. There is no separate collection of e-waste in Kisii, no clear data on the quantity Generated and disposed as there is no policy governing e-waste management. E-waste is growing at a precipitous rate in Kisii in response economic growth and growth in city population which result to a steady rise in environmental degradation. The problem is compounded by the importation of second hand computer-wares and obsolete junk. The purpose of the study was to find out consumer behavior in relation to the fast developing industry of e-waste.

Objectives
The purpose of this paper is to
- Investigate consumer behaviour on electrical/electronic waste in Kisii County, Kenya.
- Establish socio-cultural practices that affect the generation, collection, transportation and disposal of e-waste in Kisii county, Kenya.
- Determine the implication of consumer practices as regards e-waste management in Kisii county, Kenya.

Methodology
The present report is based on both secondary and primary data. Secondary data was obtained through desk research while Primary data was collected via an observation checklist and an interview schedule. The study focused on consumer behaviour and socio-cultural implications of e-waste management for the people of Kisii at Kisii town, Kisii County, Kenya. Four repair shops were sampled purposively. The intention of the study was to find out the generation and disposal behavior of e-waste at household and secondary market levels. The researcher interviewed four proprietors of repair shops: Kiango General stores, Joy Communications, Obomo stores and which repair TVs, computers and cell-phones. The shops have been in operation for more than 12 years. Most of their Clients aged between 20 – 40 years; majority of whom were youths, elderly men and very few women.
Findings
Data from documentation, interview schedules and observation checklist on consumer behavior and socio-cultural practices on e waste management indicate that: Kisii town and other cities and towns of Kenya have a thriving electronics repair market due to their rapid population expansion. A big percentage of EoL electronics received by repair shops are neither repairable nor usable and therefore are simply dumped or burned at dumpsites (NEMA, 2007).

It was found that there are very many Informal mobile phone repair shops in Kisii town that buy EoL phones for spare parts. Out of observations, the researcher noted the following:

- There were heaps of e-waste and solid waste in Municipal disposal bins.
- There were e-waste dumped outside electronic repair shops.
- Repair shops had heaps of electronic items which continue to gather dust seemingly for overstaying unrepaired or unclaimed.

Most repair shops were TVs (old models), Radios, DVDs, woofers, amplifiers, musical keyboards, cell-phones, computers, and electric kettles. Some shops had items that have not been claimed for over twelve years.

**Figure : 3**

**EoL packed in manila bags**
Observation made in one electronic repair shop found baby cot though the baby had been taken home but a short interview revealed that the family with two children have no care taker had this to say. “We have no care giver in our home, so we usually wake up prepare the two kids, one the eldest we drop in pre-school and the baby have to be with us at work. We put it on the cot while we work.”

When asked if they were aware of hazardous effects of the emissions from the many electronic gadgets in their shop on the baby and their lives? The shop owner replied; “the emissions from the gadgets are not much and we do not have a way out since the economy is driving us crazy.”
A baby cot in an electronic shop

From interviewing repair shop proprietors, the researcher was informed that:

- Disposal of unclaimed items is by damping with other municipal waste, from where street children pick them to sell.
- People are in love with e-waste. They just pick them even when they have no use for them.
- Un-repairable and un-reclaimed Cell-phones are disposed as scrap sold at Kshs. 1,200 per Kilo.
- Old non functional cell phones are passed from one person to another on social relations and attachments.
- Disposal of cell-phones is not a serious threat as old ones are used as spare parts to repair new models.
Conducting an interview at a repair shop

Figure: 5

Storage space is a serious threat as generation of e-waste is rapid

Economic pressure is driving repair shops proprietors as kitchens and baby care locations posing a risk to health.

Conclusions

- There is no proper policy in Kisii county guiding on how to dispose electronic waste.
- Due to the unavailability of necessary logistics, it is very difficult for consumers to rightly dispose e-waste.
- The county has not put mechanism in place to ensure that waste is separated to generator – waste is waste.
- At the same time the recycling aspect has not been well embraced as a business venture in Kisii county, Kenya.

Recommendations

- The study recommends that specific policies and regulations on e-waste be developed which should govern e-waste from collection to final disposal, as well as licensing of key actors.
- A national collection system needs to be developed, and consumer awareness enhanced. Capacity building programs should be launched in the sector, possibly funded by fees levied on importers of second-hand equipment.
Nyamwange, C.

- a need to educate people on how to manage e-waste, enact legislation on e-waste and motivate households to discard e-waste properly by having convenient arrangements of discarding
- To reduce unsafe e-waste disposal best practices to be developed by engaging in national legislation, registration and infrastructure for responsible recycling.
- There is need to have a single authority to coordinate and regulate the activities related to e-waste.
- Finding ways to improve e-waste management must become a priority for the Kenyan government.
- The National Environment Management Authority (NEMA) of Kenya already done so much as regard to solid waste mgmt but need to work with speed on e-waste for the sake of Kenyans.

References
Flaubert. N. (2013). Counterfeit threats for electronic parts; a conference