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TITLE: Measuring e-waste – results from country studies: Nigeria

Measuring e-waste - results from country studies: Nigeria

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International Telecommunication Union

BASEL CONVENTION
the world environmental agreement on wastes

UNEP

Outline

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ICT advancement & the e-waste scenario in developing countries

Why undertake a National E-waste Inventory? I

Most countries lack sufficient information on e-waste flows;

- To identify, quantify e-waste flows, & develop a database
- To record possible re-exportation within a sub-region.
- To aid decision making e.g. formulating National Policy on e-waste
- To improve communication between exporting and importing countries.
- To have information on management practices
- To encourage stakeholders and investors to establish environmentally sound facilities & technology
- To develop guidelines for legal framework development

Why undertake a national e-waste Inventory? II

The key objective of an e-waste inventory is to have a database for the implementation of a suitable e-waste management system.

- Reliable data is critical: work with existing or fresh data?
- Duration of study: short term basis or a long term?
- Key questions: (i) what products to assess?

  (ii) how does EEEs & e-waste enter the country?

  (iii) from which countries?

  (iv) what quantities are imported?

  (iv) are there re-exports?
- How are imported and domestic e-waste managed?

Assessment methodology: Project scope

- Funding, project management, stakeholders etc
- Explicit definition of the project's objectives
- Define geographical scope: a nationwide survey, selected cities, within a region, transboundary movements, etc.?
- Representative data & then extrapolate to national survey?
- Define product scope: which products would be used as tracers? (which product to study?)
- What is the nature of data required: (i) import data on used EEEs only?; (ii) new + used EEEs? (iii) household possession? (iv) stock of EoL EEEs? or (v) complete mapping of flows of e-products (mass flow) (i-iv) + refurbishing + dismantling + recycling + disposal etc ?

Data acquisition: what national data are available?

- Available national database and literature reviews e.g. Customs data; National Office of Statistics; ship manifests on e-waste shipments; websites; publications etc.
- Meetings & workshops with resource persons, stakeholders
- Field investigations (seaports, airports, land borders, markets, informal recycling sector, dump sites etc.)
- Fresh statistics from interviews & questionnaires administered on stakeholders (Ports Authority, Customs, importers, households, government establishments etc.)
- Other International database (UN Comtrade Data etc.)

Selected models for estimating e-waste generation

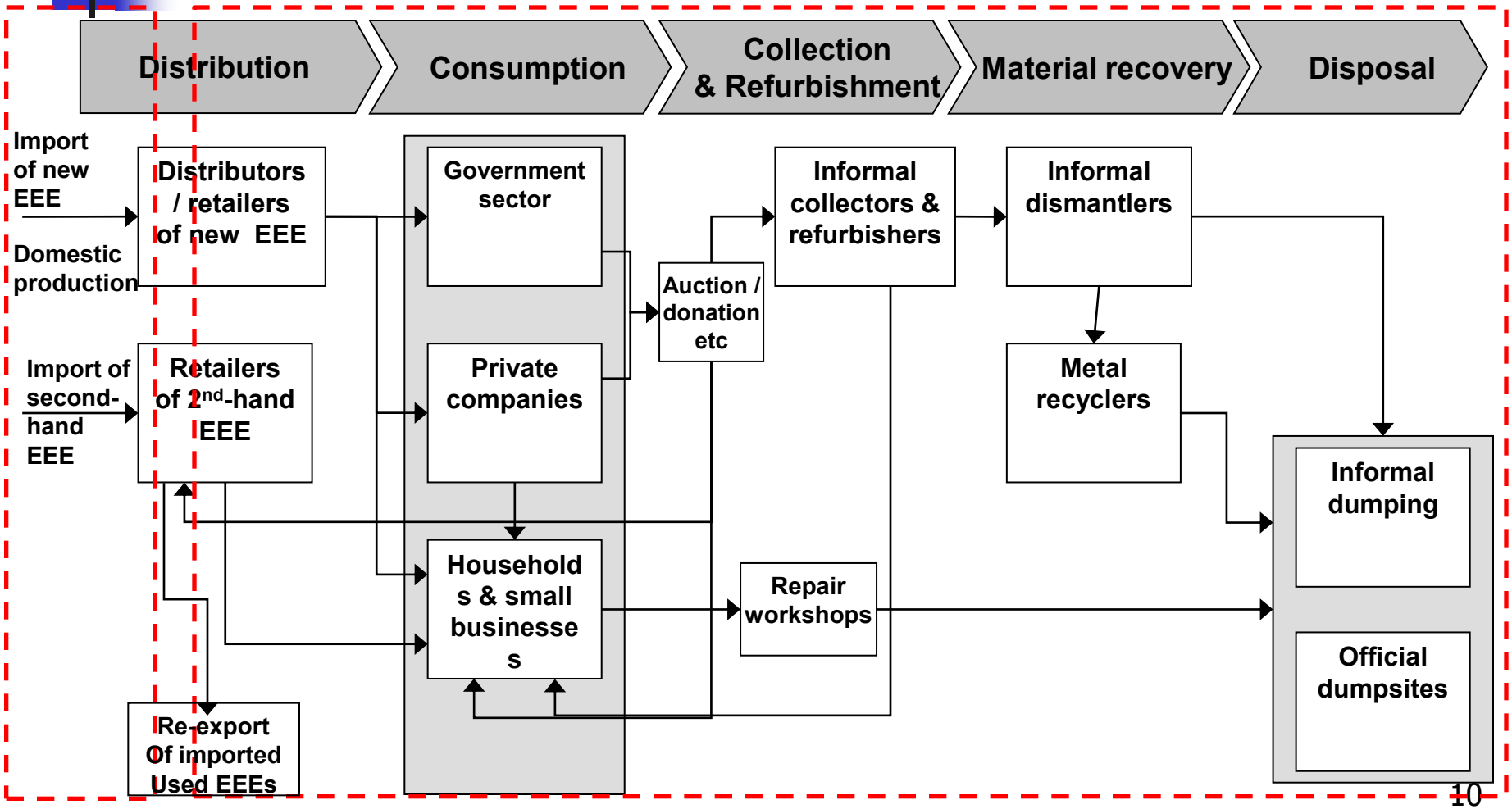
- Simple Delay Model: after a fixed duration, products are discarded. This is useful when sales data are available and when the products lifespan can be assumed
- Distribution Delay Model: data on amount of shipment and certain distribution of lifespan are taken into consideration
- Batch leaching Model: a certain ratio of product in use is discarded. This is useful when sufficient data are available. Here detailed possession and disposal rates are needed
- Econometric analysis: parameters such as income, household, penetration rate and price index are used

Steps in e-waste assessment process

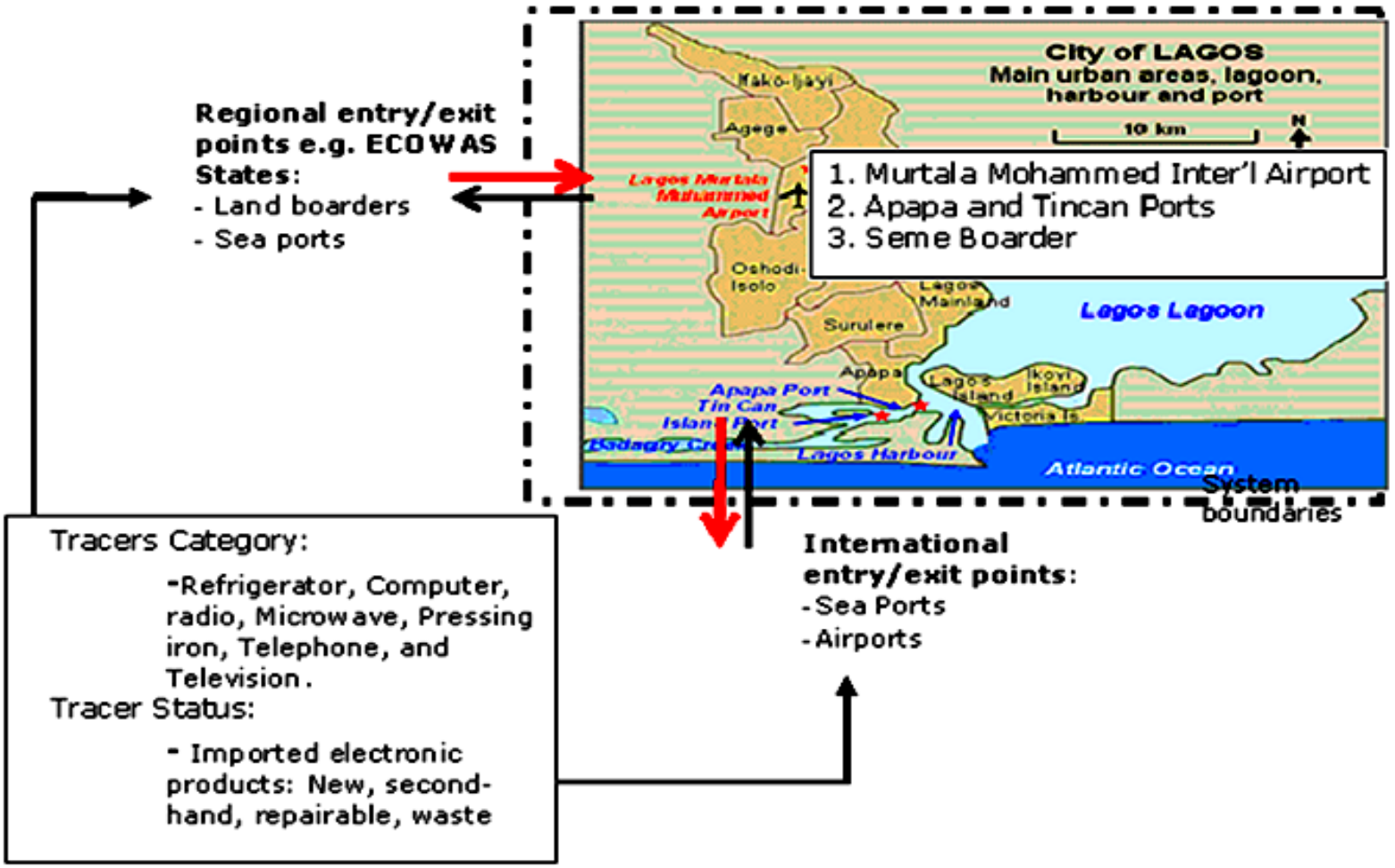
- Create awareness about the study and mobilize stakeholders (e.g. form a national e-waste strategy group)
- Announce the project and organize a technical training of the local experts (on e-waste and training for the assessment)
- Assessment study (min. 12 months for a short study)

  (i) Collection of data & field visits, (ii) Technical report preparation
- Organize a workshop to discuss the results/report
- Design a roadmap for the implementation of an e-waste management system
- The technical report and the roadmap are used for further actions

Stakeholders analysis :Mass flow



The Nigerian e-waste inventory I: product and geography scope



The Nigerian e-waste inventory II: Methodology/Data sources

- National Bureau of Statistics, Nigerian Customs Service, Ship manifests: Shipping details (port of loading, port of discharge, importers, category of EEEs, quantities, brands of electronics imported)
- Interview of stakeholders, Inspections, on-the-spot evaluations of selected port terminals.
- Use of questionnaires on stakeholders and consumers:

  (i). General awareness level on e-waste issues

  (ii). Policies related to and influencing e-waste importation and management, (iii) Household possession

  (iv) End of life management of e-waste

The Nigerian e-waste inventory III: Import statistics

- Quantities: 1,084.3 tonnes of used EEE were imported in 145 containers that came in 18 ships amounting to importation of 21,686.4 ton/y via Lagos ports
- Major exporters: UK (60%), Germany (16%), China (9%), US (3%),
- Functionality: ~70% of the imported used EEE are functional and are directly reused. The remaining 30% are non-functional. 60-70% of non-functional devices are repairable and are reused.
- Modes of importation: ~80% of imports are in 40ft containers. Significant amounts are imported concealed in used vehicles mixed with other 2nd hand goods declared as personal effects (the used vehicles are usually locked to prevent inspections).
- Nigeria is a transit point of used EEE flowing to neighbouring countries.

The Nigerian e-waste inventory IV: Conditions of imported EEEs

Imported New EEEs

Imported used EEEs

The Nigerian e-waste inventory V: Modes of importation

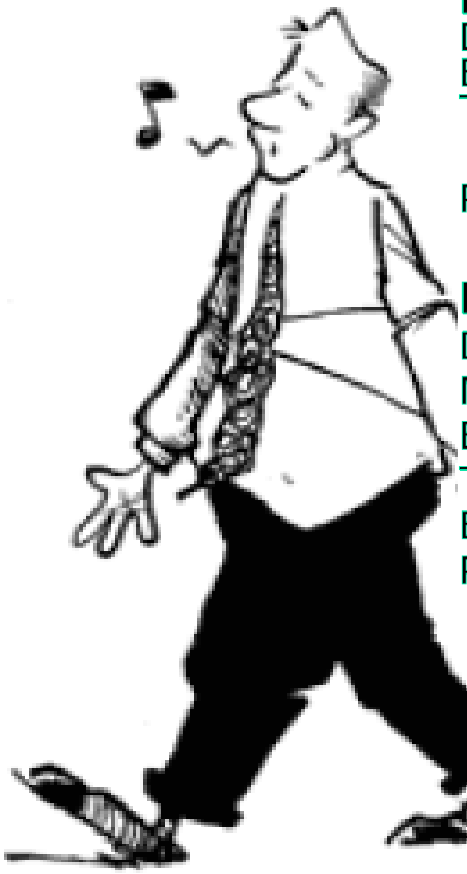
Challenges in e-waste Inventory taking in Nigeria

- Difficulties in accessing data from relevant authorities
- Unwillingness of stakeholders to participate in the study
- Inconsistencies in data obtained (from the ship manifests, Customs and National Bureau of Statistics)
- Lack of relevant National statistics for the study
- Some companies and households were not willing to divulge information on EoL EEE possession, management practices etc.
- Time constraints: there was limited time for the study

Suggestions/Recommendations

- Prior to the study: Keep reliable statistics, update & compare between agencies
- Methodology should be updated to suit local needs
- Local experts should be properly trained on the methodology
- Introduce a globally harmonized system of labeling to distinguish between new EEE, 2nd hand EEE and e-waste
- Unregulated imports of used EEEs mixed with e-waste makes classification difficult & inventory challenging, hence there is need to dedicate more time and resources
- Experience should be shared with other countries

Contacts



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