United Nations Institute for Training and Research

Towards the harmonization of data collection

A baseline study for e-waste in East Africa

In partnership with:

East African Communications Organisation

Communications for all in East Africa

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Introduction of SCYCLE

- United Nations Institute for Training and Research
- Established 60 years ago
- SCYCLE team is located in the Bonn office opened in 2021
- Prior to that, SCYCLE was hosted by the United Nations University

Project background - Method -

*The project aimed at **improving the quality, collection, and interpretation of e-waste data in East Africa**. The six countries in focus are Burundi, Kenya, Rwanda, South Sudan, Tanzania, and Uganda.*

Two methods were used:

1) Calculation of Electrical and Electronic Equipment (EEE) put on the market (**POM**) and **E-waste Generation** in each country using e-waste generated toolkits;
2) Collection of data through the distribution of **household and business surveys** in Burundi and Kenya

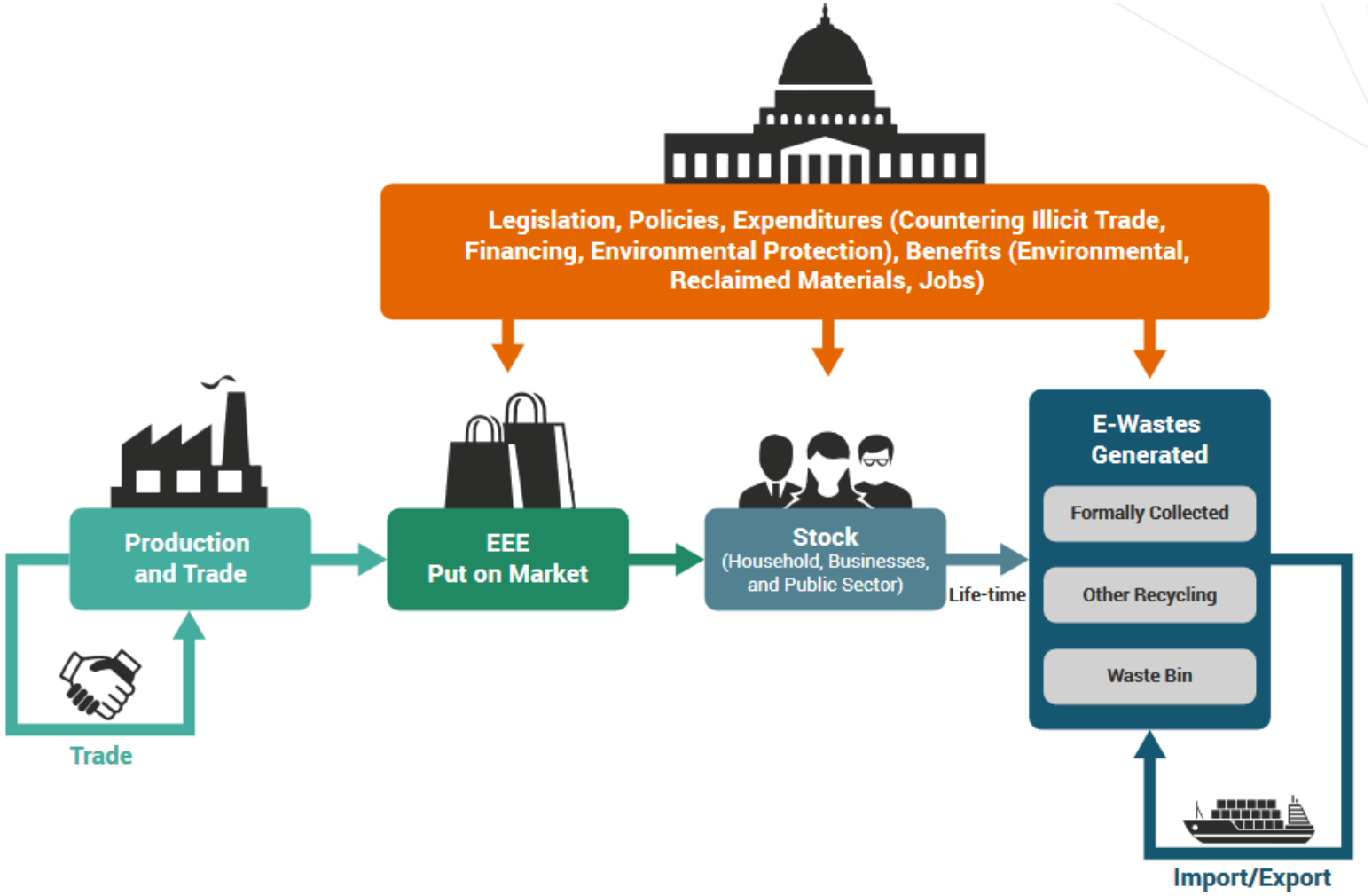
Project background
- Aim -

- Improve **comparability** of e-waste statistics across the Eastern African region

- Providing **guidance** on the structure and content of households and business surveys on e-waste consumption and disposal

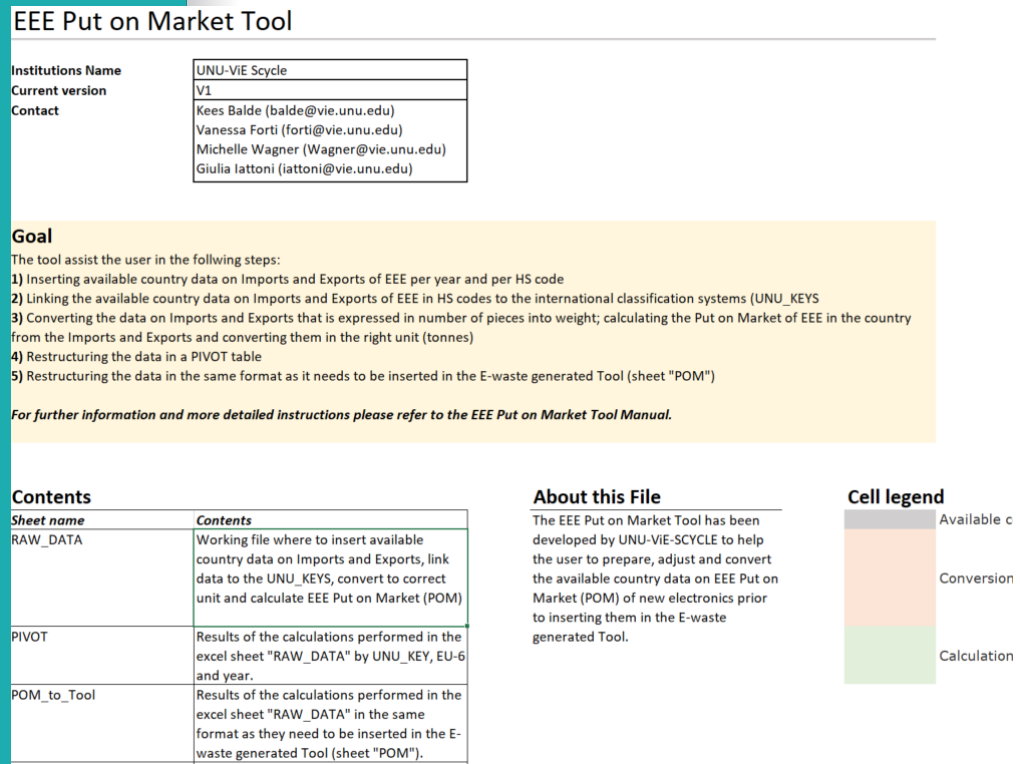
Methodology – POM and E-waste Generated -

The framework can integrate the harmonized existing data at country level and can serve as the basis for e-wastes statistics and e-waste indicators



Methodology – POM and E-waste Generated -

- *E-waste generated Tool* uses Put on Market (POM) data of EEE to **calculate the E-waste generated**
- The *E-waste generated Tool* is pre-populated with UNITAR's estimations of EEE Put on Market data per country obtained through the Import/Export data of the UN Comtrade Database
- The *EEE Put on Market Tool* help the user to **prepare, adjust and convert the available country data on Put on Market (POM)** of electric and electronic equipment (EEE) **prior to inserting it in the E-waste Generated Tool**



EEE Put on Market Tool

Institutions Name	UNU-ViE Scycle
Current version	V1
Contact	Kees Balde (balde@vie.unu.edu) Vanessa Forti (forti@vie.unu.edu) Michelle Wagner (Wagner@vie.unu.edu) Giulia Iattoni (iattoni@vie.unu.edu)

Goal

The tool assist the user in the follwing steps:
1) Inserting available country data on Imports and Exports of EEE per year and per HS code
2) Linking the available country data on Imports and Exports of EEE in HS codes to the international classification systems (UNU_KEYS
3) Converting the data on Imports and Exports that is expressed in number of pieces into weight; calculating the Put on Market of EEE in the country from the Imports and Exports and converting them in the right unit (tonnes)
4) Restructuring the data in a PIVOT table
5) Restructuring the data in the same format as it needs to be inserted in the E-waste generated Tool (sheet "POM")

For further information and more detailed instructions please refer to the EEE Put on Market Tool Manual.

Contents

Sheet name	*Contents*
RAW_DATA	Working file where to insert available country data on Imports and Exports, link data to the UNU_KEYS, convert to correct unit and calculate EEE Put on Market (POM)
PIVOT	Results of the calculations performed in the excel sheet "RAW_DATA" by UNU_KEY, EU-6 and year.
POM_to_Tool	Results of the calculations performed in the excel sheet "RAW_DATA" in the same format as they need to be inserted in the E-waste generated Tool (sheet "POM").

About this File

The EEE Put on Market Tool has been developed by UNU-ViE-SCYCLE to help the user to prepare, adjust and convert the available country data on EEE Put on Market (POM) of new electronics prior to inserting them in the E-waste generated Tool.

Cell legend

Available c
Conversion
Calculation

E-waste generated Tool

Hide Sheets
Show Sheets

Country: General

Input POM data
Calculate E-waste generated
Export results

Developed by

UNITED NATIONS UNIVERSITY

Methodology – Household and Business Survey-

Survey design:

1) Geographical scope: Kenya and Burundi

1) Identification of the main aim:

- Assess the possession rates of EEE in households and businesses;
- understand consumers' behaviour towards discarding e-waste;
- Identify the main disposal routes for e-waste.

3) Identification of the focus products:

4) Definition of the survey questions

0108 - Fridges
0109 - Freezers
0111 - Air conditioners
0303 - Laptops
0309 - Flat display panel monitors for computers
0408 - Flat display panel televisions
0103 - Kitchen equipment
0104 - Washing machines
0105 - Dryers
0114 - Microwaves
0202 - Equipment for food preparation
0304 - Small household equipment
0204 - Vacuum cleaners
0205 - Personal care equipment
0302 - Desktop PCs
0304 – Printers
0306 - Mobile phones
0305 - Telecommunication equipment

Methodology – Household and Business Survey-

Survey sampling size, collection dates and locations in Burundi and Kenya

Survey	Kenya		Burundi	
	Household (CATI)	Business (CATI)	Household (CATI)	Business (CAPI)
Sample size achieved	507	308	351	117
Data collection dates (September 2022)	16th – 22nd	12th – 30th	14th – 30th	13th – 29th
Sample locations	Nairobi, Mombasa, Kisumu, Nakuru		Bujumbura, Muyinga, Gitega	
Language	English, Swahili		English, French, Kirundi	

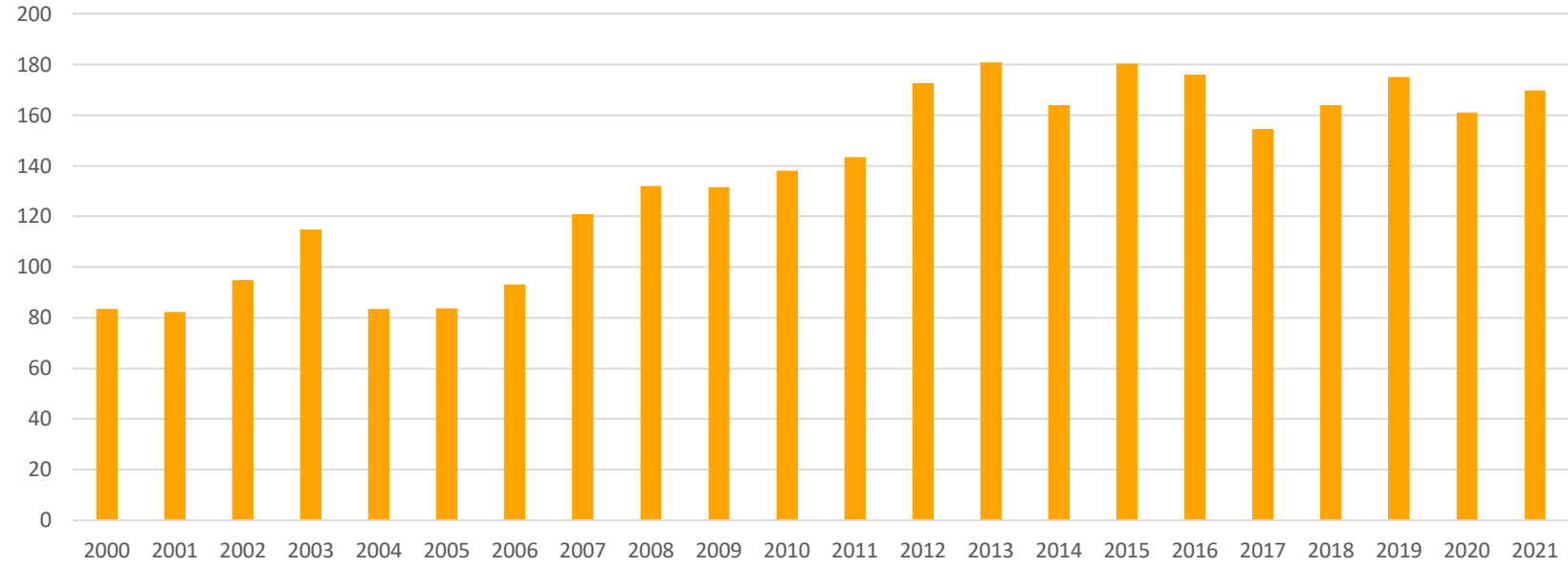
Methods used

1) CAPI: face to face research undertaken where interviewers use software on a computer or tablet to record interview responses, allowing for follow-up questions and visual or audio aids.

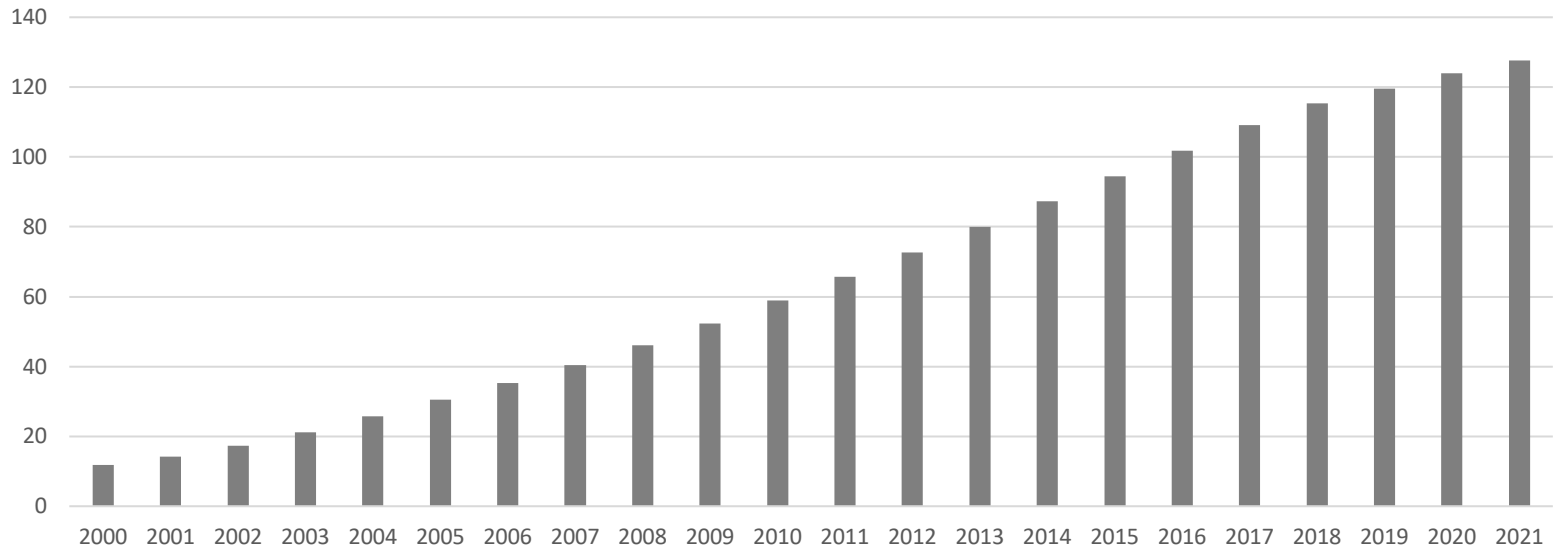
2) CATI: voice call interviews in which trained interviewers call respondents' phone numbers from a central call center.

Results - POM and E-waste Generated

Evolution of EEE POM in East Africa over time (in kilotonnes)

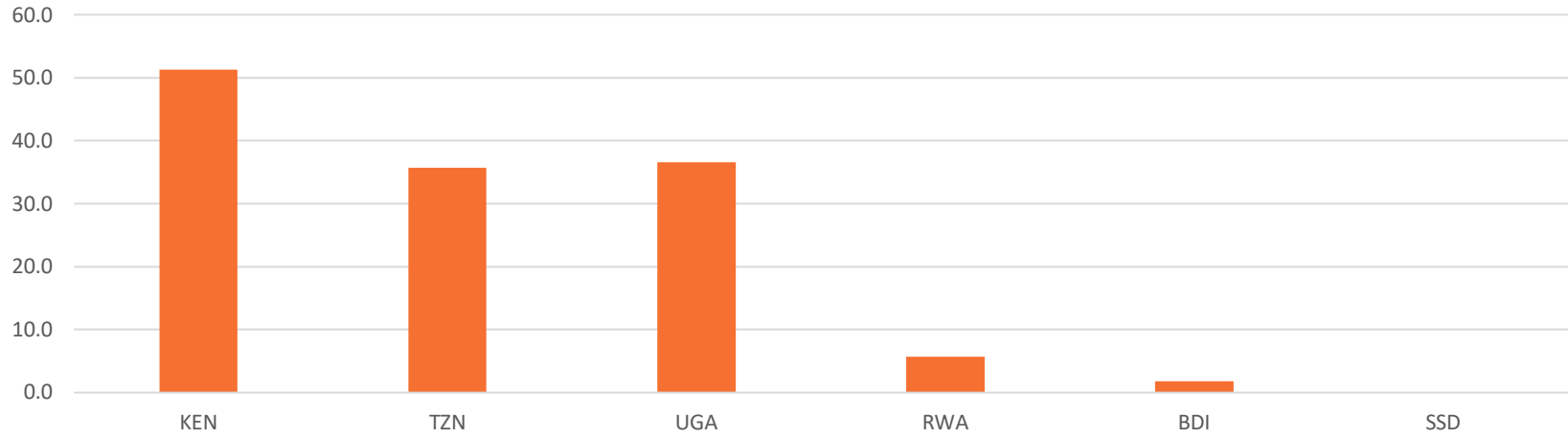


Evolution of e-waste in East Africa over time (in kilotonnes))



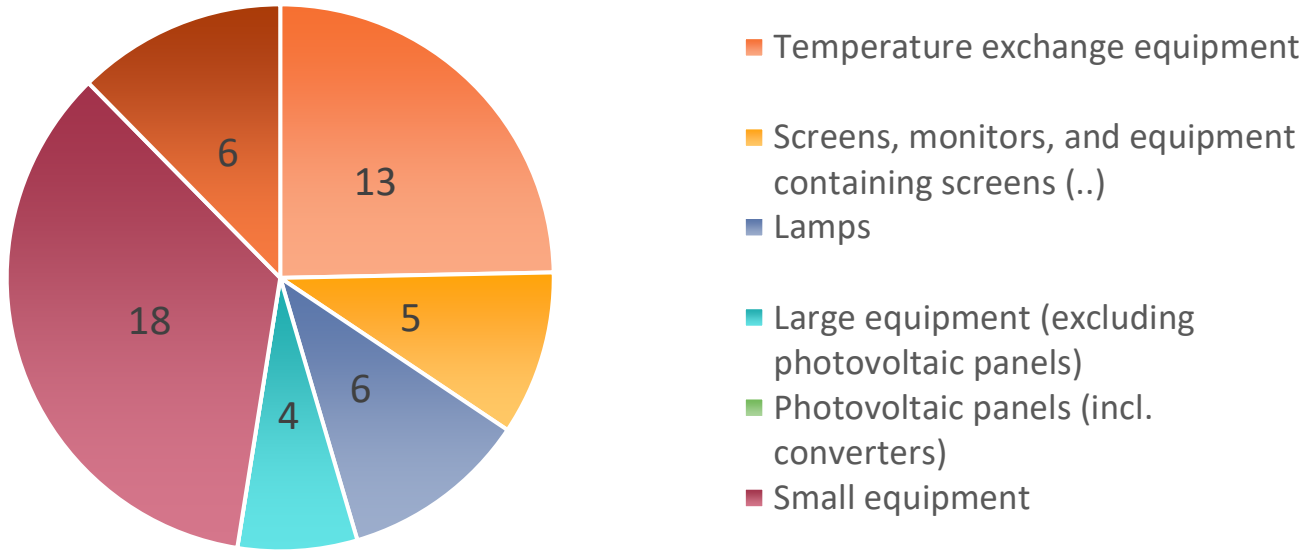
Results - POM and E-waste Generated

Estimations of e-waste generation in East Africa in 2021 by country (in kilotonnes)



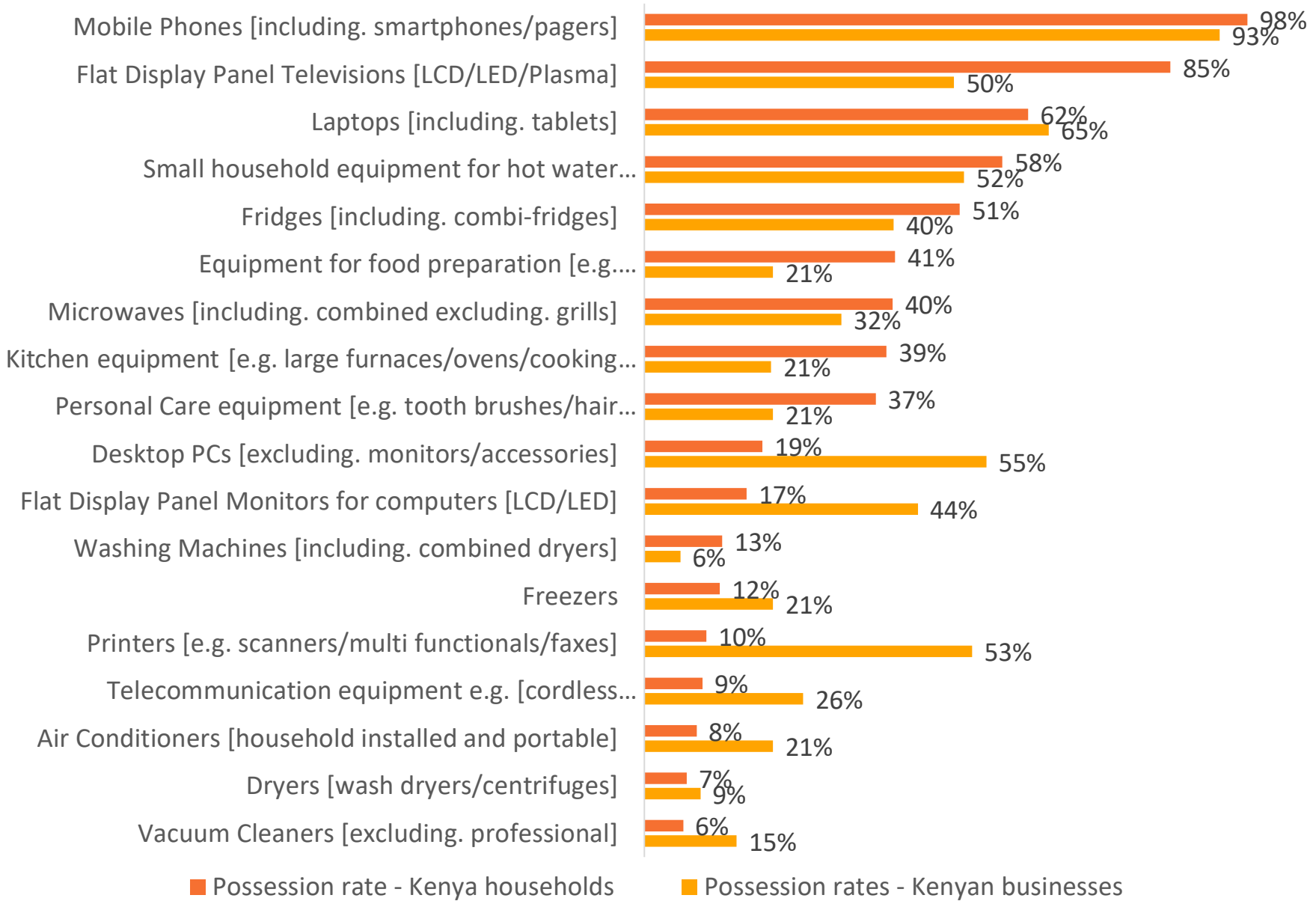
E-waste generated by category in 2021 (in kilotonnes)

Kenya



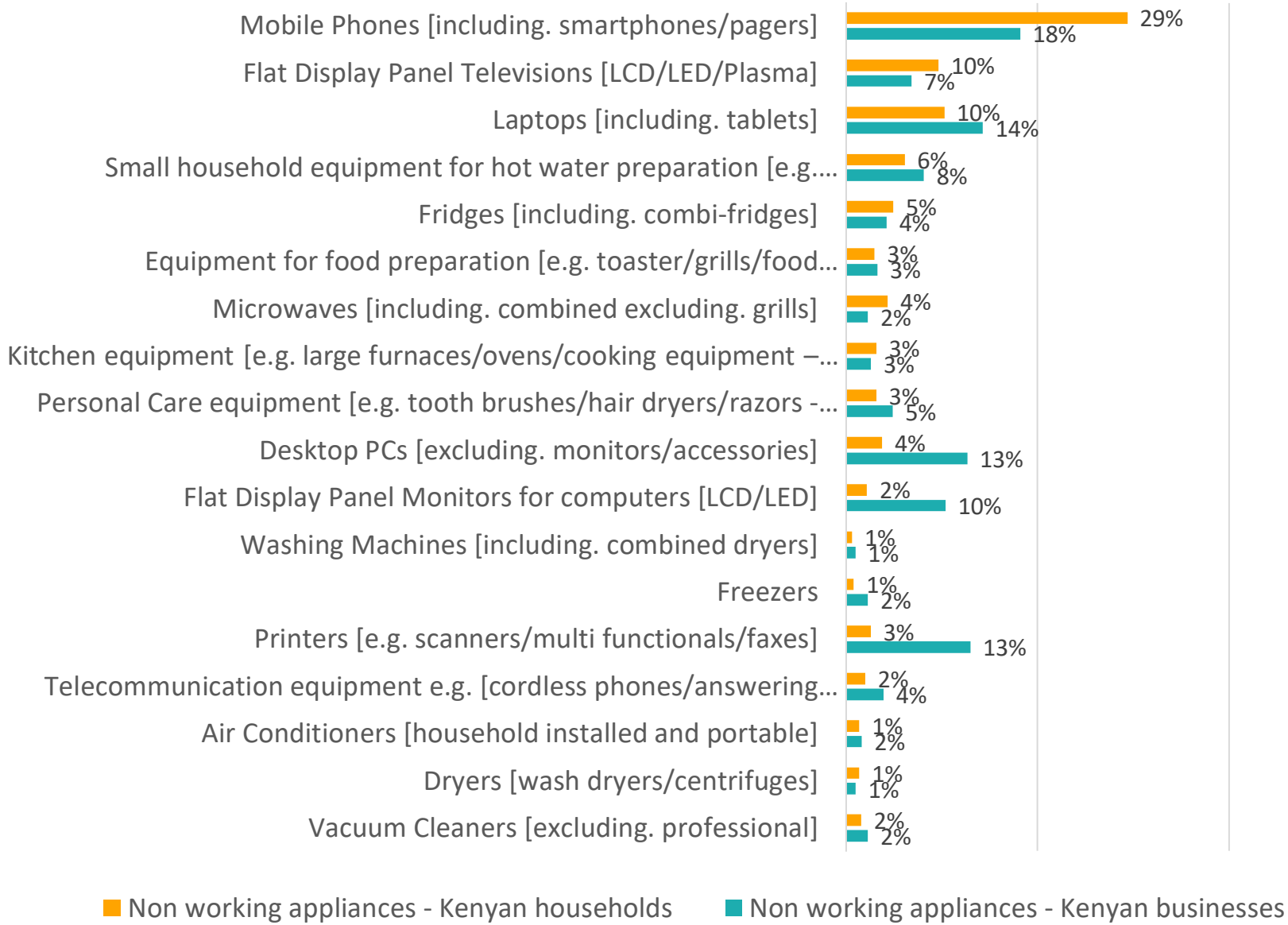
Methodology – Household and Business Survey-

Percentage of households and businesses in Kenya that possess at least one product



Methodology – Household and Business Survey-

Percentage of non-functioning equipment possessed by households and businesses in Kenya



Methodology – Household and Business Survey-

Disposal routes for products with the highest possession rate in Kenya households

Disposal route	Fridges	Laptops	Flat display panel TVs	Small household equipment	Mobile phones
Picked up from home by the company that sold me the product	30%	7%	11%	NA	5%
Collected by door-to-door worker	10%	5%	4%	10%	7%
Sold online	10%	7%	5%	NA	3%
Sold to a refurbishment or repair shop	15%	51%	33%	33%	34%
Disposed of in the mixed municipal solid waste bin	NA	7%	12%	31%	15%
County picked-up from home	NA	2%	NA	4%	2%
Brought to an e-waste collection centre or county designated drop off point	20%	NA	2%	2%	4%
Picked up by an e-waste collection centre	NA	2%	2%	2%	1%
Donated	5%	9%	18%	2%	11%
Other	10%	9%	14%	16%	18%

Methodology – Household and Business Survey-

Disposal routes for products with the highest possession rate in Burundi households

Disposal route	Mobile phones	Personal care equipment	Flat display panel TVs	Kitchen equipment	Equipment for food preparation
Picked up from home by the company that sold me the product	2%	1%	NA	4%	NA
Collected by door-to-door worker	17%	10%	20%	11%	NA
Sold online	3%	NA	NA	NA	NA
Sold to a refurbishment or repair shop	21%	0%	20%	2%	19%
Disposed of in the mixed municipal solid waste bin	13%	49%	20%	51%	30%
Brought to an e-waste collection centre or county designated drop off point	7%	19%	NA	14%	4%
Picked up by an e-waste collection centre	NA	4%	NA	2%	NA
Donated	10%	NA	NA	1%	7%
Other	27%	15%	40%	14%	41%

Conclusions

- Using the same methods and tools, the study enabled countries in East Africa to produce national statistics on e-waste generated that are harmonized and comparable across countries;
- It is recommended that:
  - surveys are extended to other countries
  - to increase the sample size;
  - to include e-waste surveys in the national plans
  - to update regularly statistics on e-waste to be able to monitor and track developments over time

Thank you

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