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## E-waste statistics

General principles of e-waste statistics

April, 2018 – E-waste statistics workshop - Zanzibar



# Outline



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  - *Link UNU-KEYS to Harmonized System*
  - *Link UNU-KEYS to other classifications*
- Measure e-waste
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  - Indicators
- Raise hands

# Harmonized framework to measure e-waste: the Partnership Measuring ICT for Development



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- Guidelines published in 2015, updated in 2018
- Lack of a uniform measurement system for e-waste
- Data can be available at country level



*The framework integrates and validates available harmonized statistical data and non-statistical data sources into e-waste statistics*

- Classification of e-waste to link multiple data sources and data formats
- 4 indicators developed
  1. Total EEE Put on the Market
  2. E-waste generated
  3. E-waste collection
  4. E-waste collection rate

<http://unu.edu/projects/e-waste-quantification.html#outputsc>

# Benefits of the framework



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- Clear classification of e-waste
- Solve the discrepancies between data from different sources
- Link existing statistical classifications and frameworks
- Help to interpret e-waste-related data
- Help to compile e-waste statistics comparable between countries worldwide
- Provide guidance to developing and developed countries to measure e-waste more consistently

# E-waste classification:

## *UNU-KEYS Product classification*



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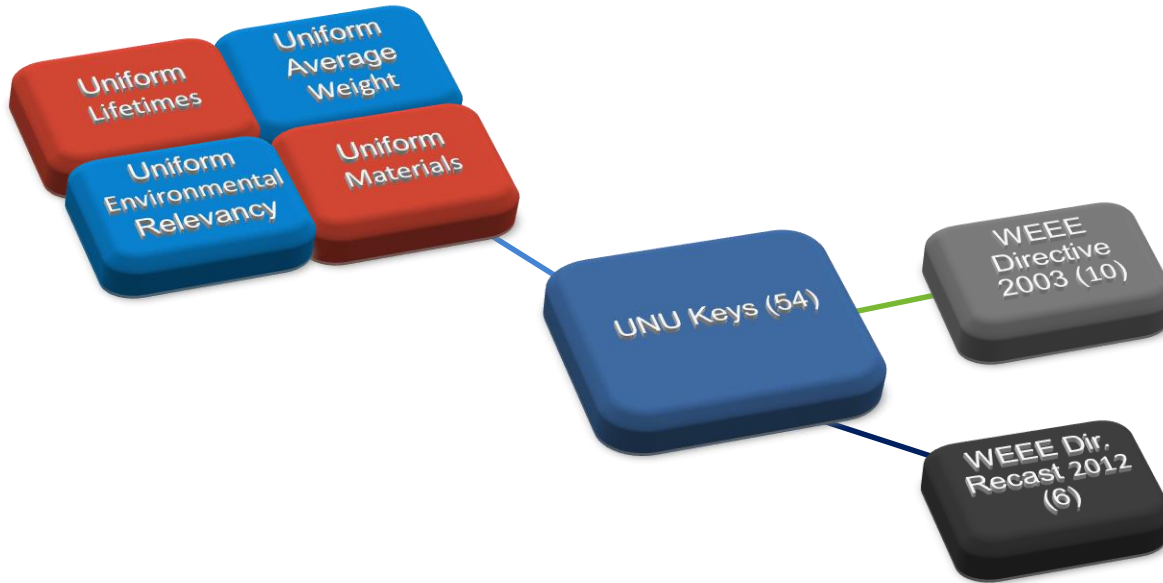
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# E-waste classification:

*Link UNU-KEYS to the WEEE Collection categories*



- (1) Temperature exchange equipment
- (2) Screens and monitors
- (3) Lamps
- (4) Large equipment
- (5) Small equipment
- (6) Small IT

# E-waste classification:

## Link UNU-KEYS to the WEEE Collection categories



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UNU Key	Description	ANNEX III of Recast WEEE Directive	old EU-WEEE Directive
0001	Central Heating (household installed)	Large equipment	out of scope
0002	Photovoltaic Panels (incl. converters)	Large equipment	out of scope
0101	Professional Heating & Ventilation (excl. cooling equipment)	Large equipment	01
0102	Dishwashers	Large equipment	01
0103	Kitchen (f.i. large furnaces, ovens, cooking equipment)	Large equipment	01
0104	Washing Machines (incl. combined dryers)	Large equipment	01
0105	Dryers (wash dryers, centrifuges)	Large equipment	01
0108	Household Heating & Ventilation (f.i. hoods, ventilators, space heaters)	Large equipment	01
0108	Fridges (incl. combi-fridges)	Cooling and Freezing	01
0109	Freezers	Cooling and Freezing	01
0111	Air Conditioners (household installed and portable)	Cooling and Freezing	01
0112	Other Cooling (f.i. dehumidifiers, heat pump dryers)	Cooling and Freezing	01
0113	Professional Cooling (f.i. large air conditioners, cooling displays)	Cooling and Freezing	01
0114	Microwaves (incl. combined, excl. grills)	Small equipment	01
0201	Other Small Household (f.i. small ventilators, irons, clocks, adapters)	Small equipment	02
0202	Food (f.i. toaster, grills, food processing, frying pans)	Small equipment	02
0203	Hot Water (f.i. coffee, tea, water cookers)	Small equipment	02
0204	Vacuum Cleaners (excl. professional)	Small equipment	02
0205	Personal Care (f.i. tooth brushes, hair dryers, razors)	Small equipment	02
0301	Small IT (f.i. routers, mice, keyboards, external drives & accessories)	Small IT	03
0302	Desktop PCs (excl. monitors, accessories)	Small IT	03
0303	Laptops (incl. tablets)	Screens	03
0304	Printers (f.i. scanners, multifunctionals, faxes)	Small IT	03
0305	Telecom (f.i. cordless phones, answering machines)	Small IT	03
0306	Mobile Phones (incl. smartphones, pagers)	Small IT	03
0307	Professional IT (f.i. servers, routers, data storage, copiers)	Large equipment	03
0308	Cathode Ray Tube Monitors	Screens	03
0309	Flat Display Panel Monitors (LCD, LED)	Screens	03
0401	Small Consumer Electronics (f.i. headphones, remote controls)	Small equipment	04
0402	Portable Audio & Video (f.i. MP3, e-readers, car navigation)	Small equipment	04
0403	Music Instruments, Radio, HiFi (incl. audio sets)	Small equipment	04
0404	Video (f.i. Video recorders, DVD, Blue Ray, set-top boxes)	Small equipment	04
0405	Speakers	Small equipment	04
0406	Cameras (f.i. camcorders, photo & digital still cameras)	Small equipment	04
0407	Cathode Ray Tube TVs	Screens	04

0408	Flat Display Panel TVs (LCD, LED, Plasma)	Screens	04
0501	Lamps (f.i. pocket, Christmas, excl. LED & incandescent)	Small equipment	05
0502	Compact Fluorescent Lamps (incl. retrofit & non-retrofit)	Lamps	05
0503	Straight Tube Fluorescent Lamps	Lamps	05
0504	Special Lamps (f.i. professional mercury, high & low pressure sodium)	Lamps	05
0505	LED Lamps (incl. retrofit LED lamps & household LED luminaires)	Lamps	05
0506	Household Luminaires (incl. household incandescent fittings)	Small equipment	05
0507	Professional Luminaires (offices, public space, industry)	Small equipment	05
0601	Household Tools (f.i. drills, saws, high pressure cleaners, lawn mowers)	Small equipment	06
0602	Professional Tools (f.i. for welding, soldering, milling)	Large equipment	06
0701	Toys (f.i. car racing sets, electric trains, music toys, biking computers)	Small equipment	07
0702	Game Consoles	Small IT	07
0703	Leisure (f.i. large exercise, sports equipment)	Large equipment	07
0801	Household Medical (f.i. thermometers, blood pressure meters)	Small equipment	08
0802	Professional Medical (f.i. hospital, dentist, diagnostics)	Large equipment	08
0901	Household Monitoring & Control (alarm, heat, smoke, excl. screens)	Small equipment	09
0902	Professional Monitoring & Control (f.i. laboratory, control panels)	Large equipment	09
1001	Non Cooled Dispensers (f.i. for vending, hot drinks, tickets, money)	Large equipment	10
1002	Cooled Dispensers (f.i. for vending, cold drinks)	Cooling and Freezing	10

# E-waste classification:

*Link UNU-KEYS to Harmonized System (custom codes)*



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# E-waste classification:

*Link UNU-KEYS to Harmonized System (custom codes)*



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UNU-KEY	UNU Key Description	HS	HS Description
0101	Professional Heating & Ventilation (excl. cooling equipment)	845110	Dry-cleaning machines
0101	Professional Heating & Ventilation (excl. cooling equipment)	845130	Ironing machines and presses including fusing presses
0102	Dishwashers	842211	Dish washing machines (domestic)
0103	Kitchen (f.i. large furnaces, ovens, cooking equipment)	851660	Electric cooking, grilling & roasting equipment nes
0104	Washing Machines (incl. combined dryers)	845011	Automatic washing machines, of a dry capacity < 10 kg
0104	Washing Machines (incl. combined dryers)	845012	Washing machines nes, capacity <10 kg, built-in drier
0104	Washing Machines (incl. combined dryers)	845019	Household/laundry-type washing machines <10 kg, nes
0104	Washing Machines (incl. combined dryers)	845020	Household or laundry-type washing machines, cap >10kg
0105	Dryers (wash dryers, centrifuges)	842112	Clothes-dryers, centrifugal
0105	Dryers (wash dryers, centrifuges)	845121	Drying machines, capacity <10 kg, except washer-drier
0105	Dryers (wash dryers, centrifuges)	845129	Drying machines, nes
0106	Household Heating & Ventilation (f.i. hoods, ventilators, space heaters)	841460	Ventilating hoods having a maximum width < 120 cm
0106	Household Heating & Ventilation (f.i. hoods, ventilators, space heaters)	851621	Electric storage heating radiators



## E-waste classification:

*Link UNU-KEYS to other classifications*



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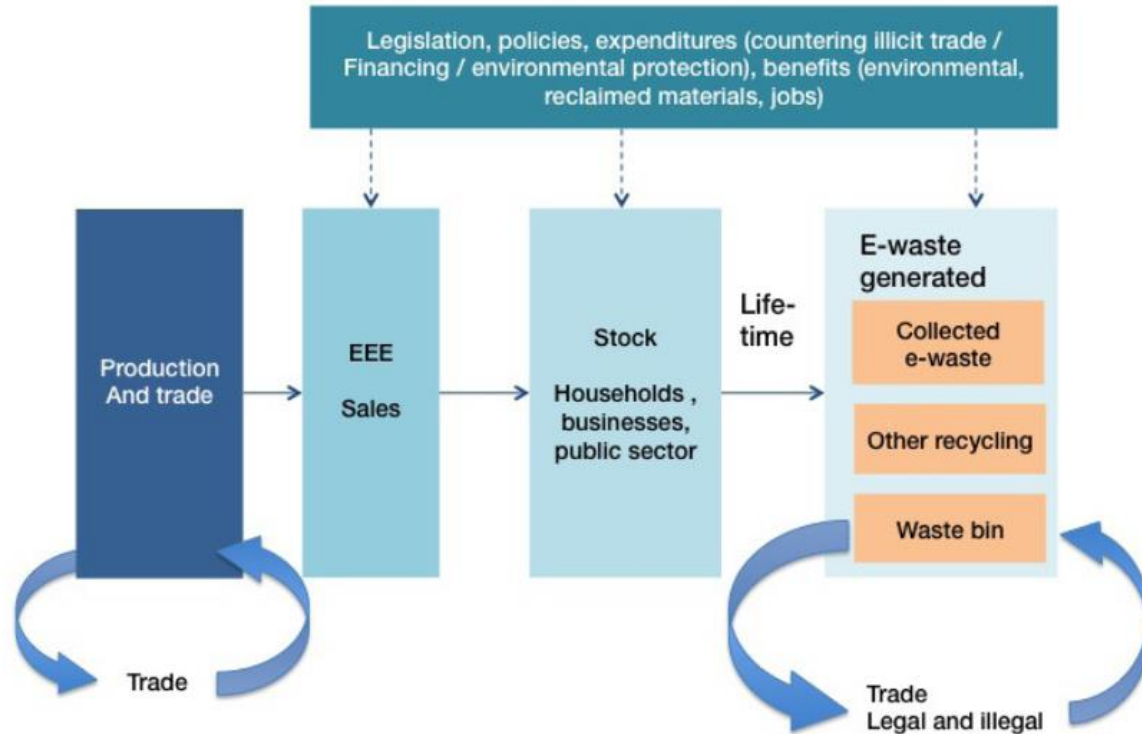
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	UNU-KEYS	HS	LoW	Basel Code	WEEE Directive 6 categories
UNU-KEYS					
HS	1 HS codes unique links to the UNU-KEYS.				
EU List of Waste (LoW)	Not directly correlated	Not directly linked, due to differing concepts of waste in HS classification and LoW			
Basel Codes	Not directly correlated	Not directly correlated	Not directly correlated		
EU WEEE Directive, 6 categories	One UNU-KEY can be correlated to the 6 categories	1 HS codes can be correlated to the 6 categories of the WEEE-Directive	Not directly correlated	Not directly correlated	
EU WEEE Directive, 10 categories	One UNU-KEY links to a category in the WEEE Directive	1 HS codes can be correlated to the 10 categories of the WEEE-Directive	Not directly correlated	Not directly correlated	Not directly correlated

# Measure e-waste: *flows*



A uniform measurement system for e-waste enable the measurement of these flows:

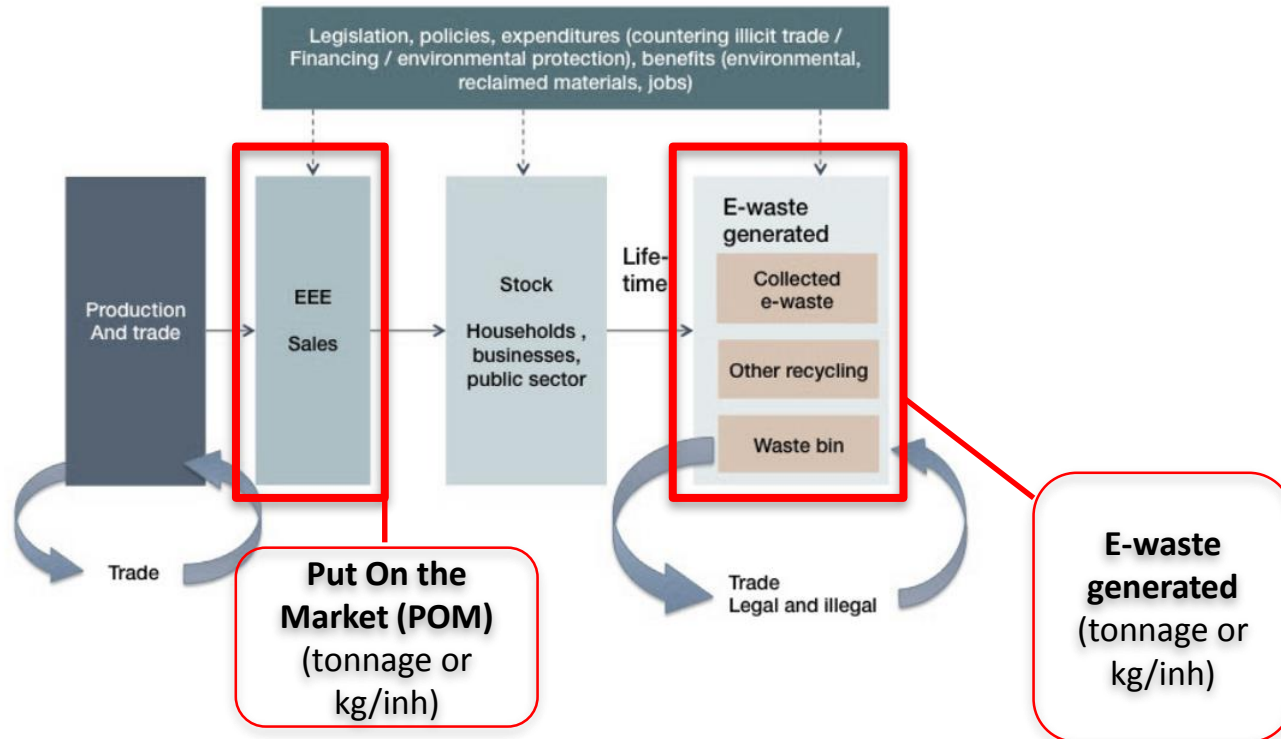


- Different data availability among countries
- The constructed indicators allows comparison between countries
- Some parameters can be transferred between countries (e.g. life span, market saturation, discarding behavior etc.)
- Data gathering need to be adjusted to this framework

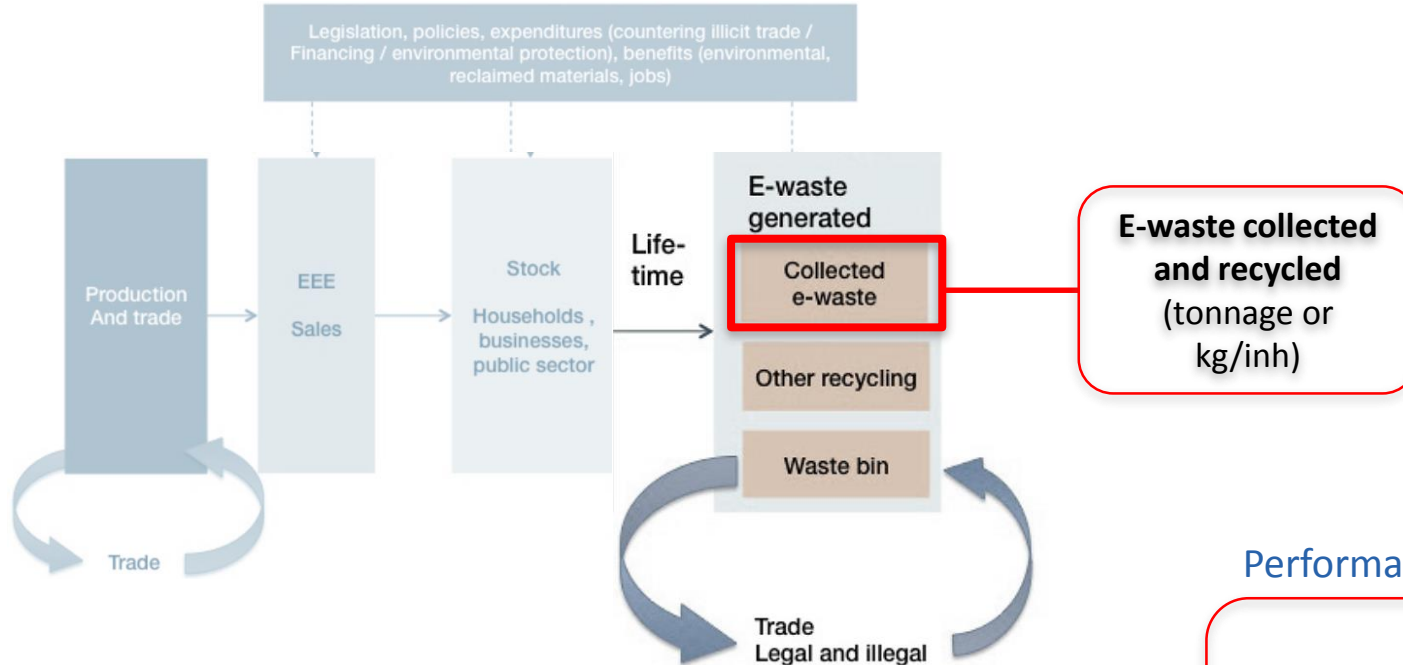
# Measure e-waste: *indicators*



Indicators arising from the measurement framework should capture the most essential aspects of a country's performance of e-waste management



# Measure e-waste: *indicators*



## Performance:

$$\text{E-waste collection rate} = \frac{\text{E-waste collected}}{\text{e-waste generated}}$$



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Thank you for your attention!