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Sustainable Cycles Programme



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United Nations Institute for Training and Research

Measurement of Global E-waste and the role of households surveys

*17th World Telecommunication/ICT Indicators
Symposium (WTIS), 1-3 December 2020*

Vanessa Forti

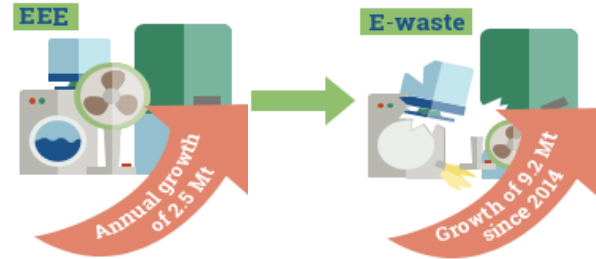
Programme Associate at SCYCLE



1. Global E-waste Key Statistics and the role of household surveys

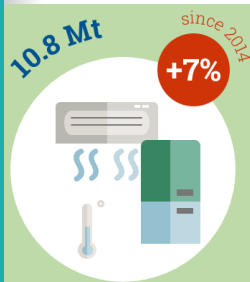
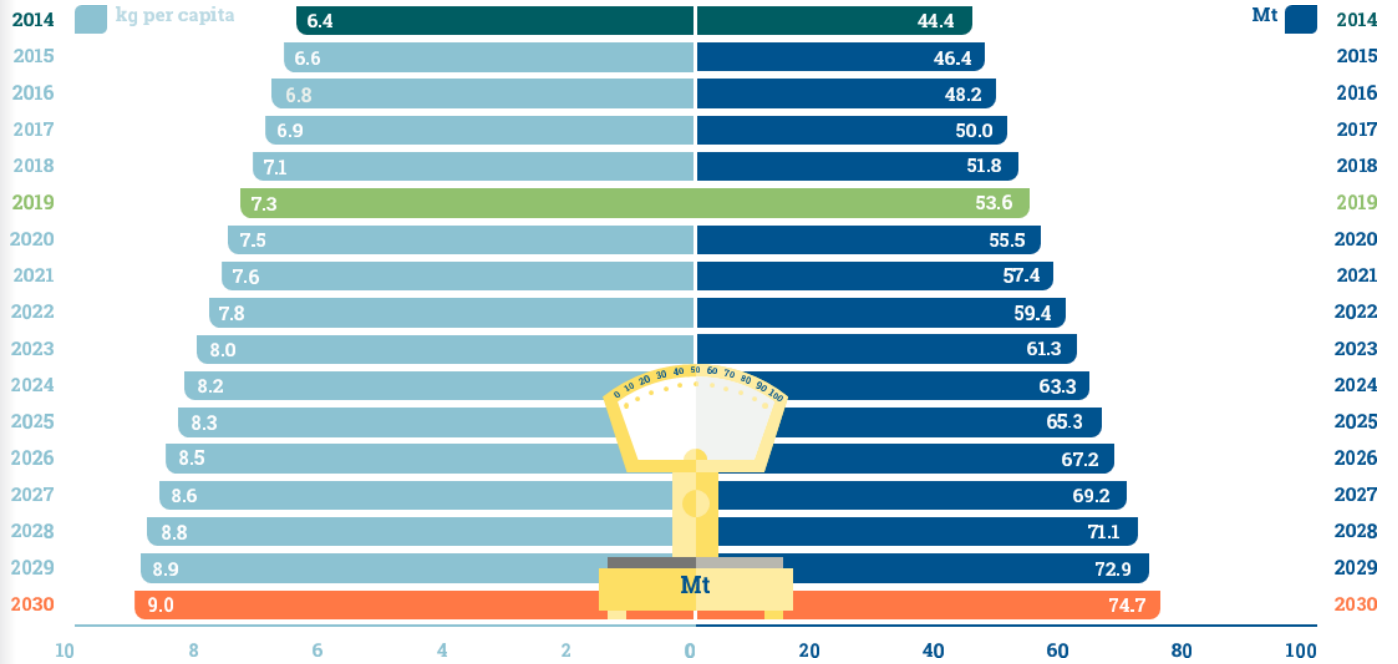


Key Drivers of E-waste Generation

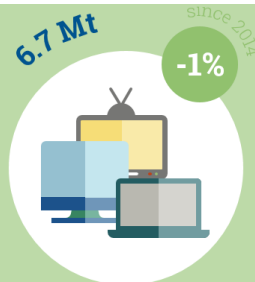


Global E-waste Generation

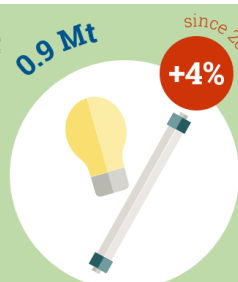
Forecasts and breakdown by category



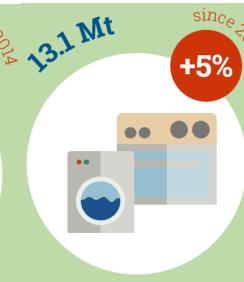
Temperature exchange equipment



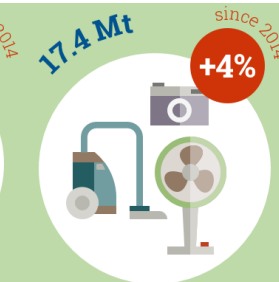
Screens and monitors



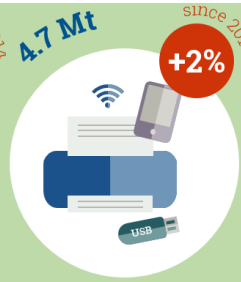
Lamps



Large equipment



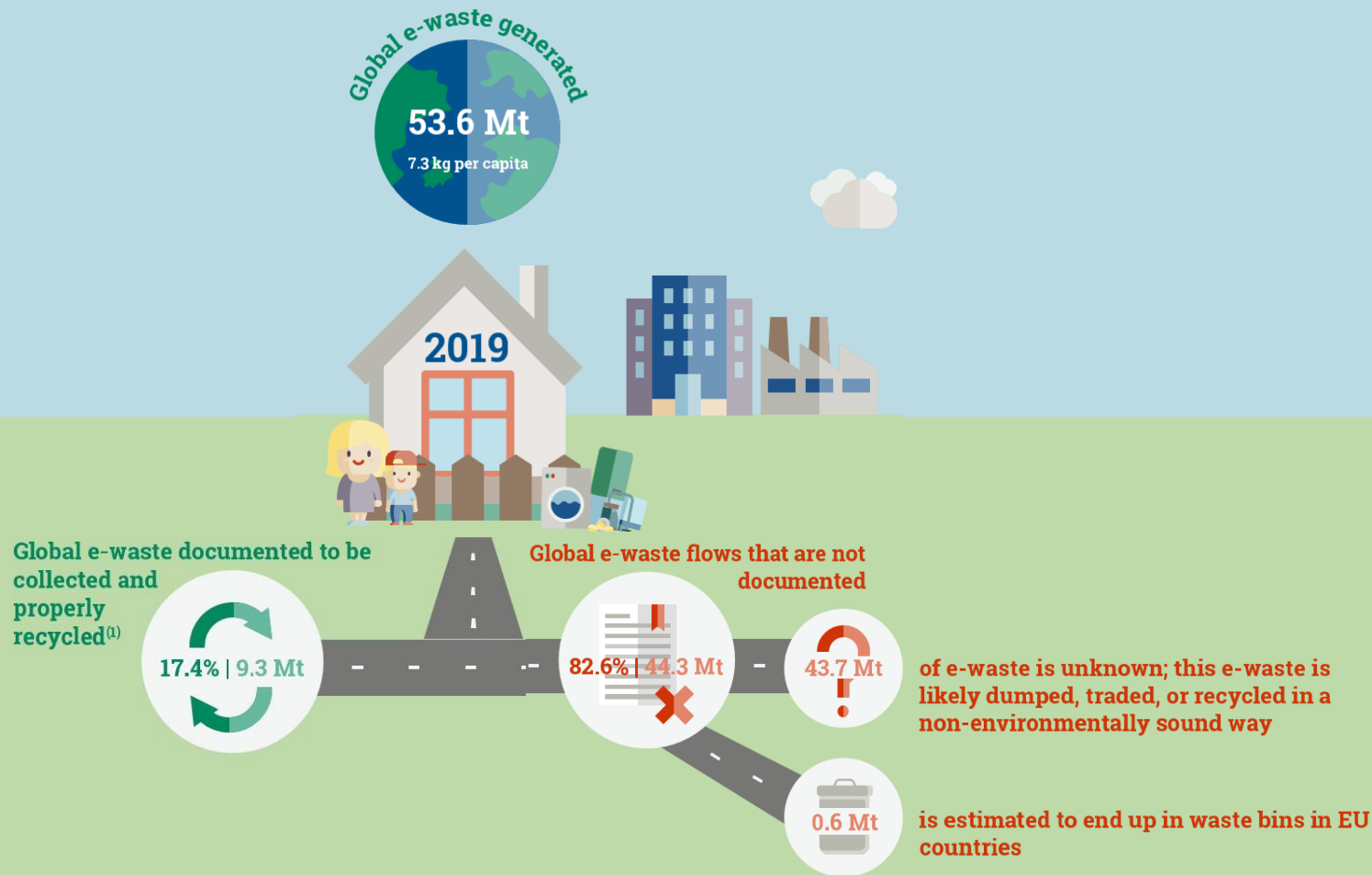
Small equipment



Small IT and telecommunication equipment

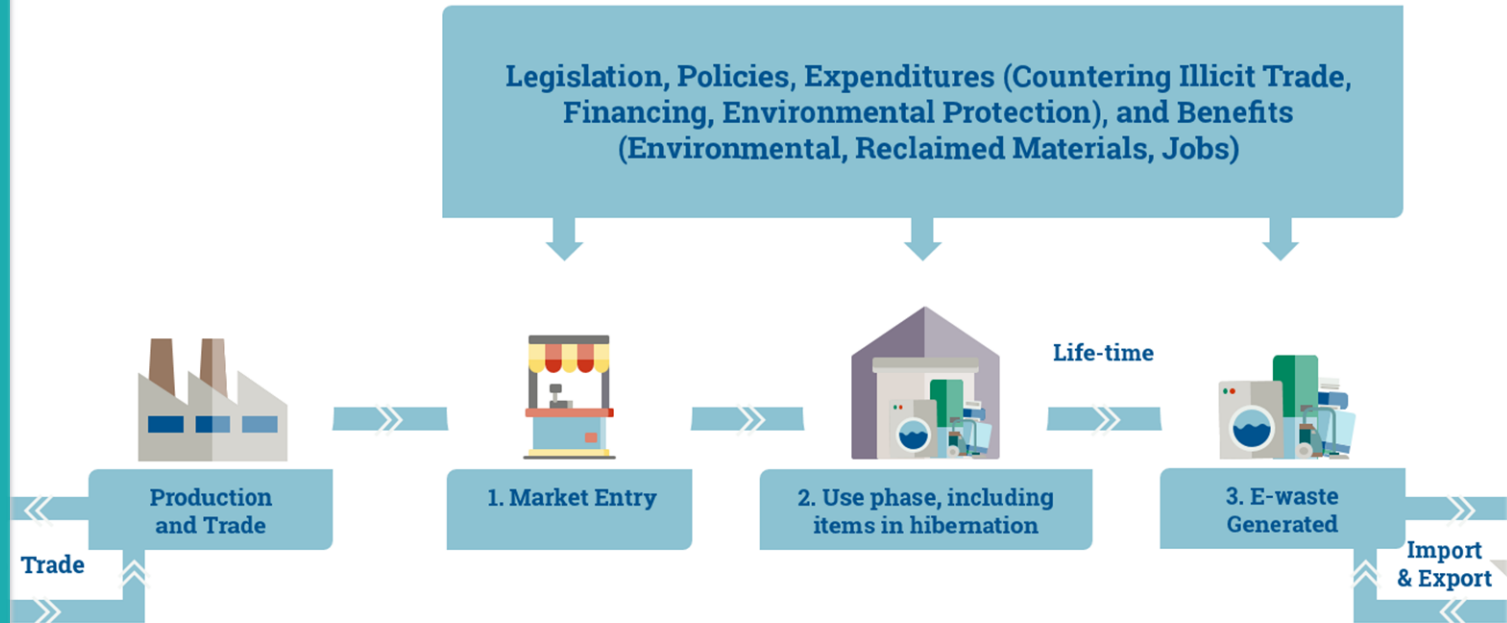
Global E-waste Generation

E-waste flows in 2019



Global E-waste Generation

Methodology

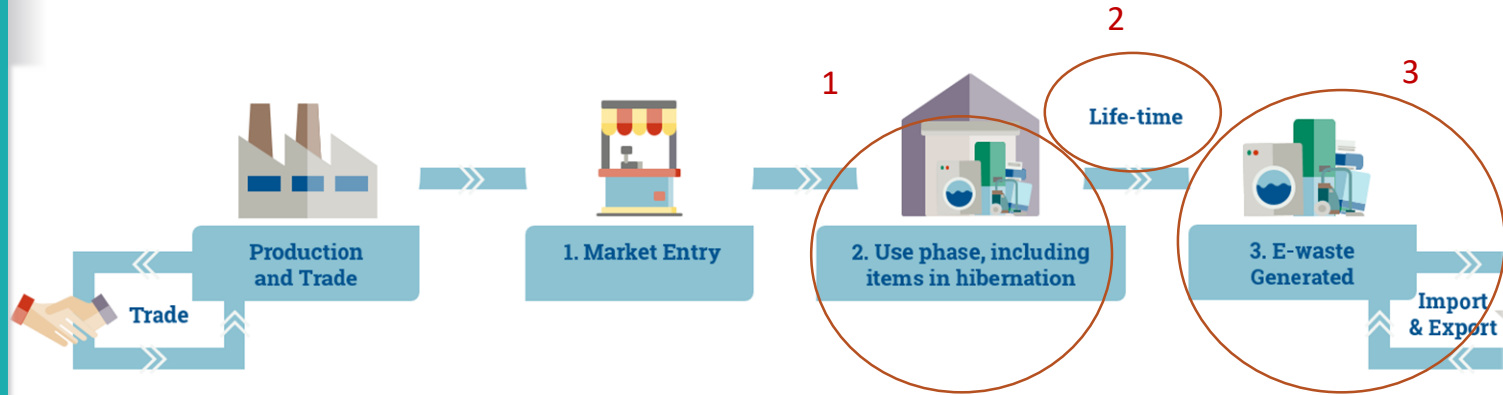


- 181 countries
- 220 HS codes
- Time series of trade data 1995-2018
- Predictions 1980-2030

The role of households/ business surveys

An integrated approach

Ideally modelled stock data should be compared and integrated with empirical data. This will allow to correct Sales of new EEE and have a better estimation of the E-waste Generated.



Surveys can provide:

- 1) useful information on the amount and type of products in hibernation at home
- 2) indication of life-time of products, as life-time can vary substantially across countries/ regions
- 3) Useful insights on the discarding behavior of consumes in different countries

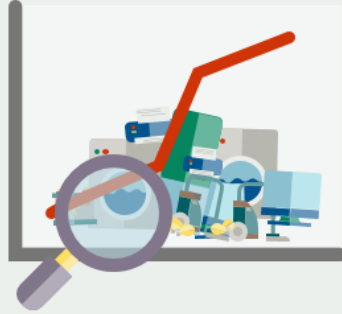
2. Importance of Measuring E-waste Statistics



Monitoring the quantities and flows of e-waste is essential to:

Importance
of Measuring
E-waste
Statistics

Quantify the magnitude of
the e-waste challenges



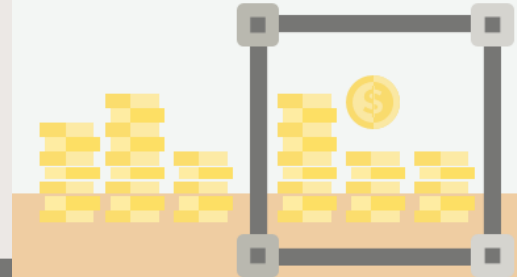
Set appropriate collection
and recycling targets



Establish priorities for policy makers, influ-
encing regulations, and setting policy targets



Allocate adequate
financial resources



Worldwide Harmonization by the GESP

Regions that participated in e-waste statistics workshops between 2017 and 2020:



361

people have been trained on e-waste statistics



60

countries participated in e-waste statistics workshops



9

countries (apart from EU countries) have started compiling national e-waste statistics



Example of Jordan

جدول 9: كمية ونوع المخلفات الإلكترونية والكهربائية الناتجة عن أنشطة المنازل حسب أسلوب التخلص لعام 2018 / عجلون

Table 9: Quantity and Type of Electronic and Electrical Waste Produced from Household Activities by Disposing Method, 2018 / Ajlun

Waste Type	Unit	أسلوب التخلص						الكمية Quantity	الوحدة	CODE UNU Key	ملاحظات
		Disposal Method									
		أخرى Other	بيع Sell	مكب خاص Special Dump	تسليمه الى جهات مختصة بالتدوير Delivered to Recycling	منحة الى جهة أخرى Granted to Other	مكب Dump				
Temperature exchange equipment مبادلات حرارية											
Air Conditioners (household and portable)	No.	0	70	0	0	0	148	218	عدد	111	بالمصولة، معدات تبريد
Screens and monitors شاشات ومعدات											
Laptops (incl. tablets)	No.	0	0	0	0	0	50	50	عدد	303	لوحات (ت)
Flat Display Panel Monitors (LCD, LED)	No.	0	0	0	64	0	456	520	عدد	309	(LCD
Flat Display Panel TVs (LCD, LED, Plasma)	No.	52	387	0	380	422	1292	2533	عدد	408	، LCD، بلازما)
Lamps مصابيح											
Compact Fluorescent Lamps (incl. retrofit & non-retrofit)	No.	0	0	0	0	0	41740	41740	عدد	502	
Straight Tube Fluorescent Lamps	No.	0	0	0	56	0	65680	65736	عدد	503	بنيون) قسيرولمطولين او تقري
Special Lamps (e.g. professional mercury, high & low pressure sodium)	No.	0	0	0	0	0	53776	53776	عدد	504	
Large equipment معدات كبيرة											
Dishwashers	No.	0	0	0	0	0	0	0	عدد	102	
Kitchen equipment (e.g. large furnaces, ovens, cooling equipment)	No.	0	490	0	179	626	608	1903	عدد	103	لمصغرة ومعدات الطهي)
Washing Machines (incl. combined dryers)	No.	52	308	0	310	659	326	1654	عدد	104	آلة وغسالات)
Small equipment معدات صغيرة											
small ventilators-irons -clothes-adapters	No.	52	475	0	1279	420	4411	6636	عدد	201	حولات
food(toaster-grills-food processing-frying pans	No.	0	0	0	0	154	679	832	عدد	202	والشوايات
Hot Water (i.e. Coffee-tea-water cookers)	No.	0	0	0	60	0	0	60	عدد	203	آلة والشاي)
Toys (e.g. car racing sets, electric trains, music toys.)	No.	0	0	0	115	0	651	766	عدد	701	والدرجات وطائرات
Household medical equipment(e.g. thermometers, blood pressure meters	No.	0	0	0	0	0	68	68	عدد	801	والجهاز السكري ولجهاز
Small IT معدات إلكترونية صغيرة											
Mobile Phones (incl. smartphones, pagers)	NO.	29	453	0	386	144	7580	8592	عدد	306	الآلات و هواتف متنقلة بما فيه
Total		183	2182	0	2829	2425	177463	185083			المجموع

Example of Jordan

E-waste generated from households in Jordan in 2018 (in tons)



Temperature exchange equipment

160



Screens and monitors

823



Lamps

657



Large equipment

11225



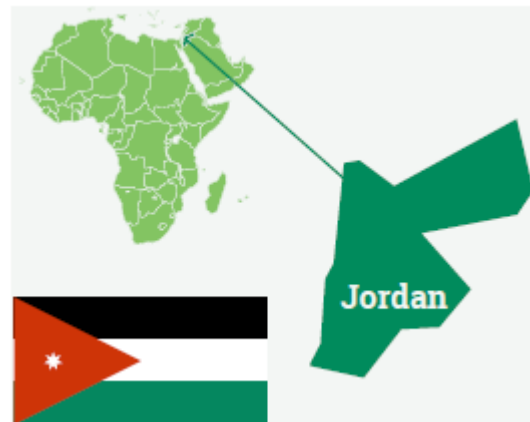
Small equipment

563



Small IT and telecommunication equipment

20



Example of household survey

A	B	C	D	E	F
UNU Key	Description	Which of this 54 types of e-waste did you dispose of during last year?	How many units did you disposed of?	What was the approximate age when you discarded it?	How did you discard the product?
		<i>Put a cross</i>	<i>Indicate the number</i>	<i>Choose one option from A to K</i>	<i>Choose one option from A to K</i>
0001	Central Heating (household installed)				
0002	Photovoltaic Panels (incl. converters)				
0101	Professional Heating & Ventilation (excl. cooling equipment)				
0102	Dishwashers				
0103	Kitchen (f.i. large furnaces, ovens, cooking equipment)				
0104	Washing Machines (incl. combined dryers)				
0105	Dryers (wash dryers, centrifuges)				
0106	Household Heating & Ventilation (f.i. hoods, ventilators, space heaters)				
0108	Fridges (incl. combi-fridges)				
0109	Freezers				
0111	Air Conditioners (household installed and portable)				
0112	Other Cooling (f.i. dehumidifiers, heat pump dryers)				
0113	Professional Cooling (f.i. large air conditioners, cooling displays)				
0114	Microwaves (incl. combined, excl. grills)				
0201	Other Small Household (f.i. small ventilators, irons, clocks, adapters)				
0202	Food (f.i. toaster, grills, food processing, frying pans)				
0203	Hot Water (f.i. coffee, tea, water cookers)				
0204	Vacuum Cleaners (excl. professional)				
0205	Personal Care (f.i. tooth brushes, hair dryers, razors)				

Column D: What was the approximate age when you discarded it?

- A. Less than 1 year
- B. 1 year
- C. 2 years
- D. 3 years
- E. 4-5 years
- F. 6-10 years
- G. 11-15 years
- H. 16-20 years
- I. 21-40 years
- J. >40 years
- K. do not remember/do not know

Column E: How did you discard the product?

- A. Bring to the shop
- B. Retailer pick up at home
- C. Bring to Municipal Collection Point
- D. Municipality pick up at home
- E. Sold on e-bay, parents, friends for free
- F. Moved it to my old/other house
- G. Sold to a refurbisher
- H. Waste bin
- I. With Plastic waste
- J. Warranty substitution
- K. Not Know/Do not Remember

Ensure that data collected are consistent with the international classification system!

https://collections.unu.edu/eserv/UNU:6477/RZ_E_Waste_Guidelines_LoRes.pdf

3. Conclusions



Take away messages

- Households or businesses survey have a big role in measuring e-waste;
- Households surveys have also drawbacks:
 - they may not be representative for the entire country/region;
 - outcomes heavily rely on respondents' memories and can very often be biased;
- Ideally a both top-down and bottom-up approach should be combined to ensure good data quality and reliable estimations;
- Ensure that data collected are consistent with the international classification system!

https://collections.unu.edu/eserv/UNU:6477/RZ_EWaste_Guidelines_LoRes.pdf

Thank you for your attention



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