# Datasets on invisible e-waste supporting the International E-waste Day 2023



# Statistical Briefing

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# Colophon

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# Objective

This statistical briefing of UNITAR has been prepared supporting the media campaign of the International E-waste Day 2023, a yearly awareness raising celebration promoting responsible e-waste management, initiated by the WEEE Forum and its members and taking place every year on 14th of October. This year's edition focuses on invisible e-waste. The term refers to e- waste that goes unnoticed due to its nature or appearance, leading consumers to overlook its recyclable potential.

# Methodology

There is not a global agreed definition of "invisible e-waste", therefore WEEE Forum and UNITAR made a scoping of invisible e-waste following the global methodology on e-waste statistics [1]. It was chosen to use the product categorization, the UNU-KEYs, as the statistical backbone of scoping, and to add the component "cables" across all UNU-KEYs, and the "vapes" into the analysis. The scoping across the UNU-KEYs is shown in Table 1.

Table 1 UNU-KEYs and interpretation to scope invisible e-waste

| UNU-KEY | Description | Scope of invisible e-waste |
|---------|-------------|----------------------------|
| 0001 | Central Heating (household installed) | |
| 0002 | Photovoltaic Panels (incl. inverters) | |
| 0101 | Professional Heating & Ventilation (excl. cooling equipment) | |
| 0102 | Dish washers | |
| 0103 | Kitchen equipment (e.g. large furnaces, ovens, cooking equipment) | |
| 0104 | Washing Machines (incl. combined dryers) | |
| 0105 | Dryers (wash dryers, centrifuges) | |
| 0106 | Household Heating & Ventilation (e.g. hoods, ventilators, space heaters) | |
| 0108 | Fridges (incl. combi-fridges) | |
| 0109 | Freezers | |
| 0111 | Air Conditioners (household installed and portable) | |
| 0112 | Other Cooling equipment (e.g. dehumidifiers, heat pump dryers) | |
| 0113 | Professional Cooling equipment (e.g. large air conditioners, cooling displays) | |
| 0114 | Microwaves (incl. combined, excl. grills) | |
| 0201 | Other small household equipment (e.g. small ventilators, irons, clocks, adapters) | |
| 0202 | Equipment for food preparation (e.g. toaster, grills, food processing, frying pans) | |
| 0203 | Small household equipment for hot water preparation (e.g. coffee, tea, water cookers) | |
| 0204 | Vacuum Cleaners (excl. professional) | |
| 0205 | Personal Care equipment (e.g. tooth brushes, hair dryers, razors) | X |
| 0301 | Small IT equipment (e.g. routers, mice, keyboards, external drives & accessories) | X |
| 0302 | Desktop PCs (excl. monitors, accessoires) | |
| 0303 | Laptops (incl. tablets) | |
| 0304 | Printers (e.g. scanners, multi functionals, faxes) | |
| 0305 | Telecommunication equipment (e.g. (cordless) phones, answering machines) | |
| 0306 | Mobile Phones (incl. smartphones, pagers) | |

| 0307 | Professional IT equipment (e.g. servers, routers, data storage, copiers) | |
|---|---|---|
| 0308 | Cathode Ray Tube Monitors | |
| 0309 | Flat Display Panel Monitors (LCD, LED) | |
| 0401 | Small Consumer Electronics (e.g. headphones, remote controls) | X |
| 0402 | Portable Audio & Video (e.g. MP3, e-readers, car navigation) | |
| 0403 | Music Instruments, Radio, Hi-Fi (incl. audio sets) | |
| 0404 | Video (e.g. Video recorders, DVD, Blue Ray, set-top boxes) and projectors | |
| 0405 | Speakers | X |
| 0406 | Cameras (e.g. camcorders, photo & digital still cameras) | |
| 0407 | Cathode Ray Tube TVs | |
| 0408 | Flat Display Panel TVs (LCD, LED, Plasma) | |
| 0501 | Small lighting equipment (excl. LED & incandescent) | X |
| 0502 | Compact Fluorescent Lamps (incl. retrofit & non-retrofit) | |
| 0503 | Straight Tube Fluorescent Lamps | |
| 0504 | Special Lamps (e.g. professional mercury, high & low pressure sodium) | |
| 0505 | LED Lamps (incl. retrofit LED lamps) | |
| 0506 | Household Luminaires (incl. household incandescent fittings & household LED luminaires) | |
| 0507 | Professional Luminaires (offices, public space, industry) | |
| 0601 | Household Tools (e.g. drills, saws, high pressure cleaners, lawn mowers) | X |
| 0602 | Professional Tools (e.g. for welding, soldering, milling) | |
| 0701 | Toys (e.g. car racing sets, electric trains, music toys, biking computers, drones) | X |
| 0702 | Game Consoles | |
| 0703 | Leisure equipment (e.g. sports equipment, electric bikes, juke boxes) | |
| 0801 | Household Medical equipment (e.g. thermometers, blood pressure meters) | X |
| 0802 | Professional Medical equipment (e.g. hospital, dentist, diagnostics) | |
| 0901 | Household Monitoring & Control equipment (alarm, heat, smoke, excl. screens) | X |
| 0902 | Professional Monitoring & Control equipment (e.g. laboratory, control panels) | |
| 1001 | Non- cooled Dispensers (e.g. for vending, hot drinks, tickets, money) | |
| 1002 | Cooled Dispensers (e.g. for vending, cold drinks) | |

The indicator "e-waste generated" was calculated in units and mass. The datasets are the same as described in the global e-waste monitor [2], and were calculated through the quantities of products placed on market, their lifespans for each country individually, and then aggregated into global figures. E-cigarettes Placed on the Market in 2022 were calculated by analyzing world trade statistics on the HS code: 854340 that is dedicated to "electronic cigarettes and similar personal electric vaporizing devices".

# Results

The results of the global data on e-waste generation on invisible e-waste are shown in Table 2. The total amount of invisible e-waste is around 9 billion kg. The total amount of e-waste generated in 2022, according to the global e-waste monitor 2020, is 59.4 billion kg [2], hence, the share is approximately 15 percent on weight basis.[1]

Table 2 E-waste generated of selected UNU-KEYs related to invisible e-waste in 2022 using dataset of global e-waste monitor of 2020

| UNU-KEY | Description | Million kg | Million pieces | kg/inh | pieces/inh |
|---|---|---|---|---|---|
| 0205 | Personal Care equipment (e.g. toothbrushes, hairdryers, razors) | 391 | 711 | 0.051 | 0.1 |
| 0301 | Small IT equipment (e.g. routers, mice, keyboards, external drives & accessories) | 763 | 1891 | 0.10 | 0.25 |
| 0401 | small Consumer Electronics (e.g. headphones, remote controls) | 347 | 910 | 0.046 | 0.12 |
| 0405 | Speakers | 620 | 280 | 0.082 | 0.04 |
| 0501 | Small lighting equipment (excl. LED & incandescent) | 365 | 4118 | 0.048 | 0.5 |
| 0601 | Household Tools (e.g. drills, saws, high pressure cleaners, lawn mowers) | 1047 | 421 | 0.138 | 0.06 |
| 0701 | Toys (e.g. car racing sets, electric trains, music toys, biking computers, drones) | 3234 | 7294 | 0.426 | 1.0 |
| 0801 | Household medical equipment | 3 | 14 | 0.000 | 0.002 |
| 0901 | Household Monitoring & Control equipment (alarm, heat, smoke, excl. screens) | 1336 | 5476 | 0.176 | 0.7 |
| Cables (in the other UNU-KEYs) | | 950 | n/a | 0.125 | n/a |
| **Total of above** | | **9055** | | **1.19** | |
| Vapes ^ | | 42 | 844 | 0.006 | 0.11 |

^ contains double counting with above categories

The results of the global data on e-waste generation on invisible e-waste for selected countries where WEEE Forum has members in Table 3.

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[1] it is not possible to exactly quantify the volumes of invisible e-waste due to the nature of the way the data is reported.

Table 3 E-waste generated of total invisible e-waste in 2022 for selected countries

| | **Total of UNU-KEYs** + cables "invisible e-waste" | |
|---|---|---|
| | million kg | million pieces (excluding cables) |
| IND | 1240 | 3397 |
| FRA | 169 | 284 |
| GBR | 164 | 302 |
| CAN | 133 | 275 |
| NGA | 121 | 356 |
| AUS | 98 | 187 |
| ESP | 86 | 155 |
| ITA | 86 | 177 |
| ZAF | 63 | 151 |
| POL | 63 | 138 |
| COL | 53 | 132 |
| NLD | 52 | 103 |
| CHE | 31 | 64 |
| BEL | 29 | 49 |
| ROU | 23 | 50 |
| SWE | 23 | 42 |
| NOR | 18 | 36 |
| AUT | 18 | 37 |
| NZL | 16 | 32 |
| DNK | 15 | 26 |
| CZE | 15 | 28 |
| GRC | 15 | 28 |
| PRT | 14 | 24 |
| IRL | 11 | 25 |
| SVK | 9.1 | 19.1 |
| MDA | 3.0 | 8.0 |
| LTU | 3.3 | 5.6 |
| SVN | 2.8 | 5.0 |
| CYP | 1.3 | 2.3 |
| ISL | 1.2 | 2.4 |
| LUX | 1.2 | 2.5 |
| MLT | 0.7 | 1.4 |

# References

[1] Forti V., Baldé C.P., and Kuehr R., 2018. "E-Waste Statistics Guidelines on Classification, Reporting and Indicators". Edited by ViE - SCYCLE United Nations University. Bonn, Germany.

[2] Forti V., Baldé C.P., Kuehr R., Bel G., 2020. The Global E-waste Monitor 2020: Quantities, flows and the circular economy potential. United Nations University (UNU)/United Nations Institute for Training and Research (UNITAR) - co-hosted SCYCLE Programme, International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Rotterdam. https://ewastemonitor.info/gem-2020/