

The Role of International Standards in Tackling E-waste and Achieving a Circular Economy

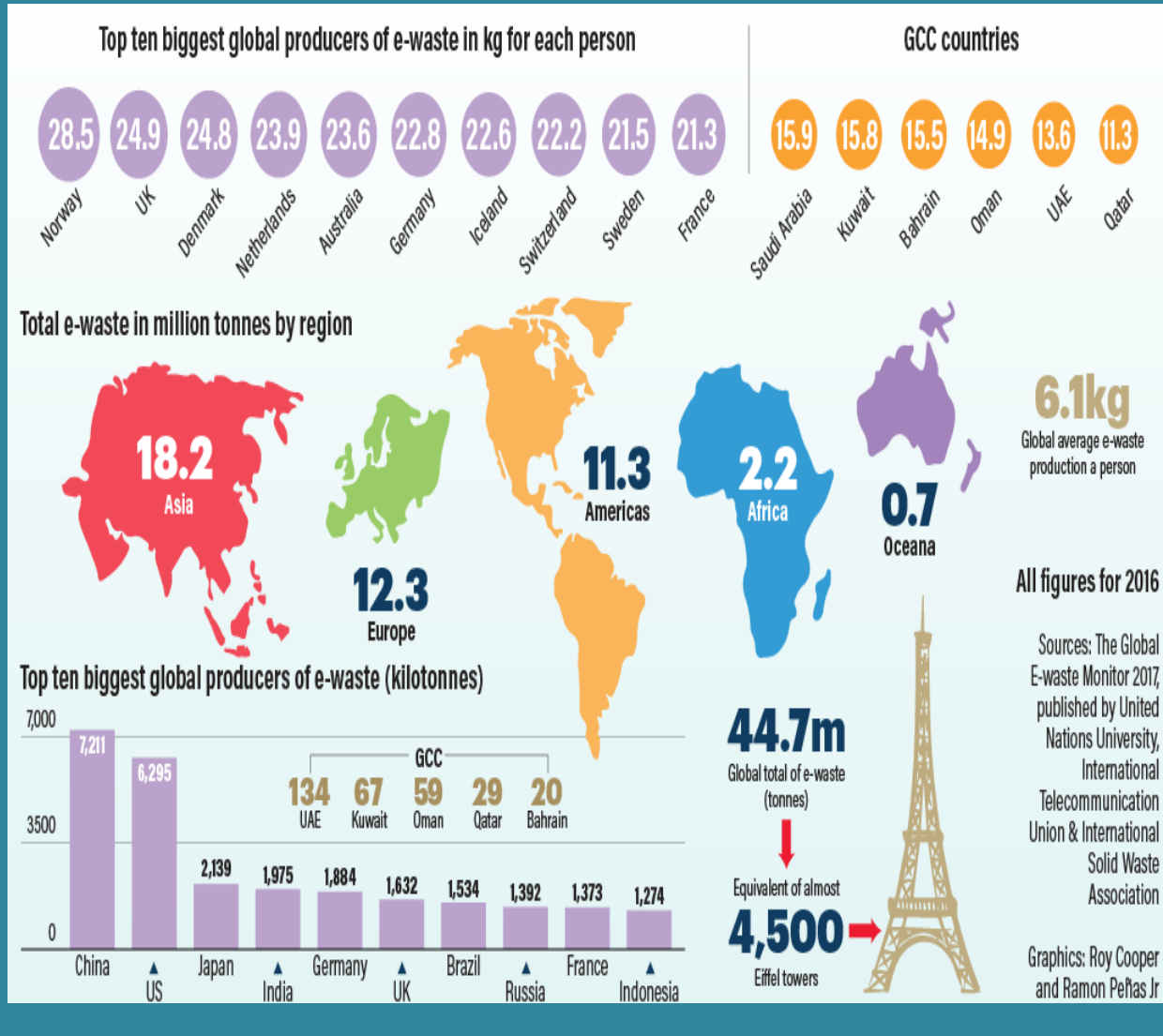


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ITU-T SG 5 Chairman

ITU-T Study Group 5: Environment, Climate Change and Circular Economy



Weaknesses of E-waste Management Systems



- E-waste dispersed
- Heterogeneous reporting requirements
- Speculation on compliance costs
- Illegal traffic
- Lack of internationally comparable data
- Lack of transparent management of funding
- Developing country-specific criticalities
- No clear common definition



In 2016, 44.7 million tons of e-waste were generated, of which only 20% were collected, in average, worldwide

Prevention is Better than Cure

Policies and standards




Sustainable manufacturing practices:

- Eco-design
- Choice of reusable and non-toxic materials
- Prolonged products life-cycle
- E-waste disposals



Source: <http://www.treehugger.com/clean-technology/crazy-e-waste-statistics-explored-in-infographic.html>

Understanding Circular Economy



The circular economy has the potential to positively affect everyone's lives and everything we buy for a more sustainable future.

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Environmental

Implementing a circular economy can:

- Directly reduce costs for businesses by reducing the need to purchase raw materials
- Reduce risks by being less dependent on the supply and cost of raw materials
- Encourage the development of innovative new products
- Show consumers that a business is concerned about the environment
- Differentiate a business from its competitor



Towards Circular economy: From e-waste to resource

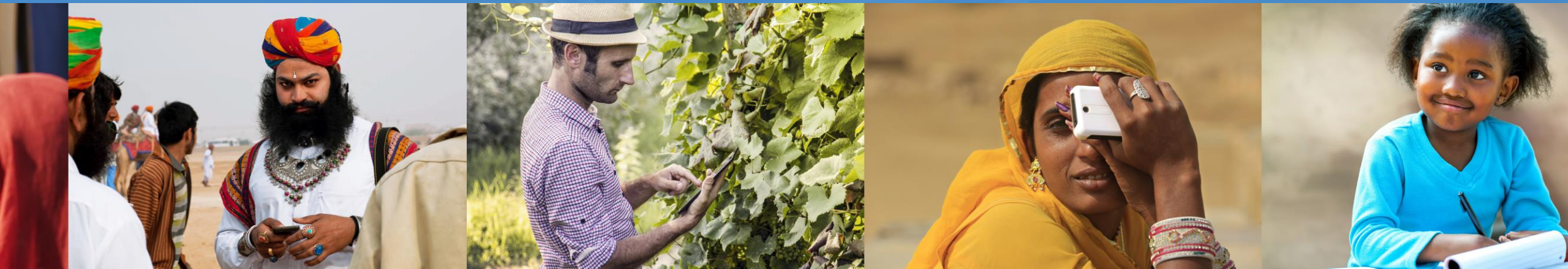
International Telecommunication Union (ITU)

WHO WE ARE

ITU is the United Nations specialized agency for information and communication technologies (ICTs)

WHAT OUR ROLE IS

To facilitate peaceful relations, international cooperation between peoples, and economic and social development by means of efficient telecommunications services.



PROMOTING GLOBAL COLLABORATION FOR A CONNECTED WORLD

International Telecommunication Union

OUR MEMBERS



193

MEMBER STATES



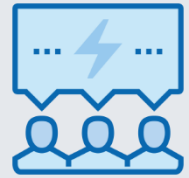
550

SECTOR MEMBERS



140

ACADEMIA MEMBERS



170

ASSOCIATES

3 SECTORS

Each sector has separate mandate, but all work cohesively towards connecting the world

STANDARDIZATION



DEVELOPMENT



RADIOCOMMUNICATION



ITU Programme on Tackling E-waste & Achieving a Circular Economy

Using ICTs to protect the environment



- **Develop international standards** to protect the environment
- **Assist countries** to develop policies and implement ITU-T standards to tackle e-waste and & achieve a circular economy
- **Help companies** becoming more sustainable and socially responsible
- **Research and development** on areas which include e-waste, circular economy and smart sustainable cities
- Raise **awareness** on role of ICT in tackling environmental challenges



Connect 2020 Agenda

Environmental Sustainability Targets

Resolution 200 (Busan, 2014)

Connect 2020 Agenda for global Telecommunication/ information and communication Technology development



The image shows a screenshot of a document titled 'GOAL 3: SUSTAINABILITY'. It features a logo with a house, a leaf, and a signal tower. Below the logo, the text reads 'SUSTAINABILITY' and 'Manage challenges resulting from telecommunication/ICT development'. Underneath, there is a section titled 'Targets:' followed by three bullet points: 'Target 3.1: Cybersecurity readiness should be improved by 40% by 2020', 'Target 3.2: Volume of redundant e-waste to be reduced by 50% by 2020', and 'Target 3.3: Green House Gas emissions generated by the telecommunication/ICT sector to be decreased per device by 30% by 2020'.

Target 3.2: Volume of redundant e-waste to be reduced by 50% by 2020

➤ **Draft Recommendation L.EW2020** “Connect 2020 Agenda E-waste reduction”

Target 3.3: Greenhouse Gas Emissions (GHG) generated by the telecommunication/ICT sector to be decreased per device by 30% by 2020

➤ **Draft Recommendation L.Connect2020** “

ITU-T Study Group 5: Environment, Climate Change and Circular Economy



SG5 is responsible for:

Studying ICT environmental aspects of electromagnetic phenomena and climate change.

Studies on how to use ICTs to help countries and the ICT sector to adapt to the effects of environmental challenges, including climate change, in line with the SDGs.

Lead Study Group for

electromagnetic compatibility, lightning protection and electromagnetic effects

ICTs related to the environment, climate change, energy efficiency and clean energy

circular economy, including e-waste



WP1/5 - EMC, lightning protection, EMF

WP2/5 - Environment, Energy Efficiency and the Circular Economy



Q7/5 - Circular Economy including E-waste

Promoting circular design combined with responsible e-waste management will not only reduce e-waste but will also help curb the other negative impacts related to the use of ICTs worldwide.

ITU-T L Suppl. 27 (Supplement on success stories on e-waste management)

ITU-T L Suppl. 28 (Circular economy in ICT; definition of approaches, concepts and metrics)

ITU-T L Suppl. 5 (Life-cycle management of ICT goods)

ITU-T L. 1020 (CE: Guide for Operators and Suppliers on approaches to migrate towards circular ICT goods and networks)

ITU-T L. 1021 (Extended producer responsibility – Guidelines for sustainable e-waste management)

Power supply series

ITU-T L.1000
ITU-T L.1001
ITU-T L.1002
ITU-T L.1005
ITU-T L.1006



Recycling of rare metals in ICT products

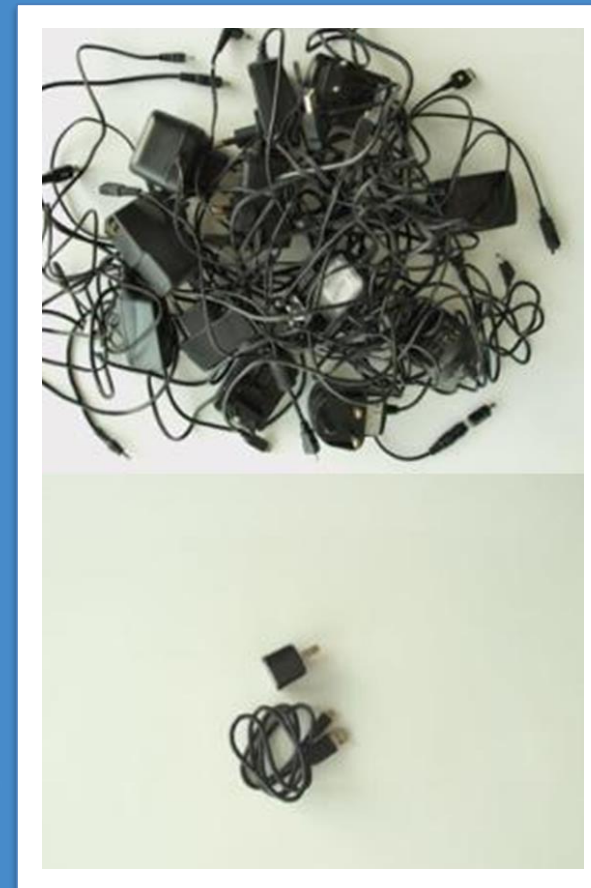
ITU-T L.1100
ITU-T L.1101



Target 12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

Power Supply Series

- **Recommendation ITU-T L.1000:** Universal power adapter and charger solution for mobile terminals and other hand-held ICT devices:
 - Saves 82,000 tons of e-waste per year
 - Saves at least 13.6 million tonnes of CO2 emissions annually
- **Recommendation ITU-T L.1001:** External universal power adapter solutions for stationary information and communication technology devices:
 - Saves 300,000 tons of e-waste per year
 - Reduces the energy consumption and greenhouse gas (GHG) emissions of external power supplies by between 25% and 50%



E-waste Management & Recycling of Rare Metals

Necessity of rare-metal recycling:

- A mobile phone contains no less than 20 rare metals
- A ton of gold ore yields just 5 g of gold, whereas a ton of used mobile phones yields a staggering 400 g.
- **Recommendation ITU-T L.1100:** A method to provide recycling information of rare metals in ICT products.



Q7/5 - Circular Economy including E-waste

Some of the current work items

Work item	Subject / Title
L.1000rev	Universal power adapter and charger solution for mobile terminals and other hand-held ICT devices
L.ARCH_EoL_CE	Environmental Impact of architecture solutions with regards to End of Life and Circular Economy (CE)
L.AUVE	Effects of ICT enabled autonomy on vehicles longevity and waste creation
L.BP	Best practices on e-waste management
L.CE_Concepts	Circular Economy; Definitions and concepts for material efficiency for ICT
L.CEM	Criteria for evaluation of the environmental impact of mobile phones
L.ER	Guidelines and Accreditation for E-waste Recyclers
L.EW2020	Connect 2020 agenda E-Waste reduction
L.methodology_arch	Methodology to assess the environmental impact of the different proposed architectures
L.SEEQ	Effect for global ICT of the potential of selling Services instead of Equipment on the waste creation and environmental impacts
Suppl. L.BM	Supplement on Collection of sustainable models for e-waste management by private corporations



**Sustainable management
of waste electrical and electronic
equipment in Latin America**



Importance of Global Standards

Drive competitiveness, for individual businesses and world economy;

Lower prices

Reduce technical barriers

Foster interoperability

Manufacturers, network operators
and consumers

Reduce negative impacts on the environment



Work with us!

Toolkit on End-of-life Management for ICT equipment



provides



Definition of EOL management for ICT equipment

Outline of the various EOL stages

Checklist to assist organizations in creating a framework for environmentally-sound management of EOL ICT equipment

Developed together with **54** partners
including Basel Convention

Structure of analysis

End-of-life management for ICT equipment



- Legal frameworks
- EOL management steps
- Regulatory compliance
- Best practice guidance
- Clean supply chains and conflict minerals
- Socio-economic issues
- Corporate social responsibility
- Checklists

Provides key guidance to ensure best practices on

General Material Recovery and Recycling Facility Guidelines: minimum criteria to select a service provider

Clean Supply Chain and Conflict Minerals: an opportunity for a greener industry

Offsetting Opportunities and Mitigation: the ICT sector response to Social and Environmental issues generated by bad EOL practices



United for Smart Sustainable Cities – (U4SSC)



U4SSC is a global platform for smart city stakeholders which advocates for public policy to encourage the use of ICTs to facilitate the transition to smart sustainable cities.

JOIN us for the work on :



Guidelines on strategies for circular cities





Upcoming Meetings

- ITU-T SG5 meeting, 10-21 September 2018

Conclusions & Next Steps

- Policy makers should have **long-term sustainability ambitions**
 - Consider e-waste management in the design of ICT policies
 - Implement international standards (ITU-T Recommendations) at the national level
 - Encourage concerted **cooperation** in handling e-waste **at the national, regional and international level**
- Improve the **sustainability and competitiveness of manufacturing and business practices**
 - Create manufactured products through economically-sound processes that minimize negative environmental impacts while conserving energy and natural resources
 - Sustainable manufacturing also enhances employee, community, and product safety and promote green jobs
- Foster **public-private partnerships**
- Raise **awareness** at consumer level





Thank you

**ITU-T, Environment
Climate Change and
Circular Economy**

<http://itu.int/go/tsg05>

tsbsg5@itu.int



Additional Information

ITU Resolutions on Environment, Climate Change and Circular Economy



ITU Resolution 182 – “The role of ICTs on climate change and the protection of the environment” (Busan, 2014)



instructs the Directors of the three Bureaux:

- to support the development of reports on ICTs, the environment and climate change;
- to organize workshops and seminars to assist developing countries, by raising awareness and identifying their particular needs and challenges.



ITU-T Resolution 79 - “The role of telecommunications / information and communication technology in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it” (Dubai, 2012)



resolves to instruct the Director of the Telecommunication Standardization Bureau, in collaboration with the Director of the Telecommunication Development Bureau

- to pursue and strengthen the development of ITU activities in regard to handling and controlling e-waste;
- to address the handling and controlling of e-waste and to contribute to global efforts designed to deal with the increasing hazards which arise therefrom.

L Suppl. 27: Supplement on success stories on e-waste management



This Supplement sheds light on e-waste management success stories in different countries. The Supplement covers different policies, legislation, initiatives, and different stakeholders' involvement (government, private sector, non-governmental organizations (NGOs), and informal sector).

L Suppl. 28: Circular economy in information and communication technology; definition of approaches, concepts and metrics



This Supplement investigates current approaches, concepts and metrics of Circular Economy and Resource Efficiency and their applicability for the ICT infrastructure goods. This Supplement:

- introduces CE and RE,
- describes CE as used in the ICT industry,
- describes existing CE and RE metrics and examples of their use.
- proposes next steps in CE and RE standardisation.

Power supply series

- **Recommendation ITU-T L.1002:** External universal power adapter solutions for portable information and communication technology devices:
 - Reduces e-waste, optimizing the use of scarce and raw materials and allowing for reuse
 - Recommends design for MTBF 50.000 hours of active use
 - Increases usability
- **Recommendation ITU-T L.1005:** Test suites for assessment of the universal charger solution:
 - Describes specific test suites to assess energy efficiency, interworking, safety and electromagnetic compatibility of the universal charger solution and charger



Batteries

- **Recommendation ITU-T L.1010:** Green batteries solution for mobile phones and other hand-held information and communication technology devices.
 - Extends the lifetime of handsets
 - Reduces global resources consumption
 - Eliminates toxic materials

