Waste Management with Green ICT Standards:

Overview of Recommendations ITU-T L.1000 and ITU-T L.1001

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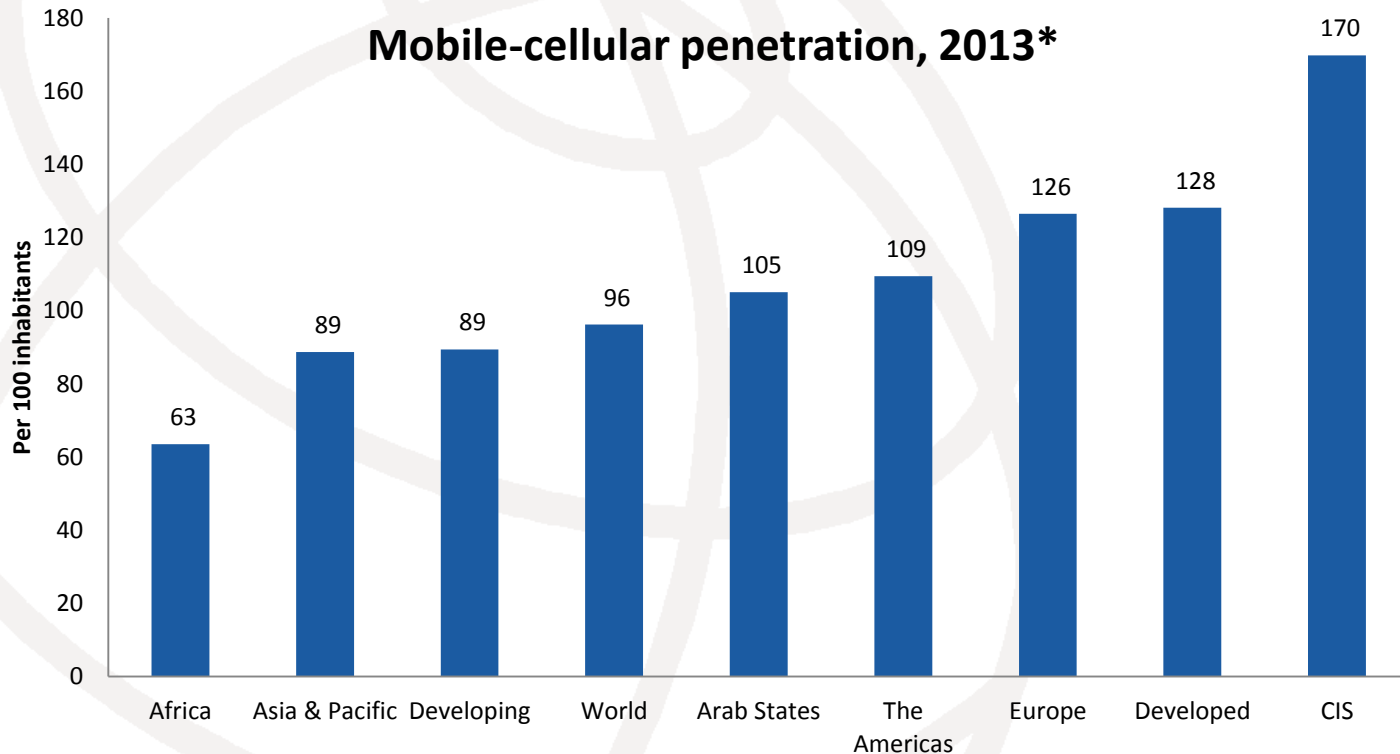Committed to connecting the world

Agenda

- Introduction

- Recommendation ITU-T L.1000 "Universal power adapter and charger solution for mobile terminals and other hand-held ICT devices"

- Recommendation ITU-T L.1001 "External universal power adapter solutions for stationary information and communication technology devices"

- Future activities of ITU-T SG5 Q13

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The E-Waste Problem

Statistics

ICTs are rapidly growing and expanding throughout the world, pervading all sectors of human activity and contributing to bridge the gap between developed and developing countries with regard to access to technology.

Mobile-cellular penetration, 2013*

Region	Per 100 inhabitants
Africa	63
Asia & Pacific	89
Developing	89
World	96
Arab States	105
The Americas	109
Europe	126
Developed	128
CIS	170

Source: ITU World Telecommunication /ICT Indicators database
Note: * Estimate

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Statistics (continued)

Internet users by region, 2013*

Source: ITU World Telecommunication /ICT Indicators database
Note: * Estimate

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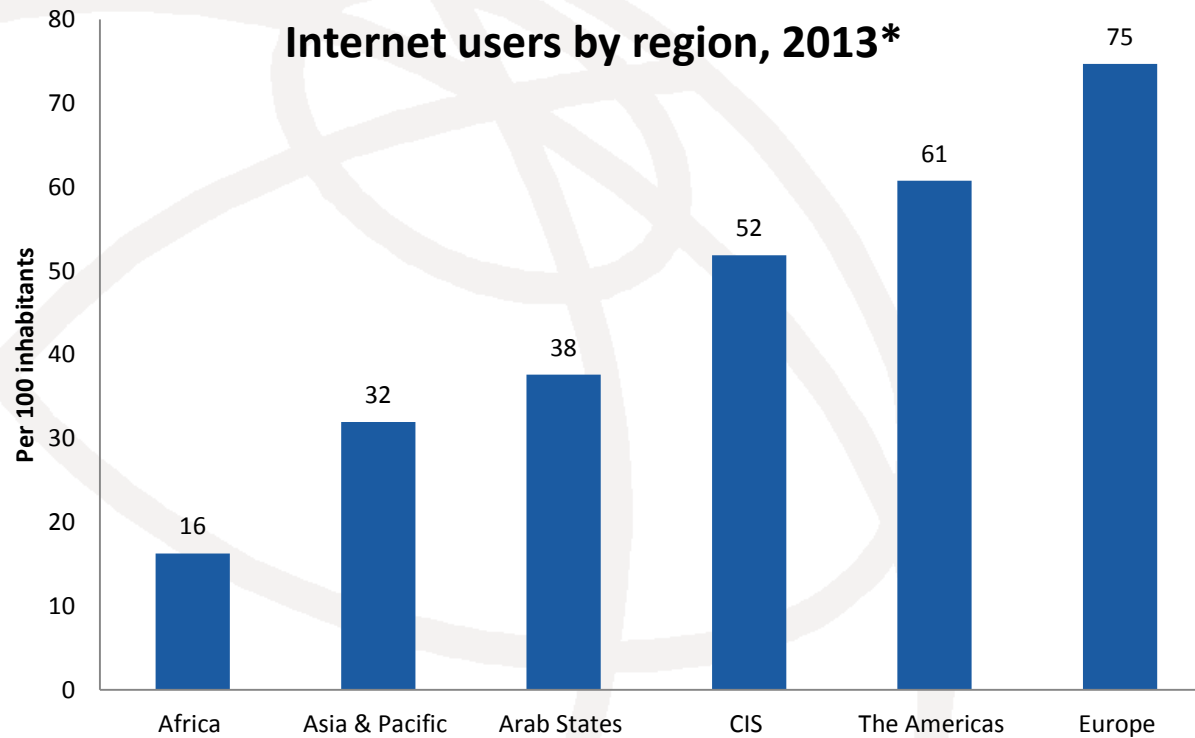
E-waste is the fastest growing waste stream

- 67 million metric tons of electrical and electronic equipment were put on the market in 2013

- 53 million metric tons e-waste were disposed of worldwide in 2013

- For every one million cell phones that are recycled, 16 tons of copper, 350 kilos of silver, 34 kilos of gold and 15 kilos of palladium can be recovered

Source: United Nations University and United States Environmental Protection Agency

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The best way to deal with e-waste is ...
... avoid (or at least minimize) it!

- From the manufacturing phase through:
    - Designing for easy disassembly and recycling
    - Avoiding use of heavy pollutants
    - Minimization on the use of resources
        - ✓ Regulations and standards
- During the life of equipment:
    - Prolonging its lifetime
    - Designing for reuse/multiple use
- At end of life:
    - E-waste conscious management

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Avoid/minimize through standardization

- <u>Environmentally conscious companies have e-waste minimization programmes in place but:</u>

    - Such programmes are difficult to set up and manage
    - The extra cost can discourage them
    - As individual companies they can have little impact

- <u>Need to create critical mass and act soon</u>
- <u>Regulation is complex and takes long time</u>

Standardization can fill the gap and lead the market

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What ITU is doing to tackle e-waste?

ITU-T New Resolution 79 on E-Waste

Approved at the World Telecommunication Standardization Assembly (Dubai, 2012)

ITU-T Resolution 79 urges ITU to:

- Contribute to alleviate the negative impact of e-waste on the environment and health;

- Pursue and strengthen the development of ITU activities in regard to handling and controlling e-waste from ICT equipment and methods of treating it:

  - Best practices,
  - Recommendations, methodologies and other publications,
  - Guidance for policy makers;

- Assist developing countries, which are the countries that suffer most from the hazards of e-waste without being the most responsible;

- Collaborate with all relevant stakeholders.

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Question 13/5 Environmental impact reduction including e-waste

Brief Description

- Study the safety and environmental performance associated with ICTs, including the avoidance of hazardous materials and final disposal

- Ensure that the ICTs cause minimum environmental and health impact

- Minimize and mitigate the effect of e-waste

Main Tasks

- Motivate ITU members to share experiences and spread knowledge related to environmental sustainability aspects

- Determine processes to minimize the environmental impact

- Study solutions to mitigate e-waste. UCS/CPS, rare metals, battery, conflict material……

Question 13/5 (cont'd)

Examples of deliverables:

- ITU-T L.CPS portable:

  Following the universal charging solution for mobile phones and hand held ICTs(L.1000), CPS for fixed ICTs (L.1001), L.CPS portable is under preparation for portable ICT devices with external power supplies

- ITU-T HB_Due_Diligence:

  Due Diligence Guidelines for Conflict Metals Supply

- ITU-T L.rare metal measurement:

  A method to measure the amount and type of rare metals in ICT products

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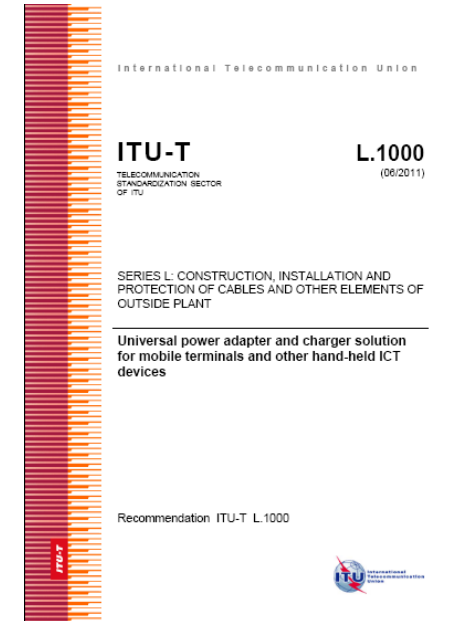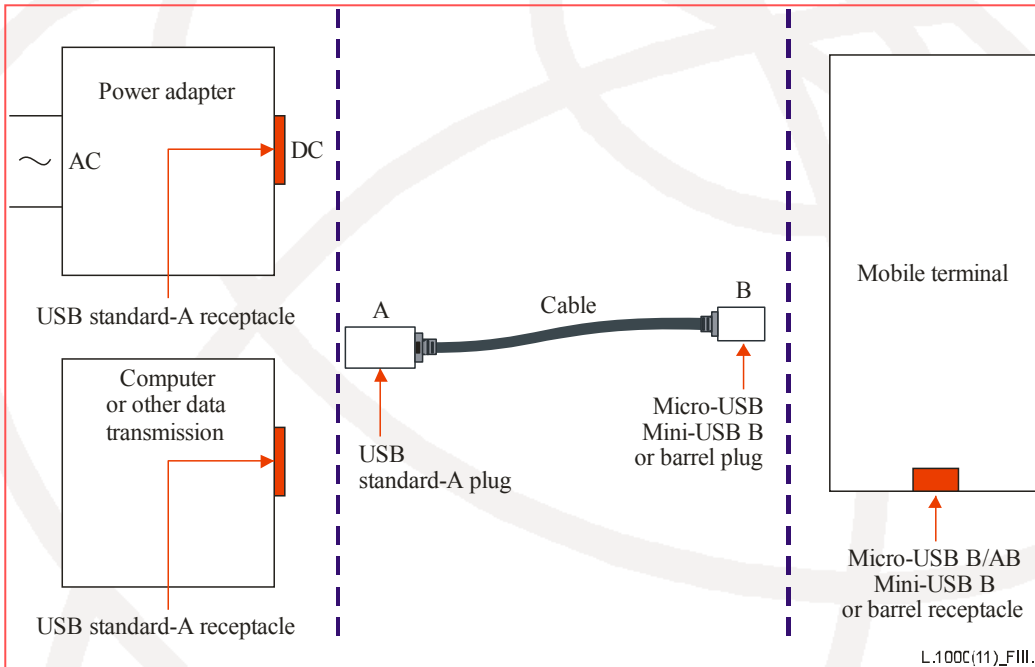
One adapter size fits all

Tackling E-waste with Global ICT Standards

- "Universal power adapter and charger solution for mobile terminals and other ICT hand held devices" (**Recommendation ITU-T L.1000**)

- *Saves 82,000 tons of e-waste per year*

- *Saves at least 13.6 million tonnes of CO2 emissions annually*

What define ITU-T L.1000

Configuration

Power adapter

$\sim$ AC → DC

USB standard-A receptacle

Computer or other data transmission

USB standard-A receptacle

A — Cable — B

USB standard-A plug

Micro-USB Mini-USB B or barrel plug

Mobile terminal

Micro-USB B/AB Mini-USB B or barrel receptacle

L.1000(11)_FIII.1

- **Electrical characteristics**
  - Voltage
  - Current
  - Efficiency
- **Connector type**

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The step after...

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Waste Management with Smart ICT Standard

The step after ITU-T L.1000…

- **NEW -** "External universal power adapter solutions for ICT equipment for stationary use" (**Recommendation ITU-T L.1001**)

- Saves 300,000 tonnes of e-waste annually

- Reduces the energy consumption and greenhouse gas (GHG) emissions of external power supplies by between 25% and 50%

- **Approved!**

- **Contributions are needed** to develop Universal Power Adapter for portable devices (Phase 2)

Waste Management ITU-T L.1001

Not only an adapter but a family

Category	Example of ICT device types	Voltage [V]	Current [A]	Power [W]
1a	ONU, ONT, etc.	5	1	5
1b	Ethernet hub/switch, modem, ONU, ONT, etc.	5	2.4	12
2a	Modem, ONU, ONT, small home gateway, etc.	12	0.5	6
2b	Modem, ONT, medium home gateway, etc.	12	1	12
2c	Medium/complex home gateway	12	2	24
2d	Home networking equipment (STB with hard disk etc.)	12	3.3	40
2e	Network access storage, games, multimedia equipment	12	5	60
NOTE – It is expected that the trend of energy consumption in ICT devices will lead to lower UPA power requirements and an eventual reduction of categories of Stationary UPA given in the table.				

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Future Activities of Q13/5

- **L.UPA portable:**
Universal Power Adapter for portable ICT equipment

- **L.Green batteries:**
Green batteries solution for mobile phone and other ICT devices

- **Technical paper on life-cycle management of ICT equipment:**
Technical paper on life-cycle management of ICT equipment

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Research and Development

An Energy-Aware Survey on ICT Device Power Supplies

This survey reports the results of a wide analysis performed on a large set of commercially available external power supplies (more than 300 devices verified and more than 200 electrically measured) to assist the standardization activities within ITU-T Study Group 5 (SG5) (Recommendation ITU-T L.1001). Mechanical, electrical and environmental characteristics have been evaluated; correlation and statistics have also been developed.

An energy-aware survey on ICT device power supplies

UNIVERSITÀ DEGLI STUDI DI GENOVA

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GLOBAL e-SUSTAINABILITY INITIATIVE

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Tackling E-Waste...
towards the solution!

Key Actions:

- Raise awareness on the dangers of e-waste;

- Encourage the consideration of e-waste management in the design of ICT policy;

- Adopt strategic policies, international standards and regulatory approaches that are sensitive to local context;

- Encourage concerted cooperation in handling e-waste at the national, regional and international level.

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Links & Additional Information

- ITU-T/SG5 "Environment & Climate Change"
  http://www.itu.int/ITU-T/studygroups/com05/index.asp

- ITU-T and Climate Change
  http://www.itu.int/ITU-T/climatechange

- ITU Symposia & Events on ICTs and Climate Change
  http://www.itu.int/ITU-T/worksem/climatechange

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Thank YOU

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