Information Communication Technology (ICT) and the Environment

San Salvador, 19-21 March 2013

Cristina Bueti (ITU)

International Telecommunication Union

ITU: enabling communication since **1865**

Unique public/private partnership:

- **UN agency** for ICTs
- **Members**:
  - **193 Member States** (Governments and regulatory bodies)
  - **Over 700 Private Sector** (Sector Members and Associates)
  - **Over 40 Academia**

Mr. Ban Ki-moon, Secretary-General of the United Nations and Dr. H. Touré, Secretary-General of ITU

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ITU presence in Latin America

Regional Office – Brasilia, Brazil

Area Office Barbados – Bridgetown

Area Office Chile – Santiago

Area Office Honduras – Tegucigalpa

Center of Excellence (CoE)- Honduras

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ITU, the Environment and Climate Change

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Work in mitigation

- Reduction of energy consumption by ICT equipment through new standards;
  - E.g. The promotion of Next Generation Networks
    (reducing power consumption by up to 40%)
  - Better use of spectrum to reduce energy consumption of wireless devices.

- Advancing on new standards to promote reduction of emissions by other sectors
  - Smart grids and smart buildings
  - Intelligent transport systems
  - Remote working technologies
  - Sensor-based networks
  - Energy efficiency

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Work in adaptation

Disaster Management Time Line

1. BASE LINE
-Socioeconomic
-Demographic
-Infrastructure
-Environmental
....etc...

3. Monitoring

5. Activities in targeted areas

Time

2. Risk Analysis
Identification of Indicators and Vulnerable areas to monitor

4. Early warning

Shock event

Country- Capacity Building
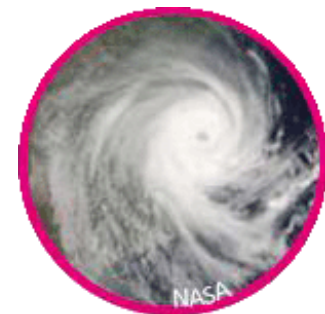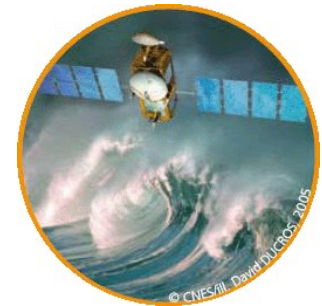
Work in monitoring

As the steward of the global framework for spectrum and satellite orbits, ITU:

- Ensures availability of radio-frequency spectrum and satellite orbits for climate monitoring and climate change prediction

- Develops international treaty level standards to ensure non-interference operation of systems involved in climate monitoring;

- Carries out studies (through ITU-R Study Groups) for development of new wireless technologies to increase use of remote sensors;

- Assists administrations in implementing radio systems by analyzing compatibility between new and existing systems
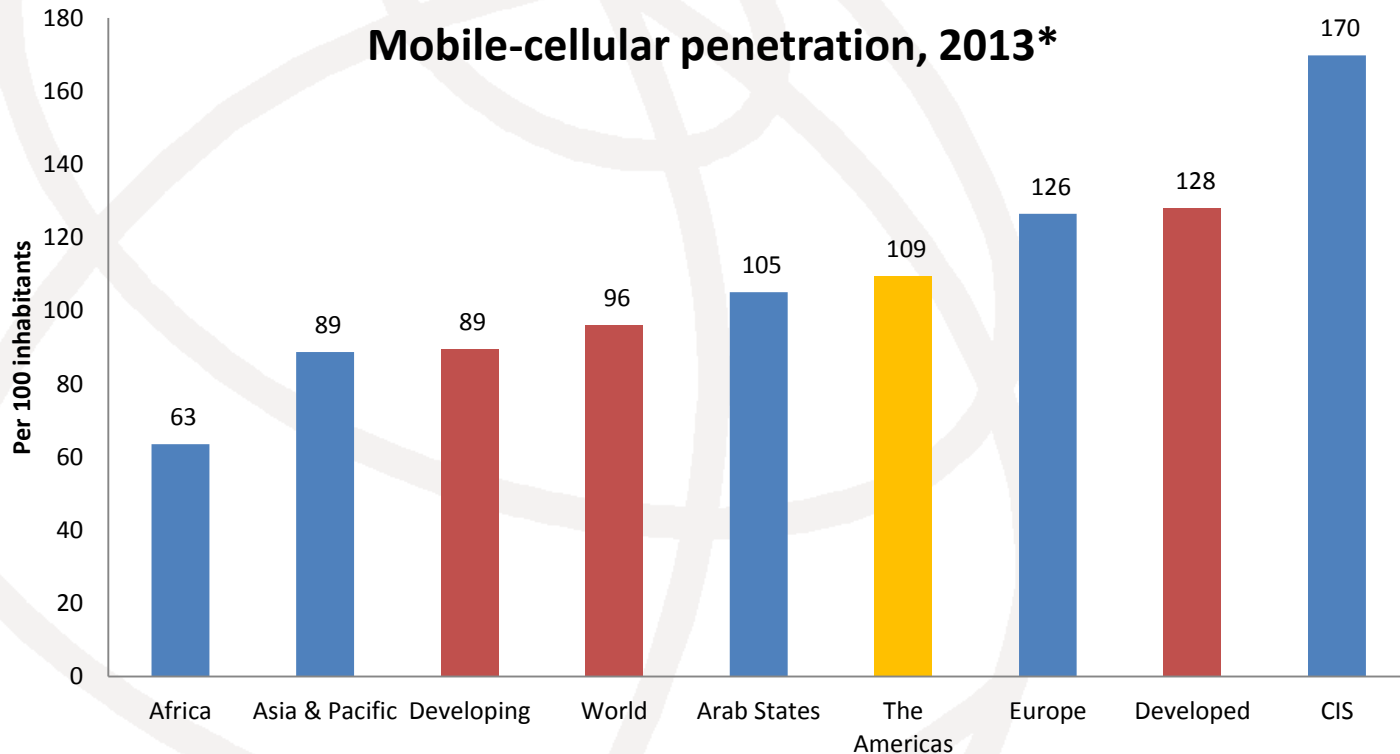
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The E-Waste Problem

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*

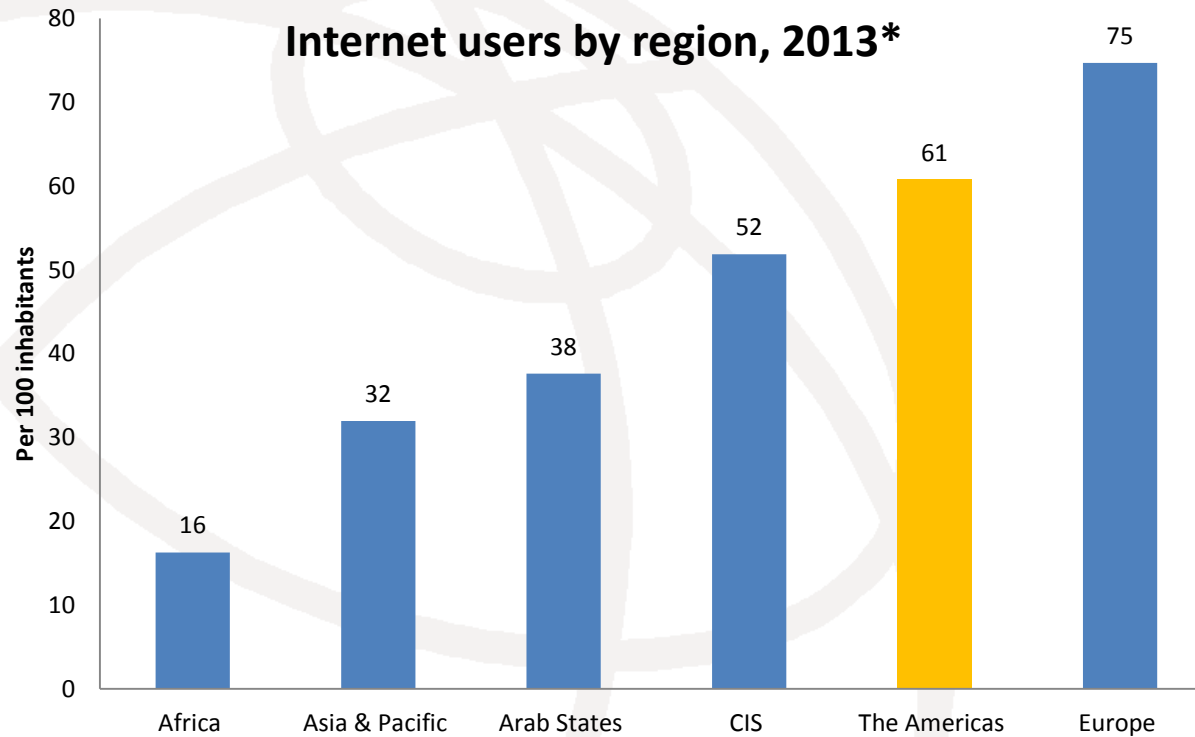| Region	Per 100 inhabitants
Africa	63
Asia & Pacific	89
Developing	89
World	96
Arab States	105
The Americas	109
Europe	126
Developed	128
CIS	170

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

Impact on the Environment and on Human Health

- Each year between 20–50 million tons of e-waste is generated worldwide.

- Many developing countries face the specter of hazardous e-waste mountains with serious consequences for the environment and public health.

- Due to the crude recycling process, many pollutants, such as persistent organic pollutants and heavy metals, are released from e-waste, which can easily accumulate in the human body through the inhalation of contaminated air, causing diseases, such as cardiovascular diseases or even cancer.

- When these heavy metals are not properly treated, they can cause irreversible damage to the environment, such as water pollution.

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E-Waste in El Salvador

- 1000 tonnes of e-waste produced each year
  - 56% of which are reused
  - through informal market
  - without taking into account environmental requirements

- MARN's response:
  - Programa Nacional para el Manejo Integral de los Desechos Sólidos

Source: http://elmundo.com.sv/residuos-electronicos-amenazan-a-el-salvador
http://elpais.com.sv/elsalvador/?p=10095

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Tackling E-Waste...
towards the solution!

- Boosting developing country e-waste recycling policies can have the potential to generate decent employment, curb health problems, cut greenhouse gas emissions and recover a wide range of valuable metals including silver, gold, palladium, copper and indium – by turning an e-challenge into an e-opportunity.

- An integrated waste management approach is a crucial part of international and national sustainable development strategies.

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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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ITU-T Study Group 5

Structure of ITU-T Study Group 5

ITU-T SG5
"Environment and climate change"

Q 12 Terminology

WP1/5
Damage prevention and safety

WP2/5
Electromagnetic fields: emission, immunity and human exposure

WP3/5
ICT and climate change

5 Questions

6 Questions

7 Questions

Working Party 3/5 "ICT and climate change"

WP3/5 is responsible for studies relating to ICT, environment and climate change, development of methodologies for evaluating the ICT effects on climate change and publishing guidelines for using ICTs in an eco-friendly way.

Work areas:

- **Q13/5** - Environmental impact reduction including e-waste
- **Q14/5** - Setting up a low cost sustainable telecommunication infrastructure for rural communications in developing countries
- **Q15/5** - ICTs and adaptation to the effects of climate change
- **Q16/5** - Leveraging and enhancing the ICT Environmental sustainability
- **Q17/5** - Energy efficiency for the ICT sector and harmonization of environmental standards
- **Q18/5** - Methodologies for the assessment of environmental impact of ICT
- **Q19/5** - Power feeding systems

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One adapter size fits all

Recycling Rare Metals in ICT Products

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Other projects…

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Toolkit on End-of-life management for ICT equipment

End-of-life management

Clean supply chains

Material recovery and recycling

Offsetting and mitigation

Measuring e-waste

- December 2011: *Partnership* welcomed UNEP/Secretariat of the Basel Convention (SBC) as a new member - to contribute in the area of e-waste

- ITU, UNEP and UNU Survey on E-Waste (e-waste projects, regulations on end of life of EEE, quantity of used ICTs, quantity of equipment sold, imports and exports of WEEE, guidelines) conducted in 2011

- Need to track the production and flow of e-waste as a basis for political decision-making

- Comprehensive data related to e-waste on the global level are currently not available

- Targets and indicators are needed, particularly in the areas of production, lifecycle of ICT equipment, trade, collection and recycling of WEEE

- May 2012: Launch of the Partnership Task Group on Measuring e-Waste, under the leadership of UNEP/SBC

- 2013: *Partnership* welcomed UNU-ISP (Institute for Sustainability and Peace) as its 13th member – to contribute to the work on measuring e-waste, through their Operating Unit SCYCLE, the ADDRESS project and the StEP Initiative.

ITU-UNU-UNEP-StEP Initiative-CEDARE Joint Survey on E-Waste

Scope:

- collect detailed data on e-waste management, policies and standards

Methodology:

- questionnaire sent to national administrations, ICT industries, academia/research institutes and other relevant national and international organizations

Responses:

- 190 responses received, within 5 months

Conclusions:

- establishment of a base for exchange of e-waste information and best practices
- need to develop standards and best practices on e-waste for the ICT sector
- promotion of collaborative work in the future

1st Edition – 2011
The application
"*Smart Recycling*"
aims to help mobile
users locate recycling
and garbage bins
within their area, and
provide advice
generally on recycling.

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ITU GREEN ICT APPLICATION CHALLENGE
3rd edition

Objective: To find the best and most innovative Concept Paper for an ICT application to help build **Smart Sustainable Cities** and achieve environmental sustainability in urban areas.

Topics:
- Energy management
- Water management and sanitation
- **Waste management**
- Transport and mobility
- Urban planning, including smart buildings
- Adaptation to climate change
- Smart societies, community engagement and environmental education

Organizers:

Developers are called to submit Concept Papers.
Deadline: **30 June 2013**

Prize: **5000 USD** + invitation to present the winning ICT application during the ITU Green Standards Week in Madrid, Spain.

Apply now:
http://itu.int/ITU-T/climatechange/greenict/

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Capacity Building

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ITU Events in Italy

- 8th Symposium on ICTs, the Environment and Climate Change
  - 6-7 May 2013 – Turin, Italy
  - jointly organized with the Italian Ministry of Economic Development and hosted by Telecom Italia

- 1st Meeting of Focus Group on Smart Sustainable Cities
  - 8 May 2013 – Turin, Italy

- Workshop on Human Exposure to Electromagnetic Fields (EMFs)
  - 9 May 2013 – Turin, Italy
  - jointly organized with the Italian Ministry of Economic Development and hosted by Telecom Italia

3rd ITU Green Standards Week

- To bring together leading specialists in the field, from top policy-makers to engineers, designers, planners, government officials, regulators, standards experts and others.

- To raise awareness of the importance and opportunities of using ICT standards to build a green economy.

Programme:
- **16/09: ITU, UNEP, UNU, CEDARE Workshop on E-waste**
- 17/09 (morning): Information Session on Green ICT Standards
- 17/09 (afternoon): High Level Segment on Smart Sustainable Cities
- 18/09: Meeting of the Focus Group on Smart Sustainable Cities
- 19/09: 3rd Workshop on Submarine Communications Networks For Climate Monitoring and Disaster Warning
- 20/09: Meeting of the ITU/WMO/UNESCO -IOC Joint Task Force on Submarine Communications Networks For Climate Monitoring and Disaster Warning

SEE YOU IN MADRID, on 16-20 September 2013

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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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