ITU and climate change

Overview of ITU-T Study Group 5 "Environment and Climate Change"

Paolo Gemma
Chairman of Working Party 3 of ITU-T Study Group 5

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ITU-T's mandate

- **ITU-T Resolution 72** - Measurement concerns related to human exposure to electromagnetic fields
- **ITU-T Resolution 73** - Information and communication technologies, environment and climate change
- **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

ITU-T Study Group 5

Terms of Reference

Next meeting:
Lima, Peru, on
2-13 Dec 2013

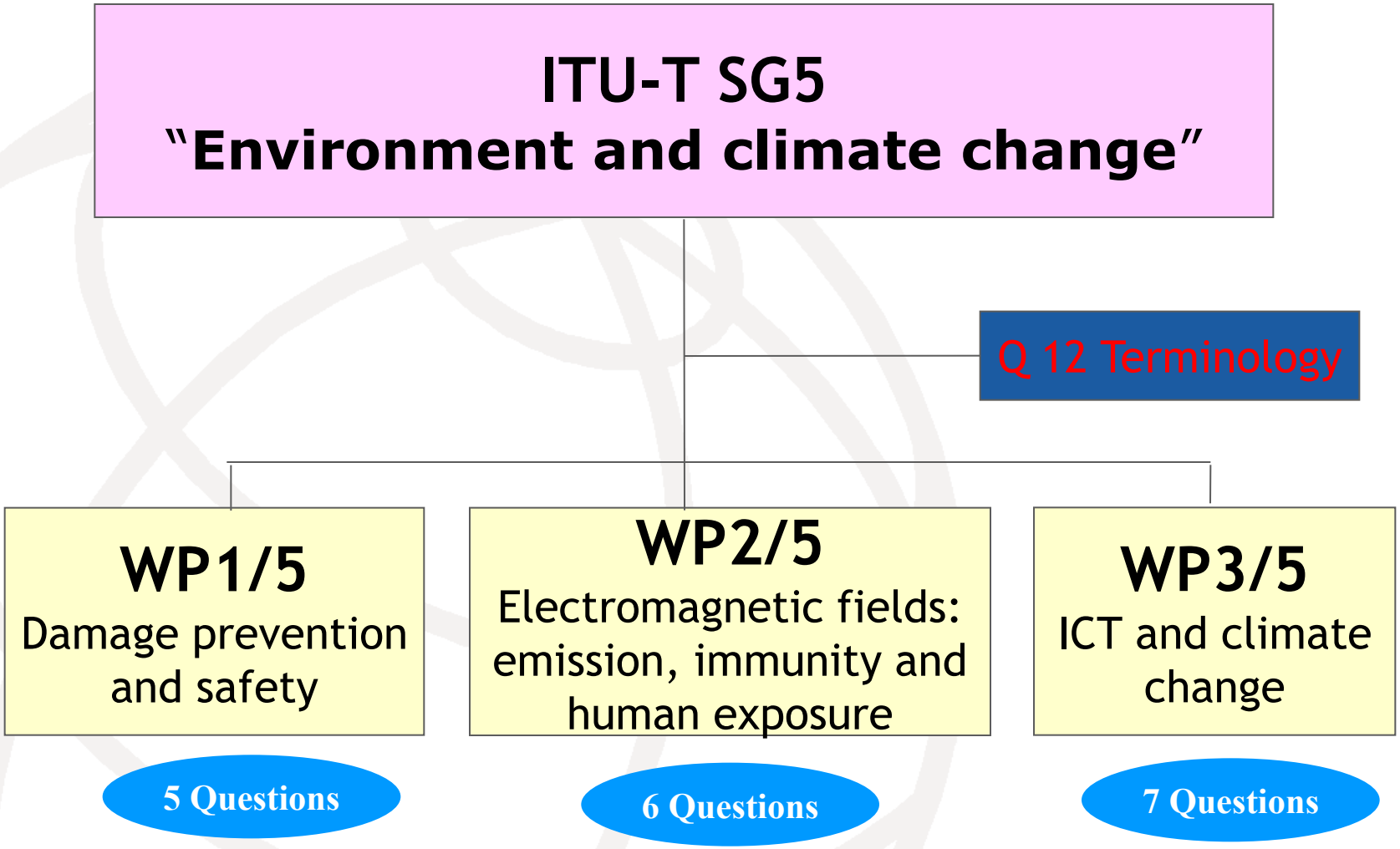
Study Group 5 is responsible for studies:

- on ICT environmental aspects of electromagnetic phenomena and climate change;
- related to electromagnetic compatibility (EMC), to safety and to health effects connected with electromagnetic fields produced by telecommunication installations and devices, including cellular phones.

Study Group 5 is lead SG for:

- Environment and climate change
- Electromagnetic compatibility and electromagnetic effects

Structure of ITU-T Study Group 5



Overview of Working Party 3/5 "ICT and climate change"

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

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 14/5
Setting up a low cost sustainable telecommunication infrastructure for rural communications in developing countries

Brief Description

- Setting up a low cost sustainable telecommunication infrastructure for rural communications in developing countries
- Existing systems do not meet challenges in developing countries and are not mass deployed in rural area.
- A suitable set of system requirements should be developed addressing the identified rural challenges.

Main Tasks

- Develop guidance on addressing challenges of setting up sustainable telecommunication infrastructure in rural areas of developing nations.
- Develop system requirements, emphasizing energy efficient systems.
- Take into consideration power requirements given that deployment of telecommunication systems in areas without access to electricity grid.
- Taking into consideration the need for resilient mobile networks in all countries for disaster situations (e.g. hurricane, tropical storm, etc.).

Question 15/5
ICTs and adaptation to the effects of climate change

Brief Description

- Using ICT to better enable countries to adapt to climate change
- Establishing a robust telecommunications infrastructure for extreme climate conditions
- Helping countries adapt to the negative effects of climate change using ICT
- Establishing links at regional and national levels

Main Tasks

- Drafting deliverables (See next slide)
- Establishing requirements via questionnaires and analysis
- Seeking cooperation with expert groups
- Encouraging ICT industry involvement in climate change adaptation

Question 16/5
Leveraging and enhancing the ICT Environmental sustainability

Brief Description

- ITU-T SG5 Recommendations allow organizations to estimatd report their environmental impacts
  - Eco-specifications and eco-rating guidance are needed to complement these methodologies
- Recommendations showed also a need to clarify the use of emission factors

Main Tasks

- Develop Recommendations on a methodology to assess the added value of an eco-rating programme.
- Investigate what are the principles, benefits, drawbacks underlying the creation of a worldwide database containing key indicators and/or emission factors?

Question 17/5
Energy Efficiency for the ICT sector and harmonization of environmental standards

Brief Description

- Definition of measurement methods, metrics/KPI and reference values for different technologies
- Sharing of best practices for ICT's energy efficiency enhancements
- Analysis of the most energy efficient architectures and solutions in support of smart grids
- Complement and harmonize ICT and environmental standards developed by other SGs and Std Bodies

Main Tasks

- Develop Recommendations in the in the field of energy efficiency (see next slide)
- Develop best practices and best reference cases
- Provide and maintain an overview of key mitigation technologies
- Coordinate with other SGs and other bodies on a regular basis to ensure closest alignment

Question 18/5
Methodologies for the assessment of environmental impact of ICT

Brief Description

- Question 18/5 aims to develop common methodologies that allow objective, transparent and practical assessments of ICT environmental impacts, at :
  - goods, networks and services level,
  - organizations level,
  - projects level,
  - cities level and
  - countries level

Main Tasks

- Further develop / finalize Recommendations L.methodology ICT projects, L.methodology ICT in cities and L.methodology ICT in countries
- Revise existing Recommendations L.1410 and L.1420

  Develop, and gather in a supplement, specific additions to L.1410 and/or L.methodology ICT projects

Question Q19/5
Power feeding systems

Brief Description

- With internet, **more ICT equipment** (routers, servers, switches) with **higher rack power density** (tens of kW)
- **Unified power interface** such as the higher voltage DC replacing Telecom DC 48V and AC UPS for **higher efficiency and reliability**
- Other advantages: smaller cable and lighter weight, flexibility, **better life cycle**: less use of materials, less CO2 emission in manufacturing and use, …
- Simple use of **renewable energy** (PV, wind, biofuels) and storage for smart grid

Main Tasks

Recommendations:

- Specifications of the power feeding system (DC, other ?);
- system configuration, architecture, and cable distribution;
- methodologies for evaluating performance of feeding systems and their environmental impact.

Studies:

- enabling use of renewable and alternative energy sources;
- coordination of these sources and DC interface.

Identifying standards needs: ITU-T Recommendations

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Highlights on Deliverables of WP3/5

☞ **Important green ICT standards have been developed by SG5 WP3. These are namely:**

- 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
- Recommendation ITU-T **L.1100**: A method to provide recycling information of rare metals in ICT products

- Recommendation ITU-T **L.1200** : Direct current power feeding interface up to 400V at the input to telecommunications and ICT equipment

- Recommendation ITU-T **L.1300**: Best practices for green data centres
- Recommendation ITU-T **L.1310**: Energy efficiency metrics and measurement for telecommunication equipment

- Recommendation ITU-T **L.1400** : Overview and general principles of methodologies for assessing the environmental impact of information and communication technologies
- Recommendation ITU-T **L.1410** : *Methodology for environmental impacts of Information and Communication Technologies (ICT) goods, networks and services*
- Recommendation ITU-T **L.1420** : *Methodology for environmental impacts of Information and Communication Technologies (ICT) in organizations*
- Recommendation ITU-T **L. 1430** *: Methodology for assessment of the environmental impact of information and communication technology greenhouse gas and energy projects (consented)*

Links

- 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

tsbsg5@itu.int

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