

ICTs and Climate Change Adaptation: Embracing Change

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Climate change adaptation

- IPCC definition: "Adaptation to climate change can be defined as the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities".

Source: IPCC

ICT's role

- According to UNFCCC, ICT tools "can be critical in **predicting, identifying and measuring** the extent of climate change; as well as in the **development of effective response strategies** to adapt to negative effects of climate change in sectors such as agriculture, employment, technology transfer and energy, among others"

Source: UNFCCC

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ITU overview: unique public/private partnership



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

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

Resolution 73

Information and communication technologies, environment and climate change

*Instructs the Director of TSB ... to support the development of reports on ICTs, the environment and climate change, taking into consideration relevant studies, in particular the ongoing work of ITU-T Study Group 5, including issues related to, inter alia, ... **water management, adaptation to climate change and disaster preparedness...***

Instructs Member States and Sector Members to:

- Integrate the use of ICT into national adaptation plans to make use of ICTs as an enabling tool to address the effects of climate change



ITU-T Study Group 5



ITU-T Study Group 5

Study Group 5 is lead SG for:

- Environment and climate change
- Electromagnetic compatibility and electromagnetic effects

Next meeting:

Lima, Peru, on
2-13 Dec 2013

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Structure of ITU-T Study Group 5

**Environment and Climate
change**

**Working Party 1
Damage
prevention and
safety**

**Working Party 3
ICT and climate
change**

**Working Party 2
Electromagnetic
fields: emission,
immunity and human
exposure**

**Electromagnetic
compatibility and
electromagnetic effects**

ICTs and adaptation to the effects of climate change

Brief Description

- Studying how ICTs can be effective in enabling countries to better adapt to climate change;
- Studying how the telecommunications infrastructure and associated ICT can be resilient to the effects of climate change;
- Producing Recommendations;
- Collecting, sharing and disseminating information and best practices.

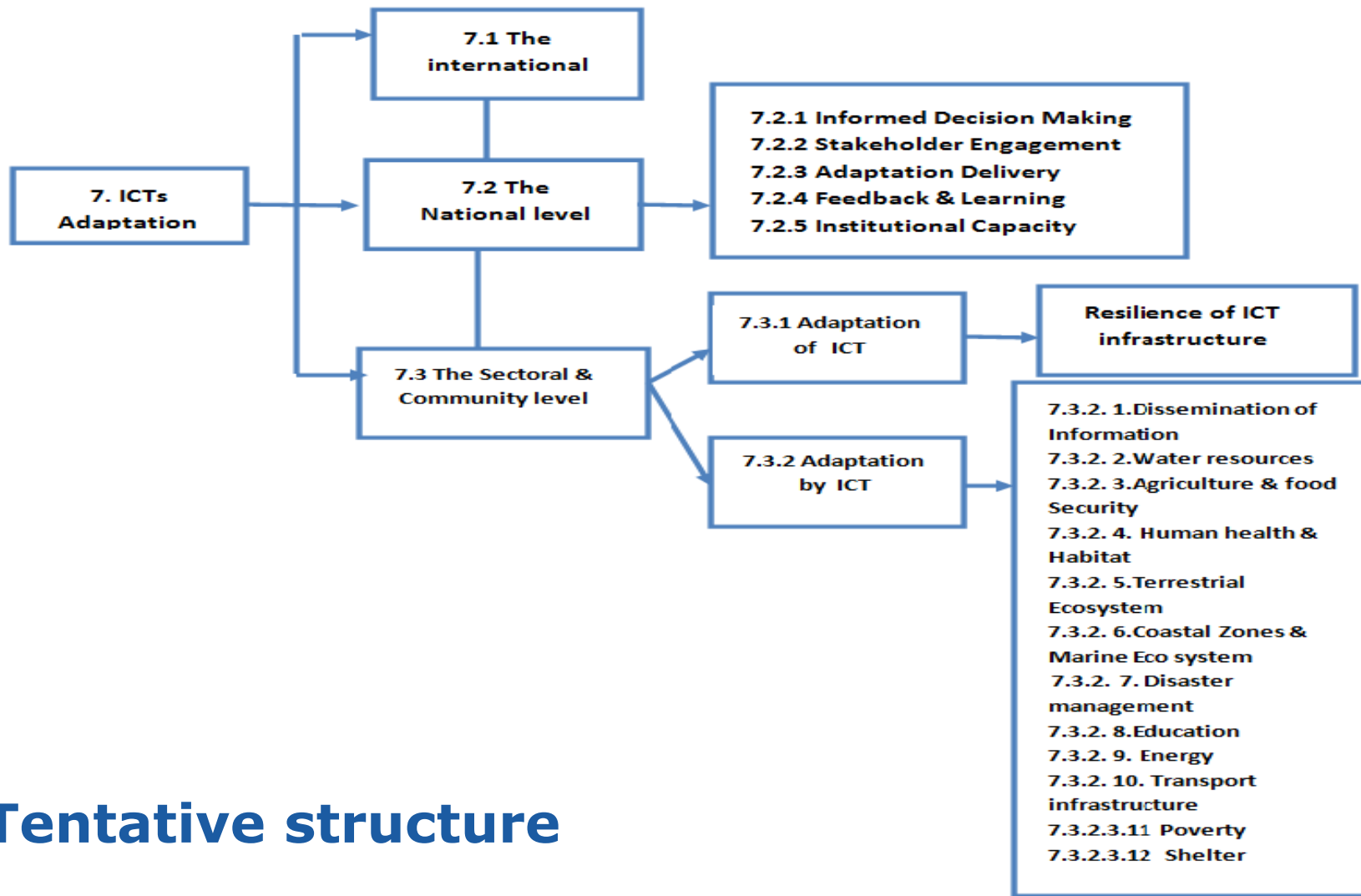
Main Tasks

- Establishing requirements via questionnaires and analysis;
- Seeking cooperation with various expert groups and task forces;
- Encouraging the sharing of use cases in ICT and climate change;
- Encouraging ICT industry involvement in climate change adaptation.

ICTs and adaptation to the effects of climate change (cont'd)

Examples of deliverables:

- ITU-T L.adaptation and infrastructure
 - Adapting the ICT sector and infrastructure to the impacts of climate change
 - Best practices for countries to use ICT in adapting to the effects of climate change
- ITU-T L.Submarine sensors (*previously named Green Repeaters*)
 - Best practices for submarine repeaters in the dual role of communications and environmental monitoring services
- Report on Portal requirements
 - Specifying requirements and initial content for a new ITU-T portal on ICT and adaptation to climate change
- Questionnaire on ICTs and adaptation to the effects of climate change
 - Sharing of experiences and use-cases on climate change adaptation



Tentative structure

Tentative table of contents

1. Scope 1

2. References 1

3. Definition2

3.1 Terms defined elsewhere

3.2 Terms defined in this Recommendation

4. Abbreviations and acronyms

5. Conventions

6. Introduction

7. ICT and Climate Change adaptation Framework

7.1. On the International level

7.2. On the National level (National adaptation plans)

7.3. The Sectoral & community level

7.3. 1. Adaptation of ICTs

7.3. 2. Adaptation by ICT

8. ICT and Climate Change adaptation policy development

8.1. Policy Content

8.2. Policy Structures

8.3. Policy Process

Annex A: Best Practices On the National level (National adaptation plans)

Annex B: Best Practices in Adaptation of the ICT Equipment and Infrastructure

Annex C: Best Practices in using ICTs for Adaptation in different sectors (This annex forms an integral part of this Recommendation)

Annex D: Best practices on ICT and Climate Change adaptation policy development

Appendix I
Bibliography



ICT and Adaptation Portal

Technical:

- Providing a set of requirements for a website which could be read from a variety of devices including mobile phones on a low capacity network such as GPRS.
- The website is intended to link to sources of information concentrating adaptation to climate change and it can therefore be described as a portal.

ICT and Adaptation Portal

- Raising countries' awareness especially developing ones;
- Sharing knowledge and best practices;
- Establishing a **one-stop shop/repository** of relevant information, organizations, research, contacts;
- Providing definitions, policies, standards and recommendations related to ICT and adaptation;
- Providing information on international frameworks.

Questionnaire on ICTs and adaptation to the effects of climate change

Get involved and help us build a resilient world and a sustainable future.

Share with us environmental experiences and use-cases on:

- Use of ICT in enabling communities to better adapt to the effects of climate change
- The adaptation of ICT sector to the effects of climate change

<https://www.surveymonkey.com/s/201303-adaptation>

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Projects and Partnerships



ITU with UNESCO-IOC and the WMO established a joint task force (JTF) tasked to investigate using submarine telecommunications cables for ocean and climate monitoring and disaster warning

- over 80 international experts from the science, engineering, business and law communities



Through its 5 committees and meetings, the JTF is advancing a strategy and roadmap to enable the availability of green cables equipped with scientific sensors for climate monitoring and disaster risk reduction (tsunamis). It is also analyzing the potential renovation and relocation of retired out-of-service cables.

- 1. Science and Society**
- 2. Business Models**
- 3. Engineering**
- 4. Legal**
- 5. Publicity, Awareness and Marketing**



Using submarine cables for climate monitoring and disaster warning
Strategy and roadmap



Using submarine cables for climate monitoring and disaster warning
Opportunities and legal challenges



Using submarine cables for climate monitoring and disaster warning
Engineering feasibility study



Three reports were commissioned and published on Strategy and Roadmap, Engineering Feasibility, and Opportunities and Legal Framework.

Task Force Members

- Alcatel-Lucent
- AQEST
- Arctic Fibre Inc.
- Axiom
- BT Design
- Bureau of Oceans, Environment and Science, U.S. Department of State
- Climate Associates
- ETH-Zurich
- European Seas Observatory NETwork (ESONET)
- France Telecom
- France Telecom Marine
- Fujitsu
- Gartner Inc.
- GNS Science
- Huawei Marine Networks CO.,LTD
- Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and connected Seas (ICG/NEAMTWS)
- Intergovernmental Oceanographic Commission of UNESCO
- International Cable Protection Committee (ICPC)
- International Telecommunication Union (ITU)
- International Tribunal for the Law of the Sea
- Istituto Nazionale di Geofisica e Vulcanologia (INGV)
- Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM)
- Libya, Ministry of Communications and Informatics
- Mallin Consultants Ltd.
- Ministry of Foreign Affairs, Greece
- Nansen Environmental and Remote Sensing Center
- NASA
- National Authority for Management and Regulation in Communication of Romania
- National Oceanic and Atmospheric Administration (NOAA)
- NEC Corporation
- Netherlands Institute for the Law of the Sea, Utrecht University School of Law
- Ocean Observations Panel for Climate (OOPC)
- Puertos del Estado, Spain
- Scottish Association for Marine Science (SAMS)
- Scripps Institute of Oceanography
- Sea-Bird Electronics
- Sea Risk Solutions LLC
- Swiss Maritime Navigation Office (SMNO)
- TE SubCom
- Teledyne ODI / Teledyne Oil & Gas
- Telefónica
- Telefónica International Wholesale Services
- UN Office of Law and Sea (DOALOS)
- University of Hawaii
- University of Milano-Bicocca
- University of Stockholm
- University of Sydney
- University of Tokyo
- University of Victoria
- University of Washington
- U.S. Geological Survey
- Vrije Universiteit Brussels
- Woods Hole Oceanographic Institution (WHOI)
- WILTSHIRE & GRANNIS LLP
- World Meteorological Organization (WMO)
- World Ocean Council (WOC)
- Zimbabwe National Water Authority

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Raising Awareness



Raising Awareness: upcoming workshops and events

- **Joint Coordination Activity on ICT and Climate Change**
(Lima, Peru, 5 Dec. 2013)
- **Workshop on Smart Sustainable Cities**
(Lima, Peru, 5 Dec. 2013)
- Meeting of the **Focus Group on Smart Sustainable Cities**
(Lima, Peru, 6 Dec. 2013)
- Meeting of the **Focus Group on Smart Water Management**
(Lima, Peru, 10 Dec. 2013)
- **ITU-T Study Group 5** meeting
(Lima, Peru, 2-13 Dec. 2013)
- **ITU/UNESCO Events on Smart Sustainable Cities**
(Montevideo, Uruguay, 11-14 Mar. 2014)

The Way Forward

- How to integrate adaptation in strategic planning?
- How strategic planning leads to practical implementation?
- How is ICT part of this planning?
- How to deploy in practical circumstances?
- Knowledge sharing among industry, climate change and development professionals
- Using local media to support adaptation
- Political commitment
- Awareness at the level of policy makers and communities
- Recognition of ICTs as a main enabling tool and funding



CHALLENGES

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The Way Forward (cont'd)

- *Inclusiveness*: Inputs from developed and developing countries are needed in order to produce recommendations on best practices on ICT and climate change adaptation.
- *Participation*: Inputs from stakeholders are encouraged to cater effectively the needs of the sector.
- *Discussion*: The ICT industry is encouraged to address 'the resilience challenge of ICT equipment and infrastructure'. For that purpose, special online or face to face meeting will be organized.

SOLUTIONS

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Thank you

- ITU and climate change
<http://www.itu.int/climate>
- 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>

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