"ICT and Adaptation To Climate Change; The Potential and The Challenge"

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International Telecommunication Union

Some Facts About Climate Change

The *Human Development Report* identifies five major "transmission mechanisms" through which climate change will affect human development:

- Losses in agricultural production and food security

Increased water stress and water insecurity:

- Rising sea levels and exposure to climate

disasters:

- Transforming ecosystems and biodiversity
- Increased human health risks

Some Facts About Adaptation to Climate Change
"Not prevention but adjustments.."

Four possible ICT interventions in Adaptation
By sector, geographical scale and technology

Source: World Bank

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…*

Resolution 73 – Information and communication technologies and climate change

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

Question 15/5
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

Question 15/5

- L. Infrastructure and 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
- L. Submarine Sensors (previously named Green Repeaters)
  - Best practices for submarine sensors 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

L. Infrastructure and Adaptation

Examples of ICT's **RESILIENCE** to Climate Change: The solution proposed by Telefónica-Vivo (the mobile & fixed operator of Telefónica in Brazil) is the use of public lighting poles to meet the demand of bases stations needed

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

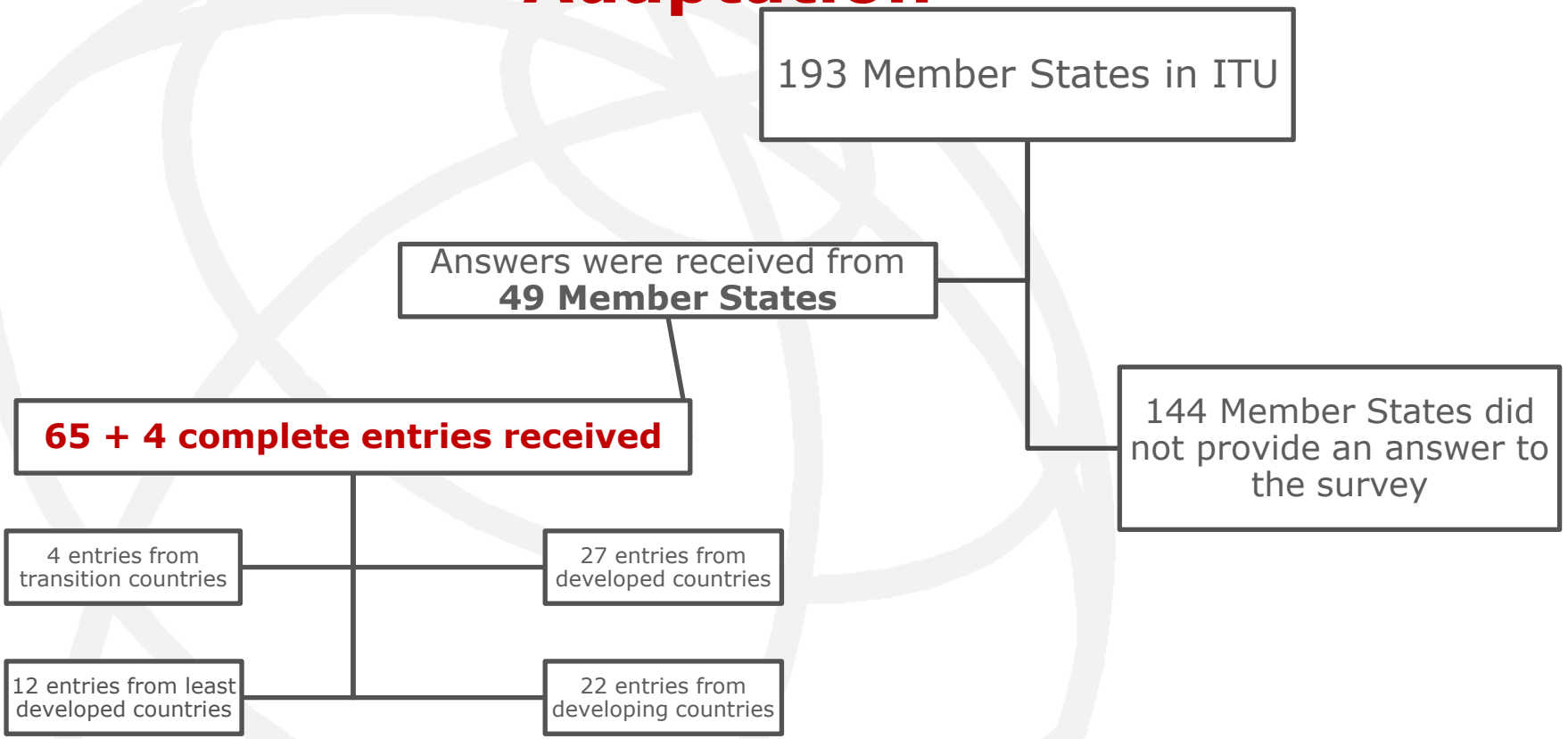
- Raising countries' awareness especially developing ones
- Sharing knowledge and best practices
- Establishing a one-stop shop/repository of relevant information, organizations, research, contacts.
- Providing definitions, policies, standards and recommendations related to ICT and adaptation
- Providing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

ICT and Adaptation Portal

For the vertical and horizontal tool bars:

- Links to relevant international entities, groups and forums working on the same subject from different perspectives
- ICT and adaptation resolutions, recommendations, standards, research, studies and bulleting
- ICT and adaptation policies and strategies
- ICT equipment and Adaptation to climate change
- ICT, and disaster relief management
- ICT and adaptation sources of funds
- ICT and adaptation in health
- ICT and adaptation in habitat, migration and deforestation
- Agriculture and food security
- Water Management
- Submarine sensors and monitoring climate change
- Gender, ICT and climate change

ITU Survey on ICT and Climate Change Adaptation



Some countries provided more than one answer
(e.g. Belgium=2, People's Republic of China=2, Finland=3, Greece=7, Japan=3, Spain=2, Russian Federation=2, United Kingdom=2)
Entries received from Ministries, Regulatory Authorities, Sector Members and Associates

Main Issues Considered by The Survey

2011 survey questions	
Q1	Does your government (or company) have a **policy regarding climate change**?
Q2	Does your government (or company) have any **ongoing actions in terms of adaptation to climate change?**
Q3	Have you estimated the **global ICT footprint** in your country in terms of greenhouse gas (GHG) emissions?
Q4	Are you aware of any **"green" ICT initiatives** which could provide better design and energy consumption?
Q5	Are you aware of the so-called **rebound effect** that would offset the beneficial aspects of green ICT or any ICT consuming less energy?
Q6	What severe **weather conditions** are typical in your rural/remote regions?
Q7	**Is your administration using any systems and applications of ICT to adapt to climate change?**
Q8	**What ICT services would enable communities to better adapt to climate change?**
Q9	**What specific technologies or standards for ICT equipment are used by your administration to gather data to monitor climate change?**
Q10	**What technologies and/or standards could enhance the gathering of data/information about climate change for your administration?**

Q11	**What ICTs and standards are used by your administration to disseminate information about climate change to those who need it (e.g. in broadcast, satellite systems)?**
Q12	**What technologies and/or standards could enhance the dissemination of information about climate change to those who need it?**
Q13	Access to information is important for communities needing to adapt to climate change. What are the **challenges to deploying telecommunication infrastructure in rural/remote areas in your region**?
Q14	What **primary and backup energy sources** are available in your rural/remote areas?
Q15	What **types of telecom/mobile systems** are needed to allow enhanced access to information concerning climate change or extreme weather events in rural/ remote regions?
Q16	What are the **educational opportunities** in rural/remote regions to train individuals in the use of ICTs for adaptation to climate change?
Q17	Some systems are specifically developed for developing countries most of them have some features that are not essential enough to justify their cost and/or lack the required specification to meet the existing conditions in developing countries. What are the **specifications and features that are essential** in rural/remote regions in your country?

Q10 What **technologies and/or standards** could enhance the gathering of data/information about climate change for your administration?

Ministry of Communications and Informatization (Belarus)	• **Web technologies, wireless broadband access, M2M.**
Ministry of Industry and Information Technology (People's Rep. of China)	• **ICT environment-monitoring technology.**
Ministry of Infrastructure, Transport and Networks (Greece)	• **Installing remote sensors and submarine cables to monitor climate change.**
Korea Communications Commission (Republic of Korea)	• **NDIR, GC-ECD, Ubiquitous Sensor Network (USN), etc.**
Lesotho Communications Authority (Lesotho)	• **Automated weather stations with advanced terrestrial systems (GPS) satellite.**
Nepal Telecommunications Authority (Nepal)	• **Sophisticated wireless sensor networks, wireless IP networks , satellite imaging sensors.**

Q12 What **technologies and/or standards** could enhance the dissemination of information about climate change to those who need it?

Communications Regulatory Authority (Lithuania)	•Wireless connections.
Information and Communication Technologies Authority (ICTA) (Turkey	•Broadcasting networks.
Orascom Telecom Bangladesh Limited (Banglalink) (Bangladesh)	•Private network, private mobile radio, interactive voice, television channels.
NTT DoCoMo, Inc. (Japan)	•Push message compatible handsets will become even more popular.
Nokia Siemens Networks GmbH & Co. KG (Germany) (Finland)	•Telecom and ICT provide the key channels to inform about climate change.
Microsoft Europe (Belgium)	•The use of cloud platforms such as Windows Azure. This can potentially allow the better calculation of relevant data sets.
The Abdus Salam International Centre for Theoretical Physics (Italy)	•Low cost SMS when sending climate change information.
Asia-Pacific Institute for Broadcasting Development (International)(Malaysia)	•Digital terrestrial TV and radio.

Challenges

- 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 an communities
- Recognition of ICTs as a main enabling tool and funding

Conclusions and Recommendations

- More input is needed from developed and developing countries to produce a relevant recommendation on best practices on ICT and adaptation as well as adaptation of the ICT sector. Next Meeting of SG5 – November 2013
- More input needed for the ICT and Adaptation website to cater effectively to the needs of a multi stakeholder audience.
- **Input from industry needed as to how it is addressing "the resilience challenge of ICT equipment and infrastructure"; special online or face to face meeting to be organized.**

Thank You