Regional Development Forum 2008: Bridging the ICT standardization gap in developing countries

Session 5: Security and regulatory issues

ITU standardization activities on telecommunications for disaster relief and early warning

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Outline

- Introduction
- Radiocommunication Sector
- Telecommunication Standardization Sector
- Future work
- Conclusion

Introduction

ITU Overview

191 Member States
+700 Sector Members

ITU

Helping the World Communicate

ITU-T

Telecommunication standardization of network and service aspects

ITU-D

Assisting implementation and operation of telecommunications in developing countries

ITU-R

Radiocommunication standardization and global radio spectrum management

Role of ITU in TDR/ETS/EWS

- In five words, *Committed to connecting the world*:
  → even more so in distress situations!

- Long-time work on telecom for emergency situations
  - Morse code …(it was a long time ago…)
- Three recent examples
  - *Tampere Convention*
    → to facilitate exchange of telecom equipment in disaster relief operations
  - *WRC-03: reserved spectrum for emergency communications*
  - *Standardization work on call priority & alert message delivery*
- Plenipotentiary Conference Resolution 136
  - "*Use of telecommunications/ICTs for monitoring and management in emergency & disaster situations for early warning, prevention, mitigation and relief* "

ITU's role in Disaster Reduction (1)

- Mitigation
  - Spectrum management
  - Establishment of globally/regionally harmonized frequency bands
  - Application of amateur and amateur-satellite services
  - Global circulation of emergency equipment
  - Support to emergency broadcasting, maritime and public safety signals
    - All types of networks

ITU's role in Disaster Reduction (2)

- Preparedness
  - Standards for public telecommunication services
    - International emergency for preference scheme for disaster relief
    - Message broadcast
  - Global network security
  - Interoperability of telecom networks

ITU's role in Disaster Reduction (3)

- Response
  - Appropriate project management techniques
  - Legal and regulatory issues (Tampere + GSR)
  - Universal access (early warning)
  - Capacity building (preparedness)
  - Relief (response)
  - Reconstruction
  - Partnerships (e.g., INMARSAT, WGET, OCHA, IARU)

Scenarios for emergency communications

- Four communication scenarios:
  1. Citizen to citizen
  2. Authority to authority
  3. Authority to citizen
  4. Citizen to authority
- ITU has worked in scenarios 1, 2 and 3. More work could be done
- Could work on scenario 4 (more relevant to day-to-day emergency situations: fire, police, call for medical assistance, etc)

How the work progresses?

- ITU's work is contribution-driven: *contributions → progress*
- Governments, users (*including intergovernmental agencies and NGOs*), manufacturers need to bring in proposals to enhance the features of existing systems
- Trend for initial focus to be on improving what already exists, in order to be implementable in a short time-frame

Radiocommunications

Disaster phases and the radio services involved

- Disaster prediction and detection – meteorological and Earth exploration satellite services
- Disaster alerting – broadcast, fixed, mobile and related satellite services
- Disaster relief – Amateur, broadcast, fixed, mobile and related satellite services

Disaster prediction and detection

Meteorological and Earth exploration satellite services

- Operated in the main by government and international agencies
- Play a major role in prediction and detection of disasters (such as hurricanes, earthquakes and tsunamis, floods, fires, dangerous pollution, etc.)

Disaster alerting

- Alert the central/regional/local authorities responsible for warning the public – fixed, mobile, fixed/mobile-satellite

- Issue warnings to the people likely to be affected
  - Broadcast, sound and television
  - Mobile (such as TV, Radio, SMS / Cell broadcast)

Disaster relief

- Amateur – a long history of aiding with communications during disasters
- Earth exploration satellite – damage assessment
- Fixed/mobile satellite - to rapidly restore communications capabilities
- Fixed – transportable, higher capacity - point-to-point and local area
- Mobile – coordination of relief activities, both private and public systems used

Resolution 646 (WRC-03)*

Recommends use of regionally harmonized bands :

- Region 1: 380-470 MHz as the frequency range within which the band 380-385/390-395 MHz is a preferred core harmonized band for permanent public protection activities within certain countries of Region 1;
- Region 2: 746-806 MHz, 806-869 MHz, 4 940-4 990 MHz;
- Region 3: 406.1-430 MHz, 440-470 MHz, 806-824/851-869 MHz, 4 940-4 990 MHz and 5 850-5 925 MHz.
- Encourages administrations to facilitate cross-border circulation of radio equipment intended for use in disaster relief situations

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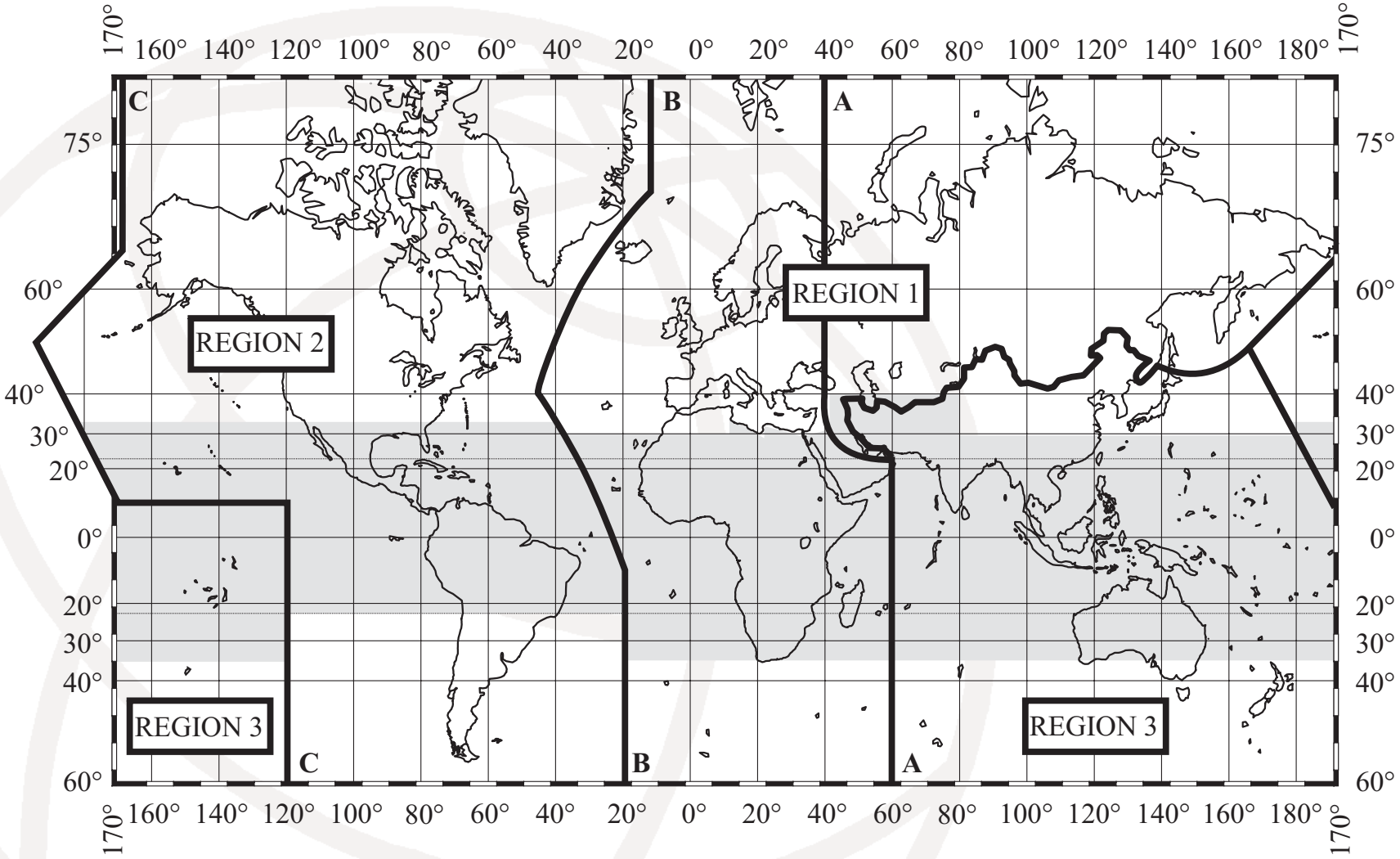
* Reconfirmed by WRC-07

ITU Regions


170° 160° 140° 120° 100° 80° 60° 40° 20° 0° 20° 40° 60° 80° 100° 120° 140° 160° 180° 170°
75°
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A
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REGION 1
REGION 2
REGION 3
REGION 3
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Resolution 647 (WRC-07)

NEW!

Spectrum management guidelines for emergency and disaster relief radiocommunication

- Places emphasis on preparedness concerning spectrum needs in the phase immediately after an emergency has started
- Encourages administrations to maintain available frequencies for use in the very early stages of humanitarian assistance intervention for disaster relief
- Instructs ITU-BR to assist Member States with their emergency communication preparedness activities by establishing & maintaining a database of currently available frequencies for use in emergency situations

RA-07 Resolution ITU-R 53

Use of radiocommunications in disaster response and relief

- Assistance to ITU Member States with their emergency radiocommunications preparedness activities
  - E.g. listing of currently available frequencies for use in emergency situations for inclusion in a database maintained by BR
- Assist other international organizations (e.g. OCHA) with the development and dissemination of standard operating procedures for spectrum management in the event of disasters

RA-07 Resolution ITU-R 55

ITU studies of disaster prediction, detection, mitigation and relief

- It identifies areas that ITU-R Study Groups could address in their studies/ activities and develop guidelines related to the management of radiocoms in disaster prediction, detection, mitigation and relief
- This is to be done collaboratively within & outside ITU to avoid duplication

Status of studies – global circulation

Recommendation ITU-R M.1637

"Global cross-border circulation of radiocommunication equipment in emergency and disaster relief situations"

Recommendation ITU-R M.1579

"Global circulation of IMT-2000 terminals"

- Recognize the importance of the needs of organizations dealing with disaster relief

Status of studies – needs of future systems

Report ITU-R M.2033

"Radiocommunication objectives and requirements for public protection and disaster relief (PPDR)"

- Defines objectives and needs for the implementation of future PPDR solutions
- Focuses on operational needs around 2010

Status of studies – Amateur involvement

Recommendation ITU-R M.1042-2

"Disaster communications in the amateur and amateur-satellite services"

- Encourages the development of robust, flexible and independent amateur service and amateur-satellite service networks, capable of providing communications during disasters and relief operations

Telecommunication Standardization

ITU-T work on TDR/EW [1]

- Installation techniques for a sturdy outside plant (Handbook and L-series Recommendations)
- X.1303: Common altering protocol based on OASIS CAP v1.1
- E.106: Call preference scheme over the PSTN
  - Support of E.106 in various ITU-defined systems
- E.107: Emergency telecommunications service (ETS) and interconnection framework for national implementations
- Discussion on extension of the preference scheme to packet technologies (IP in particular)
  - Creation of work items in the technical committees ("Study Groups")

ITU-T work on TDR/EW [2]

- Preference scheme defined for two families of IP-based systems standardized by ITU:
  - H.323 Multimedia & VoIP (ITU-T H.460.4 & H.460.14)
  - IP-Cablecom (ITU-T J.260)
- Overview of the basic requirements, features, and concepts for emergency telecoms for NGN (ITU-T Y.1271)
- Definition of a E.164 special country code for emergency communications under the responsibility of the UN

- Action Plan for Standardization on TDR/EW
- ITU Compendium on Emergency Communications: *Volume with all applicable ITU-T Recommendations*
- Workshops: 2002 (ETS), 2006 (Public warning)

PCP-TDR*

- Coordination role:
  - Monitor the progress of technical standardization for telecommunications for disaster relief & early warning
  - Address coordination issues between the partners
  - Develop and maintain contact with entities not traditionally involved in standards development
  - Promote the adoption of existing standards

- Participation open to all key players:
  - standards development organizations,
  - international telecommunication service providers,
  - related government departments,
  - disaster relief organizations and
  - other entities working in the field

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* Partnership Coordination Panel on Telecommunication for Disaster Relief and Mitigation

Ongoing / future work

- Add-ons to existing system specifications:
  - System override for emergency message broadcast: audio, audiovisual, text
  - Extension of short text messaging to fixed telephones (circuit-switched and IP/soft-phones)
  - Definition of methods to address multiple languages and communication for persons with disabilities, in particular for IP-based systems
- Framework for interconnection of priority schemes across the different systems (PSTN and different IP platforms, e.g. H.323, IP-Cablecom, SIP) and across proprietary/ privileged systems
- Definition of pre-allocated “channel” number for 3G mobile cell broadcast use (Ongoing)
- Regulatory framework (*national sovereignty issues*)

Conclusion

Conclusions

- ITU has historically played an important role in communications for disaster prevention and mitigation
- Work already has been done in certain areas in the standardization sector for existing systems as well as NGN ... but much more can be done.
  - For the work to progress: study groups need to receive proposals from the ITU members!
- For the way forward:
  - Understand users requirements
  - Identify the regulatory framework
  - Develop a set of global and compatible Standards
  - Cost aspects
  - Evolutionary approach
  - Respect national sovereignty
  - Partnership between Member States, private sector, Government Agencies, and NGOs
- Participate! (next slide for web resources)

Web resources

- Main ITU emergency telecoms page
  → www.itu.int/emergencytelecoms
- ITU-T emergency telecoms page
  → www.itu.int/ITU-T/emergencytelecoms/
- Partnership Coordination Panel on TDR/EW
  → www.itu.int/ITU-T/special-projects/pcptdr/
- Radio Assembly 2007 Resolutions
  → www.itu.int/publ/R-RES
- Tampere Convention
  → http://www.reliefweb.int/telecoms/tampere/
- ISDR Platform for Promotion of EW
  → http://www.unisdr.org/ppew/
- ITU-T Recommendations **New! Free online!**
  → www.itu.int/ITU-T/publications/recs.html
- ITU-T Workshops
  → http://www.itu.int/ITU-T/worksem