

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

Simao Campos
Counselor ITU-T Study Group 16
ITU



Outline

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

Introduction

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ITU Overview

ITU

Helping the World Communicate

191 Member States
+700 Sector Members

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

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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

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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

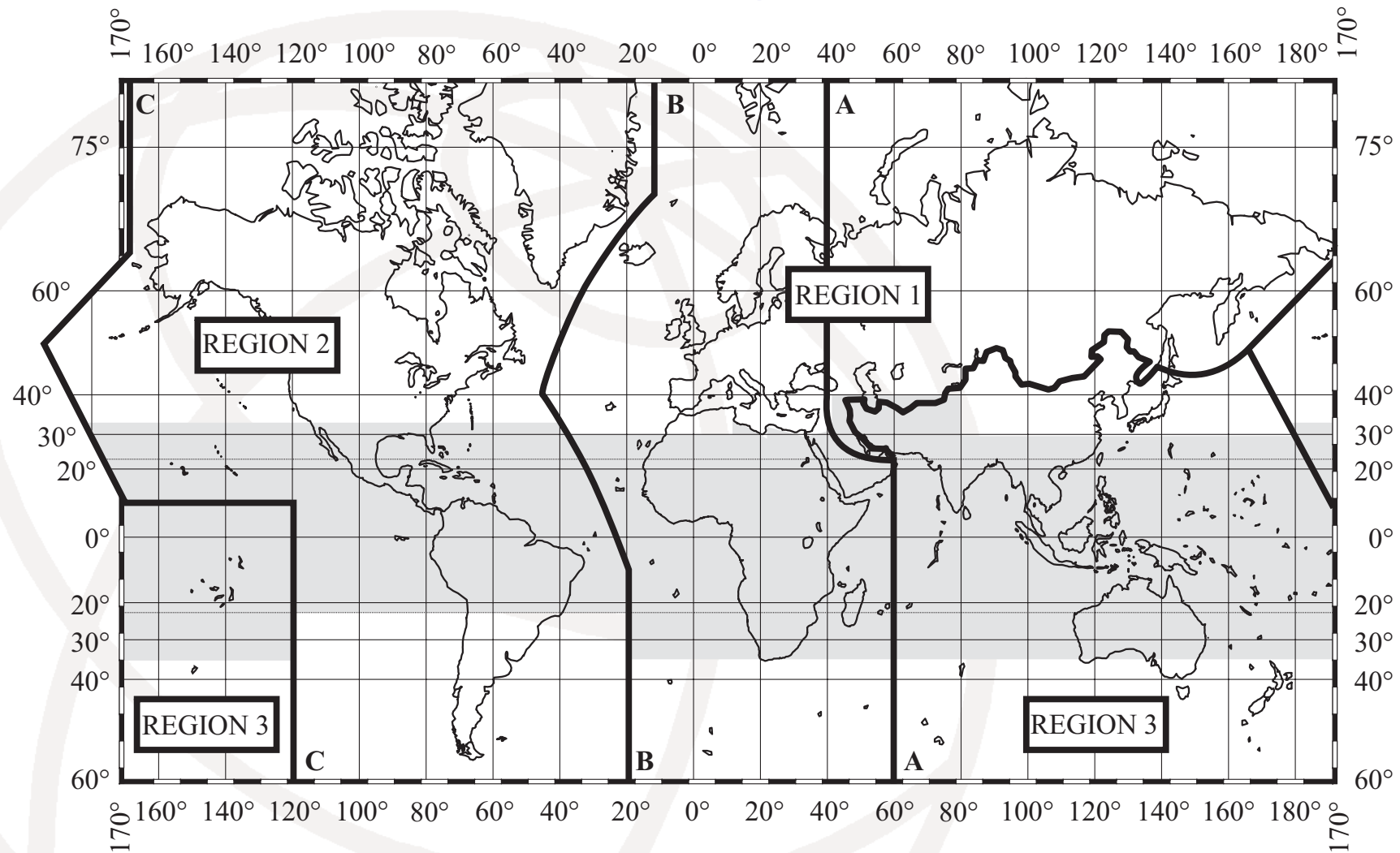
Resolution 646 (WRC-03)*

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

* Reconfirmed by WRC-07

ITU Regions



5-01

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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 radiocomms 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

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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

* 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

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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)

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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>

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