

Role of ITU in Emergency Communications in the Asia- Pacific Region

Presented at the

**ITU Asia-Pacific Centres of Excellence Training Workshop on
Effective Use of Telecommunication/ICT in Response to
Disasters: Saving Lives**

Sintok, Kehad, Malaysia
24-28 November 2008

ITU Regional Office for Asia and Pacific
Bangkok, Thailand

Vision and Key Strategies

Vision

By connecting the world and fulfilling everyone's fundamental right to communicate, we strive to make the world a better and safer place

Key Strategic Goals

- Accessibility : Achieving equitable communication for everyone
- **Climate Change and ITU : Promoting the use of ICTs to combat climate change**
- **Cybersecurity, Spam and Cybercrime : Confidence and security in the use of ICTs**
- Connecting the Unconnected by 2015 : Bridging the Digital Divide
- **Saving Lives: Telecommunication is critical at all phases of disaster management**
- The Networks of the Future : Next Generation Networks & Global Standards Initiative (NGN - GSI)

ITU Structure



ITU Headquarter (Geneva) – 191 Member States

ITU-R

Radiocommunication
Satellite/Terrestrial

ITU-T

Telecom Network
Standardization

ITU-D

Development

ITU Regional Offices

Africa

Americas

Arab States

Asia-Pacific

Europe & CIS

Asia-Pacific Regional/Area - 38 +1 Member States

ASEAN

**North-East
Asia**

Pacific

**South
Asia**

ITU-DBCDE Partnership Project



Australian Government

Department of Broadband,
Communications and the Digital Economy

Project: “Effective Use of Telecommunications/ICTs in Disaster Management”

✓ Scope of assistance:

- Assessment of post-disaster impact to telecommunication/ICT infrastructure
- Assistance in assessing national disaster management plan/policy and developing a National Emergency Telecommunication Plan as part of a National Disaster Management Plan
- Human capacity building in effective emergency telecommunications management

✓ Countries assisted in Asia-Pacific:

- Post-tsunami (2004) technical and expert assistance to Indonesia, Bangladesh, Maldives, Sri Lanka, Thailand
- Asia-Pacific regional training, workshops on disaster/emergency telecommunications
- Expert assistance to Maldives, Sri Lanka, Thailand, Philippines, Mongolia in assessing, reviewing, and developing necessary plans/policies concerning Emergency Telecommunications

Impact of Recent Disasters

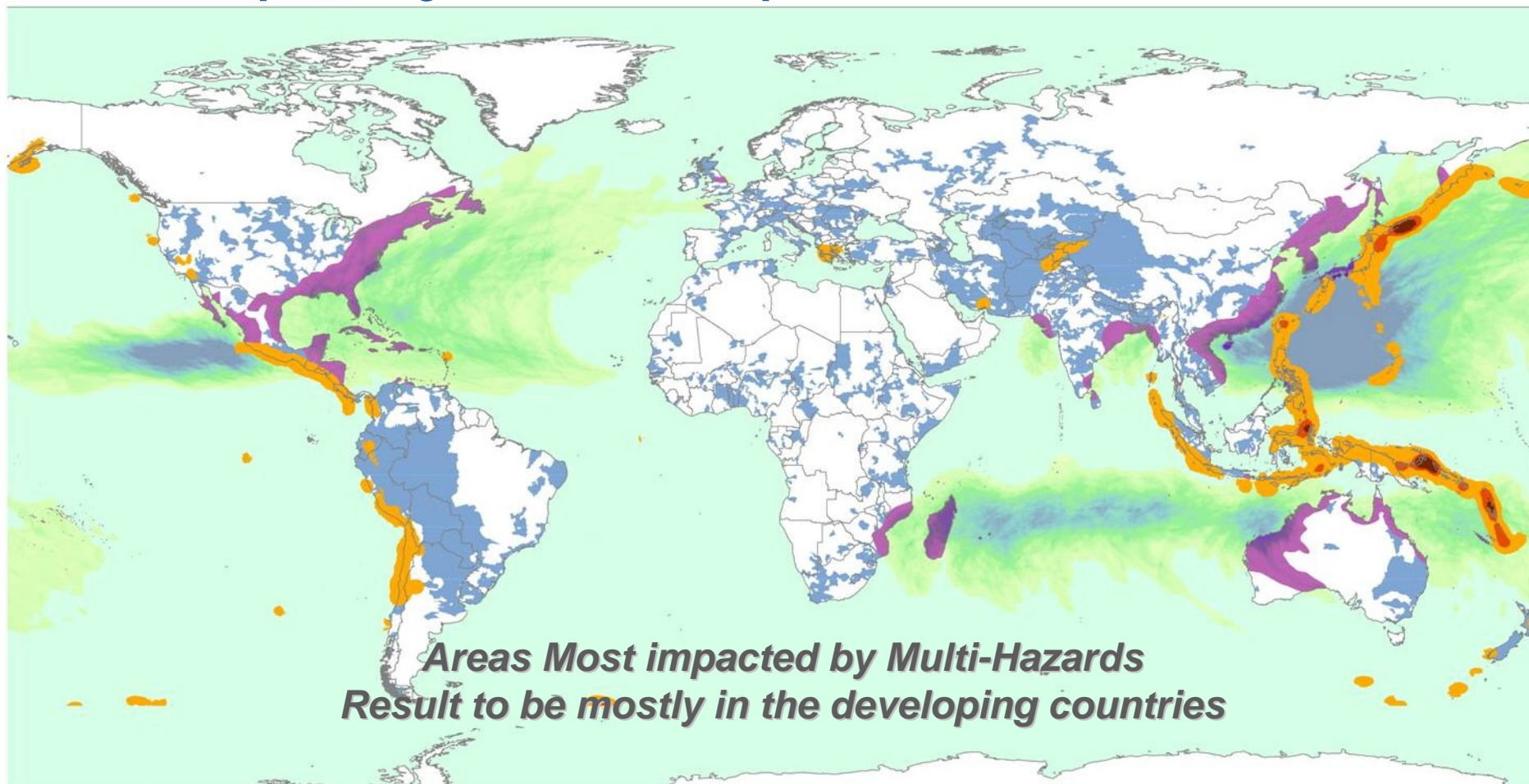
	2'000	2'001	2'002	2'003	2'004	2'005	2'006	2'007	2'008	Total
<i>Complex Disasters</i>	-	-	3'000	-	-	12'500	-	2'000'000	25'680	2'041'18
Drought	81'225'415	32'081'154	377'556'935	67'732'075	17'971'500	29'550'990	20'157'000	5'278'144	4'500'000	636'053'21
<i>Earthquake (seismic activity)</i>	2'478'559	9'711'283	851'423	4'194'467	3'147'205	6'187'155	3'858'839	1'199'507	45'999'426	77'627'86
<i>Epidemic</i>	1'081'848	238'632	1'208'027	136'542	149'153	432'262	293'152	485'121	58'389	4'083'12
<i>Extreme temperature</i>	27'686	213'161	103'986	1'840'088	2'139'880	2'246	61'754	988'088	9'800'000	15'176'88
Flood	73'904'936	34'551'646	167'769'003	169'461'576	116'991'015	75'028'249	30'309'348	177'923'423	43'910'680	889'849'871
<i>Industrial Accident</i>	17'142	19'345	1'678	646'262	156'556	16'400	136'729	2'459	1'180	997'77
<i>Mass movement dry</i>	-	-	-	-	353	-	5	-	-	35
<i>Mass movement wet</i>	215'152	71'037	304'735	458'648	12'377	9'559	432'156	9'002	-	1'512'66
<i>Miscellaneous accident</i>	23'613	30'785	61'064	15'342	102'384	77'493	31'603	41'094	11'425	394'80
Storm	15'136'728	31'973'527	113'441'083	11'092'615	21'359'285	49'116'650	67'109'232	23'974'245	4'553'393	337'756'751
<i>Transport Accident</i>	7'198	3'235	5'538	5'013	47'878	6'119	4'060	3'431	-	82'47
<i>Volcano</i>	126'626	110'491	278'350	25'000	52'533	341'000	378'611	50'963	11'755	1'375'32
<i>Wildfire</i>	39'035	5'739	26'124	184'333	20'519	6'907	2'062	1'785'052	120	2'069'89
Total	174'283'938	109'010'035	661'610'946	255'791'981	162'150'638	160'787'530	122'774'551	213'740'529	108'872'048	1'969'022'196

Droughts, Floods, Earthquakes, Storms are the hazards affecting the majority of people



**From 2000-2008 1'969'022'196 people affected worldwide
= 1 third of the world population**

Areas at Risk of Multi-Hazards Flood, Tropical Cyclone, Earthquake



Earthquake Frequency

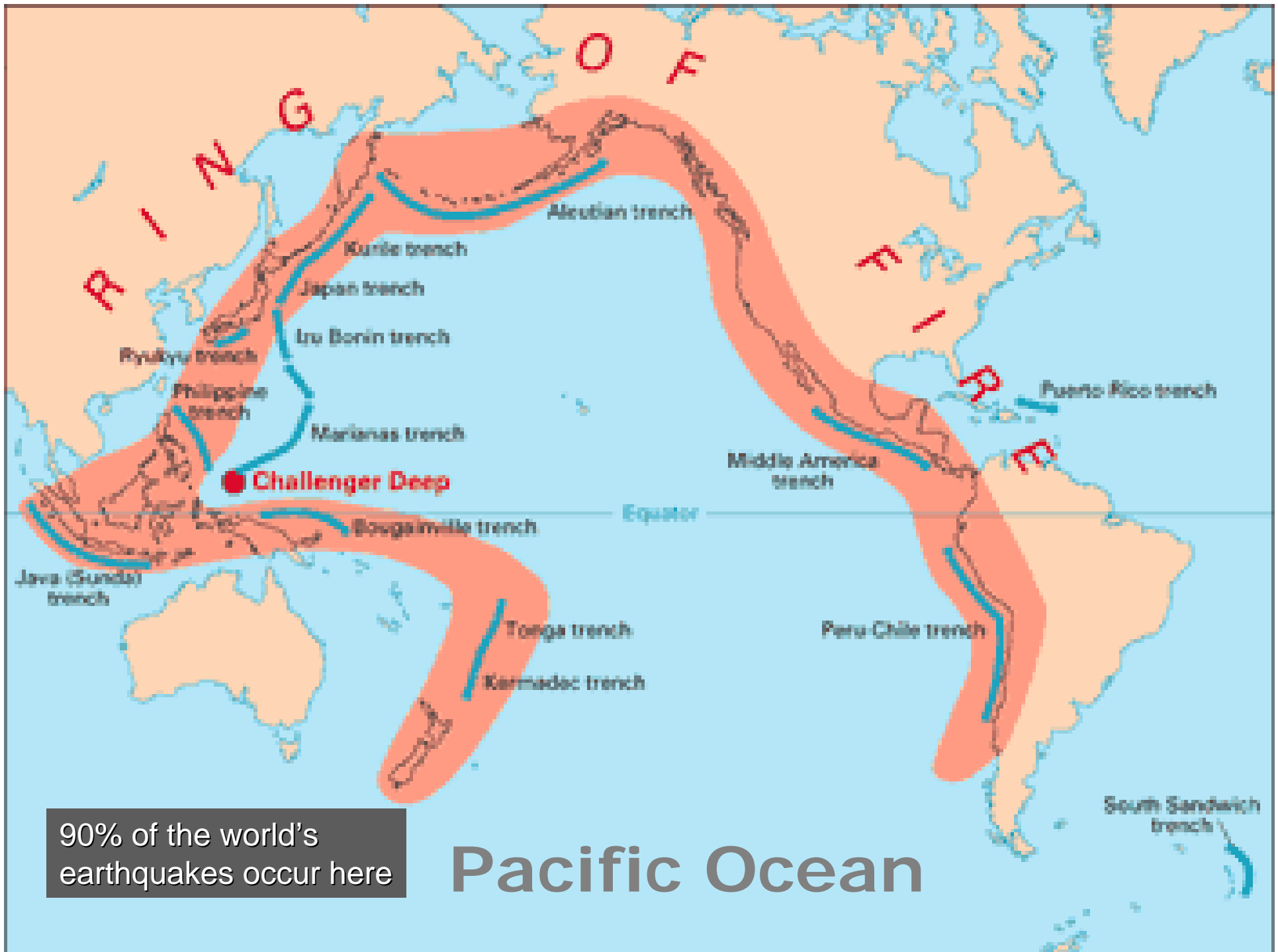
High Frequency of Earthquake

Tropical Cyclone Frequency

Highest Frequency
Lowest Frequency

Areas Highly Exposed to
Tropical Cyclones

High Frequency of Floods



90% of the world's earthquakes occur here

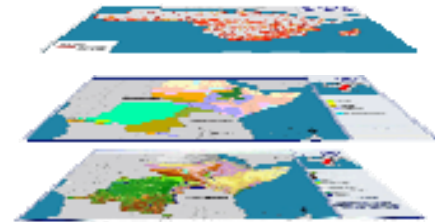
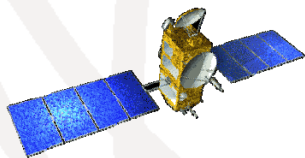
Pacific Ocean

Why Emergency Communications?

- When disaster strikes the most important information to know is **where** the disaster has happened, **how many people** have been affected and **what have been the consequences and impact** of the given hazard over the local population, livelihoods and infrastructure.
- These information need to be **accurately acquired and timely communicated** to the decision makers and to the humanitarian community for planning of appropriate humanitarian responses.

Satellite Communications and Applications

<p>Earth Observation Satellites & Geographic Information Systems (GIS)</p>	<p>Allow to establish extensive and accurate knowledge of Country Situation and areas at risks</p> <p>Allow acquisition of Earth Observation datasets for assessment of damaged areas and magnitude of disaster even in restricted access areas</p>
<p>Global Navigation satellite systems (GNSS/ GPS)</p>	<p>Complement the Earth observation data with geographical ground truth Information</p>
<p>Satellite Communication (Voice and high speed data for telemedicine terminals)</p>	<p>Allow humanitarian community to:</p> <ul style="list-style-type: none"> ▪ coordinate response efforts ▪ locate victims through GPS ▪ Provide assistance to victims through e-health applications



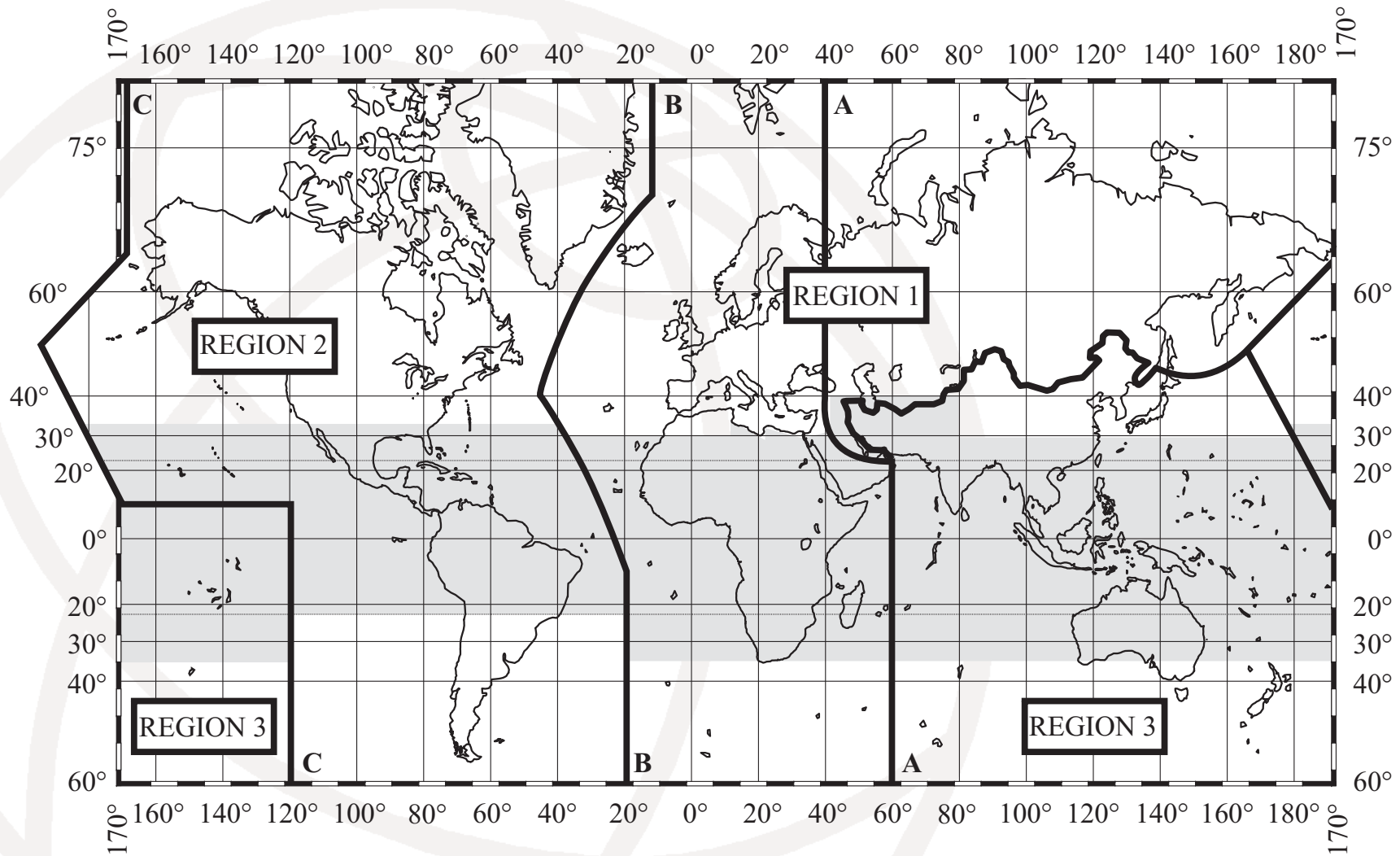
ITU-T (Standardization)

- Rec. E.106 - International Emergency Preference Scheme
- Rec. H.323 - Interoperability of Telecommunication Networks
- Rec. Y.1271 Overview of the Requirements, Features, and Concept for Emergency Telecommunications for NGN
- Rec. H.323 - Message Broadcast Capability for IP Systems
 - H.323 Multimedia and VoIP (H. 460.21)
- Rec. E.164 - UN Country Code for Disaster Relief and Relation to UN-wide Dialing Plan
- ITU-T Common Alert Protocol (CAP) - within ITU-T SG 17

ITU-R (Radiocommunication)

- Res. 646 - Public Protection and Disaster Relief
 - Region 1: 380-470 MHz
 - Region 2: 746-806 MHz, 806-869 MHz, 4940-4990 MHz
 - Region 3: 406.1-430 MHz, 440-470 MHz, 806-824/851-869 MHz
- Rec. M.1042-2 Application of Amateur and Amateur Satellite Services

Regionally Harmonized Bands

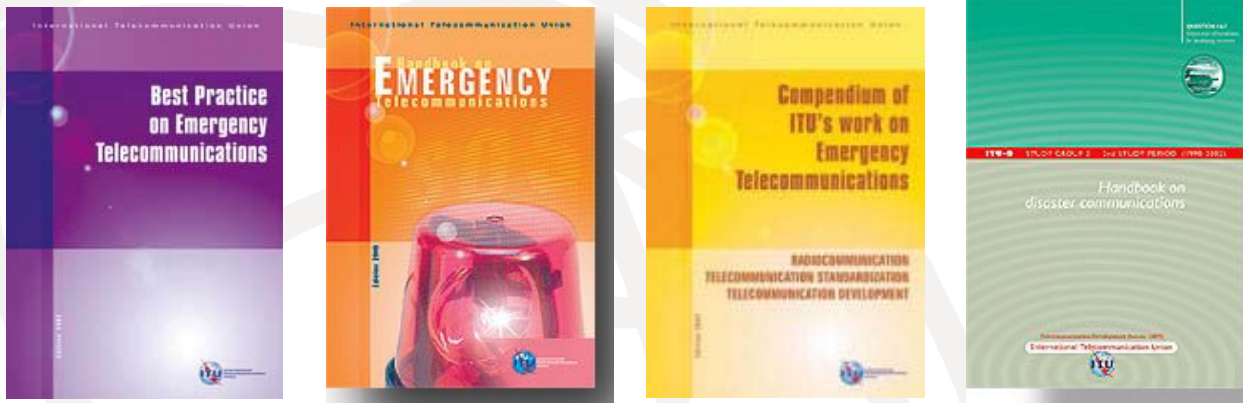


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ITU-D (Development)

- WTDC-06 Res. 34: “The role of telecommunications/ICT in early warning and mitigation of disasters and humanitarian assistance”
- WTDC-06: ITU-D Study Group 2 (Q.22/2): “Utilization of ICT for disaster management and active and passive space-based sensing systems as they apply to disaster prediction, detection and mitigation”
- PP-06 Res. 36: “Telecommunications/ICT in the service of humanitarian assistance”
- PP-06 Res. 136: “The use of ICT for monitoring and management in emergency and disaster situations for early warning, prevention, mitigation and relief”

Production of Guidelines



Events, Training and Workshops



ITU Emergency Resources

Ready for Deployment

Satellite terminal: (Voice and data communication)

- Handheld satellite phones
- INMARSAT Global Area Network,
- Regional BGAN
- Nera World PRO (Explorer100/110)
- Thuraya DSL



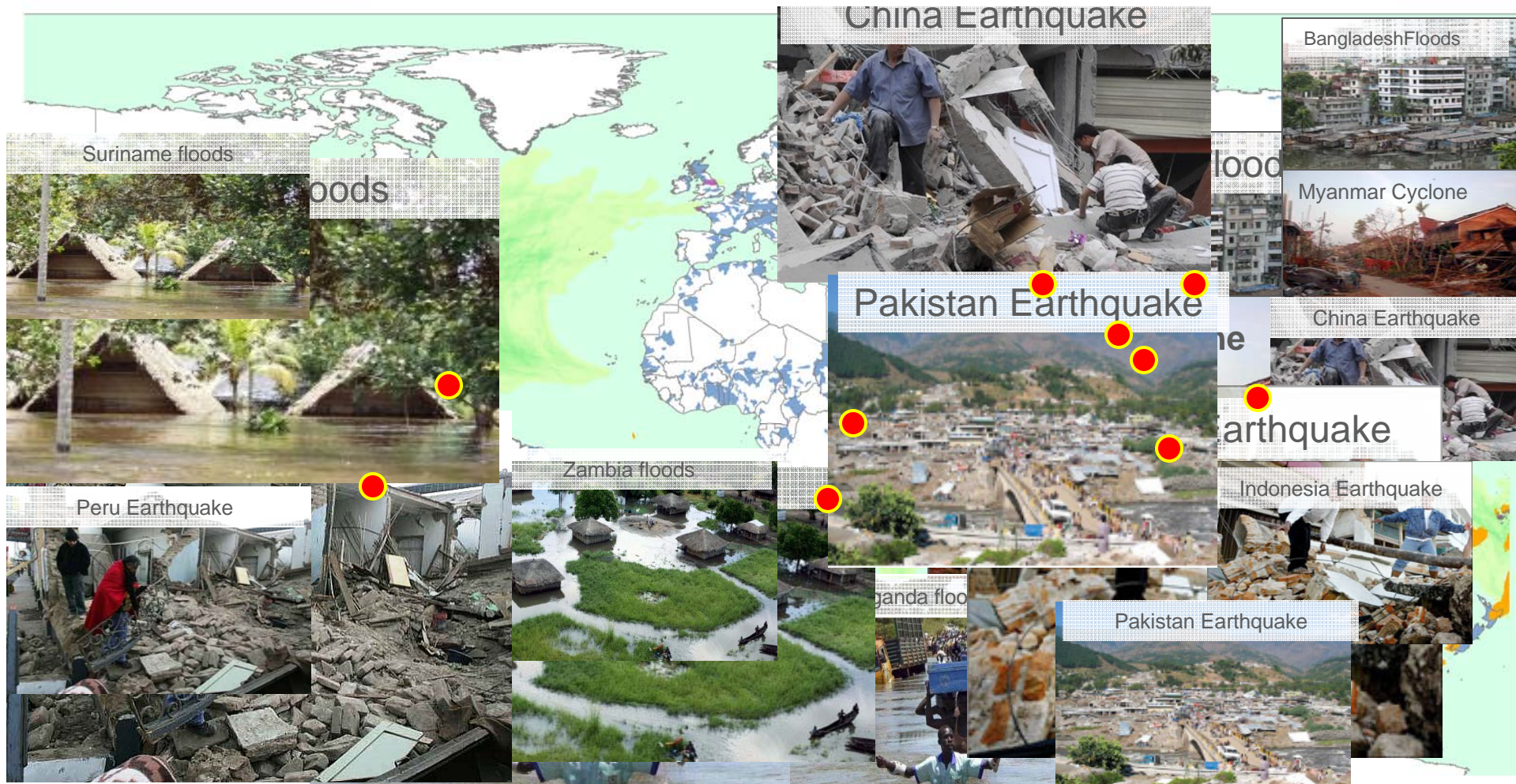
Broadband mobile satellite terminals.

Mobile Communication tools for Global Internet and data access at broadband speeds and simultaneous voice



Areas at Risk of Multi-hazards and ITU Interventions

<http://web/ITU-D/emergencytelecoms/response/index.html>



Earthquake Frequency

High Frequency of Earthquake

Tropical Cyclone Frequency

Highest Frequency
Lowest Frequency

Areas Highly Exposed to Tropical Cyclones

High Frequency of Floods

ITU Emergency telecommunication deployments

ITU Framework for Cooperation in Emergencies (IFCE)

Eminent Industry Champion

Technology Cluster

- Satellite operators and Land Earth station operators
- Telecom Operators
- GIS/Remote sensing service providers
- Radiocommunications Equipment Providers

Eminent Corporate Champion

Finance Cluster

- Governments
- Private Sector
- Development Banks
- Regional Economic Groups

Eminent Corporate Champion

Logistics Cluster

- Air Transport operators
- International Couriers

Partnerships for Humanitarian Work



UN Agencies/UNWGET
(UN Working Group on
Emergencies Telecommunications)

TAMPERE CONVENTION

“Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations”

- Provides the legal framework for the use of telecommunications in international humanitarian assistance
- Reduces regulatory barriers
- Protects providers of telecommunication assistance while safeguarding the interests of the host country

The “Tampere Hall” in
Tampere Finland



National Emergency Telecommunications Plan

- An integral part of a National Plan on Disaster Management
- Identify minimum needs of telecommunication resources in time of emergencies
- Identify vulnerabilities and assess threats
- Forge partnerships especially PPPs
- Generally, four key components
 - Prevention and Mitigation
 - Preparedness
 - Response
 - Recovery

Prevention and Mitigation

- Establish legal and regulatory frameworks supporting emergency telecommunications and ICT
- Identify and carry out risk analysis of national telecommunication critical infrastructure
- Take measures to reduce telecommunication network vulnerability (adoption of legislations, if required)
- Provision of telecommunication resources to the Public Protection and Disaster Relief (PPDR) organizations

Preparedness (1)

- Formulate emergency telecommunications response plans in coordination with the national authority for emergency management (e.g. national disaster management organization)
- Allocate radio frequency to relevant entities
- Enter into bilateral and multi-lateral partnership agreements and memoranda among stakeholders
- Integrate telecommunications/ICT infrastructure into early warning systems and ensure that last mile solutions are provided

Preparedness (2)

- Maintain inventory records/databases of human, financial, technical and material resources
- Embark on a vigorous educational campaign to raise public awareness of the role and use of telecommunications/ICT for disaster management
- Establish and equip Emergency Operation Centres (EOC) and the Emergency Coordination Centre (ECC) for telecommunications
- Draw up Business Continuity Plan (BCP)

Response

- Mobilize additional resources from other entities as required e.g. radio amateurs, private sector, etc.
- Ensure the availability of communication links at all times taking into account the deployment of the business continuity plan
- Respond to requests by national and international humanitarian organizations to requests for assistance in the deployment of telecommunications resources (licensing incoming equipment and allocate requested frequencies)
- Provide appropriate telecommunications equipment or services for Search and Rescue officials, and for those providing services such as medical care, shelter, relief, distribution of food, water supply, etc.

Recovery

- (short term) To ensure the availability of basic telecommunications services to the PPDR organizations
- Assess and rehabilitate damaged critical telecommunications infrastructure ensuring resilience and reducing vulnerability (make use of such applications as geographical information systems)
- Ensure coordination with providers of telecommunications infrastructure and services in order to attain synergy
- Provide expert advice to government authorities with respect to telecommunication infrastructure and other related projects during the reconstruction phase

CONCLUSION (1)

- **Coordination + Cooperation** is a KEY throughout all phases of disaster management. Formal agreements among stakeholders should be established.
- Formation of a **team or committee** dedicated to deal with emergency/disaster communication in particular.
- **Leading** agency must be identified with clear leading role.
- The team/committee will be mandated to develop a **national emergency communication plan** and most likely as part of the national disaster management plan.
- Technology options for emergency communication should be based on outcomes of an **assessment** of existing network infrastructure, resources (human and equipment), and institutional capacity. State-of-art technologies or million dollar project may not be necessary.

CONCLUSION (2)

- A country should incorporate the emergency communication in its other **last mile access** projects e.g. rural communication and vice versa.
- A country should seriously consider to enter into the **Tampere Convention**.
- **Regulatory barriers** to mobilise local resources for disaster relief operations should be waived e.g. facilitate the work of radio amateurs.
- Promote **Public-Private Partnerships** and **Corporate Social Responsibility**

THANK YOU

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