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Standardization for disasters lessons from 2011 Japan earthquake to future disasters

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Ex-1(1/2) Damaged Situation



Communication at disasters

More the situation becomes severe,
more people want communication

- At tsunamis, floods, droughts...
 - For checking survival, evacuation, disaster monitoring, preparation, recovery, ...
- ... and people want it **during** the disaster

Link
Cut!

Power
down!

Over-
demand!

Repair
immediately!!

Communication at 2011 Japan Quake

- MIC (JP Govt) report, “Maintaining communications capabilities during major natural disasters and other emergency situations”, 27 Dec., 2011
- Committee from telecommunications carriers, vendors, internet service providers, application service providers, academia, and MIC
- Describes what happened and proposes what to do
 - Alleviating congestion in emergency situations
 - Minimizing disruption to communications in the event of damage to base and/or relay stations
 - Implications of the recent disaster for future network infrastructure
 - Implications of the recent disaster for future internet usage
- http://www.soumu.go.jp/main_content/000146938.pdf

ITU-T disaster FG has also collected much information

ITU's role in disaster

- -D sector
 - Help establishing disaster planning
 - Aid at disaster (possibly under Tampere Convention)
 - Various handbooks, online toolkit, etc.
- -R sector:
 - Spectrum assignment
 - Works on alert message dissemination and communication through broadcasting system, amateur radio, satellite, etc.
- -T sector:
 - Emergency telecom Recommendations
 - Recently established a disaster focus group (FG-DR&NRR)

Recs. for Emergency telecom

- Numbering
 - Guidelines to select Emergency Number, etc.
- Emergency Telecommunications Service (ETS)
 - Prioritize ETS authorized users in times of disaster and emergencies
- International Emergency Preference Scheme (IEPS), Common Alerting Protocol, Alerting object identifier, ...

And FG-disaster has accepted new service proposals

For details, see Keith Mainwaring's presentation at ITU Workshop on "Disaster relief systems, network resiliency and recovery" on 25 June, 2012 (1st day of FG-disaster)

Emergency Telecommunications Service (ETS)

- National service that prioritize end-to-end communication and applications to ETS authorized users in times of disaster and emergencies
 - Each call has its priority, and authorized users have higher priority in e.g., signaling --- or special header
 - Special authentication/authorization is provided
- Standardized for various services in ITU
 - NGN, H.323, H.248, IPCablecom, and so on

ETS in IETF

- Internet Emergency Preparedness (IEPREP) WG leads the discussion
- Produced a series of requirements and framework documents
 - RFC-3689: General Requirements for ETS
 - RFC-3690: IP Telephony Requirements for ETS
 - RFC-4190: Framework for Supporting ETS in IP Telephony
 - RFC-3487: Requirements for Resource Priority Mechanisms for the Session Initiation Protocol (SIP)
 - RFC-4375: ETS Requirements for a Single Administrative Domain
 - RFC-4958: Framework for Supporting ETS within Single Administrative Domain
- Output would feed into other WGs

Details is in ITU-T FG-DR&NRR-I-60, 2.2013

New intl. standards necessary

- At every disaster, there is something new
- New at 2011 Japan Quake
 - Everybody evacuated with mobile phone
→ we need standards that works in other countries
 - 1st mega-scale disaster with the Internet
(in Japan. The previous quake was in 1995)
 - Cloud/data center was widely used
 - New systems e.g., earthquake early warning (EEW) system was used for the 1st time
(EEW: main seismic waves takes time to propagate (~4km/sec), so if we quickly warn people immediately after the detection of earthquakes, people have tens of seconds to prepare, e.g., trains slow)

It is necessary to review
disaster-related standards regularly

Disaster Focus Group (FG-DR&NRR)

Focus Group on Disaster Relief Systems,
Network Resilience and Recovery

- Established: 1.2012, 1st meeting: 6.2012
- Objective: what standards (and ITU-T) can do to various disasters of today?
 - What is 'new' aspects of current disasters?
- Focus group
 - a temporary organization (up to 1 year, can be extended if necessary)
 - experts outside of ITU can join
 - collected information is transferred to ITU-T SGs, and SGs develop standards (FG cannot)

Scope of FG-DR&NRR

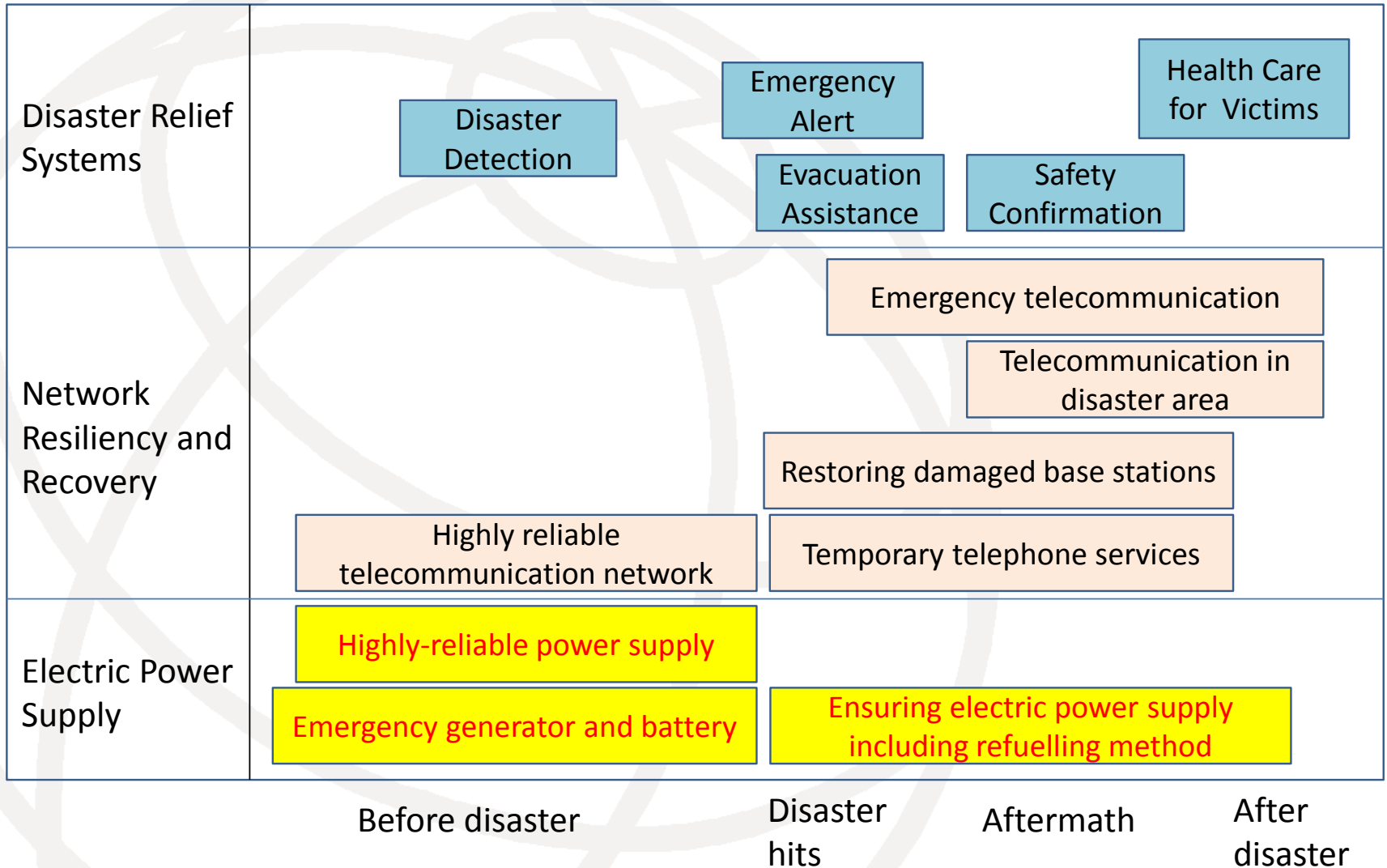
Target: disaster relief systems/applications, network resilience and recovery

- identify requirements and familiarize them to ITU-T and standardization communities
- identify relevant standards and existing work
- identify any additional standards and future work items for ITU-T
- encouraging collaboration among ITU-T Study Groups, ITU-R, ITU-D and relevant organizations and communities

FG-DR&NRR deliverables

- Overview
- Definitions, terminology and classification
 - Should we include terrorism 'disaster' ?
- Use cases
 - Describes applications and services for each type of disasters considering technical solutions and best practices.
- Gap analysis
 - Identifies what's missing in current standards
- Requirements
 - Detailed requirements for systems, services and/or applications (including QoS/QoE, security and reliability)

Study areas for FG-DR&NRR



Disaster Voice mail Service

After a disaster, Disaster Voice Mail Service is provided. The voice is packetized and to be stored & forwarded in Packet Network. This service has been launched since June 4, 2012

I will inform my wife of my safety by voice.
Let's try to use
"Disaster Voice Mail Service"

Voice mail Server

I am relieved to hear he is safe.



Voice is stored in Smart Phone. The Voice is transferred in Packet NW

A. GEOGRAPHIC INFORMATION SYSTEM

- Aims to gather all information that is useful for Disaster Management in one GIS database.
- Currently all institutions create their own data. No common language.
- Increase efficiency in the response and relief phases.



FG Meetings

From 3rd meeting, FG-disaster visits various countries that has been suffering severe disasters such as floods, hurricanes, quakes

At every meeting we have a workshop to invite local experts

- 1st: 25-27 Jun. 2012, Geneva
- 2nd: 24-26 September 2012, Geneva
- 3rd: 11-13 Dec. 2012, Istanbul
- 4th: 6-8 Feb. 2013, Tokyo
- 5th: 20-24 May, 2013, Phuket

Will report to TSAG (parent group) meeting on 6.2013 or 6.2014
If extended for another one year, it will visit more places



**FG-DR&NRR visit various places
and collect real use cases and
earnest requirements.**

**From them ITU make
standards.**

**Please input yours on climate
change-related disasters!**