

Final Report Question 5/2, SG2:

**“Utilizing telecommunications/ICTs for disaster
risk reduction and Management”**

Period 2018-21

14th September, 2021

Q 5/2 Focus Areas

Early warning systems and alerting for disaster risk reduction

Disaster exercises and drills

Enabling policy and regulatory environment

Disaster communications technologies

Country and technology case studies

Introduction

- The report has been drafted and elaborated by Q5/2 management team based on:
 - Contributions received from ITU-D members
 - Panel discussion on Early Warnings Systems including Safety Confirmation
 - Workshop on disaster drills and emerging technologies on disaster management
 - Workshop on Conducting National Level Emergency ICT Drills and Exercises: Guidelines for Small Island Developing States (SIDs) and Least Developed Countries (LDCs)
 - Webinar on “Enabling Policy Environment for Disaster Management including for Covid-19 response”
 - Additional references

Structure of the Final Report

Chapters	Details
Executive summary	
Chapter 1	Introduction, background, scope and brief overview of the role of telecommunications/ICTs in the overall disaster management cycle
Chapter 2	Enabling policy and regulatory environment: Policies for early warning, deployment of eqpt, effective response etc
Chapter 3	Disaster Communications Technologies including related case studies
Chapter 4	Early Warning and Alert Systems: Use of ICT based alerting systems
Chapter 5	Drills and Exercises : Guidelines for preparing and conducting disaster communications exercises and drills, assessing and updating plans
Chapter 6	Country and industrial case studies:
Chapter 7	Good Practices, Guidelines and Conclusions
Annex	Detailed Case studies covered at Annexures

1.1	Background
1.2	Scope of the report
1.3	Telecommunications/ICTs and Disaster Management and Relief
1.4	Use of telecommunications/ICTs in all phases of disasters
1.5	Enabling policy and regulatory environment [brief description]
1.6	Disaster communication technologies [brief description]
1.7	Existing response mechanisms
1.8	Early Warning and Alert Systems [brief description]
1.9	Drills and Exercises [brief description]
1.10	Good Practices and Guidelines [brief description]
1.11	Human factors and stakeholder collaboration
1.12	ICTs for disaster management and smart, sustainable development
1.13	Accessibility Consideration

Chapter 2: Enabling Policy and Regulatory Environment

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| 2.1 | <p>Policies for the deployment of emergency communications systems:</p> <ul style="list-style-type: none">• High-level policy statement• National legislation,• National guidelines• National disaster risk management plan• Checklists |
| 2.2 | <p>Policies for enabling early warnings, continuity of communications, and more effective response: Policy Considerations</p> <ul style="list-style-type: none">• Regulatory flexibility: to shorten the approval period for emergency communications deployments• Ensuring flexibility : in designing, tailoring and testing alerts for multiple hazards• Evolving technologies• Evolving emergency alert system• Ensuring connectivity: Potential emergency communications needs and the resiliency of networks.• Capacity Building :to improve alerting, detection and response• Continual Improvement in emergency procedures: By Pilot projects, disaster management drills, and exercises |
| 2.3 | <ul style="list-style-type: none">• Policy interventions related to the COVID-19 pandemic |

Chapter 3: Disaster Communications Technologies



3.1	Communication technologies
	Emerging technologies in disaster communications
	3.2.1. Mobile applications
3.2	3.2.2. Utilizing Social network services
	3.2.3. Integrated public alert
	3.2.4. The use of manned or unmanned aerial vehicles
3.3	Emerging technologies in disaster response and Relief
3.4	Terrestrial and Satellite-based remote sensing technologies helpful in managing natural disasters
3.5	Satellite communications
3.6	Big data analysis for disaster management
3.7	AI for disaster management
3.8	Internet of Things (IoT) for disaster management
3.9	Smart city with disaster management
3.10	Using emergency telecommunication systems during normal times
3.11	Autonomous distributed ICT system

4.1	Use of ICT in Planning for Early Planning and Alerting Systems
	Deploying early warning systems for disaster risk reduction
	4.2.1. Common Alerting Protocol (CAP) and its use in Early-Warning Systems
4.2	4.2.2. EWS for Earthquakes and Tsunamis
	4.2.3. EWS for Cyclones
	4.2.4. Early warning systems for torrential rainfall
	4.2.5 Early Warning Systems for Flooding and Mudslides
4.3	Broadcast emergency warning systems
4.4	Early Warning and Alerting System Technology
	4.4.1 Multi-Hazard Early Warning Systems (MHEWS)
	4.4.2 Integrated Public Alert and Warning System (IPAWS)
4.5	Early warning and remote sensing systems
4.6	Disaster information and relief systems

Chapter 5: Drills and Exercises

5.1 Guidelines for preparing and conducting disaster communications exercises and drills:

Covered in Annual deliverable report summary

5.2 Assessing and updating plans

- Set the action plan based on outcome of drills and exercises
- Improve or adjust related policies and procedures
- Identifying the areas of strength.
- Secure management support for a regular and continuing program of drills and exercises

Chapter 6: Country and industrial case studies

Table containing Case studies and contributions

Enabling policy and regulatory environment	India(2), Haiti, WFP, New Zealand , Burundi
Disaster Communications Technologies	China(4), ITU-R (3), India(2), Japan(2), USA, ITU-T
Early Warning and Alerting Systems	India(3), China(2), Japan(2), USA(2), Brazil, ITU-T
Drills and Exercises	China, Algeria
Other	Japan(2), ITU-T(2), Congo, USA, China, ITU-R

Chapter 7: Good Practices, Guidelines and Conclusions

Analysis and identification of Best Practice Guidelines and lessons learned

7.1 A. Early Warning Systems

B. Disaster drills and emerging technologies on disaster management

C. Conducting National Level Emergency ICT Drills and Exercises:
Guidelines for Small Island Developing States (SIDs) and Least
Developed Countries (LDCs)

D. Enabling Policy Environment for Disaster Management including for
Covid-19 response

7.2 Conclusions

Annexure	Details
Annexure 1	Detailed case studies: India, Haiti, Japan, USA, China, New Zealand, Brazil, WFP, Congo-DRC, Algeria,
Annexure 2	ITU intra-sector and inter-sector mapping
Annexure 3	Information from ITU Groups: ITU-T: SG2, SG5, SG15, ITU-R: WP 4A, WP4B, WP7C
Annexure 4	Information on workshops and panel sessions
	A4.1. Panel Session on Early Warning Systems including Safety Confirmation
	A4.2. Workshop session on disaster drills and emerging technologies on disaster management
	A4.3. Workshop session on Conducting National Level Emergency ICT Drills and Exercises: Guidelines for Small Island Developing States (SIDs) and Least Developed Countries (LDCs)
	A4.4. Webinar on “Enabling Policy Environment for Disaster Management including for Covid-19 response”

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The screenshot shows the myITU website interface. At the top, there is a navigation bar with the myITU logo, 'News', 'Publications', 'Events', and 'Membership' links. On the right, there is a language dropdown set to 'English' and a 'Log in' button. Below the navigation bar, a breadcrumb trail reads 'Home > Publications > Utilizing telecommunications and ICTs for disaster risk reduction and management'. The main content area features a large blue header for the report title, 'Utilizing telecommunications and ICTs for disaster risk reduction and management', with a sub-header 'Study Group 2 - Question 5'. Below the title are several category tags: 'POLICY AND REGULATION', 'EMERGENCY COMMUNICATIONS', 'SATELLITE', 'INTERNET OF THINGS', 'ARTIFICIAL INTELLIGENCE', 'SMART CITIES', and 'CLIMATE CHANGE'. The year '2021' is displayed below the tags. The main text describes the impact of disasters and the role of ICTs in disaster management. It includes a paragraph about the report's content and a call to action for feedback via email to devsg@itu.int. At the bottom, it states that the report is currently available in English and that other language editions will follow soon.

Home > Publications > [Utilizing telecommunications and ICTs for disaster risk reduction and management](#)

Utilizing telecommunications and ICTs for disaster risk reduction and management

POLICY AND REGULATION EMERGENCY COMMUNICATIONS SATELLITE INTERNET OF THINGS ARTIFICIAL INTELLIGENCE

SMART CITIES CLIMATE CHANGE

2021

Disasters, whether arising from natural hazards or man-made, can have an incredibly adverse impact on societies and economic growth. Being prepared for disasters and managing disaster risk is crucial for saving lives and protecting the economy.

Telecommunications and information and communication technologies (ICTs) play a pivotal role in disaster prediction, mitigation and management. Effective disaster management requires timely and effective sharing of information between various stakeholders, and telecommunications/ICTs are essential for that purpose.

This report contains some essential information to help countries and regions be prepared for all stages of a disaster - before, during and after the event - through the use of telecommunications/ICTs. It includes detailed guidelines based on real-life case studies of members worldwide, whose experiences and lessons learned can help save millions of lives.

Please share any feedback via email to ITU-D Study Groups Secretariat devsg@itu.int.

This report is currently available in English. Arabic, Chinese, French, Russian and Spanish editions will follow soon. Download your free copy now!

Thank You

Sanjeev Banzal Co-Rapporteur

sbanzal@gmail.com

Telecom Regulatory Authority of India

Kelly O'Keefe Co-Rapporteur

okeefeke@state.gov

State Dept, USA