



Capacity
Building



Disaster Preparedness and Response





Capacity
Building

Access to multi-hazard early warning systems and disaster risk information





In this Session :

- Early warning systems
- Cell broadcast for early warning
- Guidelines for the use of messaging services during natural disasters (SMS and USSD)
- Role of National Meteorological Offices and other alerting authorities (i.e. ministry of environment, disaster management offices, etc)
- Case studies: Sri Lanka – DEWN, Maldives – Water crisis




Early Warning Systems can be key

- The World Bank argues that one of the three key sectors where investment can be focused to help minimise the effects of, or even prevent, disasters is that of early warning systems.
- An effective Public Warning System (PWS) is an essential part of an early warning system.
- Early warnings also give governments and infrastructure providers more preparation time to protect critical infrastructure.



Early Warning Systems - Basics

- Key Elements of an EWS
 - Risk Knowledge
 - Monitoring & Warning Service
 - Dissemination & Communication
 - Response Capability



<ul style="list-style-type: none">• Systematically collect data and undertake risk assessments
<ul style="list-style-type: none">• Are the hazards and the vulnerabilities well known?
<ul style="list-style-type: none">• What are the patterns and trends in these factors?
<ul style="list-style-type: none">• Are risk maps and data widely available?



Slide 5

DT2

I have added these 4 slides to provide an overview of the early warning system

Dulip Tillekeratne, 7/31/2017

Early Warning Systems - Basics



- Key Elements of an EWS
 - Risk Knowledge
 - Monitoring & Warning Service
 - Dissemination & Communication
 - Response Capability

- Develop hazard monitoring and early warning services
- Are the right parameters being monitored?
- Is there a sound scientific basis for making forecasts?
- Can accurate and timely warnings be generated?



Slide 6

DT3

I have added these 4 slides to provide an overview of the early warning system

Dulip Tillekeratne, 7/31/2017

Early Warning Systems - Basics



- Key Elements of an EWS
 - Risk Knowledge
 - Monitoring & Warning Service
 - Dissemination & Communication
 - Response Capability

- | |
|---|
| • Communicate risk information and early warnings |
| • Do warnings reach all of those at risk? |
| • Are the risks and warnings understood? |
| • Is the warning information clear and useable? |



Slide 7

DT4

I have added these 4 slides to provide an overview of the early warning system

Dulip Tillekeratne, 7/31/2017

Early Warning Systems - Basics



- Key Elements of an EWS
 - Risk Knowledge
 - Monitoring & Warning Service
 - Dissemination & Communication
 - Response Capability



- | |
|---|
| • Build national and community response capabilities |
| • Are response plans up to date and tested? |
| • Are local capacities and knowledge made use of? |
| • Are people prepared and ready to react to warnings? |



Slide 8

DT5

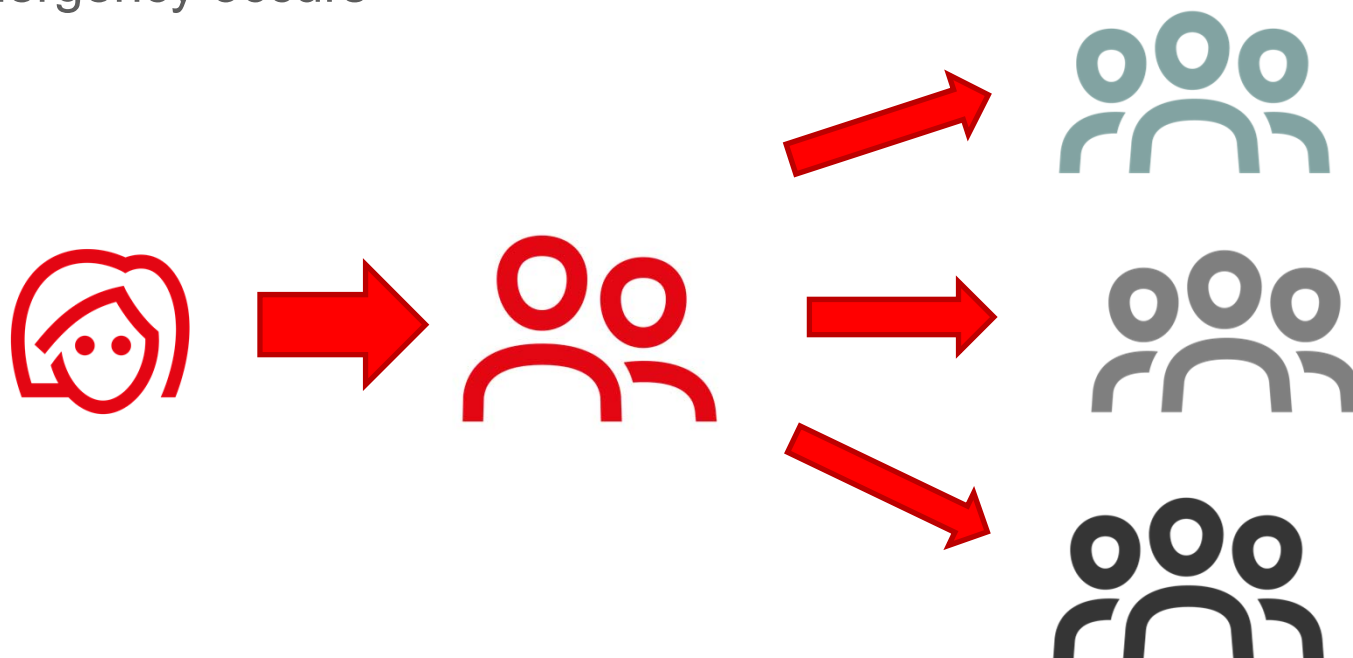
I have added these 4 slides to provide an overview of the early warning system

Dulip Tillekeratne, 7/31/2017



Key government agencies

- Knowing which agency is in charge of each regulatory area of concern during an emergency is critical — and not obvious once an emergency occurs





The importance of preparation ahead of time

- It's important that all areas of regulation that have an impact during disasters are discussed by government and operators ahead of time.
- Discussion may need to include how mobile-based early warning systems are to operate and how they can align with official information delivery via other media such as radio and TV.
- There may also need to be agreement on national short codes that can be used during emergencies.



Cell broadcast for early warning

- Cell Broadcast Service has a number of practical advantages that make it suitable for disaster alert and warning systems:

It can be displayed on a mobile phone automatically with no user interaction



Messages can be delivered quickly to millions in seconds



It can send differentiated messages to designated areas



It is not affected by, and will not lead to, network congestion



It does not violate citizens' privacy



Cell Broadcast Service can only be sent from authorised, verified sources



Use of SMS in disaster response



The use of SMS can provide timely information to disaster affected communities while also being used to rapidly collect information from these communities to improve aid delivery and accountability.



The effectiveness of SMS as a tool for quickly disseminating information was seen before, during and after the 2010 Haiti earthquake.



While there are important opportunities, there are also some limitations. Managing expectations and processing potentially large volumes of text messages remain a challenge, for example.





Guidelines for the use of SMS during natural disasters



Consider whether SMS is the most appropriate vehicle for the information you are trying to disseminate or collect.



Do not launch an SMS service unless you have the ability (and capacity/resources) to act on incoming information.



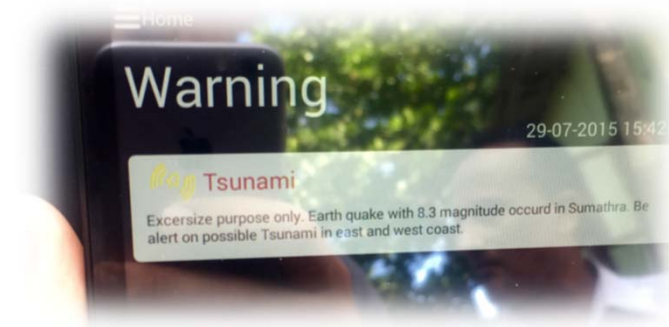
Consider that solid and coordinated partnerships are required to make an SMS service successful.



Design with the end user in mind.



The humanitarian principle of 'Do No Harm' comes first.



Case study: DEWN

The key issues:

- The Indian Ocean Tsunami of 2004 resulted in the loss of approximately 35,000 lives in Sri Lanka.
- Local economies were devastated and in many cases communities that rely on fishing and tourism are yet to fully recover.
- There was a window of approximately 90 minutes between the earthquake and the arrival of the waves on the Sri Lankan east coast and an even longer period until it hit the Sri Lankan west coast.
- A warning delivered 90 minutes in advance of the impact would have enabled many people to get to higher ground and make themselves safe.
- Some estimates indicate that around 85 per cent of lives lost in Sri Lanka could have been saved if such a system was present in 2004.



Case study: DEWN



The approach:

- Many staff members at Sri Lankan mobile operator Dialog were impacted by the disaster, with family members or loved ones included in the lists of casualties and injuries.
- For those staff members working in technology and innovation, the scale of this disaster led them to investigate ways mobile technology could be used as an effective early warning mechanism.
- These ideas led to the development of the Disaster and Emergency Warning Network (DEWN). This initiative was spearheaded by project partners Dialog Telekom (as Dialog Axiata was then known), Microimage, a software company, and the Dialog-University of Moratuwa Mobile Communications Research Laboratory.
- The DEWN project began in 2006 and the system became operational on 30th January 2009 after completing a successful pilot period.



Case study: DEWN

- The outcomes:
- Messages can be received on basic cell broadcast-enabled 2G handsets, smartphones via a downloadable Java app, and a dedicated DEWN device that is designed for use in public spaces and which includes an embedded SIM.
- Though the service uses the cell broadcast functionality of Dialog's network, warnings can also be delivered to other local providers that don't support the cell broadcast service so they can disseminate the information via bulk SMS.
- DEWN is used first to alert emergency personnel on their individual phones. Public alerts are issued only when a threat is adequately verified, thereby reducing false alarms.
- The Sri Lankan National Disaster Management Centre has now chosen DEWN to be its key priority tool in its five year plan from 2014 onwards.



Case study: Maldives water crisis



- The key issues:
- On the 4th of December 2014, a fire broke out at the Maldives Water and Sewerage Company Generator Unit resulting in the cutting off of drinking water to over 150,000 people.
- Whilst government bodies acted quickly to distribute bottled water, supplies were limited and stocks quickly dwindled.
- With a critical water shortage affecting a third of the nation's population, a State of Emergency was declared by the Government of the Maldives.
- As the Maldives National Defence Force (MNDF) began to work to distribute available water in Malé, water shipments were dispatched from China, India and Sri Lanka, as well as via Sri Lanka Airlines.



Case study: Maldives water crisis



- The approach — phase one:
- As news of the crisis broke, the business continuity management (BCM) team within Ooredoo Maldives activated the internal disaster response business continuity plan.
- An email was sent to all staff explaining the situation and putting out a call for volunteers. Once activated, volunteers were able to use a pre-existing short code to get information about volunteer activities and the wider response.
- With the sudden onset of the crisis, the nature of which hadn't before been experienced by many in the Maldives, a lack of information and clarity risked contributing to rumour and concern among the impacted population.
- An existing SMS short code, traditionally used to for subscribers to find out about new services, was repurposed to become a Water Crisis Helpline.

Case study: Maldives water crisis



- The approach — phase two:
- As bottled water arrived on the island it was distributed by truck. Demand far exceeded supply. Much of the population had to spend long periods of time queuing and waiting for water trucks to arrive.
- Ooredoo Maldives created a solution that combined its M2Mservice ‘Locate’ with cell broadcast and Interactive Voice Response technology to communicate information about the location of the water trucks.
- Maps of the water drop off points as well as information on the expected timetables were shared via SMS, IVR and social media. The ‘Locate’ system was added to each water truck cabin so the location of trucks could be shared via a live map.
- The Ooredoo team supported NGOs by providing access to free coding as well as hosting applications on a single, built-for purpose platform.

Case study: Maldives water crisis



- The outcomes:
- Ooredoo Maldives was able to act so decisively because eight months previously its BCM team had proactively created a framework plan for use during a national crisis.
- While the response to the crisis was seen as very positive and efficient, there are learnings that Ooredoo Maldives have taken from the event.
- Mobile networks as key communications providers should be included in the national emergency committee meetings.
- Ooredoo feels more involvement is required from the IT department, to ensure that actions have internal technical support they require.
- The team also found that translating the crisis management plan from paper into real life situations highlighted challenges not previously identified.



Access to Multi-Hazard EWS: Summary

1

Planning for disaster helps save lives and speed up the time to recovery.

2

Knowing which agency is in charge of each regulatory area of concern during an emergency is critical

3

Early warning systems can help minimise the effects of, or even prevent, disasters.