



Capacity  
Building



# Disaster Preparedness and Response





Capacity  
Building

# Role of Network Service Operators





## In this Session :

- The importance of planning and coordination
- Disaster response planning
- Business continuity management
- 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



## Operators often struggle to recover after disasters

- Operators lose money and reputation when their service is down, but disasters make recovery very difficult.
- Disasters render equipment inoperable and make power unreliable
- Disasters undermine logistics
- They put overwhelming loads on networks
- Operators typically do not have HR capacity to build the necessary disaster preparedness and response teams
- They also tend not to have a comprehensive knowledge of the international humanitarian system, its assets, principles and potential partners, yet must navigate an onslaught of requests by these organisations





# Disaster response planning



*“Plans are worthless, but planning is everything. There is a very great distinction because when you are planning for an emergency you must start with this one thing: the very definition of ‘emergency’ is that it is unexpected, therefore it is not going to happen the way you are planning.”*

- Dwight D. Eisenhower, President of the United States 1953—1961



# Disaster response planning

- Planning for disaster, as well as efficiently and effectively responding to events, saves lives and speeds up the time to recovery.





## Business Continuity Management

### Key questions when creating a BCM plan:

- Q1. What are the organization's purpose, core roles and functions?
- Q2. What are the critical products and/or services that must be delivered?
- Q3. What are the types of disruptions the organisation can experience?
- Q4. What is the likely impact of disruptions?
- Q5. What are the consequences to the organisation?



## Business Continuity Management

### Recommendations;

- Planning for resilience through BCM is a key responsibility
- BCM needs to be a testing and iterative process
- BCM plans should enable a reduction in friction and an increase in flexibility
- BCM plans should be tailored to specific disaster types and levels of severity





## Business Continuity Management

### 6 Key Steps for BC Plan implementation

- Assessment and Objective Setting
- Critical Process Identification
- Prepare Business Impact Analysis
- Defining BC Response Approaches (Internal & External)
- Define Crisis and Incident Management Capability
- Testing and Monitoring : BCM Maturity Model



## Business Continuity Management

### Innovative BCM practices;

- Turkcell – Supplier assessments and travel procurement
- Ncell – Construction of COWs
- Ebola response – Staff health / prepositioning
- Zain – Steps to keep senior management connected
- NTT / KDDI – Super resilience base stations

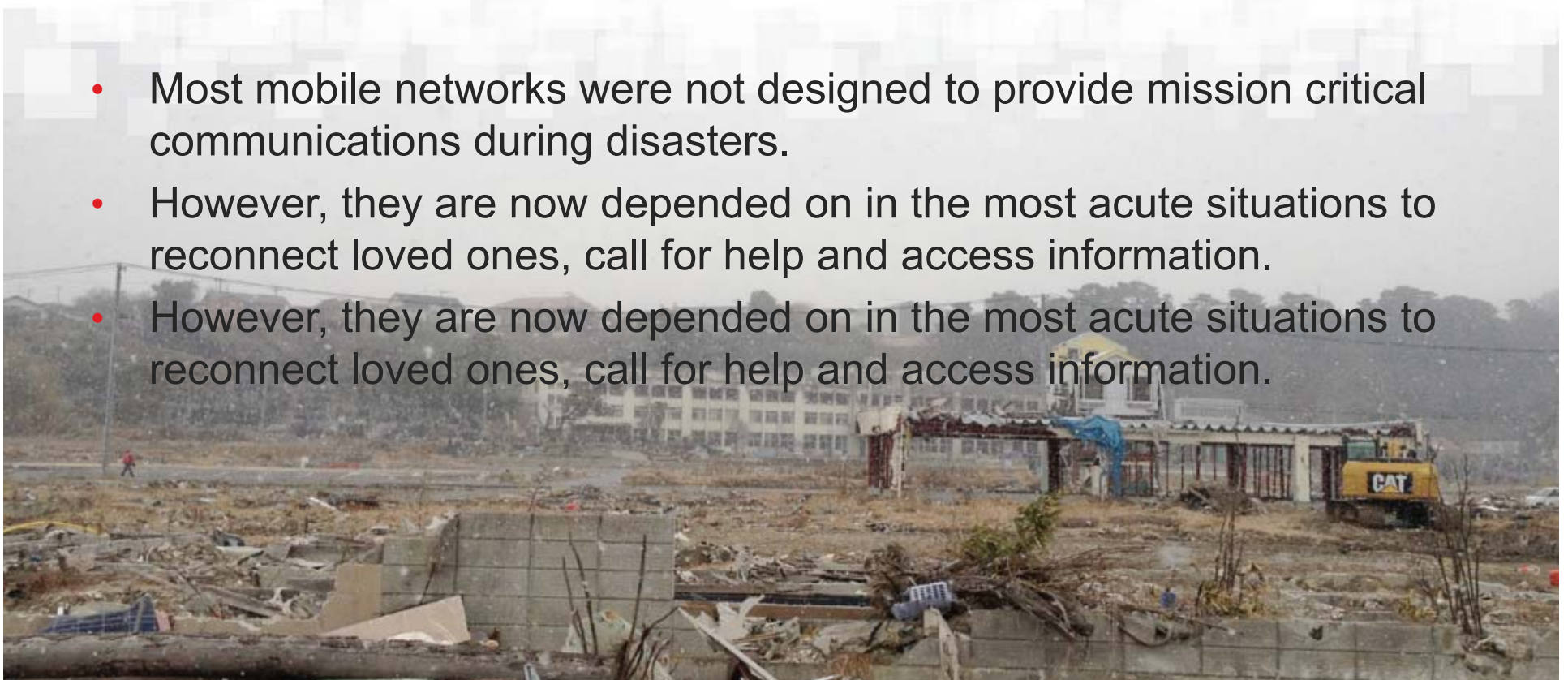




# Why Disasters are challenging for operators

## Key: Invoke Crisis and Incident Management Plan

- Most mobile networks were not designed to provide mission critical communications during disasters.
- However, they are now depended on in the most acute situations to reconnect loved ones, call for help and access information.
- However, they are now depended on in the most acute situations to reconnect loved ones, call for help and access information.





## A pragmatic approach is required



- In the days and weeks after a disaster, regulators need to be pragmatic in how to respond to requests from operators who are often struggling to fully restore connectivity.



## Role of Satellite service operators

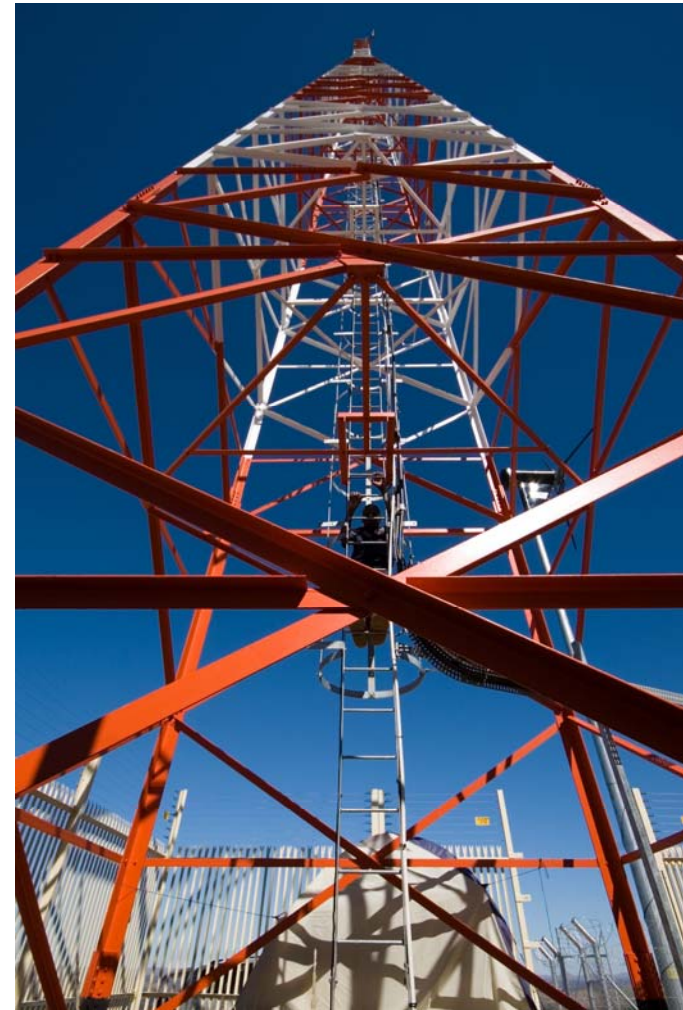
- Backhaul links are key to keeping mobile networks up and running during emergencies. Many carriers rely heavily on satellite links, known as VSATs, for backhaul in the early days of an emergency.
- Should there be rules governing licensing, operation and import of VSATs in these situations?





## Tower-siting regulation

- When disaster strikes, cell towers often suffer extreme levels of damage requiring operators to use temporary towers. Therefore, disaster response policies should cover:
  - How an operator can secure permission to erect a temporary tower/mast during an emergency
  - Whether operators are allowed alter an existing tower/mast, and rules governing the operation of a damaged cell site
  - Rules governing the use of mobile transmitters





## Minimum service obligations and outage reporting

- Most mobile licences require operators to meet minimum service levels and report outages. However, these rules may not be workable during a crisis situation.





## Immigration and customs

During an emergency, operators may need to bring new equipment, as well as new expertise, into the country.

This raises issues related to:

- Immigration
- Customs



## Case study: Turkcell

- The key issues:
- After a large earthquake struck Turkey's fifth largest city, Adana, in 1998 severely interrupting the business, local mobile operator Turkcell began to work towards making its network and supporting business infrastructure more resilient to such disasters.
- This plan has since evolved into the Business Continuity Management System (BCMS), which is constantly updated to incorporate lessons learned from recent disasters, such as 2011's devastating earthquake in the eastern city of Van.
- BCMS sets exacting targets for Turkcell's reaction when damage is inflicted on its mobile network, demanding post-event responses that include:
  - 100 per cent cell broadcast services within eight hours
  - low-quality calls within 12 hours
  - minimum-speed mobile internet services within 24 hours



## Case study: Turkcell

- The approach:
- The BCMS team is made up of 136 permanent staff members drawn from seven departments: finance, ICT, network operations, consumer marketing, corporate affairs, corporate business and regulation, and human resources.
- There are strict criteria governing the choice of the Disaster Response Coordinators within each department.
  - Coordinators need to be experts on the various systems used within their department
  - Coordinators are required to have at least three years experience in Turkcell
  - The critical role of Network Operations Disaster Response Coordinator requires a minimum of ten years experience in Turkcell



## Case study: Turkcell

- The outcomes:
- What Turkcell has done extremely well is to learn continuously from its own experiences and those of its country.
- Through internal and external feedback mechanisms with its various partners, and regular planning meetings, it has focused on attention to detail and invested heavily in protecting the lives of its staff, the wellbeing of its subscribers, its business assets and the Turkish community at large.
- It is now one of the few operators certified to international standard ISO 22301 — the standard that sets out the requirements for a management system that can protect against, reduce the likelihood of, and ensure a business recovers from disruptive incidents.





## Digital Aid - Providing Services to those in need

- At the same time, technology is transforming how the global humanitarian community responds to crises such as hurricanes, floods, earthquakes and poverty.
- Traditional forms of aid are increasingly delivered via mobile technology.
- Rather than transport and distribute cash, some organisations are choosing to make payments to recipients via mobile cash transfer.
- Mobile technology is increasingly seen as a channel for information sharing, and humanitarian organisations are looking at how informative materials can be shared in digital form.
- As work continues in the space of mobile identity, here too we expect to see mobile play a role in people's access to humanitarian assistance and resources.



## Why mobile is so important in the new environment of digitised aid

- The ubiquity and scale of mobile networks make them a highly attractive delivery channel for many forms of humanitarian assistance.
- Mobile is used by many first responders as their primary means of communication and to co-ordinate responses.
- Mobile services also provide quick and easy access to life-saving information for those populations affected by disasters.
- Digital services, such as mobile money, make it faster and easier to deliver humanitarian assistance and resources to affected populations.
- Mobile operators are increasingly sought as partners to deliver services developed by the humanitarian sector and Non Governmental Organisations (NGOs) in the wake of natural disasters or other humanitarian emergencies.





**Access to networks and services are vital for Information Dissemination, Education and Capacity Building - before, during and after a disaster.**

***“People need information as much as water, food, medicine or shelter. Information can save lives, livelihoods and resources. Information bestows power.”***

IFRC World Disaster Report, 2005



## Mobile Digital Identity, Payments and Transfers - Challenges and Opportunities



- Cash is increasingly being used as a form of humanitarian assistance.
- Mobile technology can make cash transfers more targeted, cost-efficient and rapid.
- As a result, the humanitarian community it is partnering with mobile money service providers for emergency response.





## The increasing relevance of mobile money in displacement contexts

Refugees and international displaced persons have significant impact on the local economy

Flows of money to displaced persons are critical and expanding

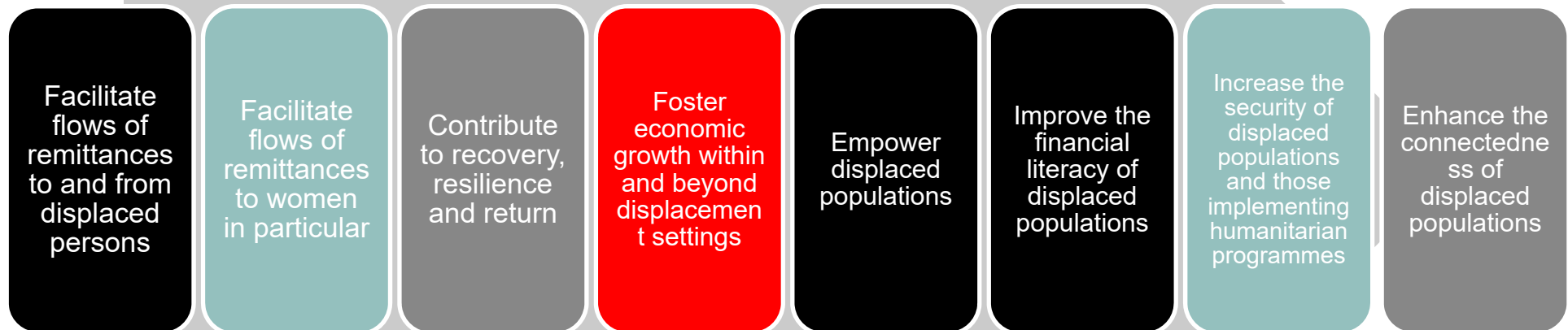
The number of displaced persons is increasing

Displacement is becoming more protracted



## Impact of mobile money in displacement contexts

- Mobile money can:





## Mmoney and humanitarian aid

- Cash transfers acknowledged as having greater utility than distribution of aid.
- Growing interest and discussion within both the mobile industry and the humanitarian sector on the uses of mobile money by disaster and crisis affected populations.
- Remittances, voucher schemes, humanitarian cash transfers having impact.
- It is expected that mobile money can provide greater, more effective impact than traditional cash or aid provision.



## Mmoney and humanitarian aid

### Key benefits / considerations

- Greater transaction efficiency (Quicker, cheaper)
- Greater security (Transport, fraud, recipient)
- Benefits of cash over goods; choice, market support, efficiency
  
- Systems to be set up prior to crisis
- Agent networks – cash out liquidity
- Identification of beneficiaries – ID / KYC
- Training – use of mobile money / financial management / mobile
- Infrastructure and coverage
- Financial + telecom regulator



## Digital Identity



The ability to prove that you are who you say you are and is critical to accessing basic services.



In the developing world around two billion people lack an official identity.



One child in three doesn't have a legal identity simply because their birth wasn't registered.



## Closing the identity gap



The UN Convention on the Rights of the Child and the Sustainable Development Goals highlight the need to address the lack of birth registration.



The GSMA Digital Identity programme is to establish mobile as a scalable platform for digital identity.



In sub-Saharan Africa more than half of the population lacks an official identity, yet more than two-thirds have a mobile phone.



## Regulatory environment for digital ID



An enabling regulatory environment is required to deliver formal identity to the unregistered.



Consistency is needed between the different legal and regulatory instruments that affect the management of digital identity.



Governments also carry a responsibility to foster and help create the trusted environment within which mobile identity operates.



## Digital IDs and the Ebola outbreak



*“We believe that the existence of a robust ID system in each of the three most affected countries — Guinea, Liberia, Sierra Leone — would have allowed donors and governments of these countries to precisely identify the people infected with Ebola, track their contacts (thus containing the spread of the virus), closely monitor treatments received by the Ebola patients and make sure payments reach the health workers who were caring for them.”*

Mariana Dahan, Coordinator of the Identification for Development (ID4D) Working Group, World Bank

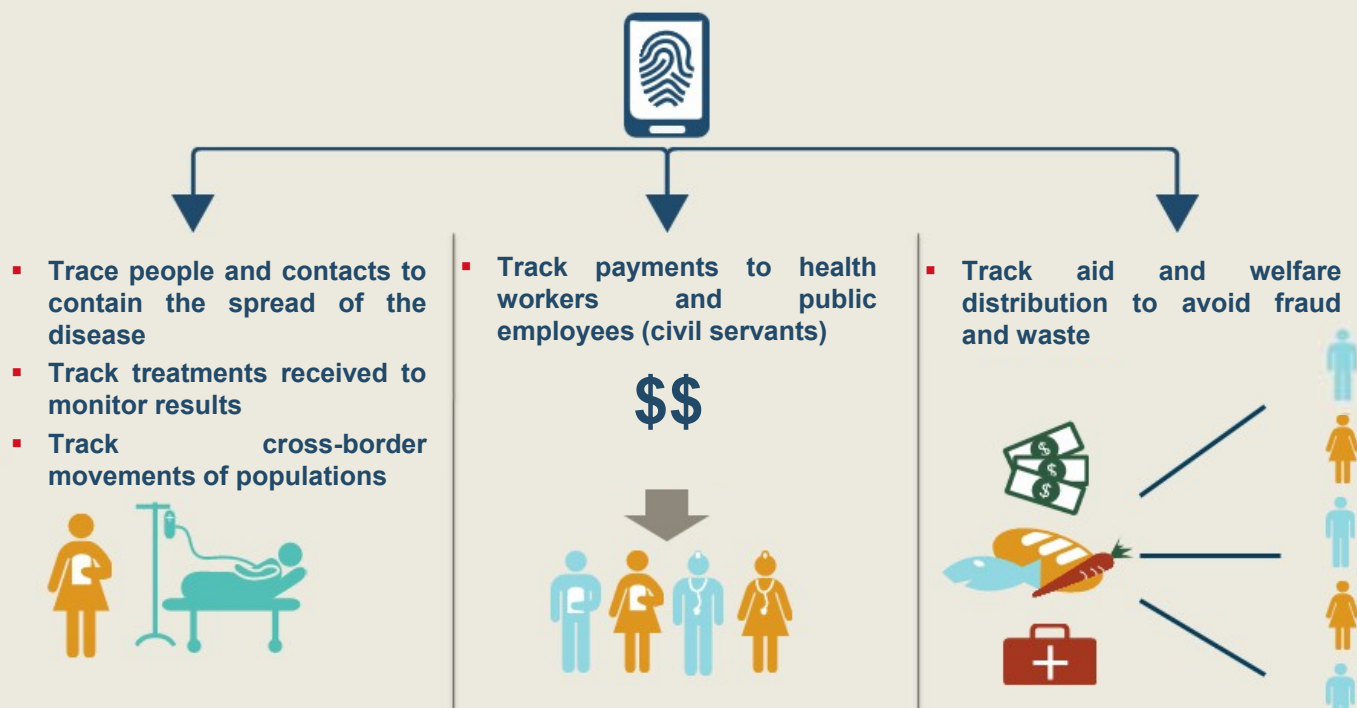




# Tracking Ebola with biometrics and digital identity

- ## Digital IDs in the Ebola-affected countries

- A biometric identification system, integrated with other delivery systems\* can help:



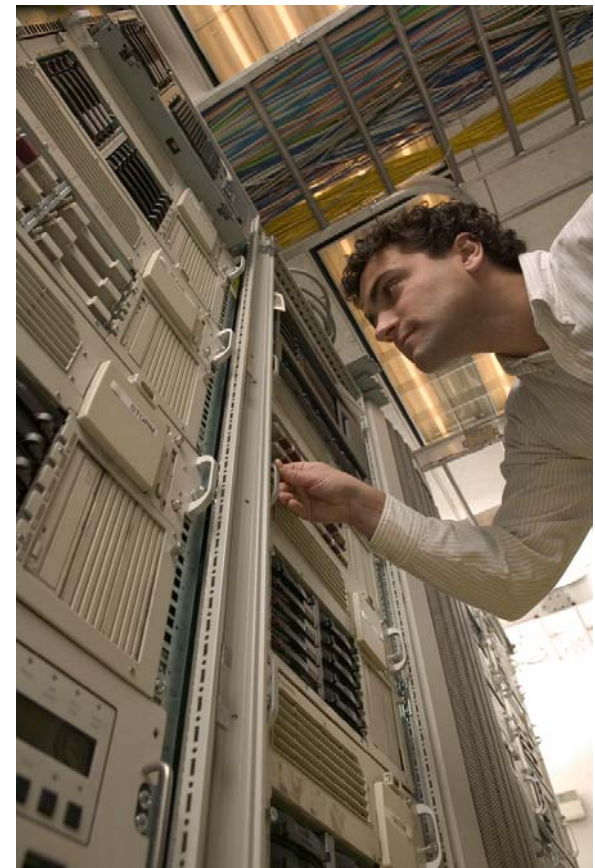
\*National ID system, mobile payment, electronic health record system social protection registries, among others.

Source: World Bank



## Use of big data

- Big data, such as analysis of anonymised Call Detail Records (CDR), can be useful in disaster response for tasks such as predicting displacement and disease outbreak.
- Regulators will need to decide whether they impose limitations around how long CDRs are stored and how they will address rules governing consumer privacy and security.





## Big Data

### Examples:

Haiti earthquake: Digicell worked with FlowMinder to allow for the secure analysis of CDR to provide insight on post-earthquake population movement and disease spread

Cyclone Mahasen: Telenor and FlowMinder Foundation analysed CDR, in anonymous format, to find valuable information on population displacement during and after a disaster, and the extent to which areas have suffered economically through decreases in mobile spending and mobile top-ups

Nepal earthquake: Ncell partnership following 2015 earthquake

Telenor Pakistan: Dengue fever



## Call Data Records guidelines

- These guidelines outline the privacy standards mobile operators will apply when subscriber mobile phone data is used to combat the Ebola outbreak.



The mobile phone numbers of subscribers making and receiving calls or text messages will be anonymised by mobile operators.



Anonymised CDR data will not be transferred outside of the system/premises operator's.



All analysis will take place on mobile operator's systems, in their premises and under operator supervision.



No analysis will be undertaken that singles out identifiable individuals.



Only the output of the analysis will be made available to relevant and approved aid agencies, government or research agencies that can use these inputs in their modelling and planning efforts.

## Case study: Nepal

- The key issues:
- On Saturday April 25th 2015, Nepal experienced a 7.8 magnitude earthquake, which impacted millions of people throughout the country.
- Flowminder.org, a non-profit organisation based in Sweden, is a pioneer of the analysis of mobile network data to support responses to natural disasters and epidemics.
- Shortly before the earthquake on the 25th of April, Flowminder and local mobile operator Ncell announced a partnership to establish how this method could be used to analyse population movement in Nepal.



## Case study: Nepal



- The approach:
- When the earthquake struck, Flowminder and Ncell were able to quickly work together, developing national mobility estimates for Nepal in an effort to assist government and UN agencies in the earthquake relief efforts.
- Population movement estimates were calculated by combining de-identified data on SIM card movements with available population data.
- Changes in mobility patterns were identified by comparing SIM card movements before and after the earthquake to normal pre-earthquake movements.
- The results produced visual population flows across the country, initially showing an exodus from Kathmandu city and the most affected regions.

## Case study: Nepal

- The outcomes:
- Greater insight into mobility flows helped organisations working on the ground more accurately coordinate relief and recovery efforts.
- Having already agreed on the partnership ahead of the earthquake, Flowminder was able to work with Ncell quickly to analyse the data and provide insight on population movements in Nepal.
- This highlights the benefit of the regulator willing to take a pragmatic approach and be flexible during an emergency situation.





## Role of Network Service Operators: Summary

- 1** Rules related to tower siting, use of VSATs, minimum service obligations and more may need to be loosened during emergencies.
- 2** Mobile can act as a vital digital distribution channel for information before, during and after a disaster.
- 3** Humanitarian organisations are using mobile money services to deliver aid to displaced populations.
- 4** Big Data can be useful in disaster response for tasks such as predicting displacement and disease outbreak.
- 5** Regulators will need to decide how they approach issues such as consumer privacy and security related to Big Data.