Nepal's lessons learning in Responding to a Disaster: Through the eye of ICT

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Presentation outline

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Context and Background

- Powerful earthquake occurred on 25 April 2015 with magnitude of 7.6 followed by around 300 aftershocks.
- 8,673 people lost their lives and 23000 people were injured.
- Half million private houses were fully destroyed and 250000 houses were partially damaged.
- 8 million people were affected.
- 14 out 75 districts were mostly affected, including capital area.

Nepal: Vulnerability and Risk

Disasters	Ranking	Source
Disaster prone in the world	20th ranked	UNDP/BCPR 2004
Climate change vulnerability- ranked	4th	Maplecroft,2011
Earthquake vulnerability risk	11th ranked	UNDP/BCPR,2004
Water induced disaster risk	30th ranked	UNDP/BCPR,2004
Kathmandu, the capital city- Earthquake among 21 mega cities in the world	High risk	UNDP
2 People loss lives daily in average and thousand of HHs displaced every year.	High risk	GoN/MoHA,2010

Government and non government response.

- Relief package were distributed to earthquake victims by government and non government sectors including INGOs and neighboring countries.
- GoN organized a donor conference to demand funds for using in recovery and reconstruction programs.
- National Planning Commission of the GoN in partnership with world bank, UNDP, JICA, Asian Development Bank prepared Post Disaster Need Assessment (PDNA) to identify the damage, losses and recovery strategies.
- National Reconstruction Authority (NRA) has been recently established.

Damage and losses of ICT

- Most of the buildings of Ministry of Information and Communications and related agencies, telecommunication operators, internet Service Providers,Postal Sector, Television Broadcasters, Newspapers, Radio Broadcasters, Federation of Nepal Cable TV providers were fully and partially damaged in the affected districts.
- The total damages and losses of infrastructures related ICT in economic flows are estimated at US$36.10 million and US$ 50.85 million respectively.
- Network congestion and downtime were experienced during the period of earthquake and its after shocking.
- Operators faced operational losses due to network downtime and the provision of free services to customers.

Effect of ICT

- The core mobile communication network equipment, major POPs and backbone links were not very much affected in the earthquakes to cause total disruption of services.
- 38% of 2G and 4% of 3G network sites were down after the earthquake. The field operation teams and outsources went to the down-sites to recover them. There were 3 challenges:
  - The building collapsed:
    - They could not recover. For some important sites new sites were established.
  - The building damaged:
    - If it was safe to climb to the top of the building where rooftop tower exist, teams recovered.
  - The building was sound and solid but the site equipment damaged:
    - The building owner did not allow entrance:
      - The owners see the rooftop towers as a risk, they wanted to dismantle them.
    - The building owner allowed the entrance:
      - Teams recovered the down-sites
- Mobile network operators needed network equipment; they started the import procurement process for the equipment that was not available in the country.
- After the earthquake the grid power went down.
- Depending on the battery reserves, sites remained to work between 8-14 hours.
- Then power problems raised in the up and running sites, teams changed the batteries by transferring mobile generators among the sites where there is way to go either by car or on foot.

Recovery and Restoration

- Congestion:
  - Especially the voice call congestion was high in the affected area. The SMS and internet usage is promoted by the operators.
- Coordination:
  - Coordination and information sharing was essential part of emergency management. Nepal Telecommunication Operators (NTO) engaged in Emergency Telecommunication Cluster (ETC) meetings for easy coordination.
- Procurement:
  - Network operators needed equipments to replace with the damaged ones. They started the procurements process in fast coordination with NTA. From the emergency custom point of view, awareness in the stakeholders shall be increased.
- Building owners requests to dismantle base station equipment:
  - Convincing huge number of house owners to continue the service in the same infrastructure, if buildings are in good state.
  - Dismantled sites are rerouted.
  - Use of Cell on Wheel (Mobile Base Station) at dismantled locations.
  - Optimization of operational sites to maximize the coverage.
  - Started new visits for acquiring sites near dismantled locations.
  - Battery bank is shifted to ground floor of some sites to reduce the load at the building. This solution is prone to physical security of the battery.
  - Used Light Weight Pole in place of existing roof-top towers

Recovery and Restoration

- Loss of coverage:
  - Assessment of down sites were started immediately
  - Installation of Micro BTS on high priority sites like hospitals, governmental locations.
  - Most of the physically damaged building sites out of the Kathmandu valley are in operation using tents and sheets temporally
  - Construction of prefabricated shelters to shift equipments from physically damaged buildings.
  - Construction of sheet shelters with Truss and Foundation is still in progress.
  - Transmission link damaged sites restored with satellite link.
  - Recovered initially the hub sites, misalignment of Microwave links, fiber damages and satellite links
- International voice calls:
  - Although international gateways and roaming technologies that enable international communications were not affected, especially citizens needed to call their loved ones in Nepal (or vice versa). But it was costly, operators made quick agreements that were requested from the foreign operators to give free calls.

Help of ITU

•The International Telecommunication Unit (ITU) had contributed with satellite telecommunications equipment, was distributed to the Ministry of Information and Communication through National Telecommunication Authority.

- 35 satellite phones,
- 10 BGAN terminals along with
- 10 laptops for the BGANs,
- 25 solar chargers for satellite phones and
- solar powered batteries.

•ITU had provided Training on the use of the equipment to different agencies.
•ITU had financed the deployment of the equipment, three months satellite airtime usage and the returning the equipment back to Geneva.
•ITU had also provided technical assistance in formulating Emergency Telecommunication Continuity Management System-draft received recently

Positive role by ICT

- Many people were searched and rescued with the help of ICT.
- Post-disaster relief efforts relied heavily on telecommunications, internet and broadcast media.
- The means of ICT played a crucial role in keeping the people informed during and post disaster period.
- The means of ICT played a significant role to inform people about the recovery and reconstruction programs initiated by Government of Nepal.

Positive role by ICT

Citizens outside of Nepal were facing difficulties to reach and know their loved ones are if safe, being able to connect really matters in this situation. Thus,

- Skype made all Skype calls to landlines and mobiles in and out of Nepal free of charge from 27th April to 15th June.
- In Australia;
  - Vodafone customers received free calls between Australia and Nepal from 25 April to 1 May (post-paid), from 29th April to 5th May (pre-paid),
  - Telstra offered free voice calls and texts made from post paid mobiles and fixed lines to Nepal from 12th May to 19th May,
  - Optus mobile and fixed customers received free standard voice calls to Nepal from 14th May to 20th May.
- In Germany,

  T-Mobile allowed free calls and texts to Nepal from 25th April to 31th May for both prepaid and postpaid customers with a recommendation to restart their phones right away to receive free data if customers are in Nepal.
- In USA;

  Sprint, Boost Mobile and Virgin Mobile made calling and texting to Nepal free to all postpaid and prepaid customers from 25th April to 16th May.

  AT&T did not charge customers for text messages or International long distance calls from U.S.A, Puerto Rico and U.S. Virgin Islands to Nepal from 25th April to 31th May.

  Viber switched off 'Viber Out' billing so Nepal users can call any destination for free

Recovery and reconstruction

- Some buildings related ICT owned by private sectors have been repaired, retrofitted and reconstructed. However, most of the building owned by government of Nepal have not repaired, retrofitted and reconstructed yet.
- The means of ICT will have been repaired, retrofitted and reconstructed based on build back better according to the plan of Nepal government.

Lesson learned.

- If the means of ICT were used properly and widely, many lives could be saved.
- The buildings related ICT could have been built based on Disaster Risk Reduction (DRR) approach.
- More investment could be used in the ICT infrastructures.
- The capacity of community people could be enhanced by providing trainings to use ICT during the disaster and post disaster period.

Ways forward.

- The recovery strategy is to ensure that networks and buildings are built back better and are resilient to disasters.
- The comprehensive policy should be prepared to use the means of ICT in pre disaster, during the disaster and post disaster.
- The capacity of the community people should be enhanced in using the means of ICT in pre, during and post disaster period.
- Government should prepare investment policy in ICT sectors.
- Approval of National Emergency Telecommunications Plan and Implementation of the same

Finally,

Thank you very much ☺