Nepal Earthquake 2015: Lesson Learnt and Future Guidance

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Government of Nepal

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BACKGROUND

- Nepal is a hot spot of natural disaster.
- Frequently occurrence: Flood, landslide, fire are the main disasters.
- Nepal stands in the 11th position in terms of Earthquake disaster, 6th in climatic hazards and 30th in terms of floods.
- According to geological studies, Nepal lies on Seismic Active Zone.
NEPAL IS DISASTER PRONE DUE TO

Difficult Geological Terrain

8848 Meter

70 Meter
Collision of Euro Asian Plates and Indian Plates by 3 mm per year, History of Nepal by J. Whelpton
**Earthquake Disaster History**

- The massive earthquake of 1255, first recorded earthquake of Nepal, killed one-third of its population. Then king, Abhaya Malla, had also died.

- Massive earthquake of Magnitude 8.4 in 1934, more than 10,000 death in Kathmandu.

- Since then, large scale earthquakes in 1980, 1988 and 2011 had caused human and physical loss.
Earthquake Disaster History......

- As a result of the two major earthquakes that struck Nepal on 25 April and 12 May 2015, nearly 9,000 lives casualties and about 23000 injured and large number of infrastructures and public and private houses including many archaeological monuments and sites have been destroyed.

- On Saturday, 25 April 2015 at 11:56 local time a 7.6 magnitude earthquake recorded by Nepal’s National Seismological Centre(NSC) struck Barpak in the district of Gorkha, about 76 Km northwest of Kathmandu.

- Four aftershocks were greater than 6.0 Magnitude.

- 8 Million people, one third population of Nepal have been impacted. 31 districts affected and 14 districts declared ‘severely affected’ for the purpose of prioritizing rescue and relief operation.
**Detail on April 2015 Earthquake of Nepal**

- On 25 April 2015 at 11.56, an earthquake of 7.6 Richter Scale struck Barpak of Gorkha district, about 76 km northwest of Kathmandu.
- The catastrophic earthquake was followed by more than 400 aftershocks greater than magnitude 4.0.
- Same day at 12:30, an aftershock of 6.6 scale was felt.
- Next day, on 26 April 2015, another quake of 6.9 Richter Scale with epicenter in Sindhupalchowk was felt.
- One 12 May 2015, another aftershock with 6.8 scale occurred.
- The catastrophic earthquake was followed by more than 400 aftershocks greater than magnitude 4.0 (as of now).
Epicenters of the Main Quakes and the Aftershocks
BARPAK VILLAGE – THE EPICENTER OF 7.6 ML
The Aftershocks Above 4 Richter Scale

Nepal Earthquake (25 Apr - 01 Jun 2015)
Magnitude (ML), NSC, Nepal

Each dot indicates one quake.
## Loss due to Earthquake

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description</th>
<th>Number</th>
<th>Information Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Death</td>
<td>8,891</td>
<td>NEOC, NP</td>
</tr>
<tr>
<td>2</td>
<td>Missing</td>
<td>198</td>
<td>NEOC, NP</td>
</tr>
<tr>
<td>3</td>
<td>Injured</td>
<td>22,302</td>
<td>NEOC, NP</td>
</tr>
<tr>
<td>4</td>
<td>Private House Damaged</td>
<td>602,567</td>
<td>DDRC</td>
</tr>
<tr>
<td>5</td>
<td>Private House Partical Damaged</td>
<td>284,479</td>
<td>DDRC</td>
</tr>
<tr>
<td>6</td>
<td>School Class Room Damaged</td>
<td>18,433</td>
<td>MoEd</td>
</tr>
<tr>
<td>7</td>
<td>School Class Room Partial Damaged</td>
<td>7,561</td>
<td>MoEd</td>
</tr>
<tr>
<td>8</td>
<td>Health Infrastructure Completely Damaged</td>
<td>446</td>
<td>MoH</td>
</tr>
<tr>
<td>9</td>
<td>Health Infrastructure Partial Damage</td>
<td>765 (701 public and 64 private)</td>
<td>MoH</td>
</tr>
<tr>
<td>10</td>
<td>Government Building Damaged</td>
<td>270</td>
<td>DUDBC</td>
</tr>
<tr>
<td>11</td>
<td>Government Building Partial Damaged</td>
<td>673</td>
<td>DUDBC</td>
</tr>
<tr>
<td>12</td>
<td>Food Damage (mt)</td>
<td>135,187</td>
<td>MoAD</td>
</tr>
<tr>
<td>13</td>
<td>Livestock Dead</td>
<td>54,411</td>
<td>MoAD</td>
</tr>
</tbody>
</table>
IMPACTS OF EARTHQUAKE
STRUCTURES DAMAGE
Dharahara made by Prime Minister Bhimsen Thapa in 1832 AD destroyed on 25th April, 2015

Before 25th April, 2015

After 25th April, 2015
VEHICLES CRUSHED ON THE ROAD
THE GOVERNMENT RESPONSES

- Two hours after the Earthquake, the Central Natural Disaster Relief Committee (CNDRC) called its meeting.
- The CNDRC held its meetings on 25, 27, 30 April and 3, 10 and 12 May 2015.
- Within 4 hours of earthquake, the Council of Ministers held its meeting.
- The meetings were followed by meeting of the Secretaries under the Chair of Chief Secretary of the GoN.
- Clusters were called upon their meetings.
- The Regional Disaster Relief Committees (REOC) and The District Disaster Relief Committees (DDRCs) held their meetings immediately.
**KEY DECISIONS OF CNDRC**

- Immediate mobilization of all relevant institutions including DDRCs, DEOCs, REOCs, and HEOC of Ministry of Health.

- Immediate establishment of temporary rescue shelters in various locations with the help of security agencies, private sectors and NGOs.

- Under the leadership of Secretary of Ministry of Home Affairs, a central command post was established comprising Secretaries of various ministries and Chief of Security Agencies.
**Key Decisions of CNDRC ...**

- All the hospitals would remain open for 24 hours.
- The GON made a decision to bear the cost of treatment of all the injured people to ensure timely treatment.
- Hospitals were instructed to provide free treatment to all the injured.
- All media and communication services should deliver information and notices.
- 14 districts declared as severely affected districts.
- The CNDRC recommended to the GoN for seeking international support.
## INVOLVEMENT IN SAR OPERATION

<table>
<thead>
<tr>
<th>Live rescue from collapsed buildings</th>
<th>Individual</th>
<th>16</th>
<th>Nepal Police</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search and Rescue Team - National</td>
<td>Civil Servant</td>
<td>22,500</td>
<td>Related Ministries and Organisations</td>
</tr>
<tr>
<td>Nepal Army</td>
<td></td>
<td>66,069</td>
<td></td>
</tr>
<tr>
<td>Nepal Police</td>
<td></td>
<td>41,776</td>
<td></td>
</tr>
<tr>
<td>Arm Police Force</td>
<td></td>
<td>24,775</td>
<td></td>
</tr>
<tr>
<td>Government Health Workers</td>
<td></td>
<td>9,500</td>
<td></td>
</tr>
<tr>
<td>Private Health Workers</td>
<td></td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>Search and Rescue Team - International</td>
<td>Country</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>canine</td>
<td></td>
<td>141</td>
<td></td>
</tr>
<tr>
<td>International health Team</td>
<td>Groups</td>
<td>133</td>
<td>MoH</td>
</tr>
<tr>
<td>Total health workers involved</td>
<td></td>
<td>2385</td>
<td></td>
</tr>
</tbody>
</table>
SEARCH AND RESCUE TEAMS

• For SAR 4,236 helicopter flights were used (GoN/Private) to rescue 7,558 persons and delivery of essential food and non-food items and life saving drugs and 4,689 persons rescued by land.

• International rescue team rescued 16 lives from the rubbles and recovered many dead bodies along with National Security Forces (NA, NP and APF personnel).

• Rescue teams were from various 34 countries including 1068 medical doctors.
RELIEF MATERIAL FACILITATION

- Three Warehouses at Center Level
  - Tribhuvan International Airport
  - Food Corporation Warehouse
  - National Trading Limited Warehouse
  - At central level, a committee was formed comprises of Secretary of MOHA, MOUD and MOCS for the decision of Relief Distribution.

- Various Warehouses at regional and district level

- Facilitation on Relief Items
  - A team of JS of MOHA, MOFA and MOF stationed in the Warehouse of TIA in order to facilitate in releasing relief items
  - A team of CDO, LDO, Chief of Custom and NP was formed for custom clearance at border points

- Private sector and NGOs coordination for collection and delivery of essential items including food items and life saving drugs etc. in every districts by CDOs through DDRCs.
Immediate Relief Supports

Based on Disaster Victims Relief Standard, 2064

- NPR40,000: Per person death to the family
- NPR5,000: Complete house damage
- NPR3,000: Partial house damage
- NPR2,000: For immediate food support
- Relief materials like blanket, mattresses, food basket, tarpaulins or tents, health kits etc. provided

As per the decision of Council of Ministers:

- Additional NPR100,000: compensation to the family who have lost their family member/s
- NPR15,000: for Temporary Shelter for complete and partial house damage
- NPRs. 10000 for winter clothing per family.

Large amount of relief support through private sectors and NGOs sectors including cash support has been received.
SEARCH & RESCUE........
Dead Body Collection
HELICOPTER RESCUE
INTERNATIONAL ASSISTANCE
LEGAL, INSTITUTIONAL, POLICY ARRANGEMENTS

- Natural Calamity Act 1982 and its apex body CNDRC is actively activated in the cooperation of MOHA.
- Under chairmanship of CDO, DDRCs are actively working at the district level.
- The CNDRC and the DDRCs coordinate all post-disaster rescue, relief and response activities at the national and district level respectively.
- MOHA is the national focal agency for disaster mgmt.
- Local Governance Act 1999 has been focused to make DRM Fund locally.
- Formulation of NS-DRM 2009 in line with the HFA.
- Govt. has formulated NRRC in 2009.
- NEOC is established on December 2010 under MOHA to coordinate the emergency response services and five REOCs and 46 DEOCs are activated.
- National DRR platform was established in 2009 for better coordination and information sharing among DRR actors.
INSTITUTIONAL FRAMEWORK (1982 ACT)

Cabinet
(Policy, Budget and Emergency Declaration)

Central Natural Disaster Relief Committee
(chaired by Home Minister)
(Coordination, Response, Rescue, Relief)

Regional Natural Disaster Relief Committee
Chaired by Regional Administrator

District Disaster Relief Committee
Chaired by Chief District Officer
(Execution, Rescue & Relief, Data collection)
District Natural Disaster Relief Fund

Rescue and Treatment Sub-Committee
Chaired by Minister of Health and Population

Supply, Shelter and Rehabilitation Sub-Committee
Chaired by Minister of PPWTM

National EOC
Regional EOC 5
District EOC 46

Central Natural Disaster Relief Fund
Prime-Minister Natural Disaster Relief Fund
LEGAL, INSTITUTIONAL, POLICY ....

- The Disaster Preparedness Network (DP-Net) comprising of most NGOs, INGOs, international organizations, and UN agencies involved in DRM serves as the secretariat to the DRR platform.
- National Climate Change Policy, NAPA and LAPA articulate the integration of Climate Change Adaptation (CCA) into development process at national and local levels.
- Building Act, 1998 makes implementation of the National Building Code (NBC) mandatory in all municipalities.
- HEOC established in 2013 for managing health sector response.
- Medical logistics were pre-positioned in strategic locations.
- MOHP engaged in Mass Casualty Management (MCM) and Hospital Preparedness for emergencies.
- At the district level the DHO represented the health sector in DDRCs.
- Few EWS has established in six large river basins and two Glaciers (Tso Rolpa and Imja).
National Emergency Operation Centre (NEOC)

- Normal Phase: (Preparedness & IM)
- Recovery Phase: (Coordinate Early Recovery efforts)
- Alert Phase: (Alerts agencies and authorities for an imminent emergency)
- Response Phase: (leads coordination and communication for response)

NEOC House
LEGAL, INSTITUTIONAL, POLICY …..

- District Disaster Preparedness and Response Plans guideline, 2010. According to this guideline all 75 DDRCs prepared the plans.
- Guideline for the relief to cold-wave victims, 2012
- Dead body management guideline, 2012
- RRT Guidelines, Trauma Protocols, Standards for public health emergency management protocols, referral and early deployment guidelines etc. have been formulated for the Health sector emergency preparedness.
EMERGENCY RESPONSE MECHANISM (GoN): CURRENTLY PRACTICED

GON Declares Disaster
(area, time)

CNDRC meeting held

MoHA, / NEOC

Situation Analysis
(CDO, DDRC)
(Search, Rescue, Immediate Relief)

Disaster

INGOs & others

Clusters Activated

UNDAC / USAR Teams

UN Resident / Humanitarian Coordinator

International Appeal

Government Line Agencies

UN Resident / Humanitarian Coordinator

INGOs & others

Clusters Activated

UNDAC / USAR Teams

UN Resident / Humanitarian Coordinator
CHALLENGES – AT FIELD / OPERATION LEVEL (IMMEDIATE ACTION)

- Challenge of approach in remote areas for rescue and relief, government agencies only was not effective enough during immediate response in the remote areas.
- Provide timely treatment to the injured and resume health service delivery in the hard-hit districts including life saving drugs & doctors.
- Manage Temporary settlement for displaced population.
- Challenge to manage the space for debris.
- Selection of appropriate caring of children who lost their parents and guardians and cater the need of pregnant women, new-born and elderly people.
CHALLENGES – AT FIELD …..

- Challenges of clearance of road blockade for speedy transportation.
- **Coordination** for free treatment and critical care needed patients in the hospitals.
- Manage sufficient blood and medical instruments and life saving drugs, oxygen etc.
- Manage accommodations to the injured and their attendants.
- Mobilization of medical teams and life saving drugs in the remote areas including health kits.
- Lack of office space for the operation of public services effectively as large number of government buildings were damaged / destroyed.
CHALLENGES – AT POLICY AND ...

- Lack of policy, technology, tools and equipment, and skills to dismantle the damaged structures.
- Challenges to restoration and conservation of cultural and religious heritages.
- Management of dead bodies and provide psycho-social counseling to the thousands of traumatized people.
- Establishment and management temporary field hospitals and mobilize NMTs and FMTs in needy areas.
- The earthquakes will end up pushing an additional 2.5 to 3.5 percent Nepalese into poverty in 2015-2016 which translates into at least 700,000 additional poor (PDNA).
- The nation will require substantial external assistance to meet the rehabilitation and reconstruction (NPR 706 billion or US$ 7.1 billion).
LESSONS LEARNT AND AREAS FOR FUTURE DIRECTION

- Need of new Disaster Management Act to address the present challenges which is already proposed.
- Strict implementation of NBC.
- Strengthen the capacity of National Search and Rescue Team of Security forces (NA, NP, APF).
- Assured international supports in Search and Rescue relief and recovery.
- Need of Helipads in Rural Areas, at least one in each VDC.
- Emergency warehouse and adequate stockpiling of appropriate supplies and modern equipments.
LESSONS LEARNT AND …

- One window system is very important to distribute relief materials including food and nonfood items in remote areas and to the backward and deprived people.

- Need of GIS based integrated information system.

- Finally, Recovery should follow a community based approach which encourages community, utilization of social capital and networks, and built self reliance efforts using local skills and knowledge.

- The capacity of DDRCs should be enhanced.

- 24 hour operation of DEOCs in all 75 district is necessary.

- Few Heavy Equipments, High tech equipments and tools should be stand by in at least regional warehouses.
Lesson Learnt: Proposed National Mechanism Emer. Response

Bilateral and Multilateral support, Coordinated by MoFA International Communities

International Appeal

UN RC & Redcross
UN agencies
Clusters Activated
INGOs & others

International Appeal

Disaster

Local NGO’s

GON Declares Disaster (area, time)

CNDRC meeting held

MoHA, / NEOC

Situation Analysis (CDO, DDRC)
RECOVERY AND RECONSTRUCTION

- National Reconstruction Authority (NRA) has already been established with full and independent authority.
- Mostly affected 14 district are divided into 7 clusters headed by cluster chiefs for action.
- 1000+ engineers and social mobilizers are mobilized for the collection of digital information of households and damaged houses.
- Government has developed resilient models of houses, provide technical support and help delivery of construction material to accessible areas.
- GON has decided to provide NRs. 200,000 as grant and additional soft loan from commercial banks.
- Detailed HH survey is in progress to facilitate reconstruction work.
PROVISIONS OF BUDGET (FY 2015/16)

- National reconstruction fund (Rs 74 billion)
- Rs 200,000 grant assistance to the fully damaged households
- Loan up to Rs 2.5 and 1.5 million for HH within and outside Kathmandu valley respectively at highly subsidised interest rate (2 Percent)
- Separate heritage reconstruction fund
- Mason, carpenter and artisan training to 50,000 youths
RECOVERY AND RECONSTRUCTION POLICY/ APPROACH

- Centralized policy/plan, decentralised implementation will be adopted.
- Committed to adopt BBB (build back better) principle.
- Owner driven and self reliant effort for reconstruction in private housing for optimum utilisation of local resources and knowledge.
- An effective institutional set up in community level and capacity building of local people.
- Settlement integration and land use classification and zoning is implemented in some districts.
Thank You