NEPAL EARTHQUAKE 2015: LESSON LEARNT AND FUTURE GUIDANCE

Dr. Narayan Bahadur Thapa
Ministry of Home Affairs
Government of Nepal

ACDR2016
Phuket, Thailand
BACKGROUND

- Nepal is a **hot spot** of natural disaster.
- Frequently occurrence: **Flood, landslide, fire** are the main disasters.
- Nepal stands in the 11\textsuperscript{th} position in terms of Earthquake disaster, 6\textsuperscript{th} in climatic hazards and 30\textsuperscript{th} 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
Disaster Prone
Seismic Hazard

Collision of Euro Asian Plates and Indian Plates by 3 mm per year, History of Nepal by J. Whelpton
Earthquakes in the Himalaya
Earthquake Disaster History

- The massive earthquake of 1255, which was the first recorded earthquake of Nepal had damaged palaces, temples, and houses in the Kathmandu Valley and killed one-third of its population. The reigning monarch, 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 and large number Infracratures and houses 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 ‘crisis-hit’ 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.
- 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 300 aftershocks greater than magnitude 4.0 (as of 7 June 2015).
EPICENTERS OF THE MAIN QUAKES AND THE AFTERSHOCKS
BUILDING DAMAGE

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>Nepal Police</td>
</tr>
<tr>
<td>2</td>
<td>Missing</td>
<td>198</td>
<td>Nepal Police</td>
</tr>
<tr>
<td>3</td>
<td>Injured</td>
<td>22,302</td>
<td>Nepal Police</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 Partially 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 Partially Damaged</td>
<td>7,561</td>
<td>MoEd</td>
</tr>
<tr>
<td>8</td>
<td>Health Infrastructure Damage</td>
<td>375</td>
<td>MoH</td>
</tr>
<tr>
<td>9</td>
<td>Health Infrastructure Partial Damage Damage</td>
<td>648</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 Partially 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 Tower

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.
**Key Decisions of CNDRC**

- Immediate mobilisation of all relevant institutions of all Ministries
- Immediate establishment of temporary rescue houses in all 16 most affected districts and locations
- Under the leadership of Secretary of Ministry of Home Affairs, a central command post was established comprising Secretaries of:
  1. Ministry of Finance
  2. Ministry of Defense
  3. Ministry of Foreign Affairs
  4. Ministry of Health and Population
  5. Ministry of Physical Planning and Transport
  6. Ministry of Urban Development
  7. Ministry of Culture, Tourism and Civil Aviation
  8. Ministry of Information and Communication
KEY DECISIONS OF CNDRC ...

- All the hospitals would remain open for 24 hours, all government, community and private hospitals should provide free service to the people injured by earthquake.

- All media and communication services should deliver information and notices.

- 14 districts (Kathmandu, Lalitpur, Bhaktapur, Dhading, Rasuwa, Nuwakot, Kavrepalanchowk, Sindhupalchowk, Gorkha, Dolakha, Ramechhap, Sindhuli, Okhaldhunga and Makawanpur) were declared as districts of crisis.

- As the preliminary assessment showed high loss which was beyond the national capacity to address, the CNDRC recommended to the GoN for seeking international support.
# Immediate Search and Rescue Forces and Operations

<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><strong>Search and Rescue Team - National</strong></td>
<td>Civil Servant</td>
<td>22,500</td>
<td>Related Ministries and Organisations</td>
</tr>
<tr>
<td>Nepal Army</td>
<td>66,069</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal Police</td>
<td>41,776</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arm Police Force</td>
<td>24,775</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government Health Workers</td>
<td>9,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Sector</td>
<td>4,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Search and Rescue Team - International</strong></td>
<td>Country</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Persons of the Countries</td>
<td>4,521</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canine</td>
<td>141</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>International health Team</strong></td>
<td>Groups</td>
<td>87</td>
<td>MoHealth</td>
</tr>
<tr>
<td>Total Individual</td>
<td>1,400</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
INTERNATIONAL SEARCH AND RESCUE TEAMS

• For SAR 4,236 helicopter flights were used (GoN/Private) with 7,558 persons rescued by air and 4,689 persons rescued by land.

• International rescue team rescued 16 lives from the rubbles and recovered many dead bodies along with our National Security Forces.

• Rescue teams were from various 34 countries: Algeria, Australia, Belgium, Bangladesh, Canada, China, France, German, Hungary, India, Indonesia, Israel, Japan, Jordan, Malaysia, Mexico, the Netherland, Norway, Oman, Philippines, Poland, Pakistan, Russia, South Korea, Sri Lanka, Singapore, Spain, Sweden, Switzerland, Thailand, Turkey, UAE, UK, USA
IMMEDIATE RELIEF SUPPORTS

Based on Disaster Victims Relief Standard, 2064

- NPR40,000: Per human death to the family
- NPR5,000: Complete house damage
- NPR3,000: Partial house damage
- NPR2,000: For immediate food

As per the decision of Council of Ministers:

- Additional NPR100,000: who have lost family member/s
- NPR15,000: for Temporary Shelter for complete and partial house damage
COUNTRIES AND ORGANIZATIONS SUPPORTING IN SEARCH, RESCUE AND RELIEF

- Government of Nepal (Central and Local Governments), Gov. of Neighboring Countries, UN Agencies/ Specialized Agencies, International NGOs
- NGOs, Civil Society, Community Organisations, Business Houses/ Groups, Individuals


SEARCH & RESCUE........
LIVE RESCUE
Dead Body Collection
HELICOPTER RESCUE
CHALLENGES – AT FIELD / OPERATION LEVEL (IMMEDIATE ACTION)

- Challenge of approach in remote areas for rescue and relief, single government agencies was not effective enough during immediate response in the remote areas.
- Temporary settlement of displaced
- Challenge to manage the space for rubbles
CHALLENGES – AT FIELD / OPERATION LEVEL (IMMEDIATE ACTION)

- Selection of appropriate caring of children with good faith who lost their parents and guardians.
- Challenges for immediate repair of rural roads and for immediate transportation.
- Collection of integrated field information and dissemination.
- Lack of office space for the government operations as significant number of government buildings were damaged / destroyed.
CHALLENGES – AT POLICY AND PRACTICE

- Lack of policy, technology, tools and equipment, and skills to dismantle the damaged structures.
- Challenges to restoration and conservation of cultural and religious heritages.
- 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 669 billion or US$ 6.7 billion).
LESSONS LEARNT AND AREAS FOR FUTURE DIRECTION

- Need of new Disaster Management Act to address the present challenges.
- Perfect implementation of building codes. Strictly monitor mechanism is needed.
- Strengthen the capacity of National Search and Rescue Team especially focusing for Security forces.
- Assured international supports in Search and Rescue relief and recovery.
Lessons Learning and …

- Need of Helipads in Rural Areas, Provision of Helipads in each VDC
- Emergency warehouse and adequate stockpiling of appropriate supplies and equipment
- One window system is very imp. in Rescue and Relief to distribute food and nonfood items in remote areas and to the backward and deprive people.
- Establishment of call centres in each Village and need of GIS based integrated information system
- Finally, Recovery should follow a community based approach which encourages communities, utilization of social networks, and built self reliance efforts using local skills and Knowledge. It will largely be an owner driven recovery programme
LESSON LEARN: 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)

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 45
Coordination Structure during Mega Disasters

Central Natural Disaster Relief Committee (CNDRC)

NEOC/LEMA

Multi-National Force Coordination Center (MNMCC)

On Site Operations Coordination Center (OSOCC)

Clusters

International Responders

UN Agencies Funds & Programme

Red Cross Movement

Civil/ Private Sectors
EMERGENCY RESPONSE MECHANISM (GoN): CURRENTLY PRACTICED

UN Resident / Humanitarian Coordinator

UNDAC / USAR Teams

Clusters Activated

INGOs & others

International Appeal

GON Declares Disaster (area, time)

CNDRC meeting held

MoHA, / NEOC

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

Government Line Agencies

Clusters Activated

INGOs & others
Lesson Learn: Proposed National Mechanism Emer. Response

Bilateral and Multilateral support, Coordinated by MoFA International Communities

GON Declares Disaster (area, time)

CNDRC meeting held

MoHA, / NEOC

Situation Analysis (CDO, DDRC)

UN RC & Redcross

UN agencies

Clusters Activated

INGOs & others

International Appeal

Government Agencies

Local NGO’s
RECOVERY AND RECONSTRUCTION

- National Reconstruction Authority (NRA) has been established with full and independent authority.
- Mostly affected 14 district are dived into 7 cluster headed by cluster chief for action.
- 1000+ engineers and social mobilizers are mobilized for the collection of digital information of households and damage of houses.
- Government has developed resilient models of houses, provide technical support and help delivery of construction material to accessible areas.
RECOVERY AND RECONSTRUCTION....

- Government will be providing Rs. 200,000 as grant for each house affected by the earthquake and additional soft loan from commercial banks.
- Detailed HH survey is in progress to facilitate reconstruction work and deliver social security and other services in the future.
GOVERNMENT OFFICIALS VISIT TO EVALUATE RECOVERY PROCESS
DIGITAL INFORMATION COLLECTION BY ENGINEERS AND SOCIAL MOBILIZER SUPERVISION BY LDO GORKHA
## RECONSTRUCTION BUDGET ALLOCATION PLAN (NRs in Million)

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>015-16</th>
<th>016-17</th>
<th>017-18</th>
<th>018-9</th>
<th>019-20</th>
<th>020-21</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td>84,935</td>
<td>83,914</td>
<td>109,210</td>
<td>69,559</td>
<td>53,852</td>
<td>6,278</td>
<td>407,747</td>
</tr>
<tr>
<td>Productive</td>
<td>78,250</td>
<td>31,797</td>
<td>5,152</td>
<td>256</td>
<td>164</td>
<td>-</td>
<td>115,618</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>29,658</td>
<td>21,965</td>
<td>12,799</td>
<td>4,935</td>
<td>4,910</td>
<td>-</td>
<td>74,266</td>
</tr>
<tr>
<td>Cross-Cutting</td>
<td>24,087</td>
<td>19,765</td>
<td>18,617</td>
<td>3,496</td>
<td>2,859</td>
<td>3,048</td>
<td>71,873</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>216,931</td>
<td>157,440</td>
<td>145,778</td>
<td>78,245</td>
<td>61,785</td>
<td>9,326</td>
<td><strong>669,504</strong></td>
</tr>
</tbody>
</table>
PROVISIONS OF BUDGET (FY 2015/16)

- National reconstruction fund (RS 74 billion)
- Rs 200 thousand grant assistance to the fully damaged households
- Loan up to Rs 2.5 million 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**

- Central policy/plan, decentralised implementation will be adopted.
- Adopt BBB (build back better) principle.
- Owner driven and self reliant effort for reconstruction in private housing for optimum utilisation of local resources, skills, labour
- An effective institutional set up in community level and capacity building of local people
POSITIVE ASPECTS DURING THE DISASTER TIME: BELIEFS, SOCIAL HARMONY AND COMMITMENT

- Saturday is a off day in Nepal. Therefore, schools across Nepal were closed on 25 April. The death toll of young people could have been much higher considering that nearly 7,000 schools were completely or significantly damaged. Similarly, if the earthquake had struck at night, and not in the middle of the day, there would certainly have been greater casualties.
- Lifelines were remarkably not affected during the earthquake.
POSITIVE ASPECTS DURING THE DISASTER...

- The first meeting of the Central Disaster Relief Committee (CDRC) was held immediately after the first earthquake, with the National Emergency Operation Centre (NEOC) providing an initial report to the CDRC recommending a focus on Search and Rescue (SAR), and Disaster Relief Fund was immediately allocated, and the government’s Cluster mechanisms, comprising 11 sectors, were instantly activated.

- The network of NGOs and INGOs based in Nepal swiftly rallied to support community rescue and relief efforts. Several volunteer groups, especially of youth and professionals like doctors and engineers were active in treating the wounded, setting up temporary shelters, supplying food and attending to vital needs.
**Positive Aspects during the Disaster...**

- **Strong political** will and continuous **dialogue** with the affected people are the most important aspects.
- **Self reliant and motivated** urban youth were **active** for rescue and relief activities.
- **Social harmony** has become great example. Theft and robbery did not occur.
POSITIVE ASPECTS IN RECOVERY STAGE

- Post disaster needs assessment (PDNA) is prepared on time.
- International Conference on Nepal's Reconstruction was held with commitment of their contribution.
- Establishment of National Reconstruction Authority as an independent authority and Post Earthquake Recovery and Reconstruction Policy/strategy and guideline are in action.
Thank You