



# **NEPAL EARTHQUAKE 2015: *LESSON LEARNT AND FUTURE GUIDANCE***

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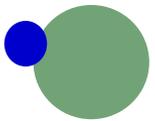
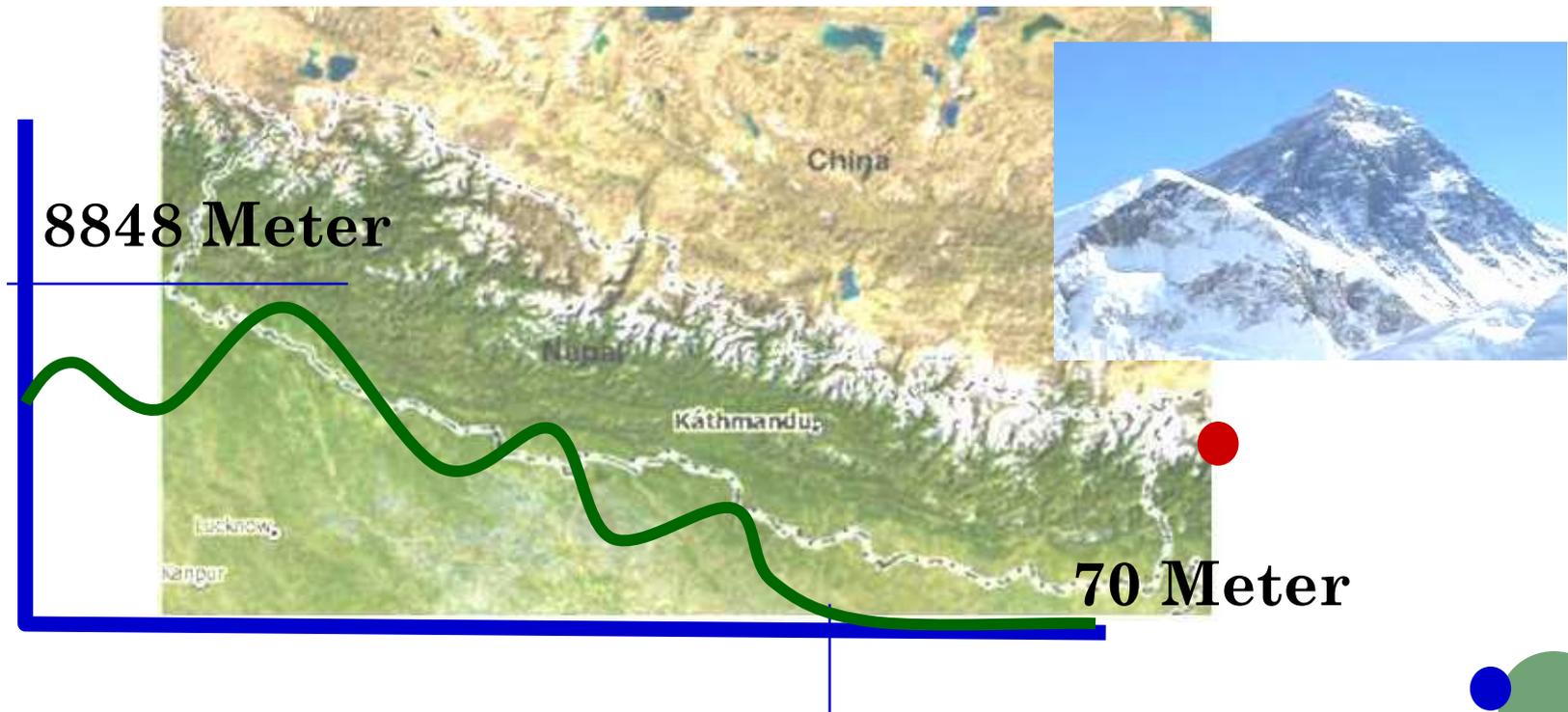
# BACKGROUND

- Nepal is a **hot spot** of natural disaster.
- Frequently occurrence: **Flood, landslide, fire** are the main disasters.
- Nepal stands in the **11<sup>th</sup>** position in terms of **Earthquake disaster**, **6<sup>th</sup>** in climatic hazards and **30<sup>th</sup>** in terms of floods
- According to geological studies, Nepal lies on **Seismic Active Zone**.

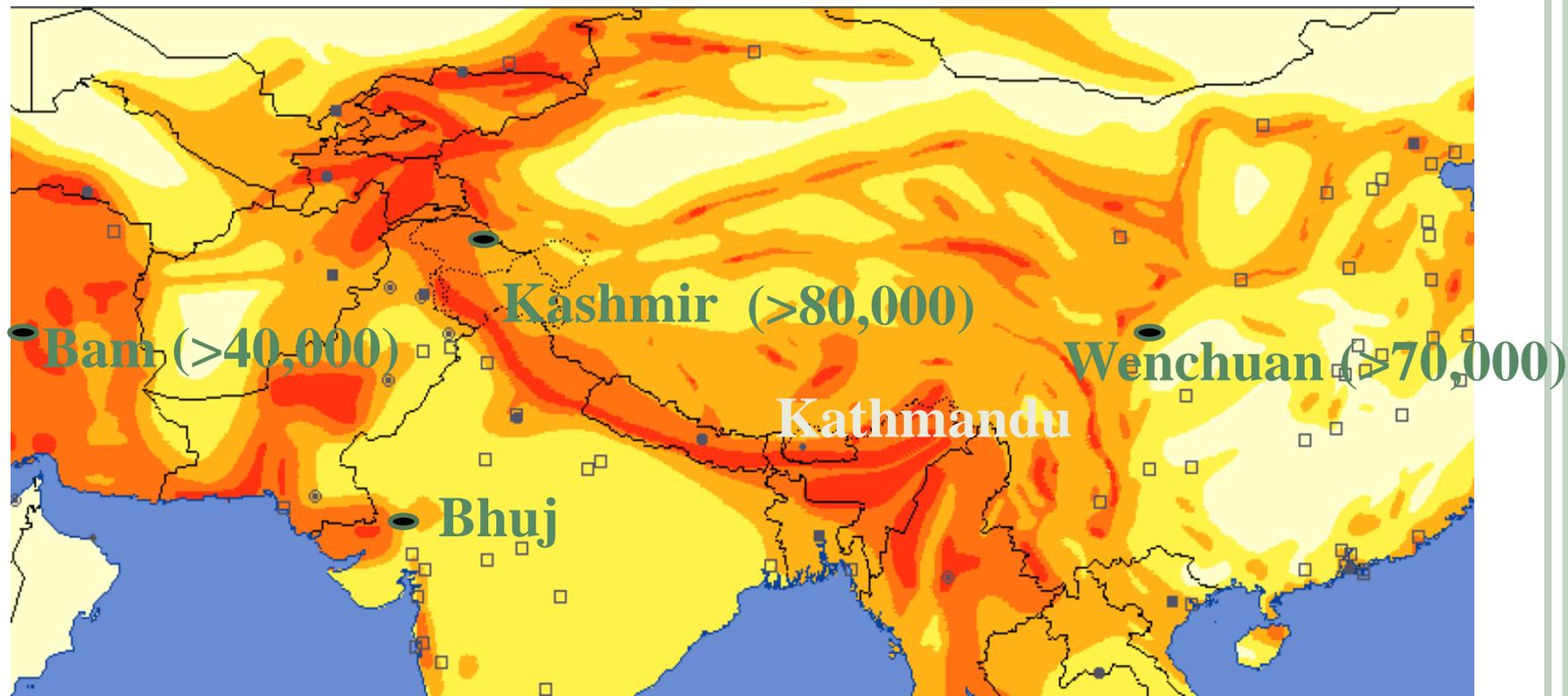


# NEPAL IS DISASTER PRONE DUE TO

## Difficult Geological Terrain



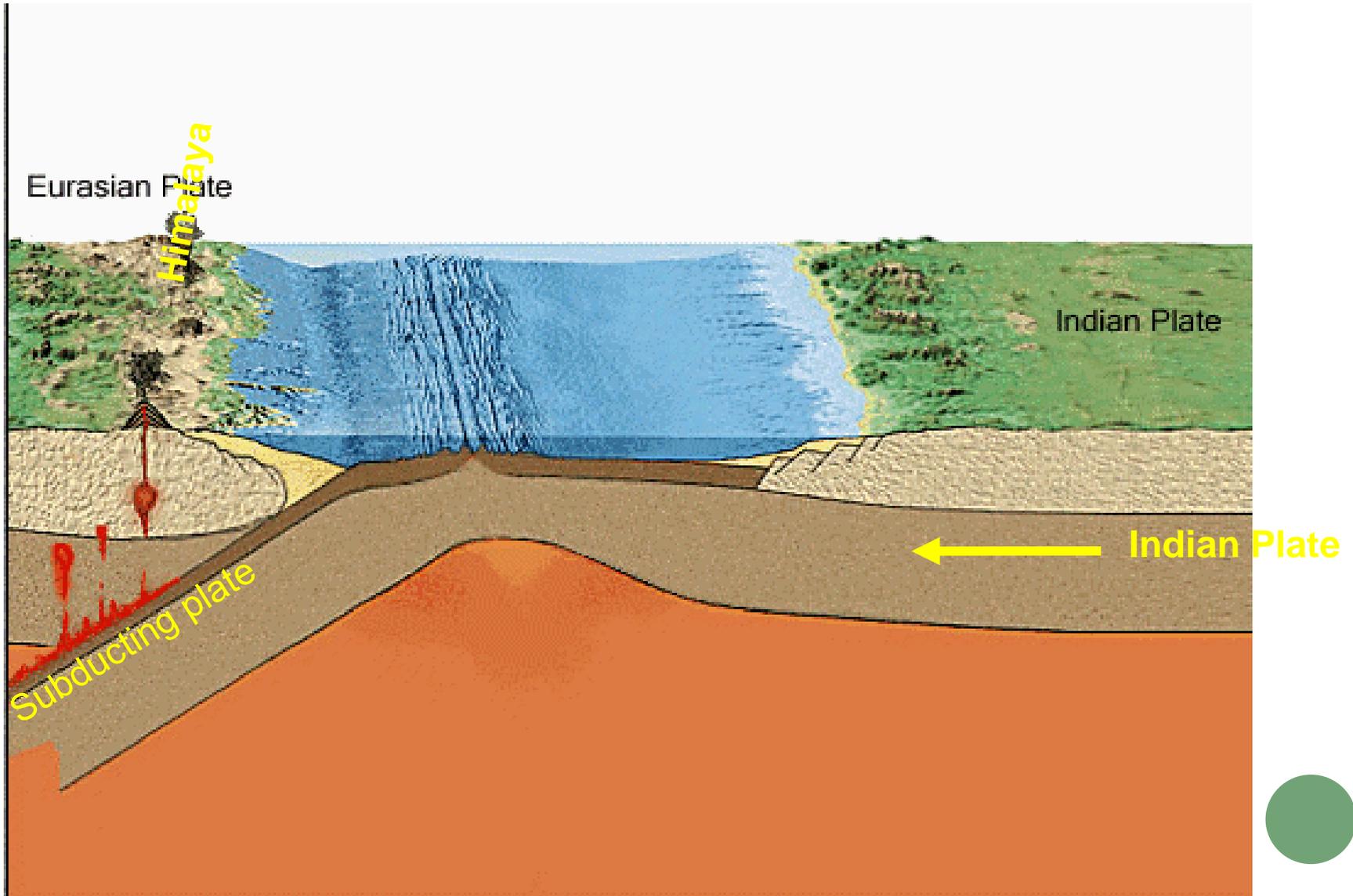
# Disaster Prone Seismic Hazard



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, 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).





# BUILDING DAMAGE



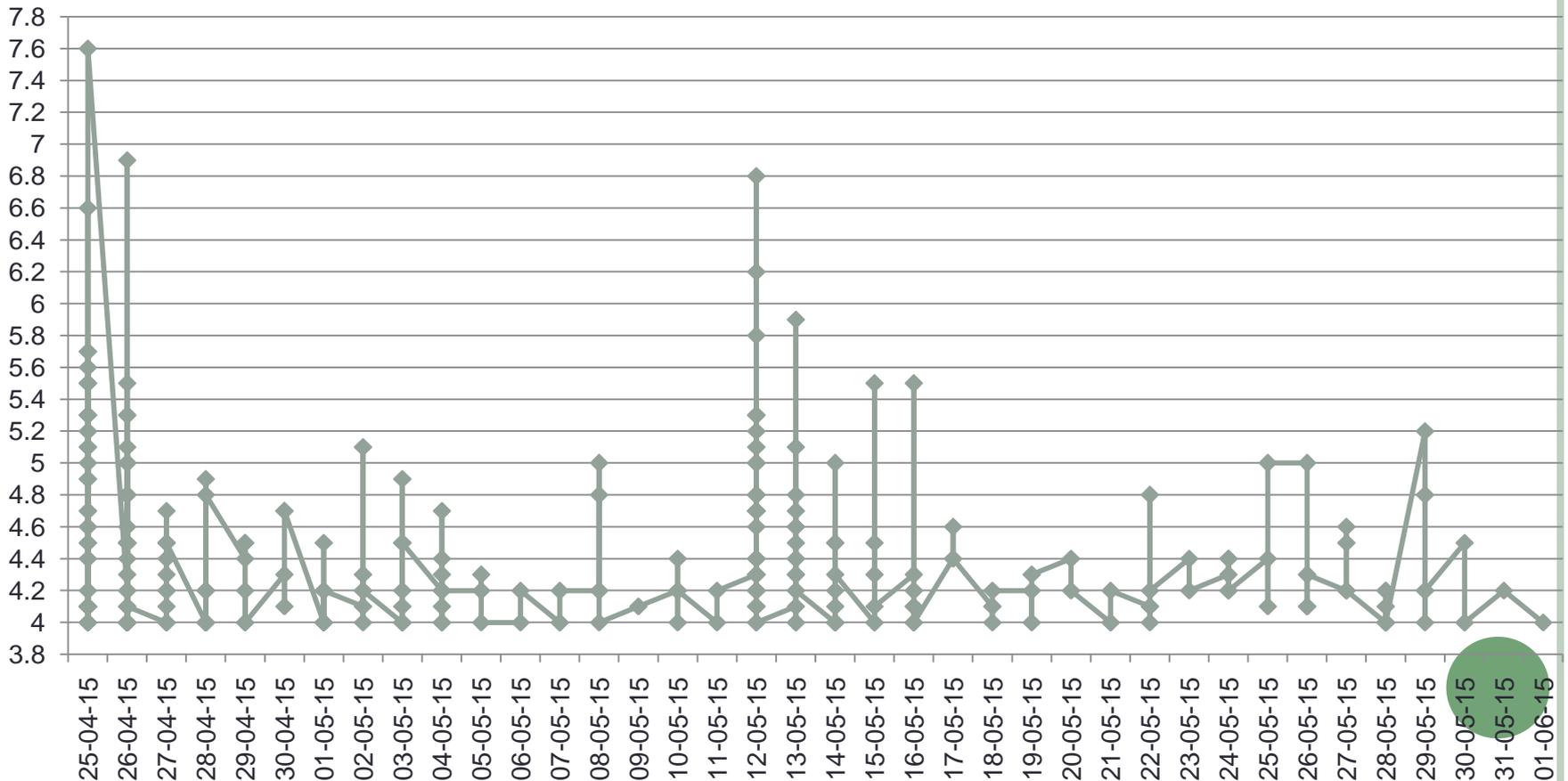
**Barpak Village – the Epicenter of 7.6 ML**



# 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

S. No.	Description	Number	Information Source
1	Death	8,891	NEOC, NP
2	Missing	198	NEOC, NP
3	Injured	22,302	NEOC, NP
4	Private House Damaged	602,567	DDRC
5	Private House Partical Damaged	284,479	DDRC
6	School Class Room Damaged	18,433	MoEd
7	School Class Room Partial Damaged	7,561	MoEd
8	Health Infrastructure Completely Damaged	446	MoH
9	Health Infrastructure Partial Damage Damage	765 (701 public and 64 private)	MoH
10	Government Building Damaged	270	DUDBC
11	Government Building Partial Damaged	673	DUDBC
12	Food Damage (mt)	135,187	MoAD
13	Livestock Dead	54,411	MoAD

# IMPACTS OF EARTHQUAKE



# STRUCTURES DAMAGE





# Dharahara made by Prime Minister Bhimsen Thapa in 1832 AD destroyed on 25<sup>th</sup> April, 2015

Before 25<sup>th</sup> April, 2015



After 25<sup>th</sup> 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



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



# 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.....



# LIVE 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.



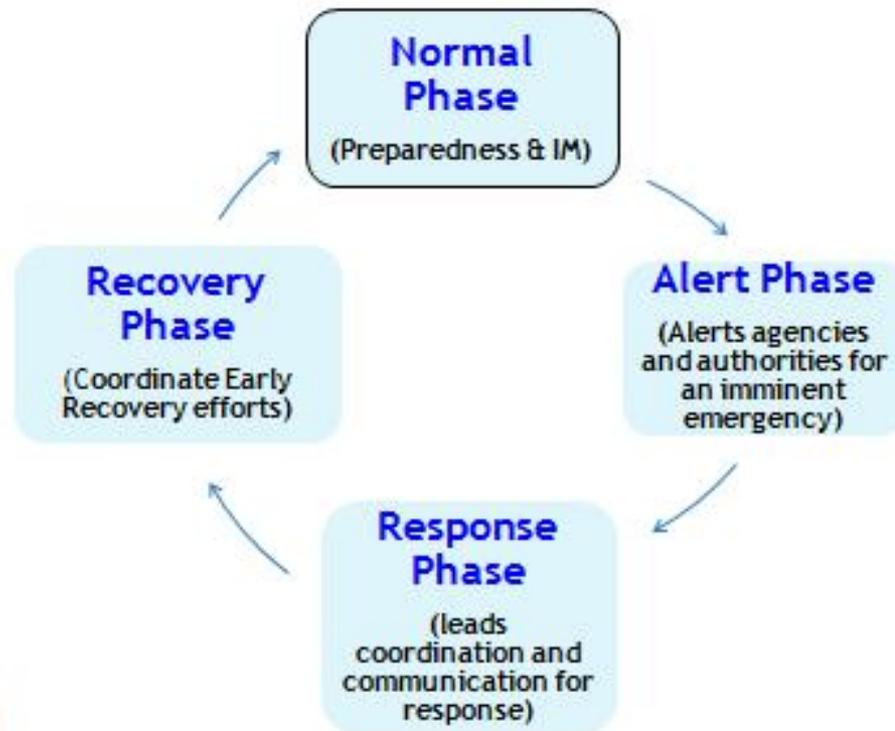
# LEGAL, INSTITUTIONAL, POLICY .....

- ▶ 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).



# NEoC

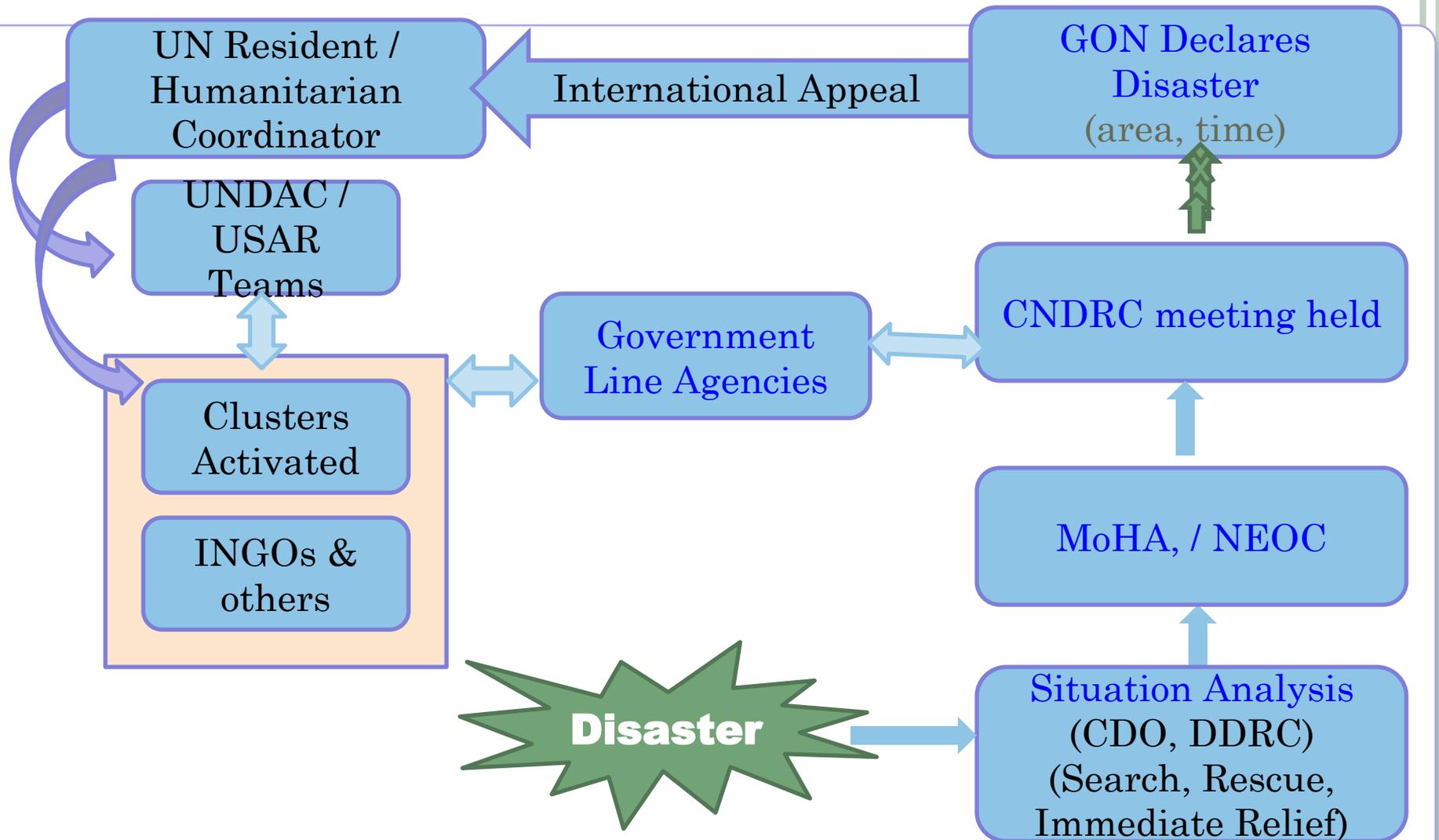
## National Emergency Operation Centre (NEOC)



# 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
  - National Disaster Response Framework (NDRF), 2013.
  - National Strategic Action Plan on Search and Rescue, 2014, Regional warehouse management guideline 2015.
  - SOP of NEOC 2015, Disaster Assessment Guideline, 2015.
  - 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.
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# EMERGENCY RESPONSE MECHANISM (GoN): CURRENTLY PRACTICED



# 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**.
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# 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.

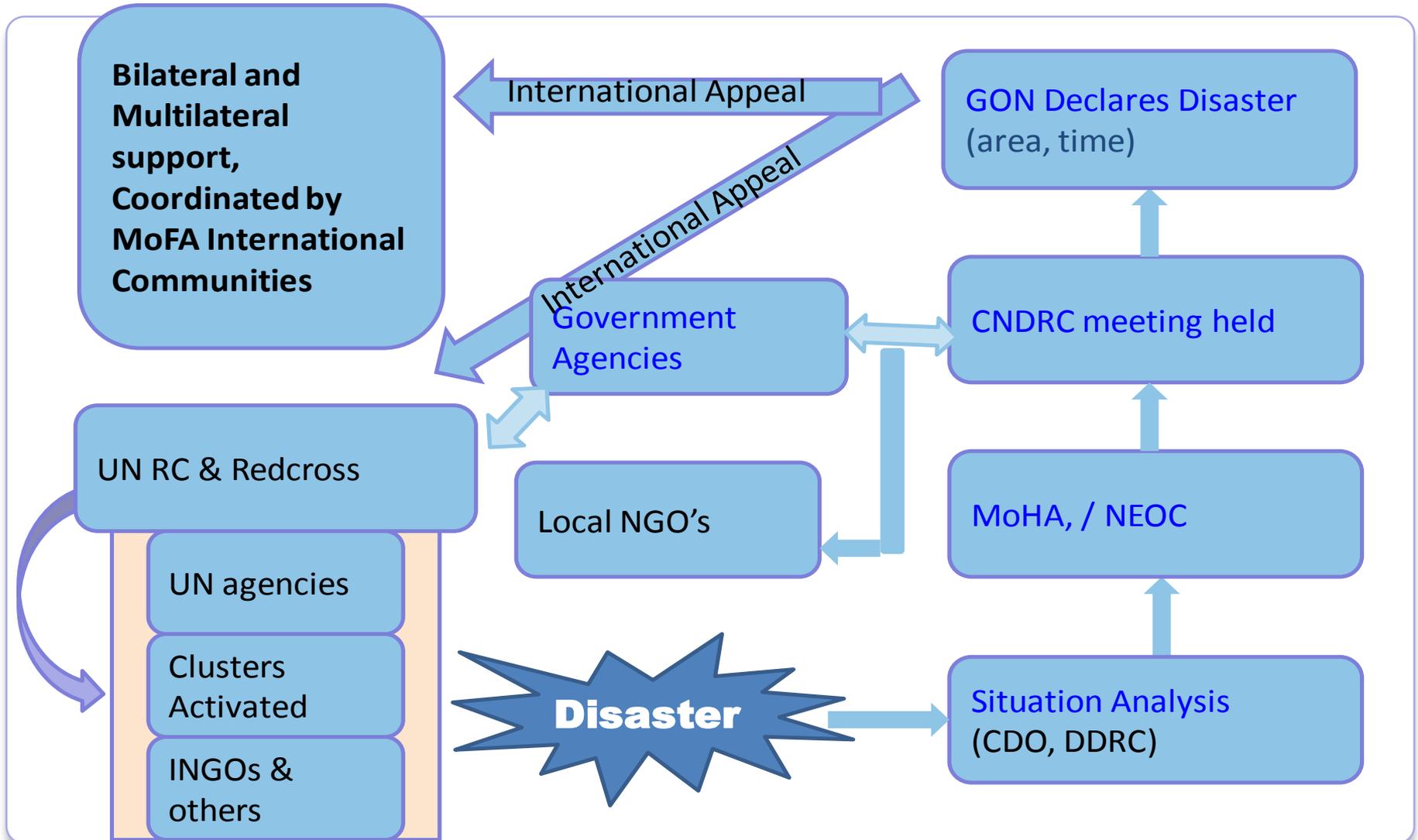


## LESSONS LEARNT AND ...

- **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



# RECOVERY AND RECONSTRUCTION

- National Reconstruction Authority (NRA) has already been established with full and independent authority.
- Mostly affected 14 district are dived in to 7 cluster headed by cluster chief for action.
- 1000+ engineers and social mobilizers are mobilized for the collection of digital information of households and damaged of 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.
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***Thank You***

