Seminar Report

Environmental Community Awareness Seminar Series

Ugly Flood in Nepal

Prepared By

Asta-Ja Research and Development Centre (Asta-Ja RDC)
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Supported By

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Background

Nepal is highly vulnerable to hazardous natural disasters. Flood is one of the major natural hazards of Nepal, which has a significant negative impact especially on the livelihood of people living in Terai region. In 2011, according to the Asian Disaster Preparedness Center (ADPC) report, Nepal ranks 30th most vulnerable country to flood.

In Nepal, every year there are occurrences of low to high scale of floods due to heavy and erratic rainfalls and GLOF (Glacier Lake Outburst Flood), exacerbated due to global climate change. Some of the major flood disasters in Nepal include the Koshi flood 2008, Mahakali flood 2013, Karnali flood 2014, and the latest is Terai flood of 2017, which also caused serious damages in Bangladesh and India. Flood disasters have affected large population/communities resulting in human losses and causalities, destruction of infrastructure, and the disruption of basic facilities and services such as education, hospital and market.

At present, the risks of flooding in Terai and urban areas are very high due to human activities such as river encroachment, rise of rive-bed due to sediment deposits due to deforestation and soil erosion, and unplanned urban development.

The Government of Nepal has enhanced its disaster preparedness in terms of rescue, relief, and recovery from the top to bottom i.e. central to community level by capacity-building at the local, regional, and national level. Government of Nepal has developed well-structured national, regional, and local level flood disaster preparedness and mitigation measures and plans.

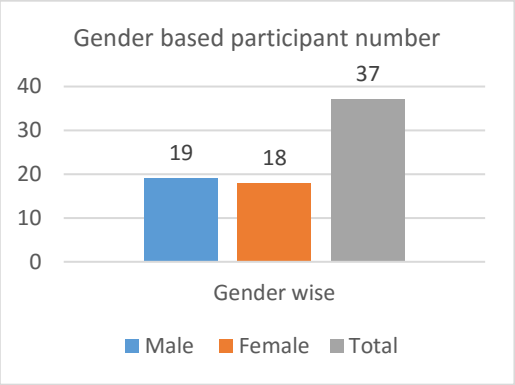
Objectives

The overall objective of the seminar series is to raise community awareness on flood and its impacts on environment, human, plant and animal, and economy.

The program started with highlighting the importance and objectives of seminar in raising community awareness on 'Ugly Flood' by Asta-Ja RDC Executive Member, Mr. Bishnu Dayal Singh.

Resource Person and Participants

The seminar was held on the topic 'Ugly Flood' on 9th May 2019 at HICAST College, Balkhu, Lalitpur. In total, there were 37 participants; 31 were BSc Agriculture students, 3 assistant professors of HICAST and 3 individuals from Asta-Ja RDC participating this seminar. Mr. Manjil Sherchan, who is working as Programme Coordinator in Disaster Management Desk of Caritas Nepal, was the resource person for this seminar. He has an extensive experience of working as Climate Change Specialist and DRR Specialist in the programme, especially on Gorkha Earthquake of 2015 and massive flood of 2017.



Before the presentation, the facilitator asked all participants to assess levels of their understanding on flood disasters and their impacts.

Contents

Major points discussed were:

- Major flood events in Nepal
- Losses from flood disasters
- Precipitation trend (1971-2013) of Nepal, Department of Hydrology and Meteorology
- Flood risk due to human activities
- Impact of flood events on human, environment, plant and animal
- Mitigation of flood impacts
- Early Warning System

The resource person informed the participants that flood incidents are increasing while annual rainfall amount is decreasing by 1.3 mm/year according to the report of Department of Hydrology and Meteorology. It is because the global climate change has affected the intensity of rainfalls causing the occurrence of erratic and high intensity rainfalls, resulting in increased flood incidents. Effects of anthropogenic activities in the urban and rural areas as well as Chure degradation, river encroachment, unplanned urbanization and illegal mines extraction from the river on flooding were also discussed.

He also elaborated how flood disasters have impacted negatively achieving the Sustainable Development Goal, especially SDG 2- Zero Hunger, and the efforts made by the Government of Nepal and humanitarian organizations for reducing flood impacts on human losses. He presented his experience on working in Nepal Flood Response and Early Recovery Programme and explained that they have supported the promotion of flood resistant paddy seed for ensuring the food security and establishing community seed banks at community for easy availability of the seeds.

Discussions

Some key questions raised by the participants were:

- Why the average annual rainfall amount is decreasing while the flood events are increasing?
- What is the linkage between flood and incidents of snake bite in Terai?
- How can we mitigate the impacts of flood on human and environment?
- What are the consequences of flood in agriculture and what are possible interventions to address flood problem?

Conclusions

The seminar was very successful and fruitful to participants, organizer and facilitator for exchanging their learning and conveying the message of the impact of flood disasters on human, plant, animal and environment. The participants realized the importance of local communities, academicians, and other stakeholders in developing alternative innovation approaches for reducing losses from floods and enhancing natural resource conservation. The seminar raised participants' level of understanding on flood. Participants also learned various steps taken by the governmental agencies, humanitarian organizations, private sector, and other stakeholders for minimizing flood impacts.

ANNEX 1: Glimpse of the Seminar 'Ugly Flood'

ANNEX 2: PowerPoint Slide of Ugly Flood

Ugly Flood?????

Koshi flood 2008, Mahakali flood 2013, Karnali flood 2014, flood in 2017

Nepal Disaster Report 2017

Table 2.1: Aggregate disaster data (2015 and 2016) by human loss and injuries

Types of disaster	Number of events	Human loss		
		Death	Missing	Injured
Boat capsize	4	7	1	8
Earthquake (local magnitude 4>)	35*	8,970**	195	22,302
Epidemic	5	20	0	35
Fire	1,856	104	0	278
Flood	244	101	39	23
Landslide	290	276	42	226
Heavy rainfall	118	9	0	24
Wind storm	43	2	0	9
Lightning	299	185	0	369
Asinapani	16	0	0	0
Drowning	5	5	3	0
High altitude	10	13	0	0
Other	15	6	1	43
Total	2,940	9,698***	281	23,317

Source: MoHA 2017

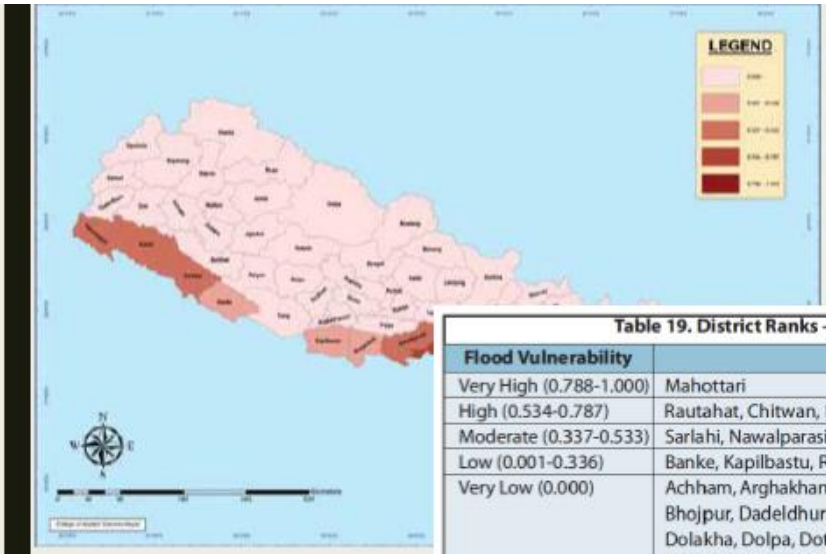
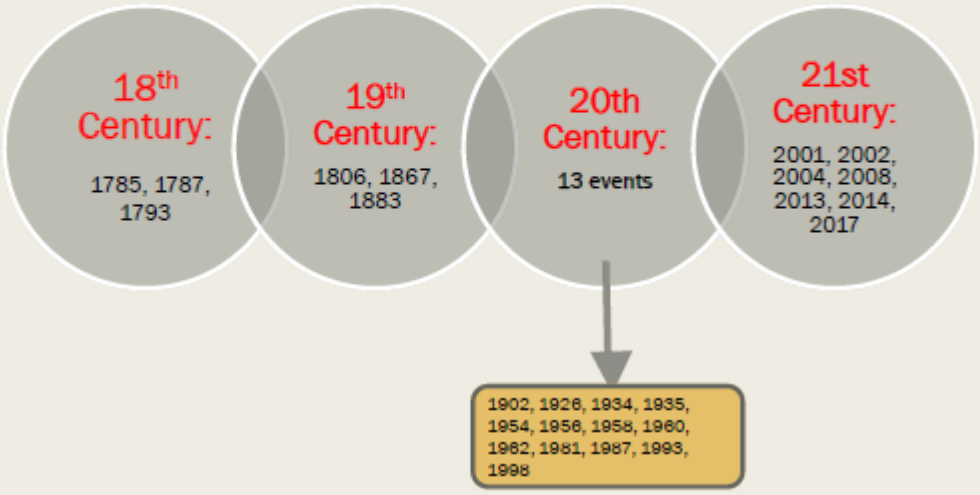


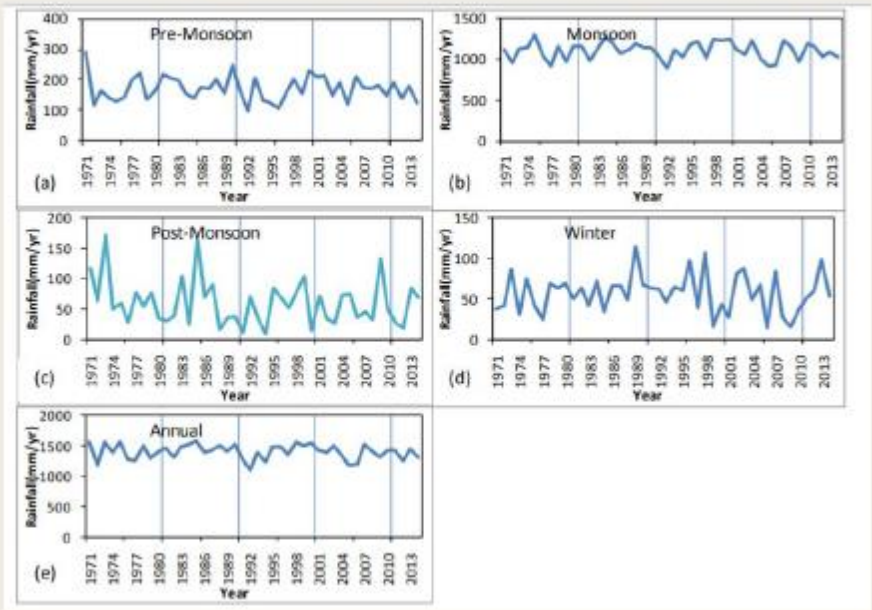
Table 19. District Ranks – Flood Vulnerability Index

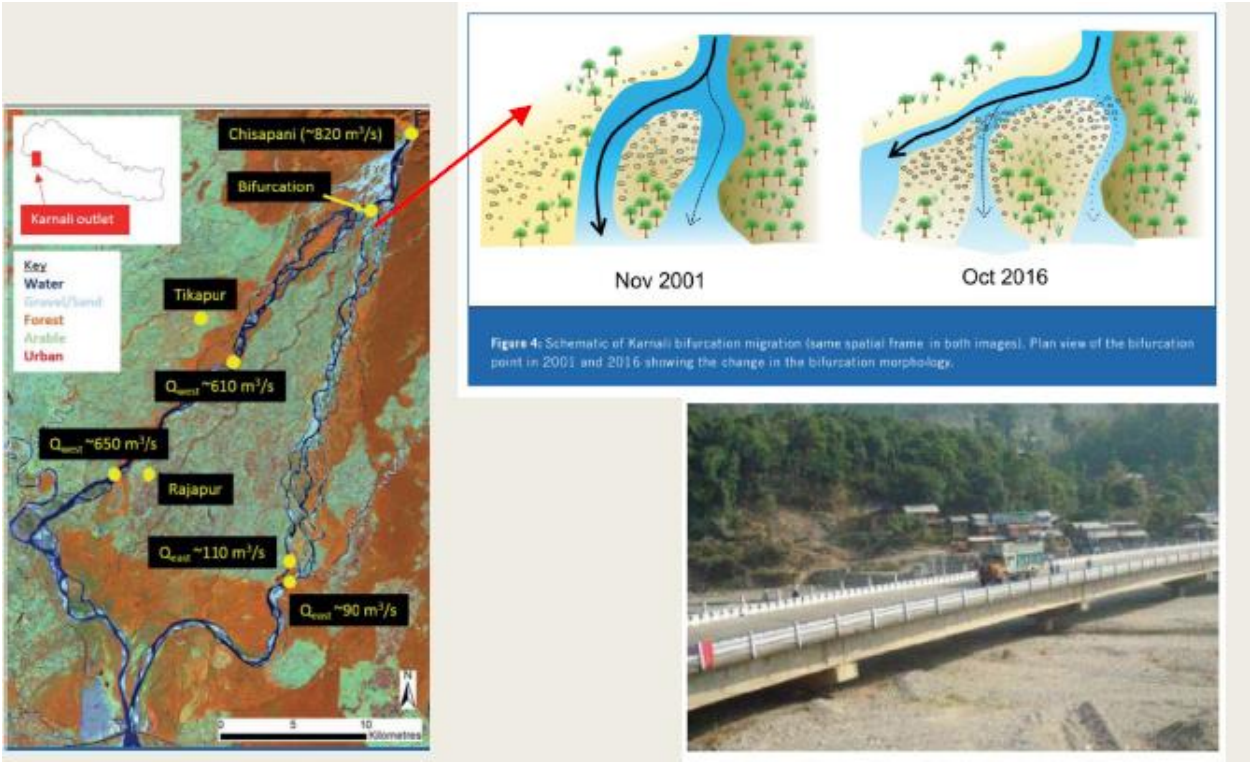
Flood Vulnerability	Districts
Very High (0.788-1.000)	Mahottari
High (0.534-0.787)	Rautahat, Chitwan, Parsa, Saptari, Siraha, Sunsari, Dhanusha, Bara
Moderate (0.337-0.533)	Sarlahi, Nawalparasi, Kailali, Jhapa, Morang, Kanchanpur, Bardiya
Low (0.001-0.336)	Banke, Kapilbastu, Rupandehi
Very Low (0.000)	Achham, Arghakhanchi, Baglung, Baitadi, Bajahang, Bajura, Bhaktapur, Bhojpur, Dadeldhura, Dailekh, Dang, Darchula, Dhading, Dhankuta, Dolakha, Dolpa, Doti, Gorkha, Gulmi, Humla, Ilam, Jajarkot, Jumla, Kalikot, Kaski, Kathmandu, Kavrepalanchowk, Khotang, Lalitpur, Lamjung, Makwanpur, Manang, Mugu, Mustang, Myagdi, Nuwakot, Okhaldhunga, Palpa, Panchthar, Parbat, Pyuthan, Ramechhap, Rasuwa, Rolpa, Rukum, Salyan, Sankhuwasabha, Sindhuli, Sindhupalchok, Solukhumbu, Surkhet, Syangja, Tanahu, Taplejung, Terhathum, Udayapur

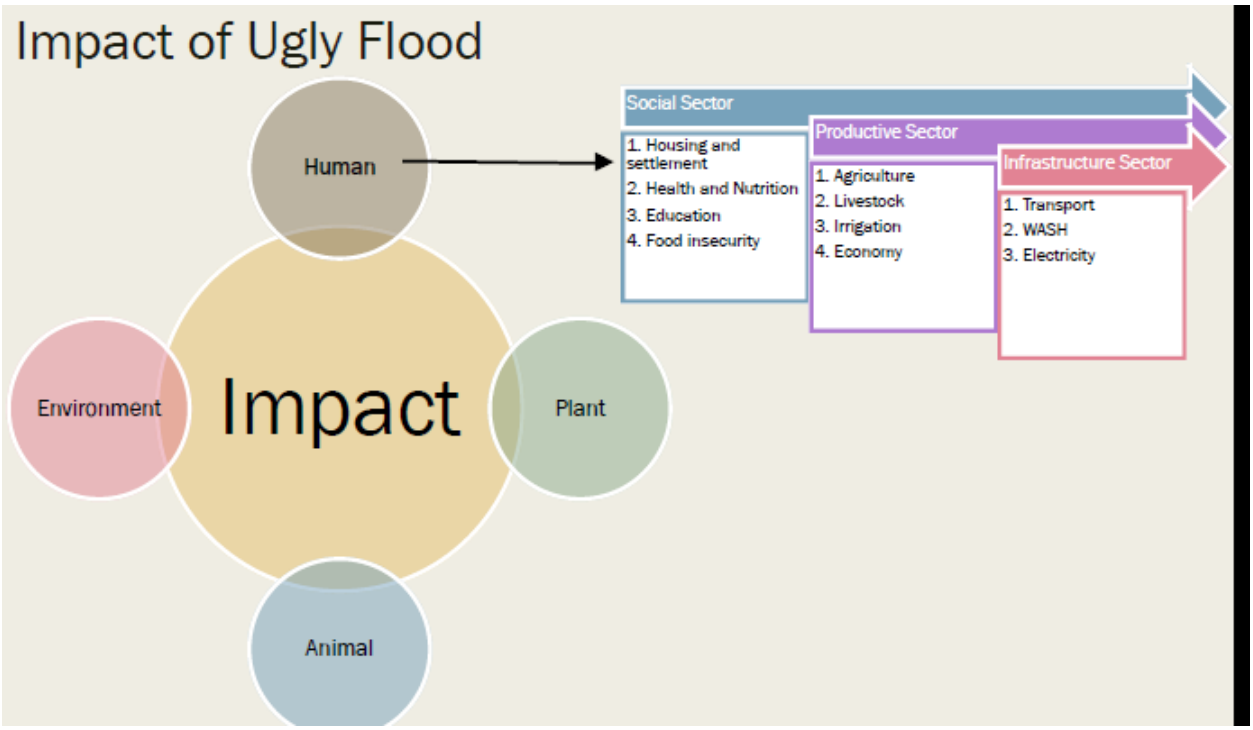
Major Flood Events in Terai

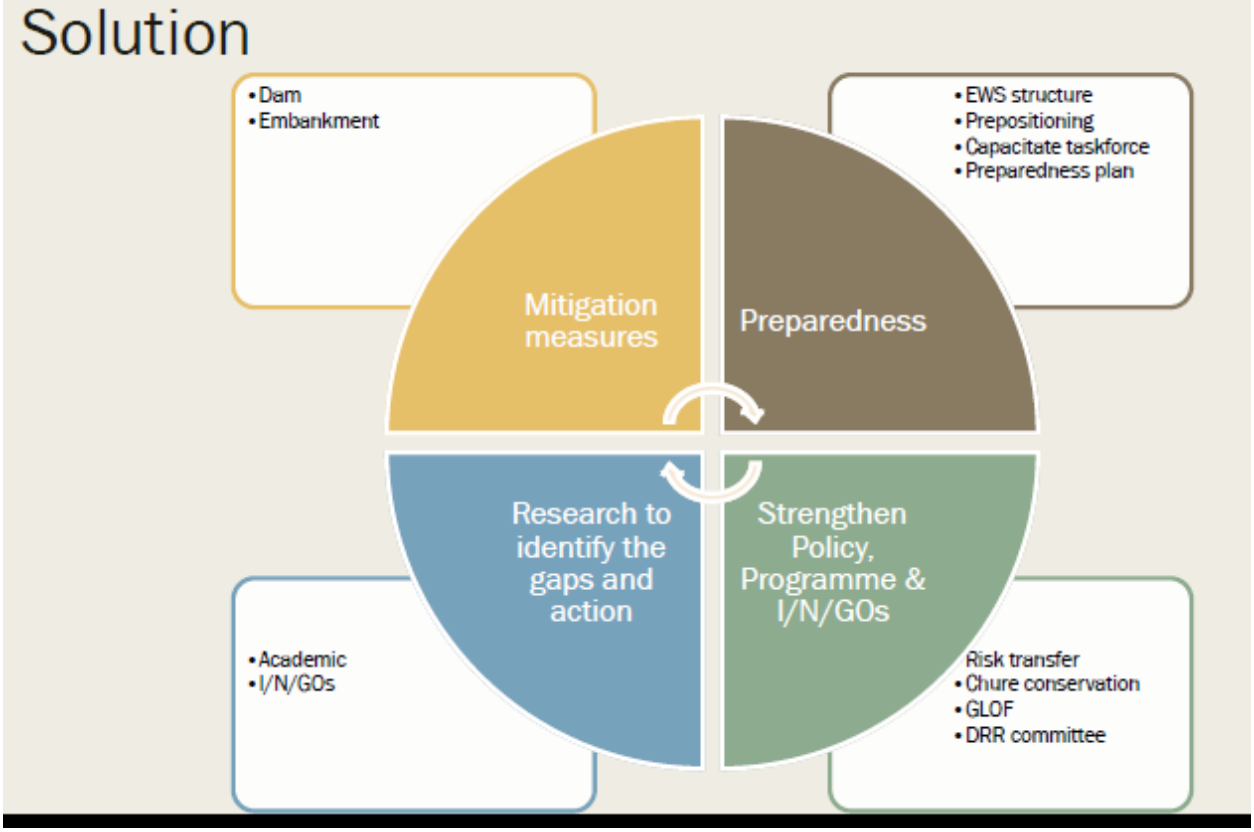


Nepal Precipitation Trend, DHM 2017




Chisapani (~820 m³/s)
Bifurcation
Karnali outlet
Key
Water
Gravel/Sand
Forest
Arable
Urban
Tikapur
Rajapur
~610 m³/s
~650 m³/s
~110 m³/s
~90 m³/s
Nov 2001
Oct 2016
Figure 4: Schematic of Karnali bifurcation migration (same spatial frame in both images). Plan view of the bifurcation point in 2001 and 2016 showing the change in the bifurcation morphology.


Impact of Ugly Flood
Human
Environment
Impact
Plant
Animal
Social Sector
1. Housing and settlement
2. Health and Nutrition
3. Education
4. Food insecurity
Productive Sector
1. Agriculture
2. Livestock
3. Irrigation
4. Economy
Infrastructure Sector
1. Transport
2. WASH
3. Electricity

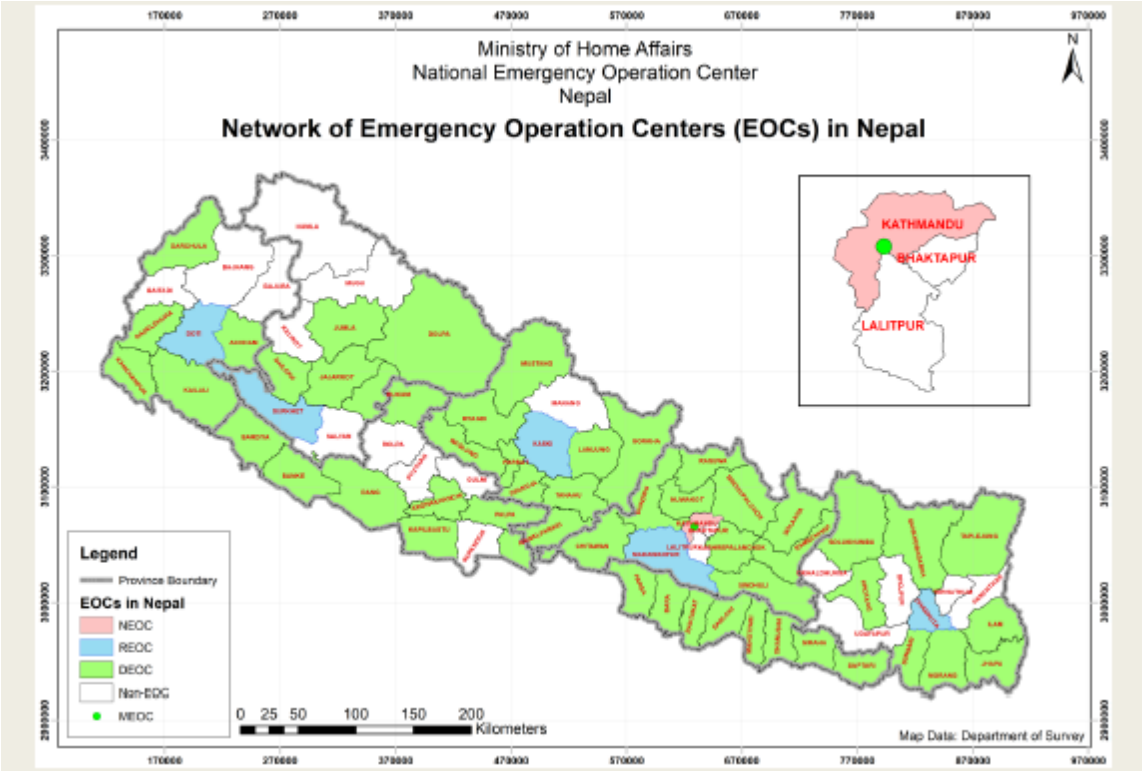


Government Sectors:

- National Disaster Response Framework 2013
- Local Disaster and Climate Resilience Plan Guideline 2074, MoFALD/MoFAGA
- Taskforce: (Search & Rescue, First Aid & WASH, Damage & Need Assessment, Information and Early Warning, Relief Management and Rehabilitation, Gender Equity and Protection)
- District Preparedness and Response Plan
- Central/Province/District/Local Natural Disaster Relief Committees
- Central/Province/District Emergency Operation Center

Name of cluster	Health	WASH	Shelter	Food security	Logistics	CCCM	Education	Protection	Telecom	Nutrition	Early Recovery
GoN lead	MoHP	MoUD	MoUD	MoAD	MoHA	MoUD	MoE	MoWCSWBC	MoICT/WFP	MoHP	MoUD
Co-Lead	WHO	UNICEF	IFRC/UNHABITAT	WFP/FAO	WFP	IOM	UNICEF/SC	UNHCR, UNICEF, UNFPA	WFP	UNICEF	UNDP

- http://neoc.gov.np/en/introduction-2.html



drrportal.gov.np

Source: --Select a option-- | Incident Type: --Select Incident-- | District: --Select a option-- | Vdc: --Select Vdc-- | From: YYYY-MM-DD | To: YYYY-MM-DD | Search | Export | Print

S.No.	District	VDC/Municipality	Incident	Incident Date	Death Male	Death Female	Death Unknown	Total Death	Missing People	Affected Family	Estimated Loss	Injured	Govt. Houses Fully Damaged	Govt. Houses Partially Damaged
1	Kathmandu	Kathmandu Metropolitan City	Fire	2019-05-07	0	0	0	0	0	1		0	0	0
2	Bhaktapur	Bhaktapur Municipality	Fire	2019-05-07	0	0	0	0	0	1		0	0	0
3	Saptari	Tirahut Rural Municipality	Fire	2019-05-07	0	0	0	0	0	1	1065000	0	0	0
4	Arghakhanchi	Chhatradev Rural Municipality	Fire	2019-05-07	0	0	0	0	0	1		0	0	0
5	Bardiya	Geruwa Rural Municipality	Animal Terror	2019-05-07	0	0	0	0	0	1		0	0	0
6	Morang	Katahari Rural Municipality	Fire	2019-05-07	0	0	0	0	0	1	300000	0	0	0

Risk Knowledge

Risk Knowledge Development:

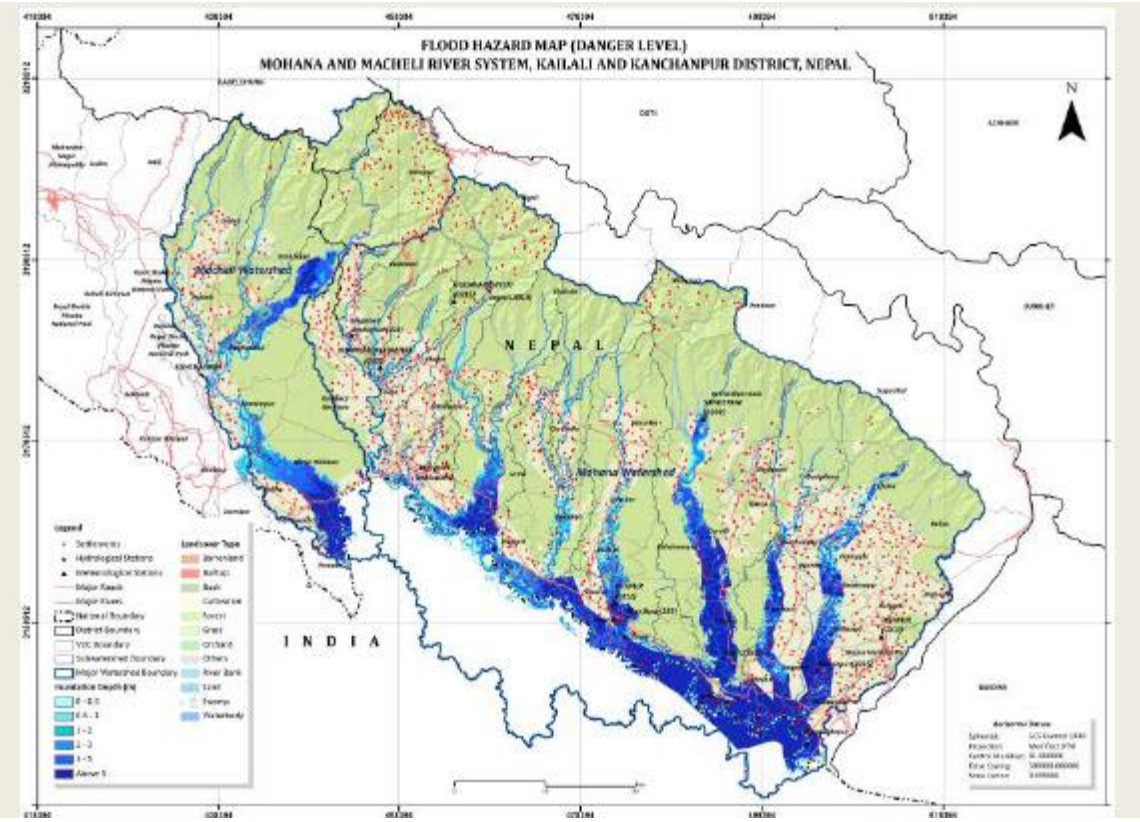
1. Community level

- Vulnerability Capacity Assessment

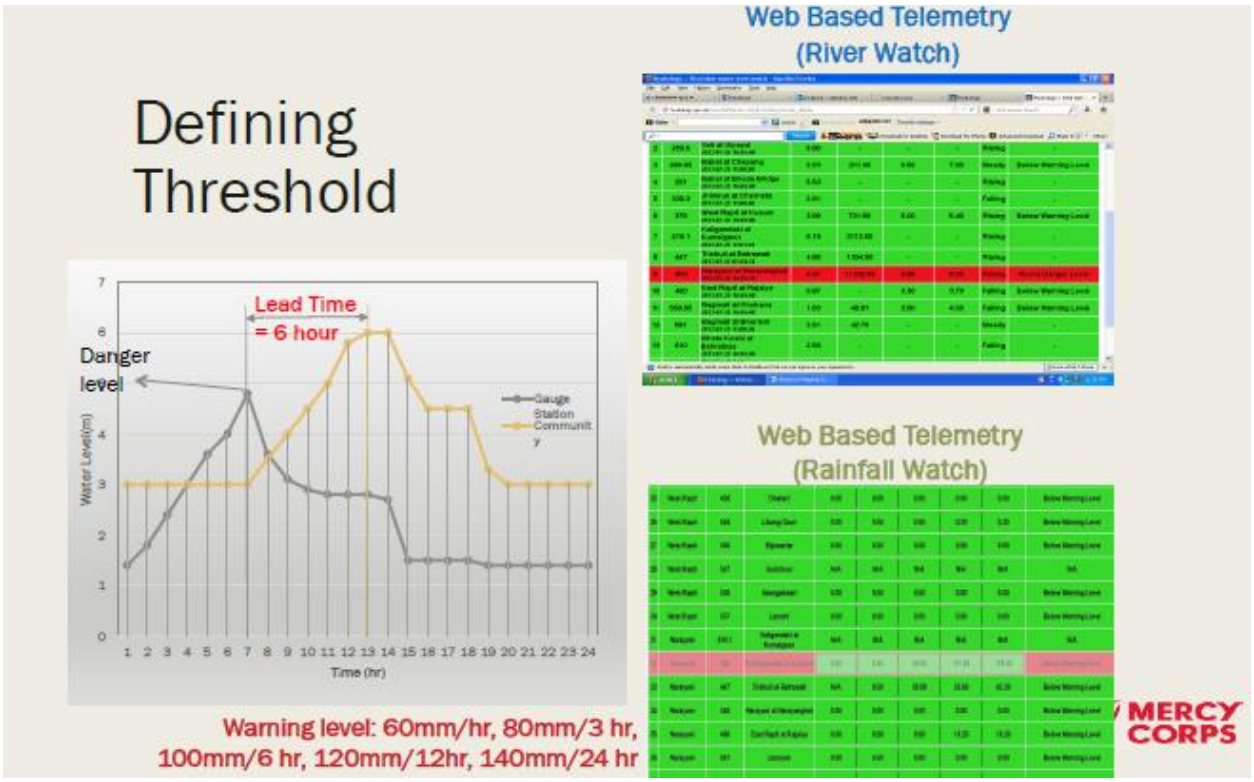
2. Flood Risk Mapping

- Upstream – Downstream Relation
- Watershed Level Risk Knowledge

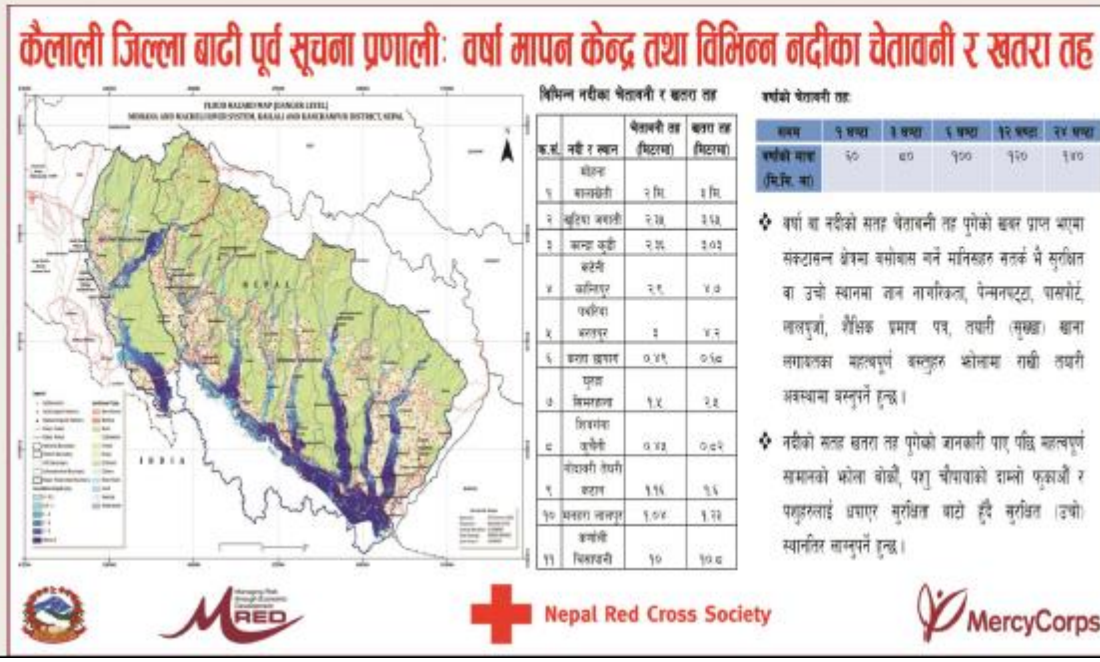
(Inundation Mapping)


FLOOD HAZARD MAP (DANGER LEVEL)
MOHANA AND MACHELI RIVER SYSTEM, KAILALI AND KANCHANPUR DISTRICT, NEPAL
N
Macheli Watershed
NEPAL
Mohana Watershed
INDIA

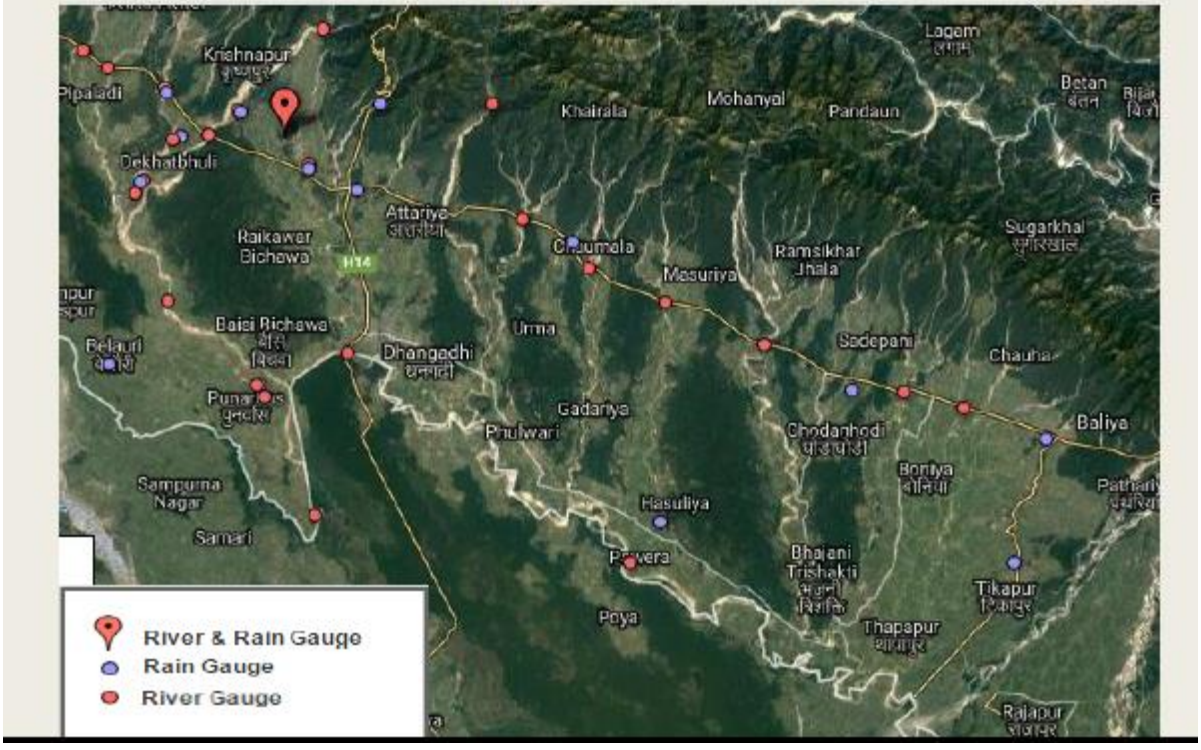

Monitoring and Observation
Hydrological Station and Meteorological Station


Web Based Telemetry
(River Watch)
Defining Threshold
Lead Time
= 6 hour
Danger level
Gauge Station
Community
Water Level(m)
Time (hr)
Web Based Telemetry
(Rainfall Watch)
Warning level: 60mm/hr, 80mm/3 hr,
100mm/6 hr, 120mm/12hr, 140mm/24 hr
MERCY CORPS

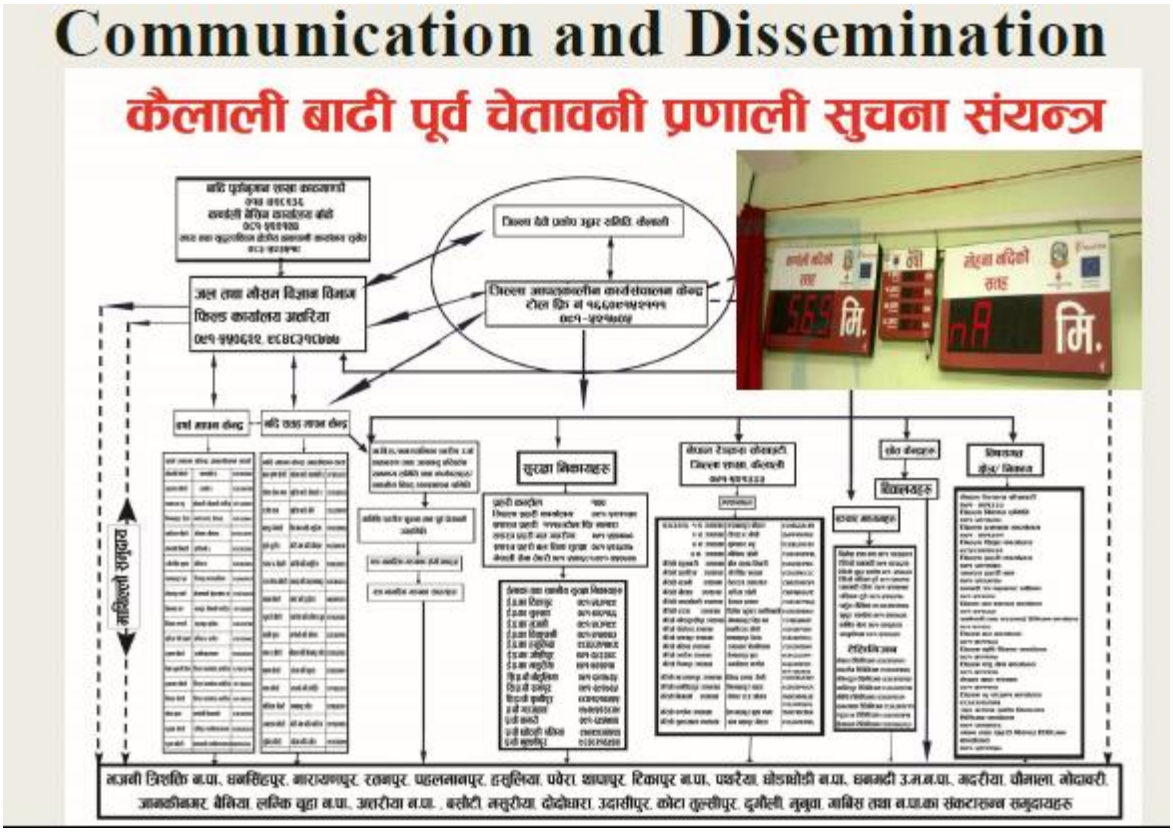
River level warnings



Gauge Stations



Communication and Dissemination



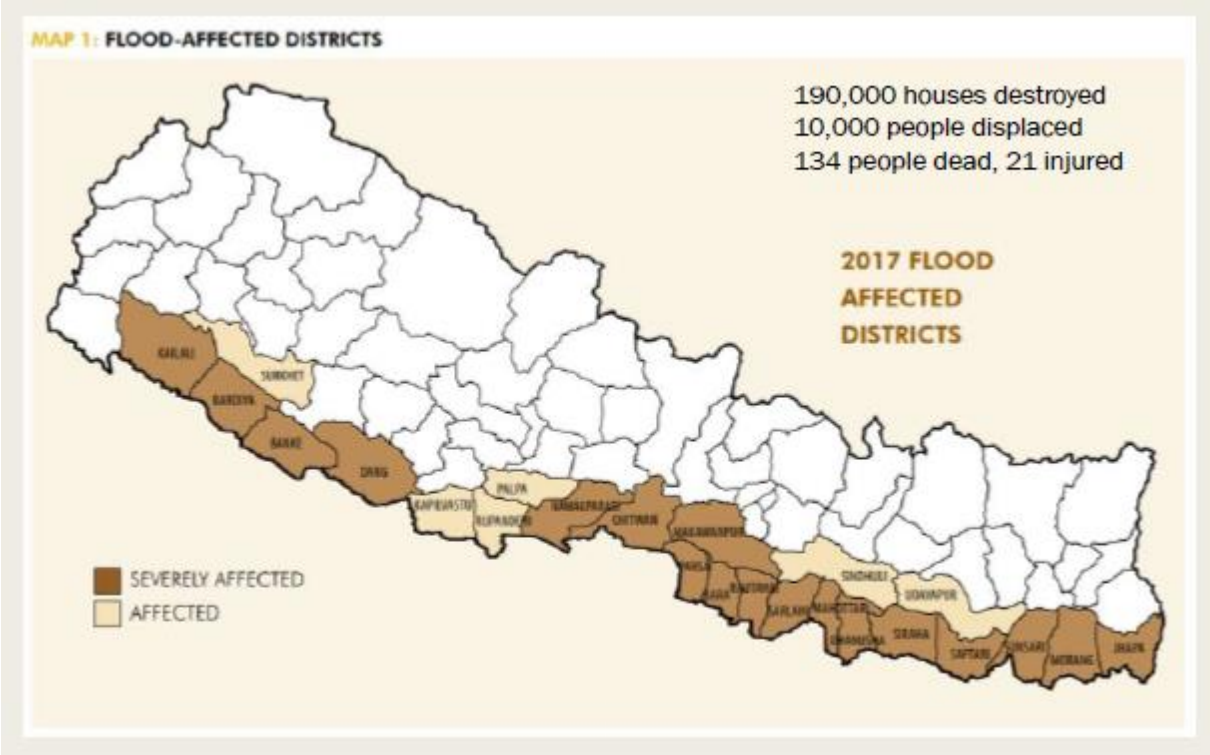
Response Preparedness

Community Level

1. Most Vulnerable HH Response Plan
2. Trained Task Force
3. Simulation Drills

District Level: System Level

1. Early Warning in DPRP Cluster
2. Who does what ? Roles of individual DPRP cluster


MAP 1: FLOOD-AFFECTED DISTRICTS
190,000 houses destroyed
10,000 people displaced
134 people dead, 21 injured
2017 FLOOD AFFECTED DISTRICTS
SEVERELY AFFECTED
AFFECTED

Reference:

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- Sharada Shrestha, ASSESSMENT OF BAGMATI RIVER ENCROACHMENT THROUGH APPLICATION OF GIS AND REMOTE SENSING