



Government of Nepal
Ministry of Energy, Water Resources and Irrigation
Department of Hydrology and Meteorology

Hazard Mapping for Flood Risk Management in Nepal

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Ministry of Energy, Water Resources and Irrigation A: Structural Measures: By Department of Water Resources

and Irrigation

- River Training
- Embankment



EARLY WARNING SYSTEM

Community Based
Early Warning System



August 27, 2015 Flood Monitoring Bulletin

Table 1.004

Station	Flow (cms)	Water Level (m)	Forecast (m)	Remarks
...
...
...

Table 1.005

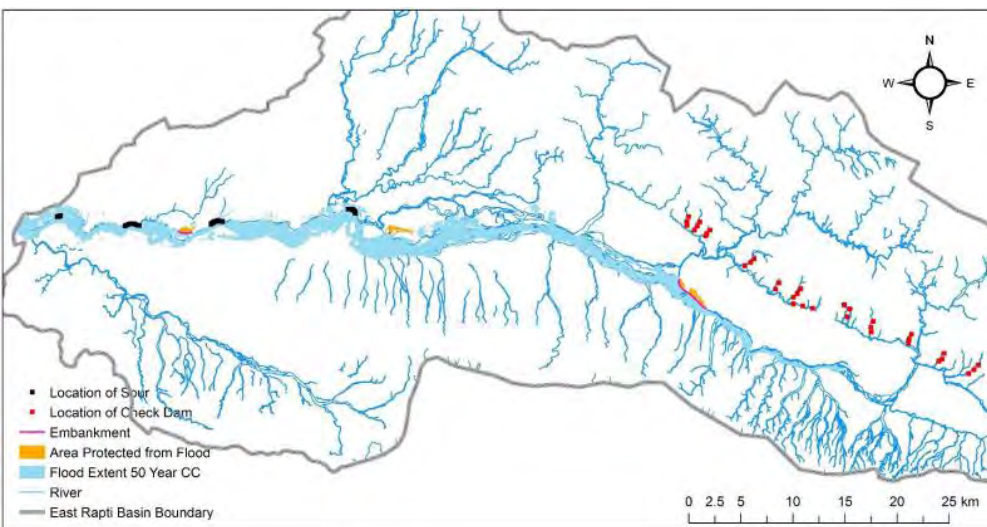
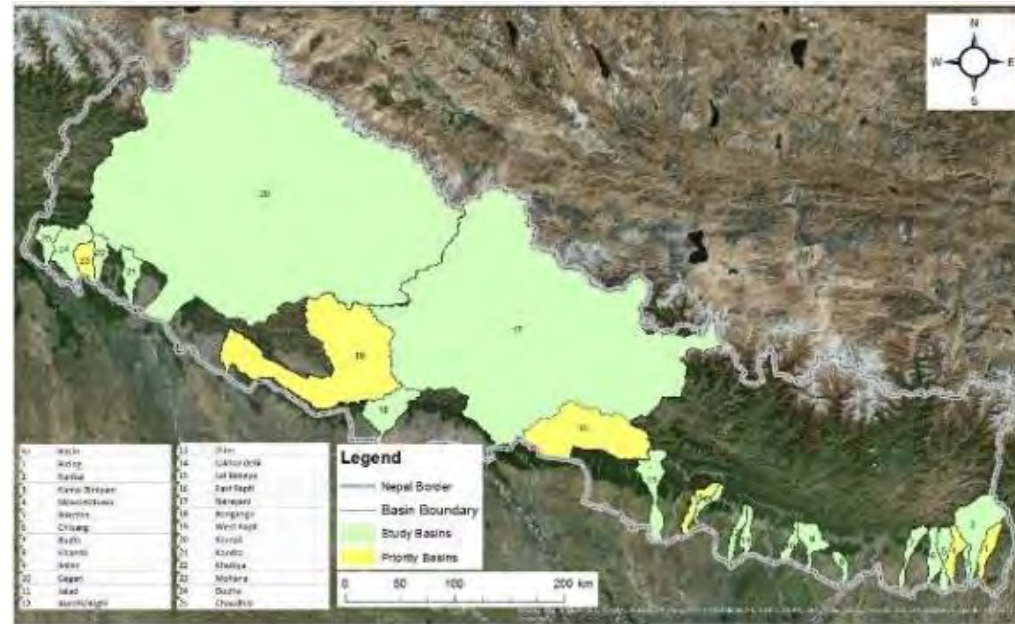
Station	Flow (cms)	Water Level (m)	Forecast (m)	Remarks
...
...
...

B: Non Structural Measures: By Department of Hydrology and Meteorology

- Early Warning System
- Mock Drills for Awareness and Preparedness

For Flood Mitigation Purpose

- 25 basins and subcatchments throughout Nepal are identified

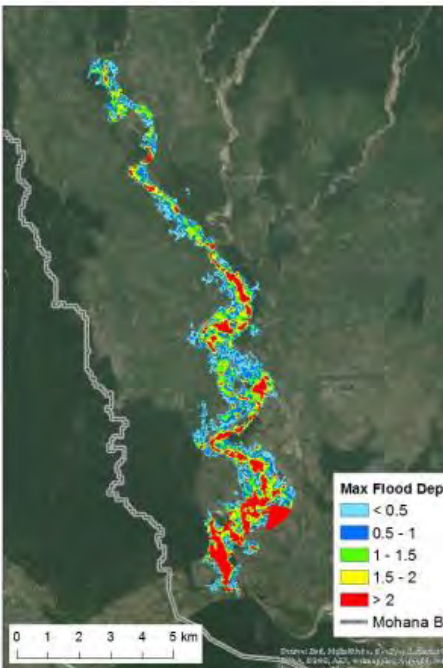
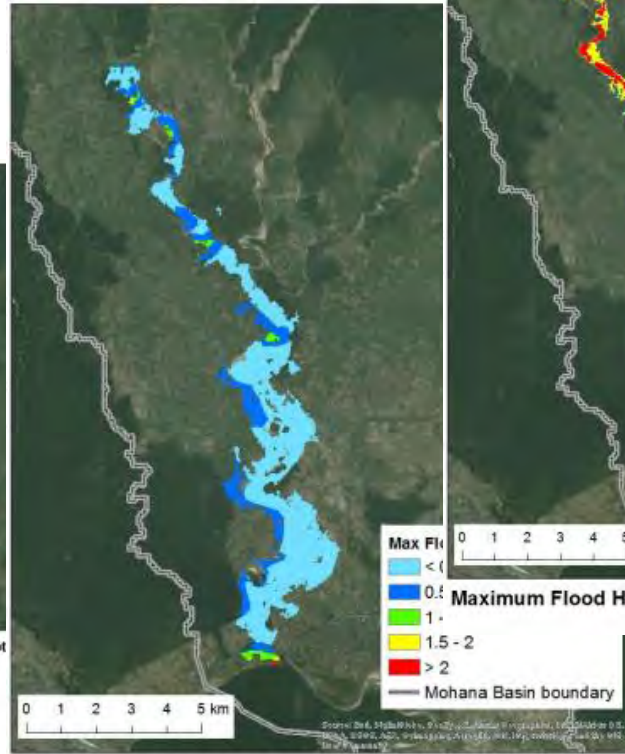
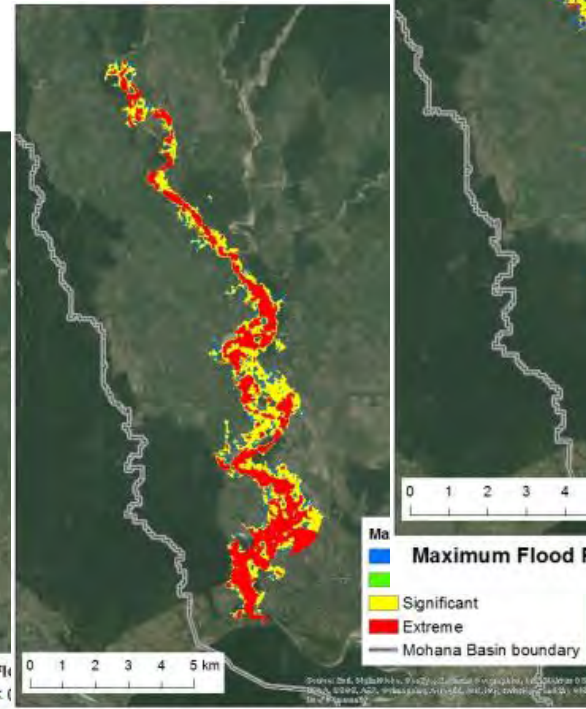
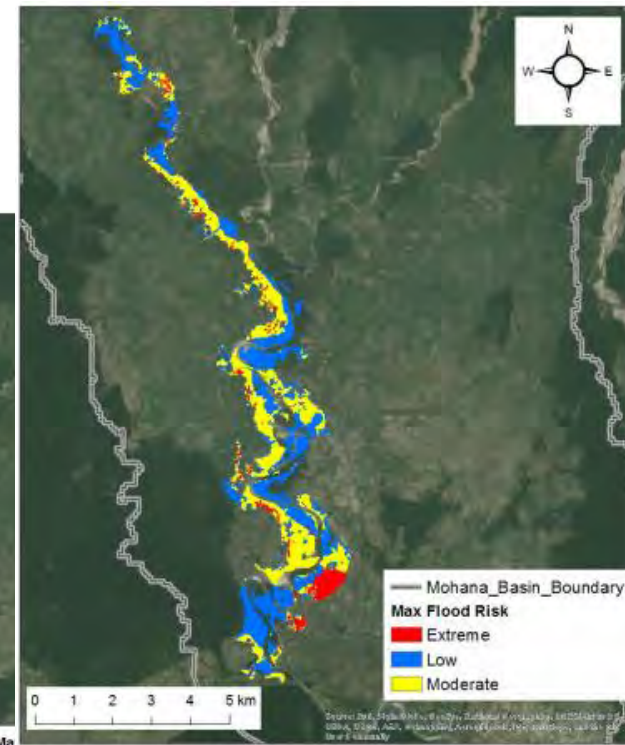


- DEM generated from CARTOSAT-1
- Digital Contour Data from Survey Department to fill gaps
- DGPS cross section data used

Source: DWIDM/Nepal

For Flood Mitigation Purpose

- 25 basins and subcatchments throughout Nepal are identified



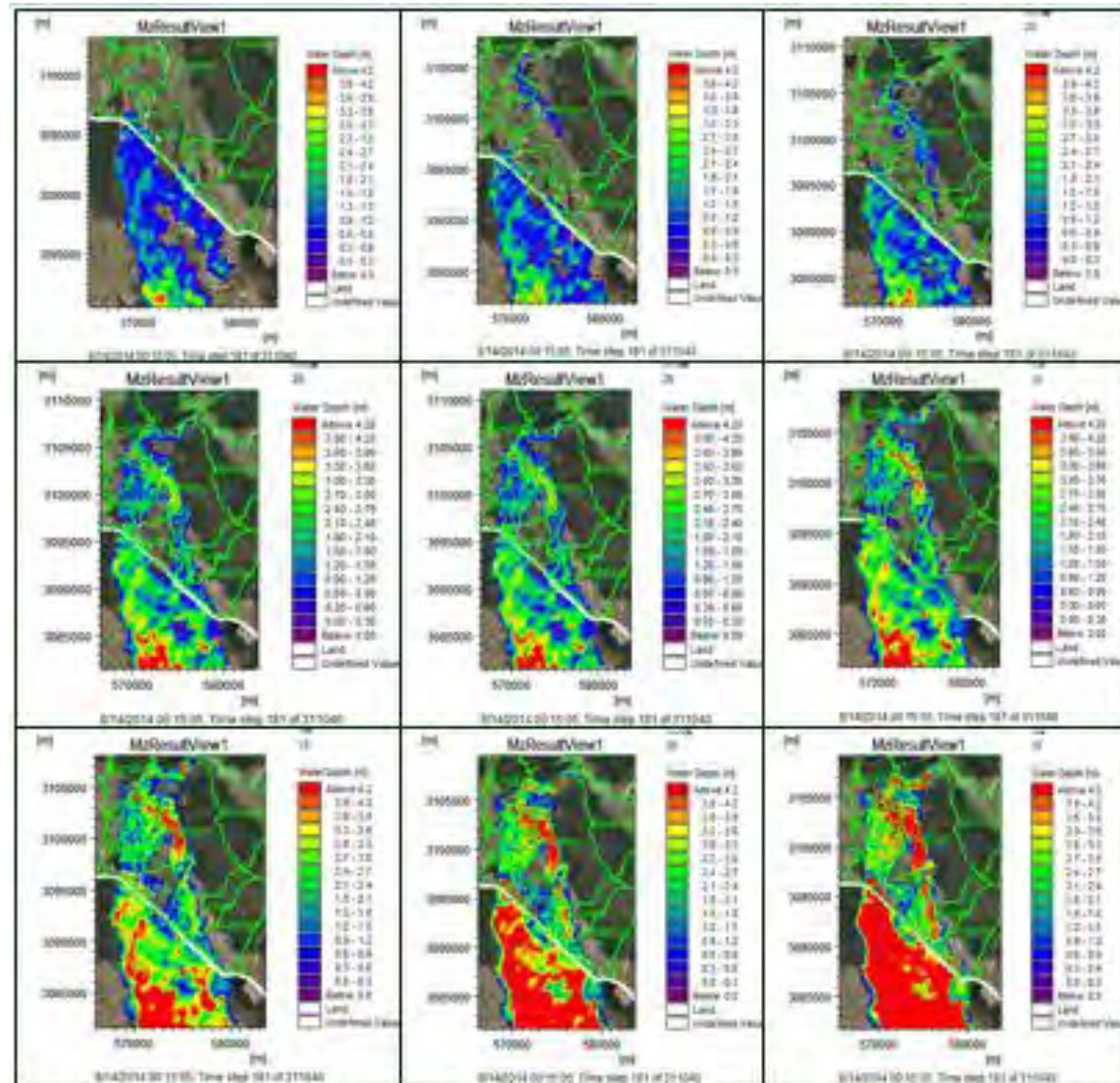
Maximum Flood Velocity - 1 in 50 year plus Climate Change - Mohana Basin

Maximum Flood Depth - 1 in 50 year plus Climate Change - Mohana Basin

Source: DWIDM/Nepal

For Flood Early Warning Purpose

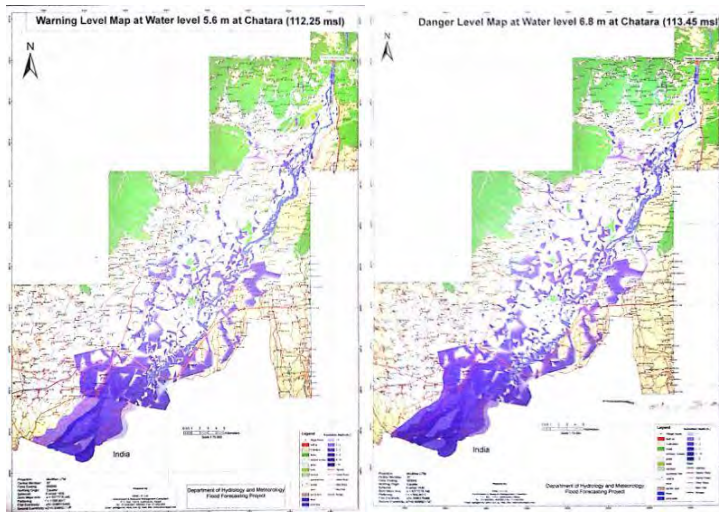
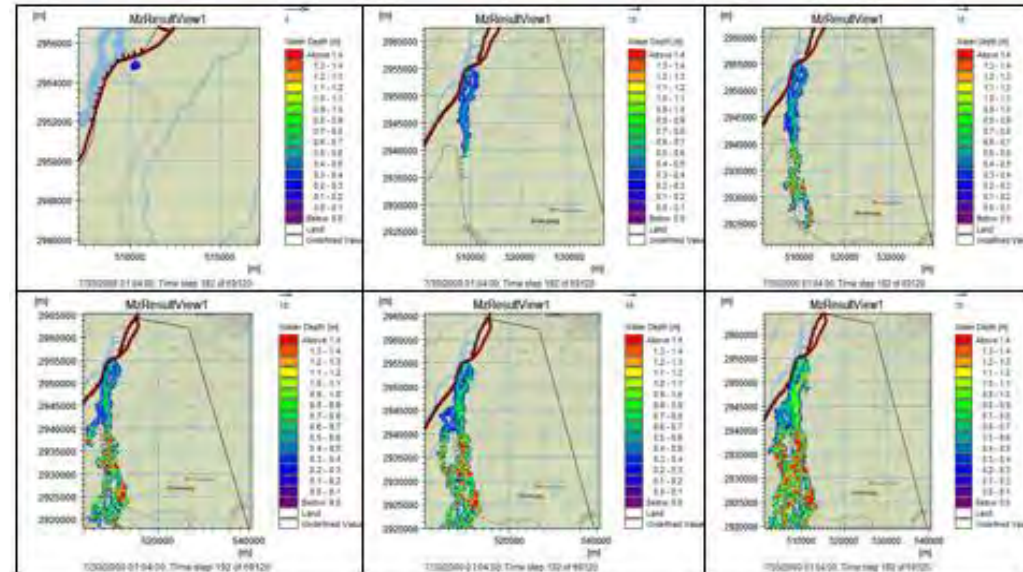
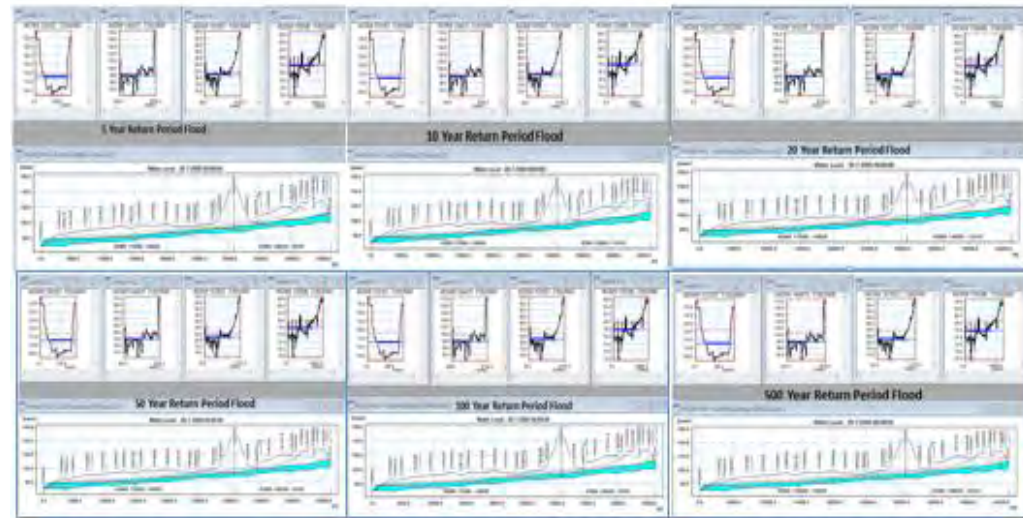
- Static Maps of Inundation for Different Return Year Floods (2, 5, 10, 20, 50, 100, 200, 500 and 1000 years)-West Rapti River
- Mass SMS for Warning
- Flood Response Network Established



Simulation for 5,10,20,50,100 and 500 year Return Year Flood in Koshi River 2018

- Mike Hydro for Hydrological Model
- Mike 11 for Hydrodynamic Model
- GIS for Inundation Mapping

Warning and Danger Level Flood in Koshi River (10 years back)

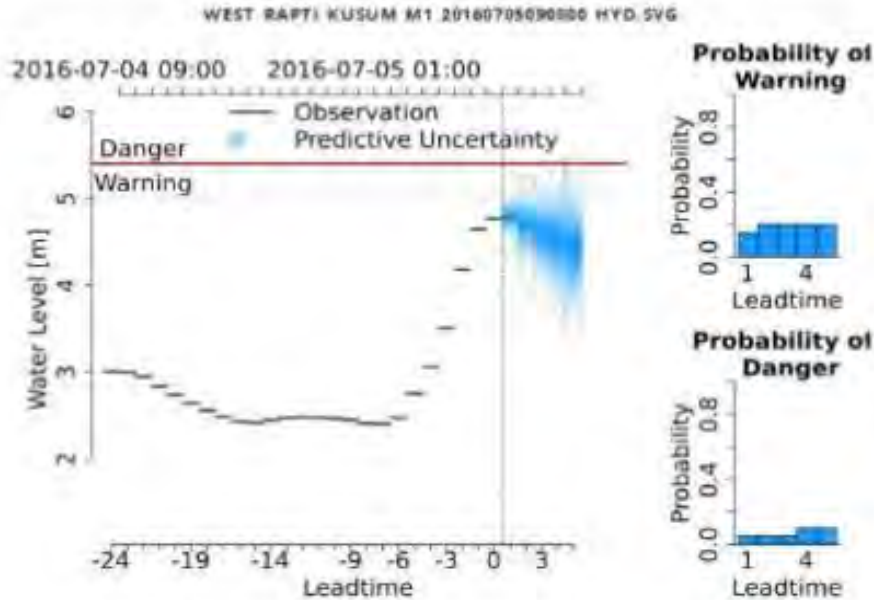


Department of Hydrology and Meteorology
Flood Forecasting Section

Water Level Forecast for West Rapti River at Kusum

The current water level is 4.77m and it is in rising trend, the forecasted water level for coming five hours shows the probability of crossing warning level of 5m is 20% around 10 AM till 1PM and probability of crossing danger level of 5.4 m is 10% around 1PM.

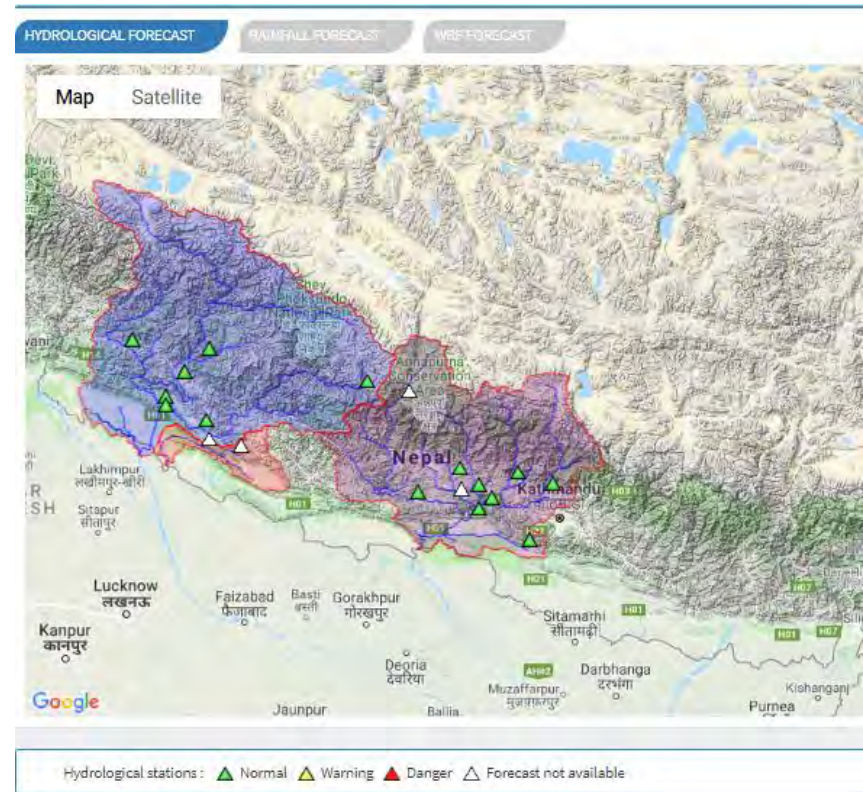
Forecast Duration: 2016-07-05-09:00 to 2016-07-05-01:00



Lead Time: 5 hours

Probabilistic Mechanistic Model, 2015

<http://www.hydrology.gov.np>

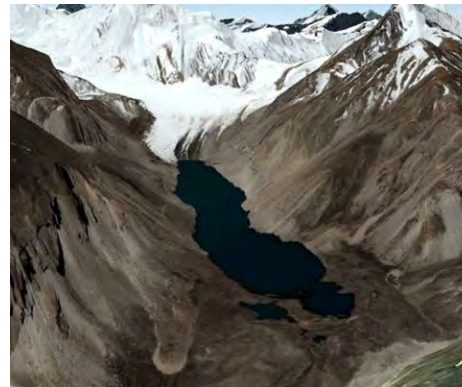
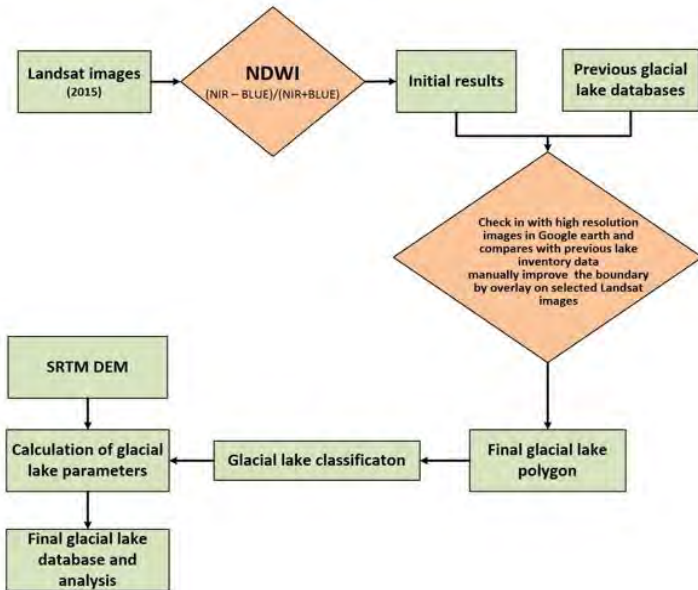


Lead Time: 3 days

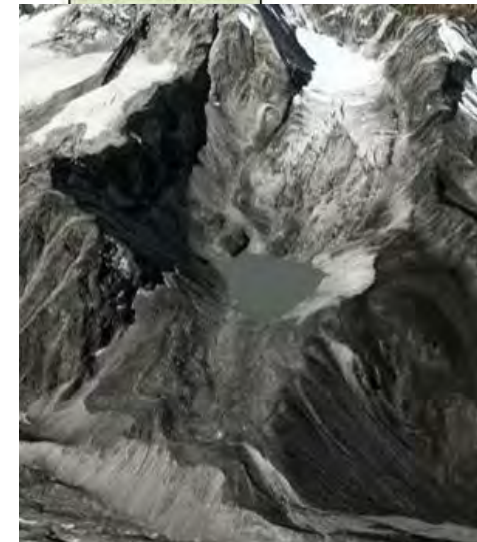
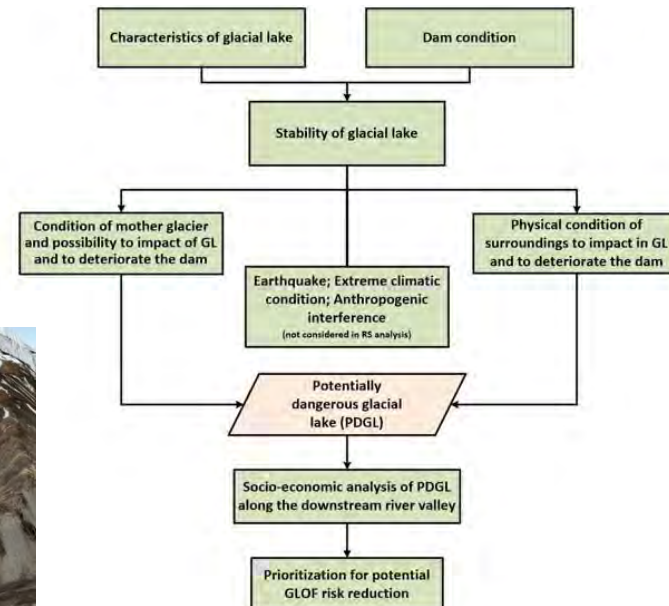
HEC-HMS & HEC-RAS, 2016

Karnali, Babai and Narayani Basin

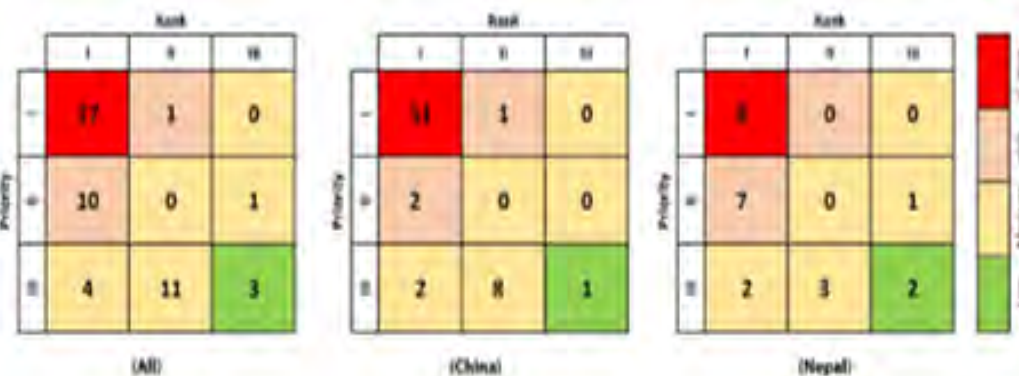
Preliminary Assessment to find out Potentially Dangerous Glacial Lakes_May 2018



GL087930E27949N China (Arun Basin)



GL085630E28162N Nepal (Trisuli Basin)



Thank You