

Landslides in the Koshi basin: Impacts and monitoring

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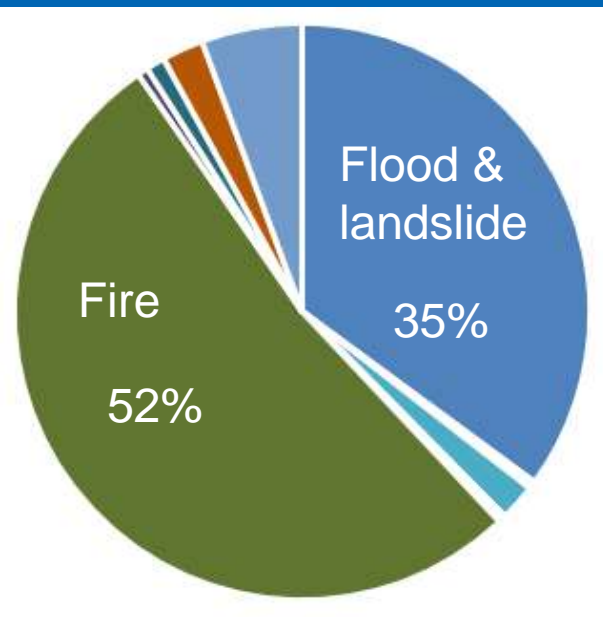
Kathmandu, Nepal

Media Interaction and Field Visit to the Koshi Basin,
05 April 2016,
ICIMOD HQ, Kathmandu, Nepal

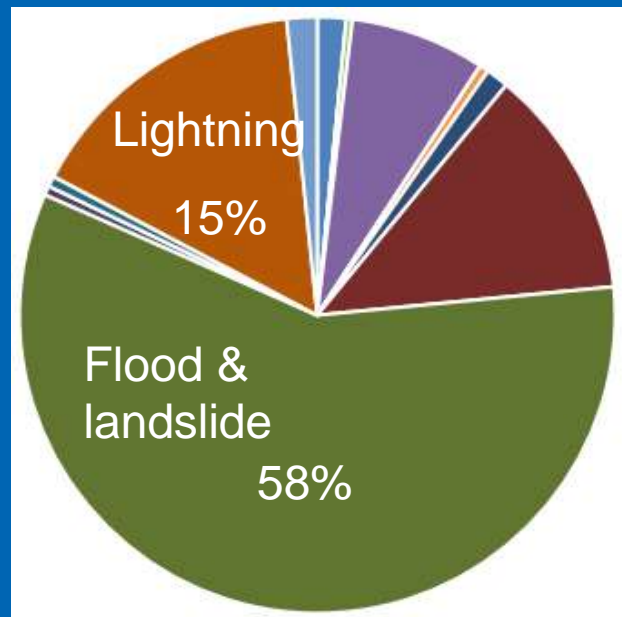
1. Historical disaster and loss statistics;
2. Koshi basin landside mapping exercise:
 - Koshi basin landslide mapping
 - Koshi basin landslide statistics
3. Conclusion

Disaster & loss statistics

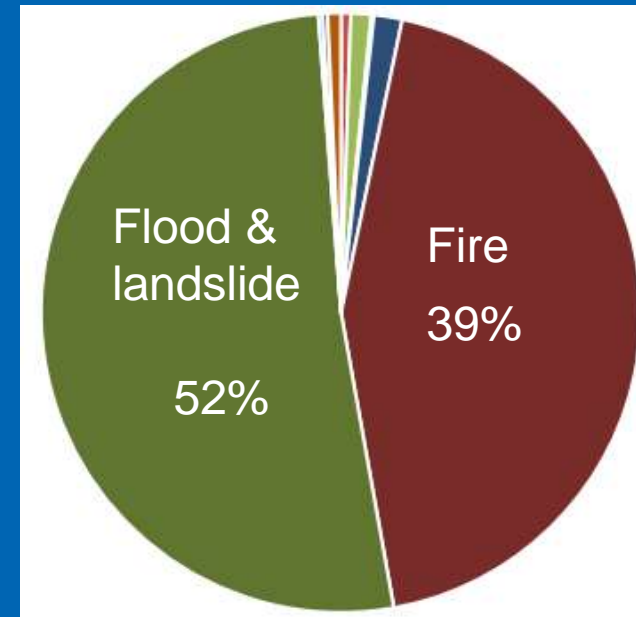
Flood and landslide is wide spread and a major cause for loss and damage, in Koshi basin (Data source: MoHA, GoN).



Event frequency



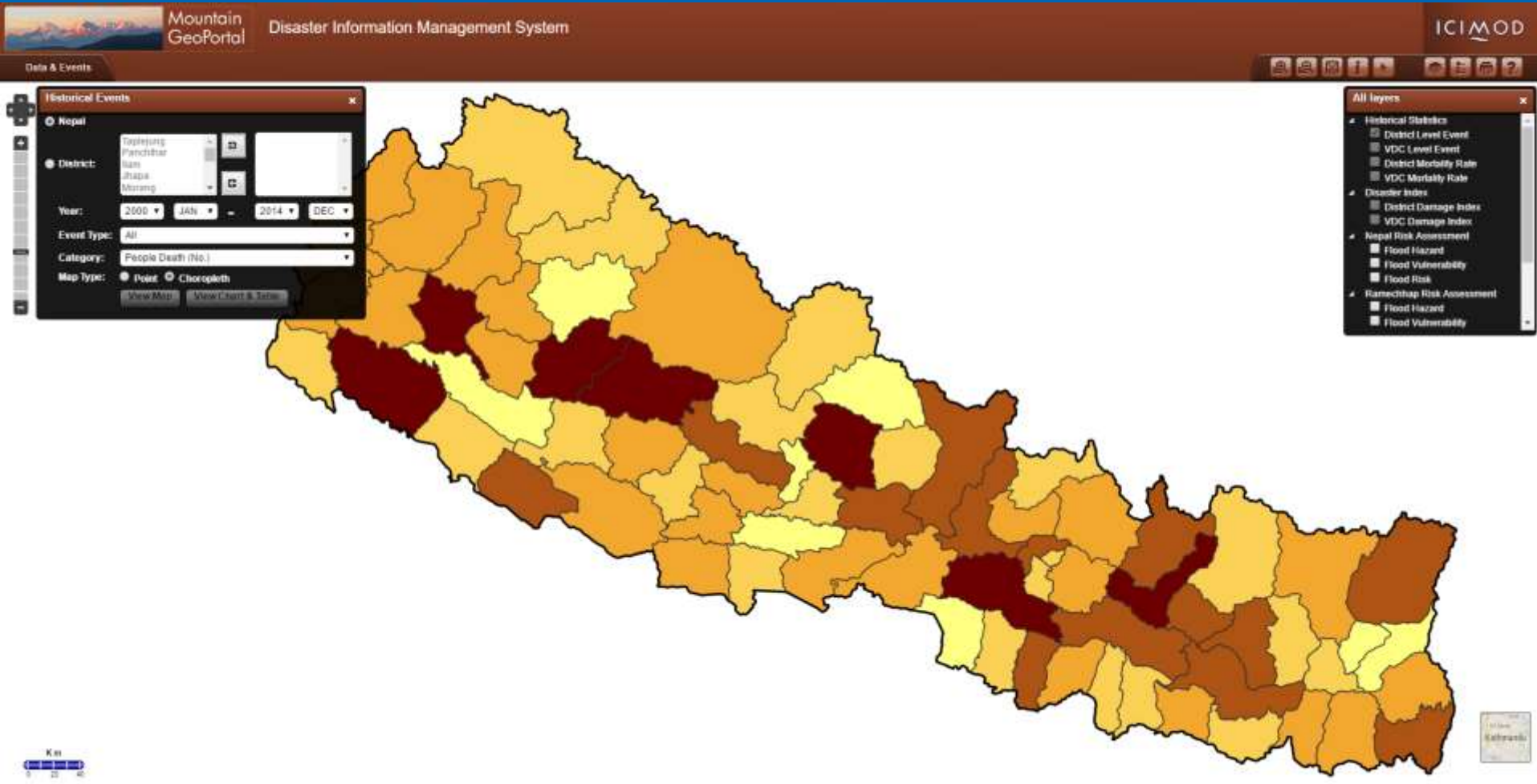
People killed



Eco. Loss

Data span: 2000-2014

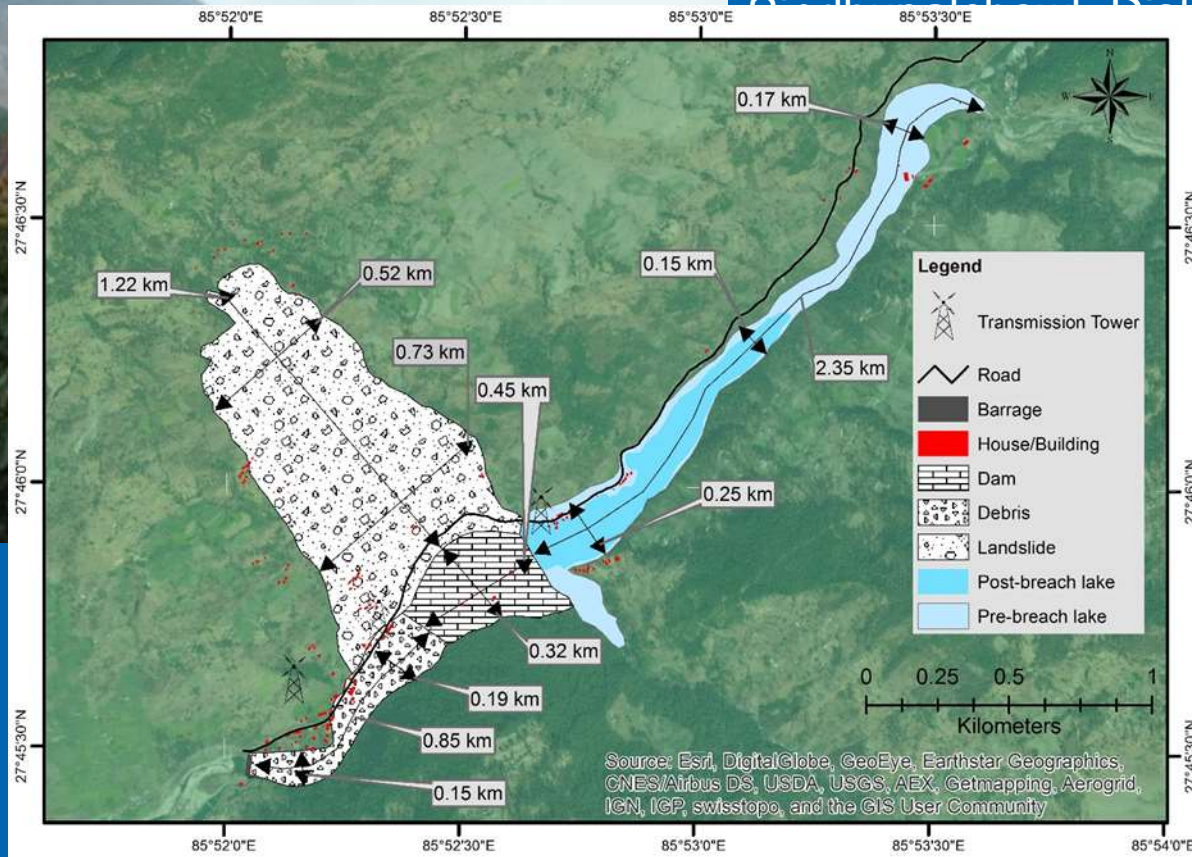
Disaster Information Management System (DIMS)



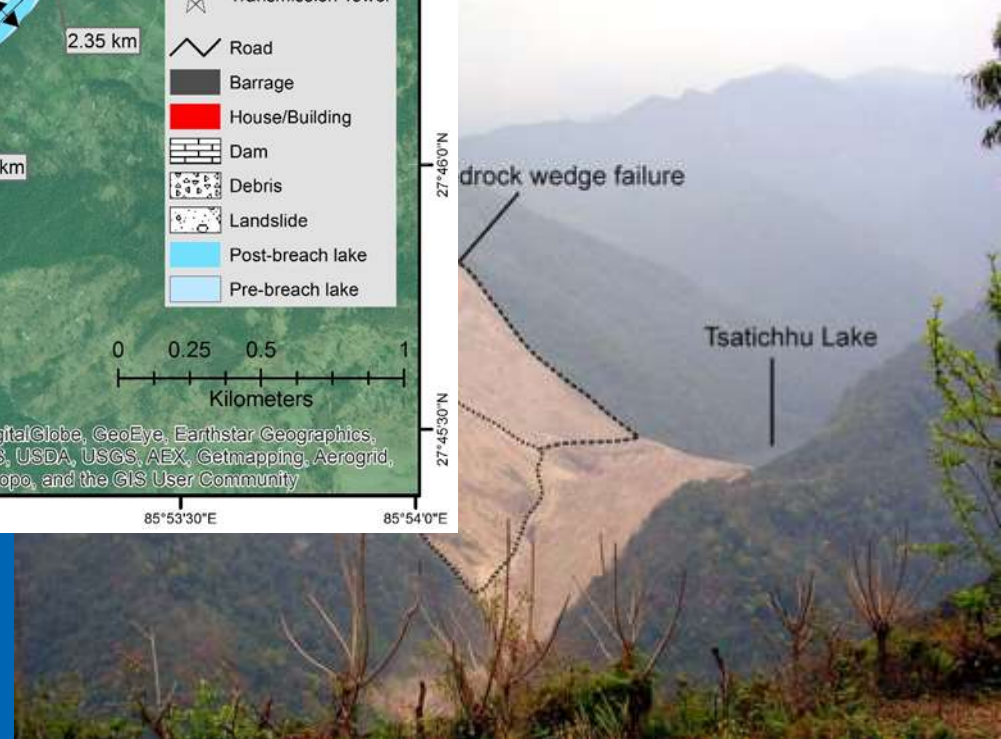
Jure landslide

Jure landslide (02 August 2014),
Gyidulung District, Nepal

Source: Dunning et al., 2006



Tsatichhu landslide (10 Sept 2003),
Luntse District, Bhutan



Progression of Jure landslide

2 Aug: Landslide happens and blocks the river



People killed: 156

Houses partially damaged: 37

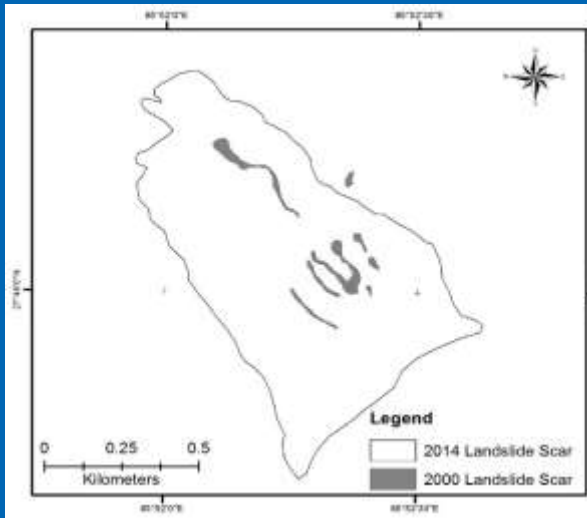
Houses fully damaged: 115

2014

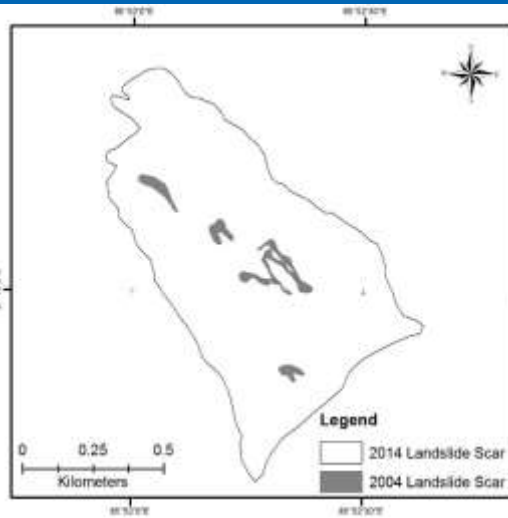


7 Sept: Lake breached resulting flooding

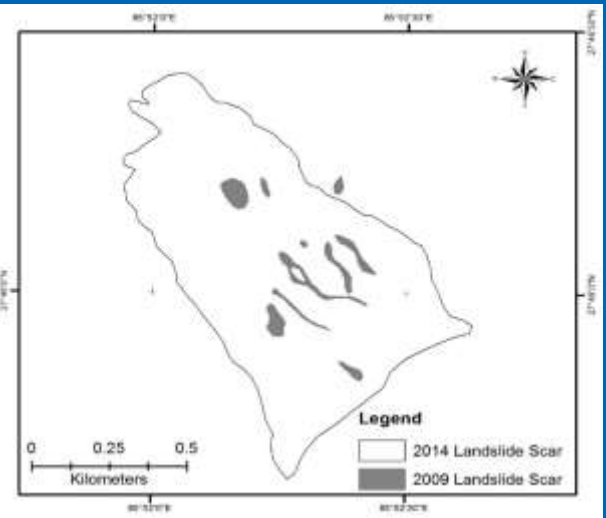
Progression of Jure landslide



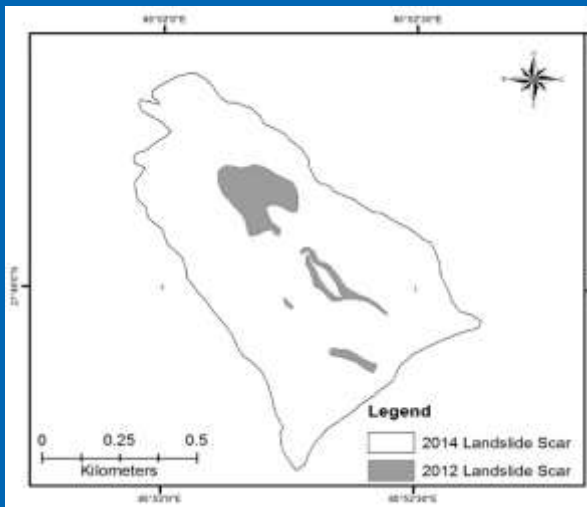
2000



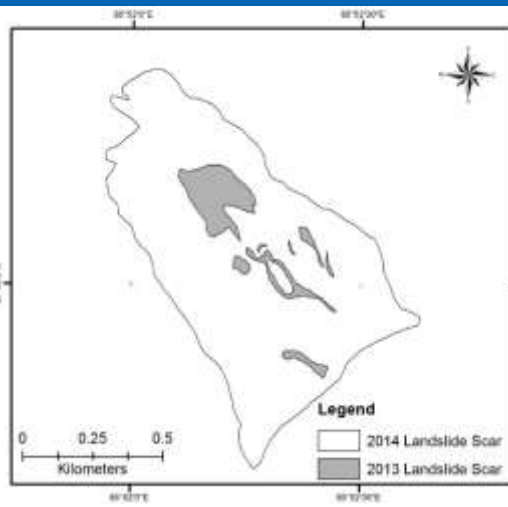
2004



2009



2012

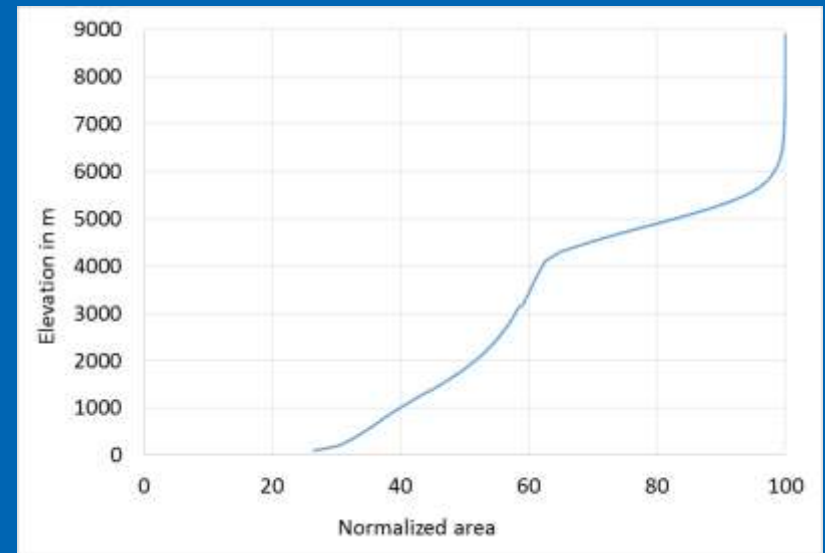
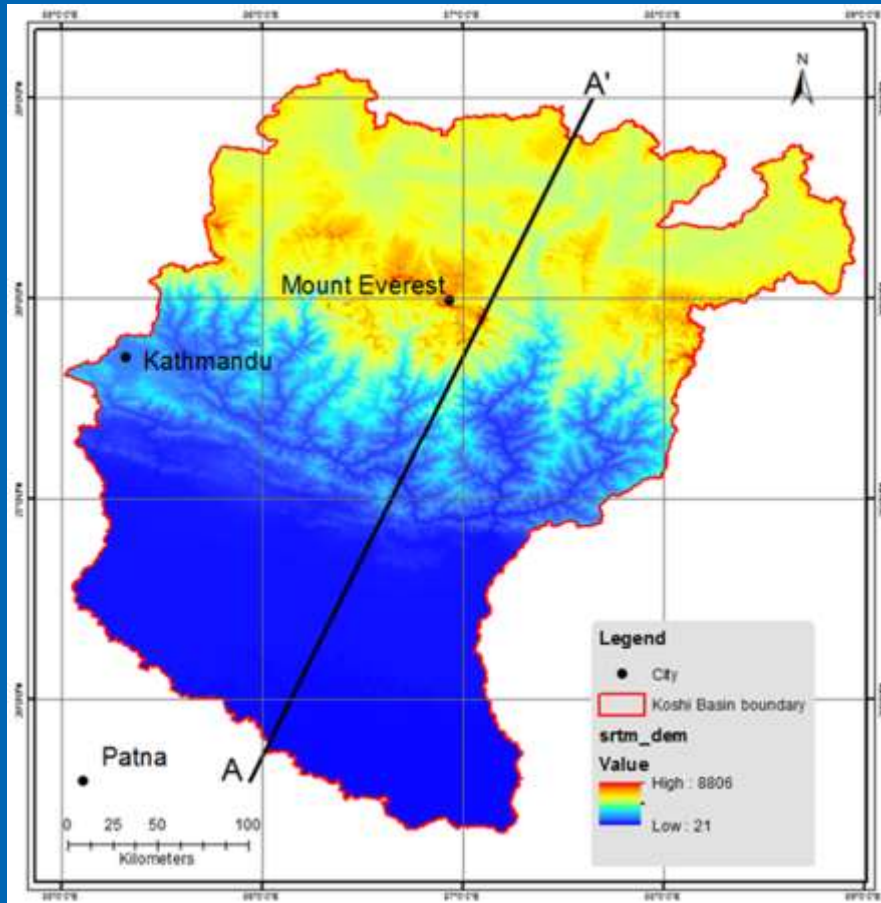


2013

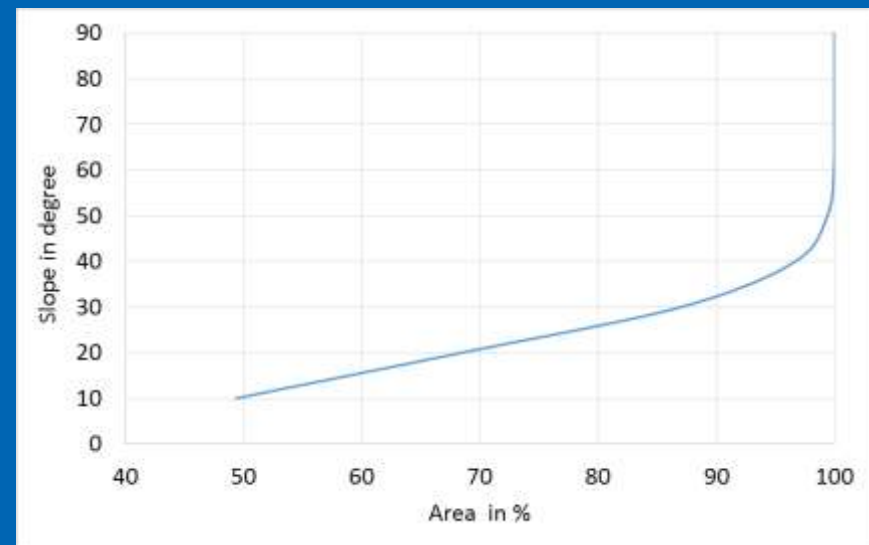


2014

Koshi Basin - topography



~ 40% of the Koshi basin is over 4000m in elevation.



~ 30% of the Koshi basin area is over 30° slope.

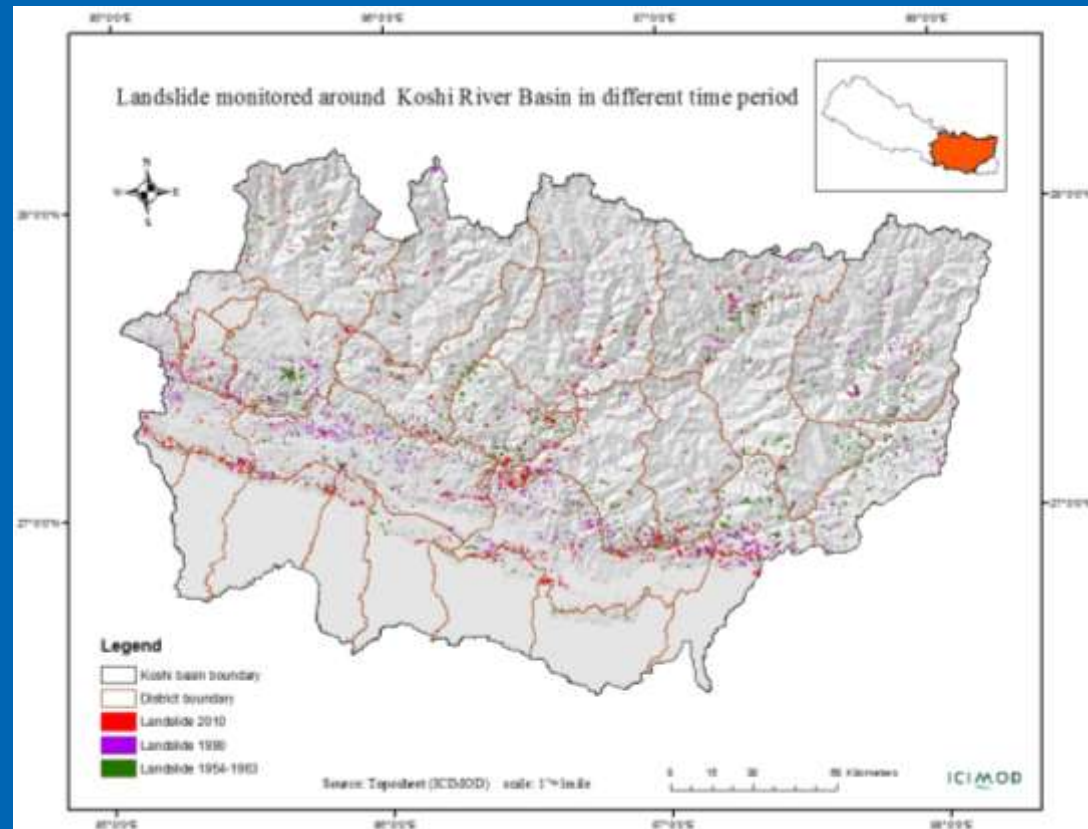
Landslide mapping of Koshi basin (Nepal)

Mapping was done for 3 time series:

- 1960s: Topomaps
- 1990: Landsat
- 2010: Landsat

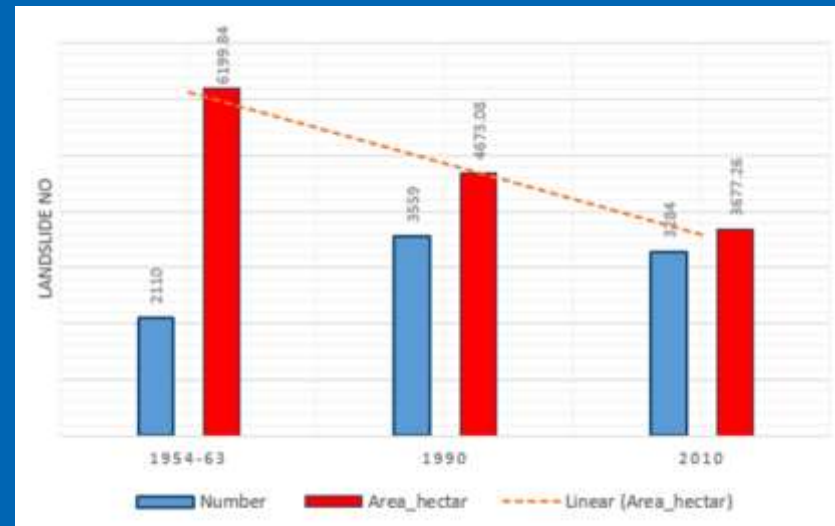
Distribution pattern:

- Along thrusts
- Along valley slope (valley slope)

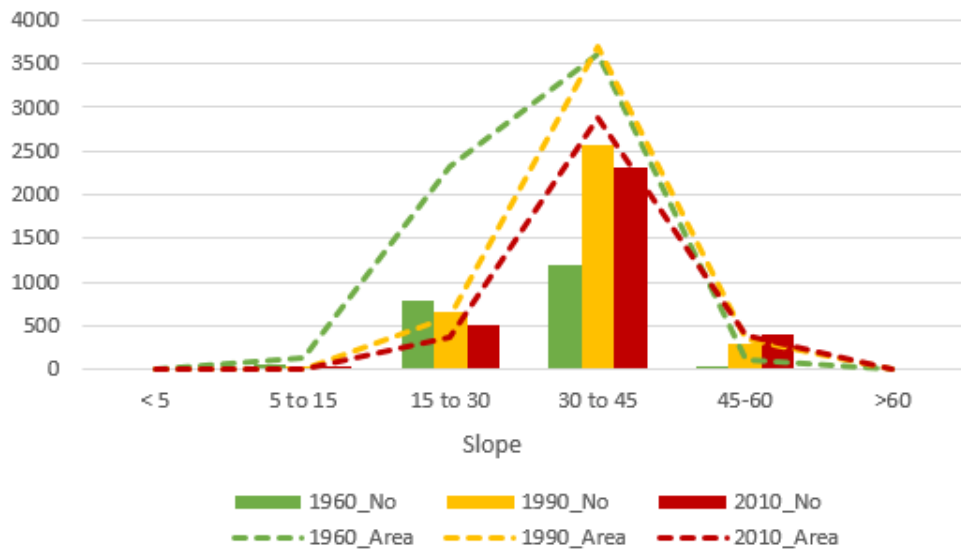


Landslide trend & stats

- Decreasing trend observed
- 27 districts of Nepal fall (partially or completely) under Koshi Basin
- Top 3 districts: Udayapur, Sindhuli, and Sindhupalchok

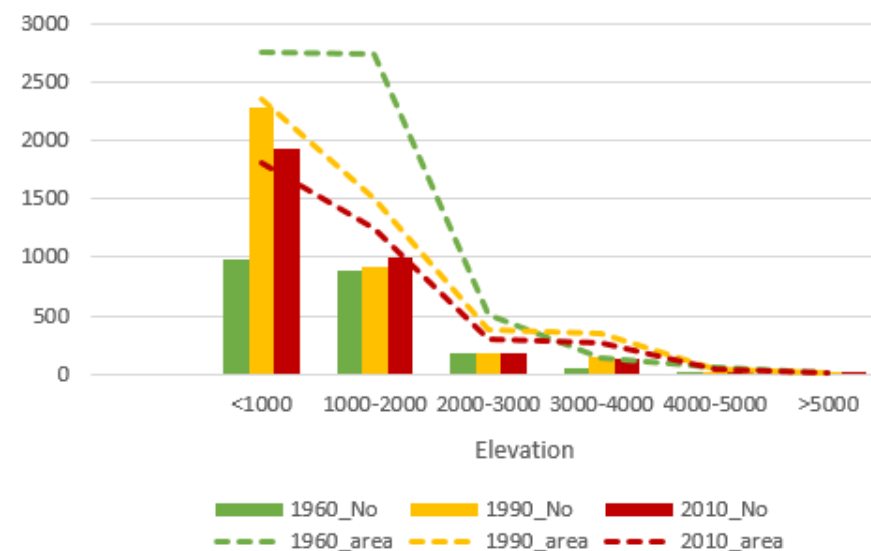


Landslide vs. topography



Landslide Vs. Slope

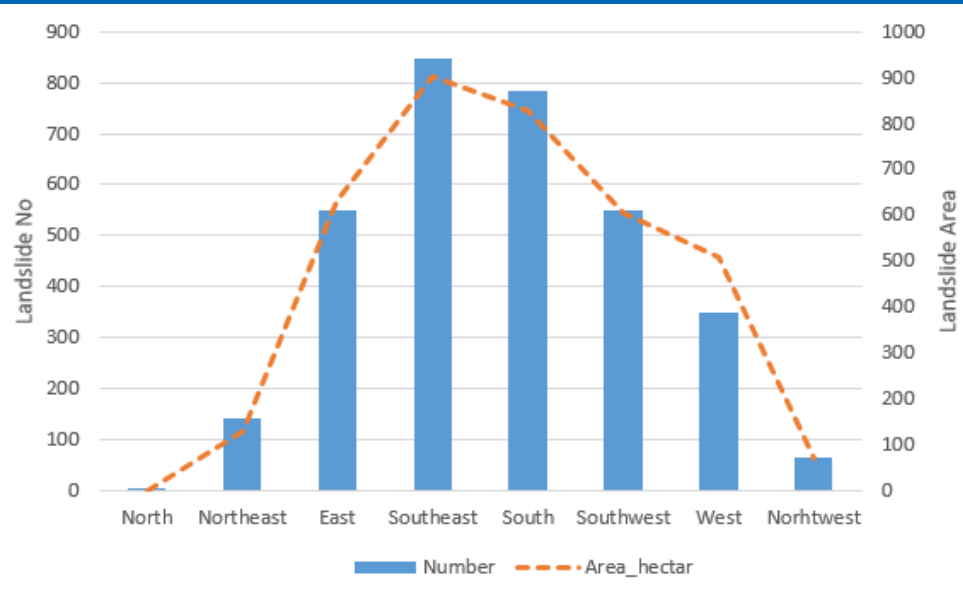
Slope between 15 to 60 degree is prone to sliding.



Landslide Vs. Altitude

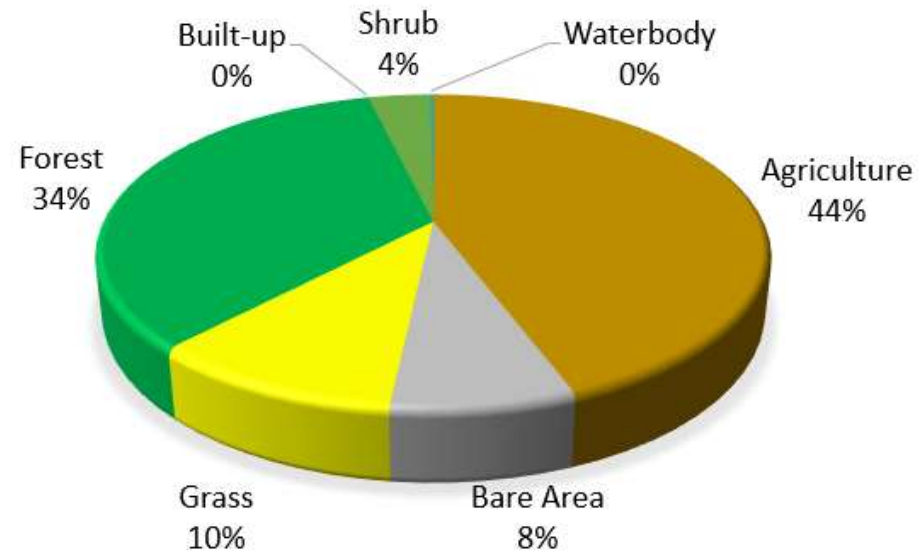
Elevation below 4000m is prone to sliding.

Landslide vs. topography



North facing slope is prone to landslides

Landslide distribution is higher in cultivated and forested area.



- Landslides is a concern and needs more focus on holistic landslide risk management;
- National level landslide hazard/risk mapping should get priority, and uptake of information for policy and planning to be enhanced;
- Secondary hazard from landslide needs to be given adequate importance while studying landslides and hazard;
- Thus landslide mapping (inventory) and monitoring (spatially and temporally explicit) is key.



Thank you for your attention!