

Resilience to Shocks Workshop @ Tropentag
19 September 2016



Building Resilience for Disaster-Prone Hindu Kush Himalayan Communities

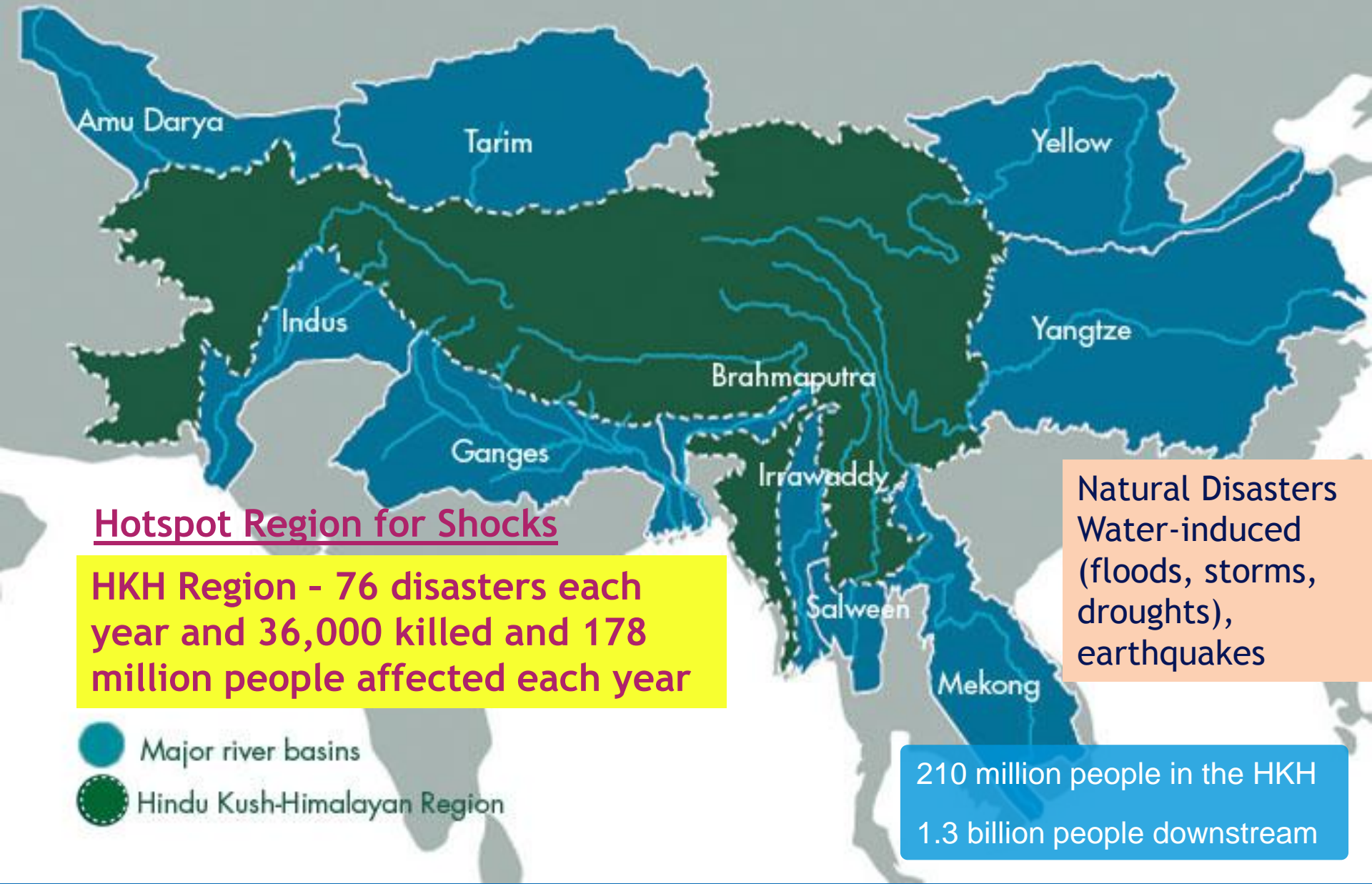
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Kathmandu, Nepal

FOR MOUNTAINS AND PEOPLE

Fragile Mountains, Vulnerable Upstream-Downstream and Disaster-Prone



Nepal: 2015 Earthquakes

Nepal experienced two major earthquakes on April 25 and May 12, 2015 at magnitudes of 7.8 and 7.3 respectively.

Number of people killed
As of 18 May 2015

8,604

Number of people injured
Source: UNRCO/Gov. of Nepal

17,838

INTERACTIVE MAP

EARTHQUAKES AND AFTERSHOCKS

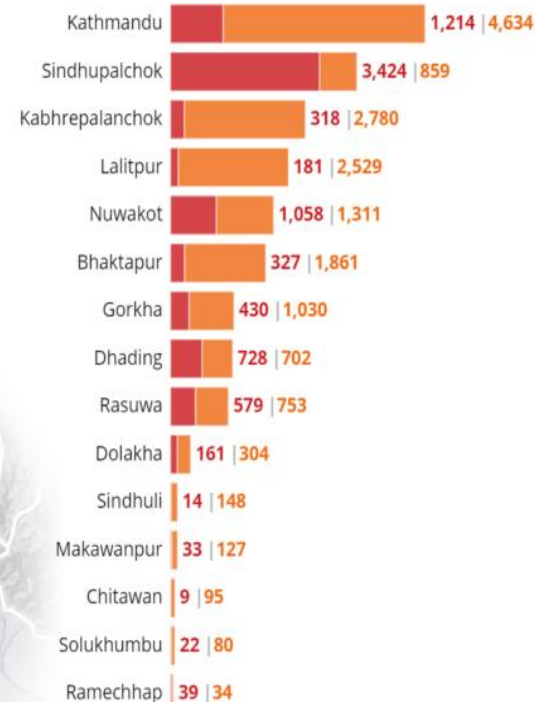
PEOPLE KILLED BY DISTRICT

PEOPLE INJURED BY DISTRICT

PEOPLE KILLED AND INJURED BY DISTRICT

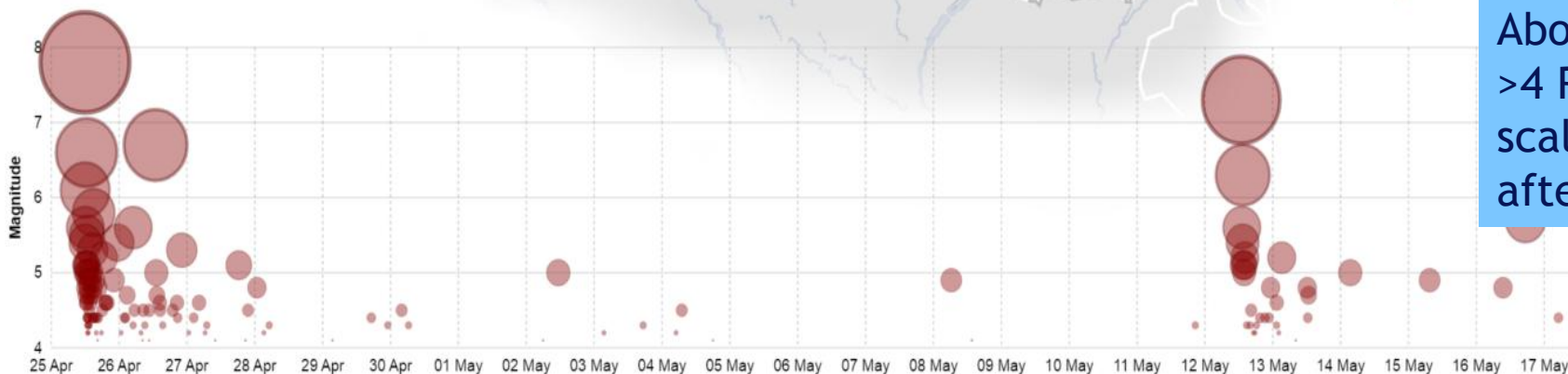
Number of people killed | Number of people injured

limited to the top 15 districts



About 500,
>4 Richter
scale
aftershocks

EARTHQUAKES AND AFTERSHOCKS Source: USGS



Building Resilience – What are we looking for?

- Beyond coping and “bouncing back”
- Recovery to a qualitatively better state
- Identify factors that could influence transformative change



Submerged houses in an artificial lake created due to Jure landslide in Nepal

Regional Study for Developing Resilience Approach

- Nepal - Climate Smart Village - Agriculture
- Nepal - Earthquake & Related Geohazards
- Bangladesh - Floods
- Myanmar - Landslides



Building each other's houses

What Our Results Suggest?

- Holistic and integrated approach required for resilience
- Nature of recovery influenced by combination of factors
- Combination of factors stronger influence than any individual factor
- Multiple combinations of factors complementing and substituting each other
- Possible to identify appropriate combinations to *ex ante* build resilience



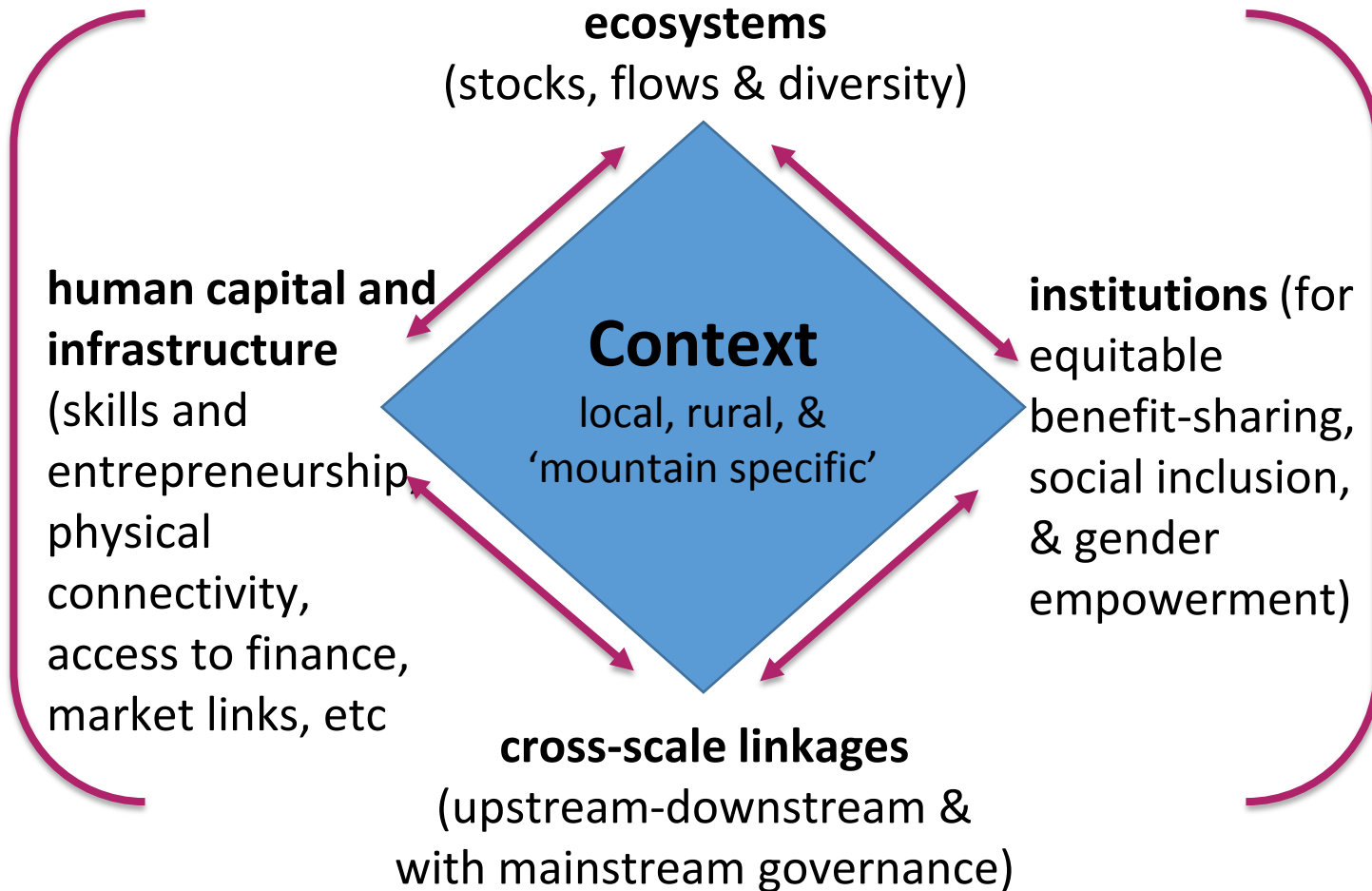
From Results to Framework: ICIMOD's Interventions for Resilience Building at Community

ICIMOD

FOR MOUNTAINS AND PEOPLE

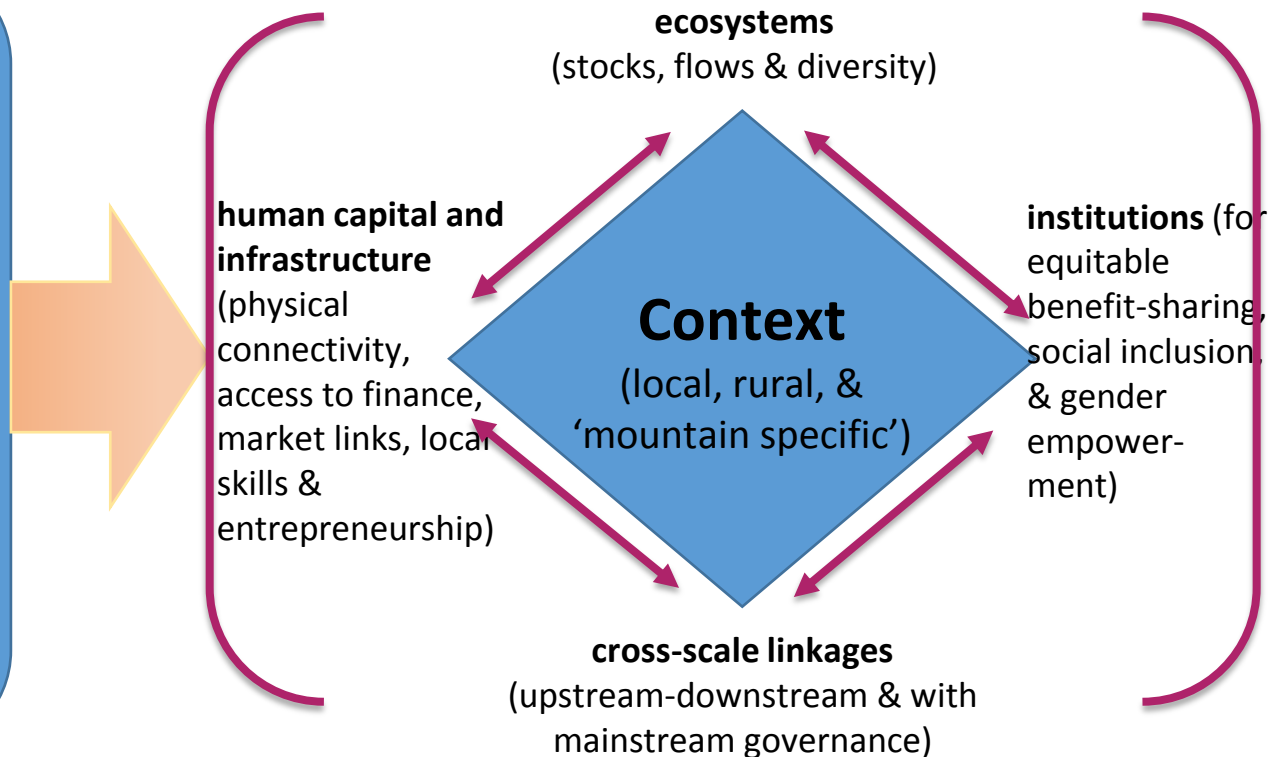
- Resilience outcomes in terms of '*ex ante*' capacity for:
 - early and better recovery
 - adaptation
 - transformative change
- Interventions as 'solution packages' to target a combination of contextual factors drawn from:
 - nature, people, institutions, infrastructure, and external influences

Guiding Framework

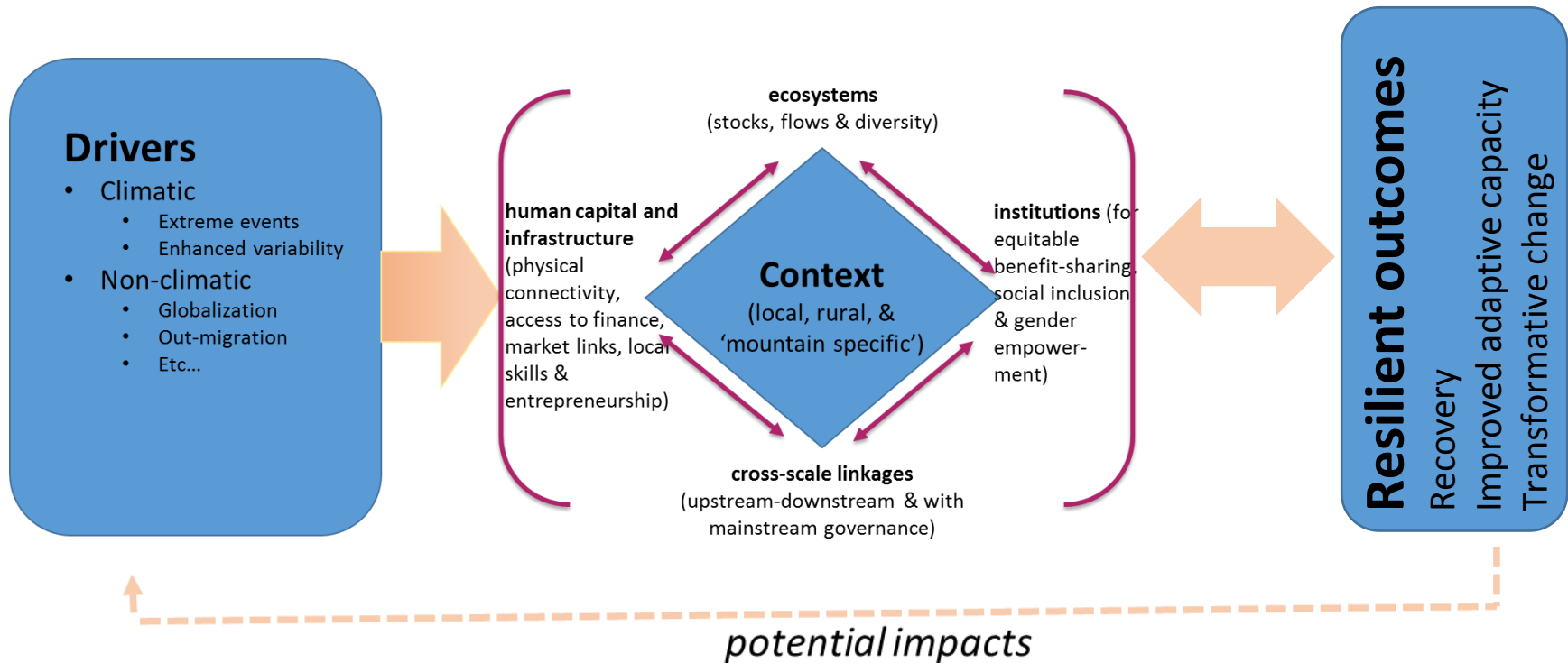


Drivers

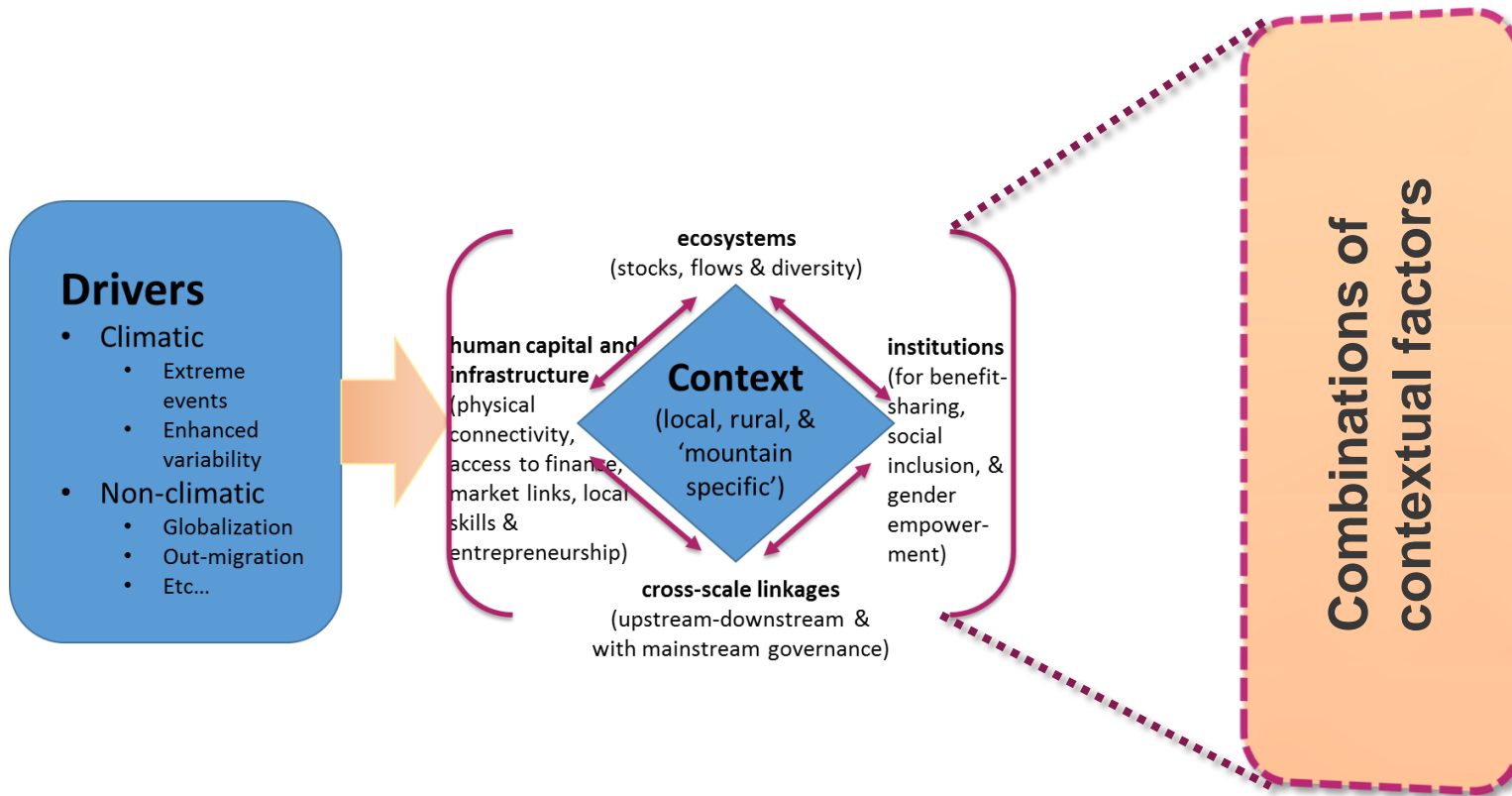
- Climatic
 - Extreme events
 - Enhanced variability
- Non-climatic
 - Globalization
 - Out-migration
 - Etc...



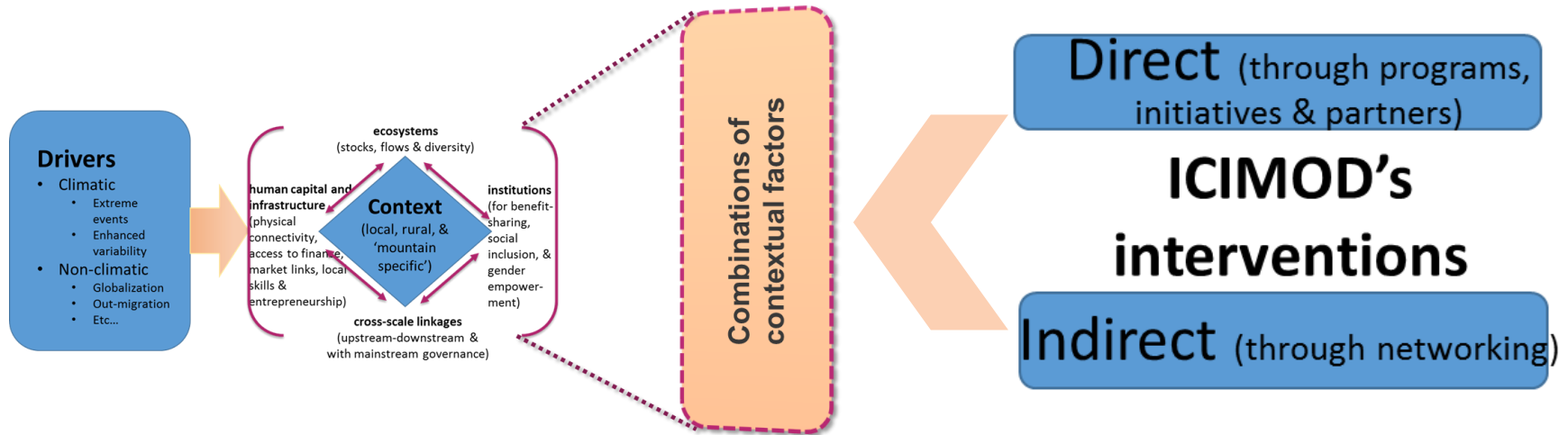
Guiding Framework



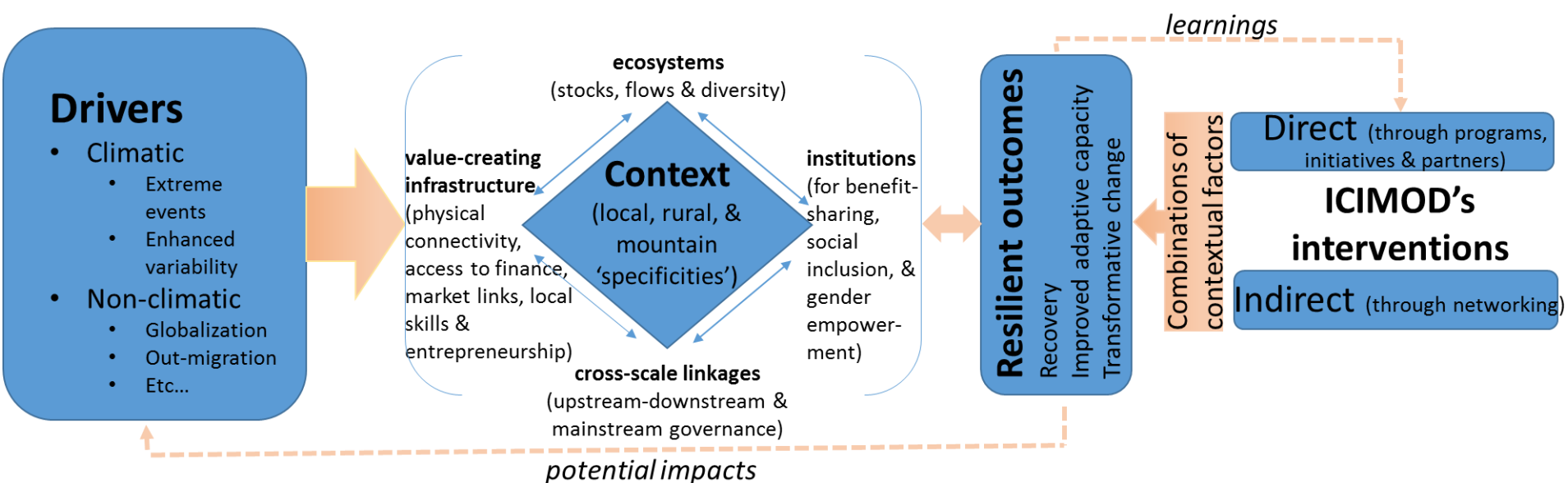
Guiding Framework



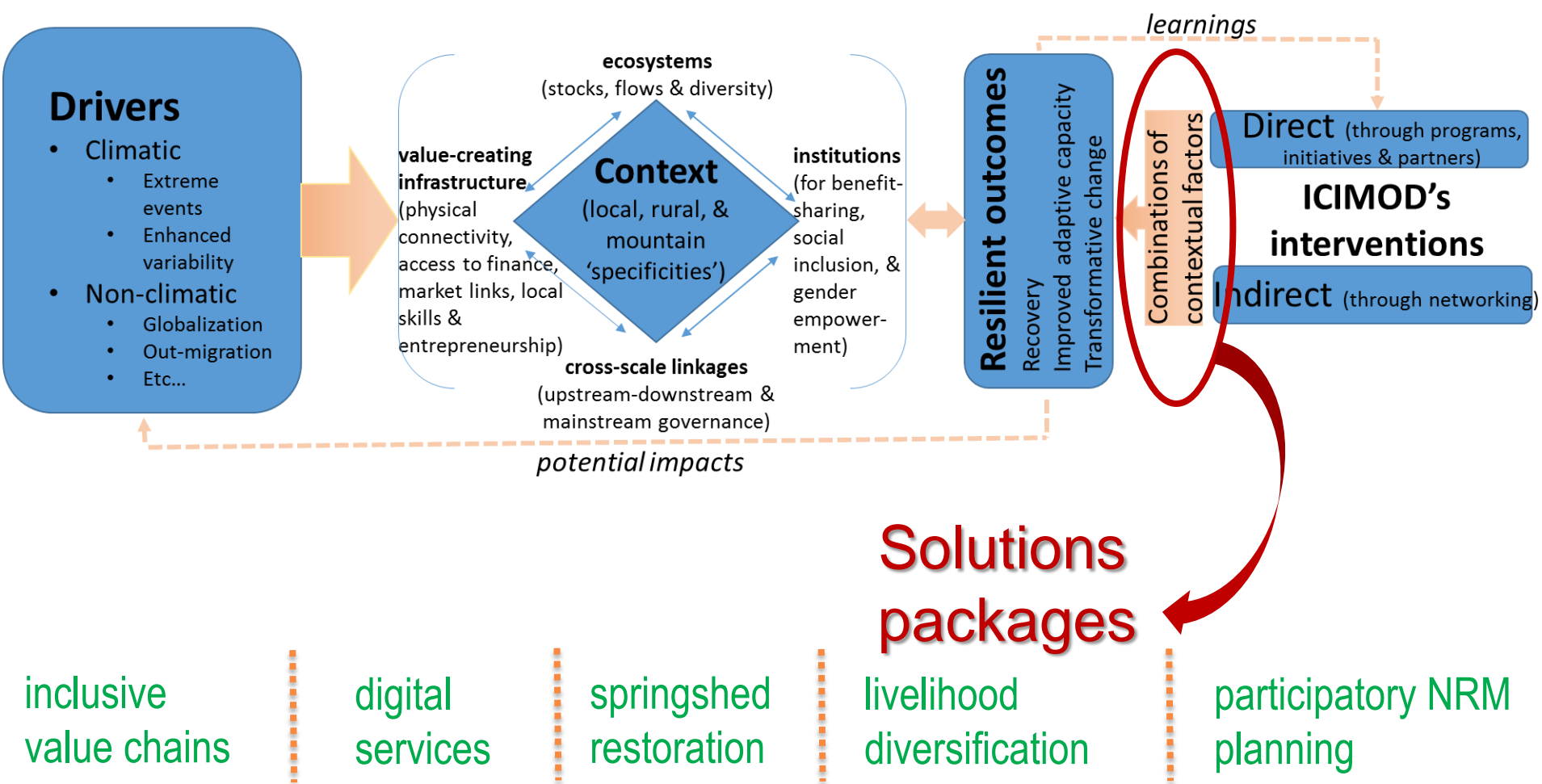
Guiding Framework



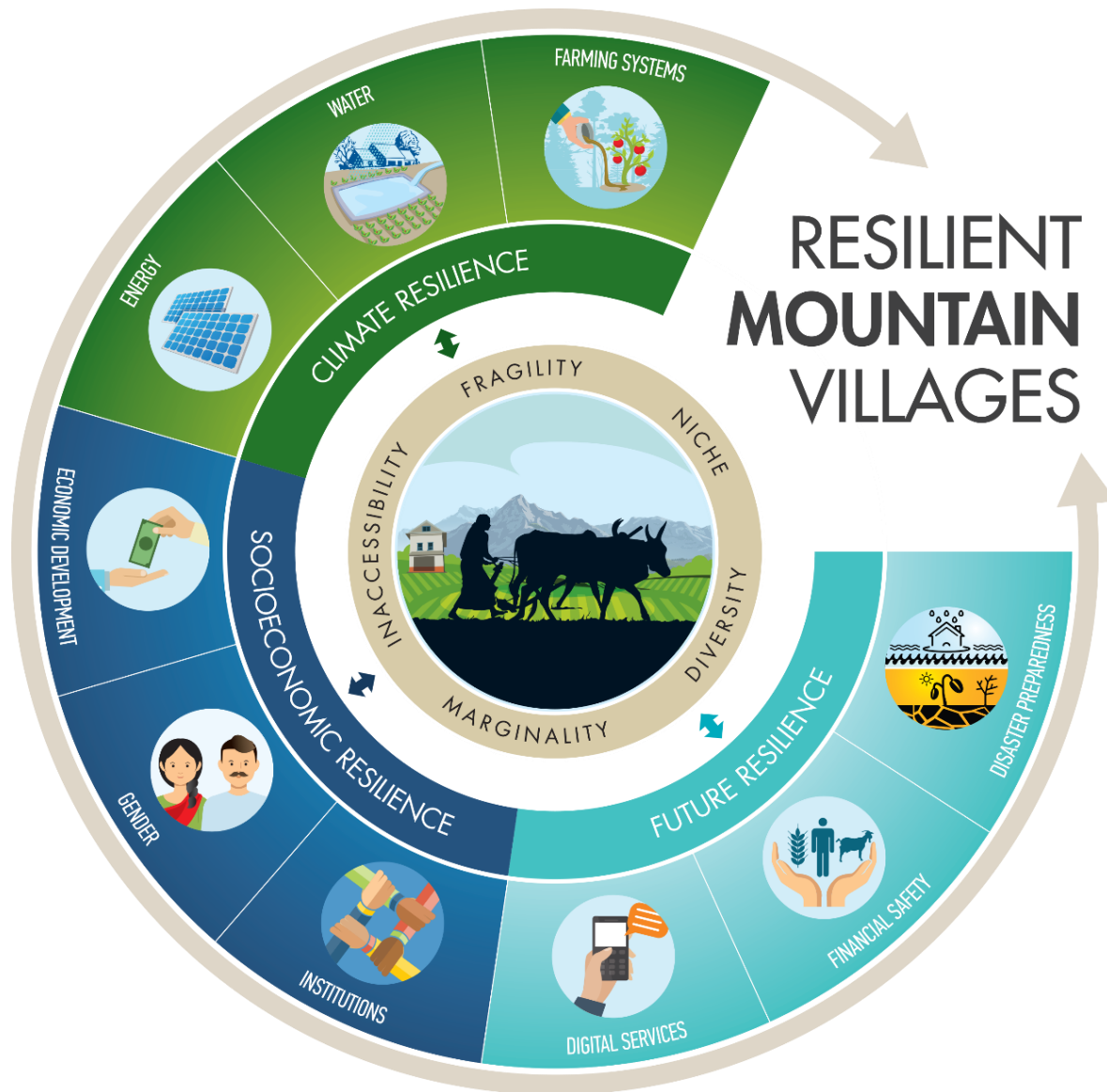
Guiding Framework



Guiding Framework



Solution - Resilient Mountain Village



- 8 pilot villages in Nepal
- over 1,000 households
- 88% are women farmers

Thank you

ICIMOD

Early warning can minimize the devastation of flash flood

By Monoj Gogoi

DHEMAJI, Oct 3: The frequency and intensity of flash flood is rapidly and noticeably increasing year by year in the eastern parts of Assam and Arunachal Pradesh, particularly in the Lakhimpur and Dhemaji districts of Assam and Lohit, Lower Subansiri and Anjaw districts of Arunachal Pradesh.

Many people believe that the root cause of this rapid increase in flash flood in these regions may be attributed mainly to erratic rainfall in the upper catchment areas due to climate change or climate variability.

The flash flood is different than the normal monsoon flood as it carries huge amount of water loaded with debris and sediment to the plains



affecting people, livestock, crops land etc. The energetic flash flood is difficult to deal with and more hazardous than a typical monsoon flood because of its

suddenness without giving much indication before. The north bank tributaries of the Brahmaputra are flashier and more prone to the flash flood for high

gradients.

River researchers believe that the devastation of such flood could be minimized by effective flood forecast and early warning system.

Dr. Partha J Das, a river researcher and a renowned environmentalist told this correspondent that in this context it was very important to monitor weather system, especially in synoptic situation that cause heavy rainfall in the upper catchment in Arunachal Pradesh hills as well as the geomorphological conditions in upper catchment. Based on such information forecast and warning of flash flood could be provided.

He also suggested that with high resolution digital satellite real time data, it was highly possible to monitor the weather system and rainfall events and catchment condition even in inaccessible hilly terrains.

Criticizing the present approach of the government

to flood management he told it was reactive in nature. To deal with, possibilities of such events should be disseminated from upstream to the potentially affected people in the downstream in the form of flood forecast and warning, especially for the north bank tributaries of Assam. While some amount of qualitative flood forecast was provided by the Central Water Commission (CWC) for the Brahmaputra, there was hardly any forecast or warning for its tributaries, he added.

It may be mentioned that a community based flood early warning system has been introduced experimentally in some of these rivers, particularly in the Jiajhal river in Dhemaji by Aaranyak, a Guwahati based biodiversity conservation

NGO in collaboration with Kathmandu based ICIMOD over last few years. This system comprises of a simple flood gauge and a related instrument that produces a siren as water level rises in the river. And this flood warning is disseminated from the upstream to downstream through a community network using mobile phone. 'This system of providing flood warning has become popular and useful to the community', Jarman Doley, a flood affected by the Jiajhal told.

Harish Pegu, a flood control activist from Dhemaji told 'It is very essential that government should promote such efforts and take up such effort on a larger scale in all the rivers of the eastern Himalayan region.'