

Overview of Himalayan Region focusing on DRR & CCA

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International Centre for Integrated Mountain Development (ICIMOD)



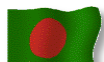
Vision

A greener, more inclusive, and climate resilient Hindu Kush Himalaya

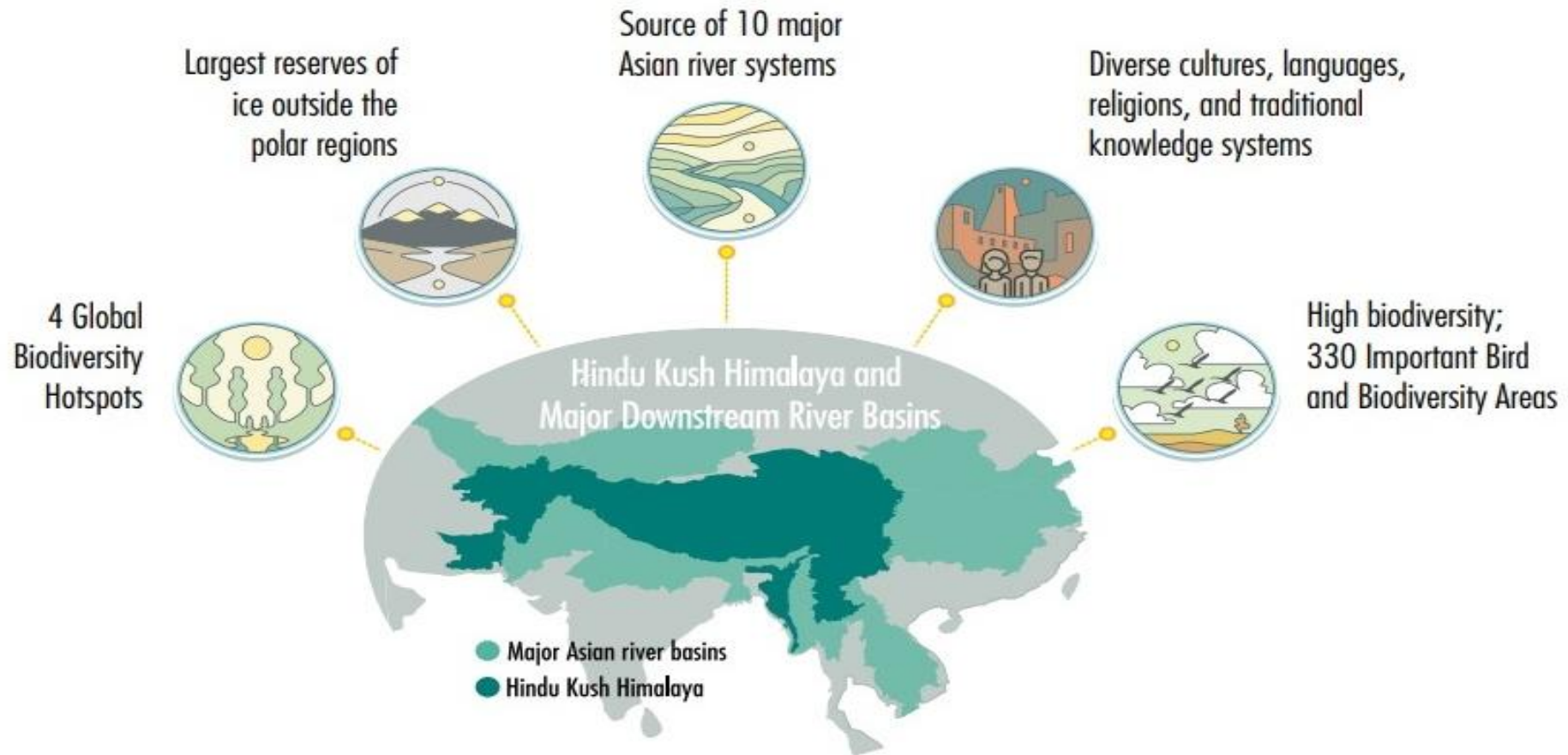
- Resource efficient
- Carbon neutral
- Cleaner
- Nature positive

- Gender sensitive
- Youth empowering
- Equal opportunity

- Protected via disaster reduction measures
- Adapted via livelihoods/enterprises
- Transformed via systems (policy, financial, institutional)



THE HINDU KUSH HIMALAYA IS THE PULSE OF THE PLANET



240 million


people depend directly on the HKH for their lives and livelihoods

1.9 billion

people depend on the HKH for water, food, and energy

> 35%

of the world population benefits indirectly from HKH resources and ecosystem services



In a 1.5°C world, glaciers in the HKH will lose 1/3 of their volume by 2100

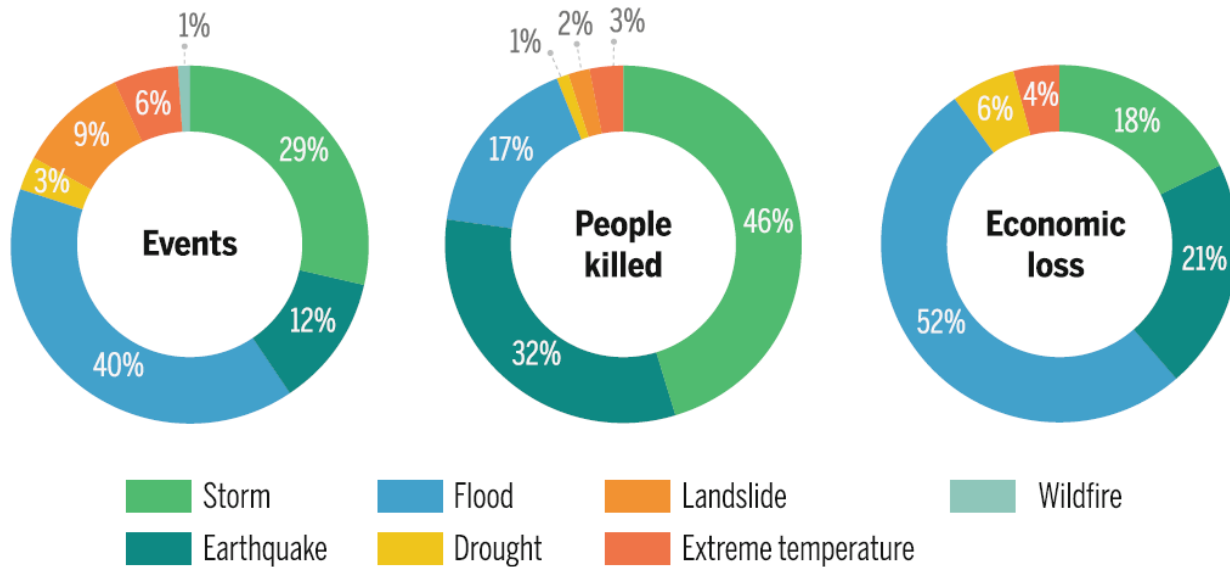
And 2/3 of their volume under current emission trends

Snow covered areas and snow volumes will decrease and snowline elevations will rise;

Snow melt induced run-off peak will be stronger and occur earlier in the year

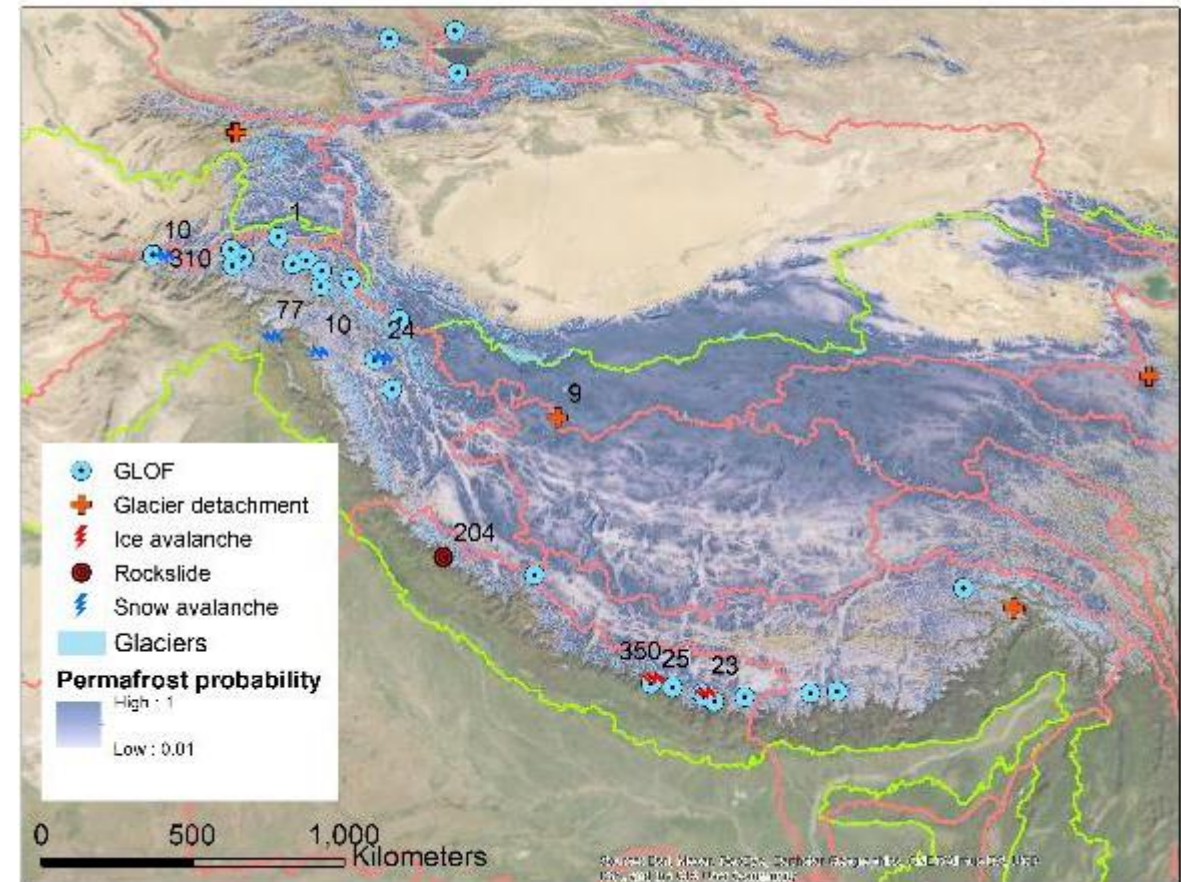
Biophysical, climatic, and socioeconomic conditions provide a multi-risk environment in the HKH

Cryosphere related hazards



Flood is a major hazard

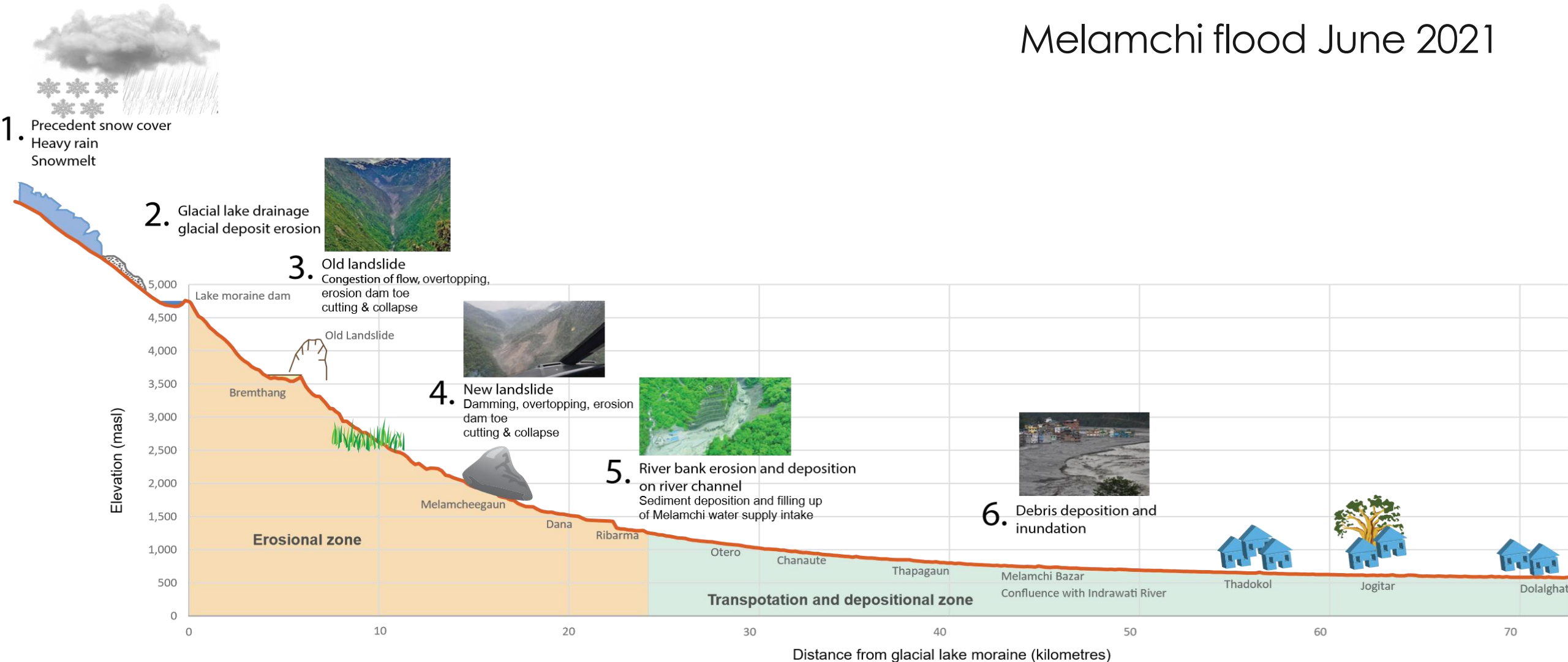
Vaidya et al., 2019



Steiner, in progress

Cascading Hazards

Melamchi flood June 2021



Hazards Beyond Borders



Bhote Koshi GLOF-
5 July 2016

GLOF in TAR, China Major impact was in Nepal



Koshi Flood- 18
August 2008

Nepal: Effected 53,800
India: Effected 3,000,000

The Sendai Framework for DRR 2015-2030

1 OUTCOME

The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries

1 GOAL

Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience

4 PRIORITIES

Understanding disaster risk

Strengthening disaster risk governance to manage disaster risk

Investing in disaster risk reduction for resilience

Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction

7 TARGETS

- ↓ DISASTER MORTALITY BY 2030
- ↓ NUMBER OF AFFECTED PEOPLE BY 2030
- ↓ ECONOMIC LOSS BY 2030
- ↓ INFRASTRUCTURE DAMAGE BY 2030
- ↑ DRR NATIONAL/LOCAL STRATEGIES BY 2020
- ↑ INTERNATIONAL COOPERATION BY 2030
- ↑ EWS AND DR INFORMATION BY 2030

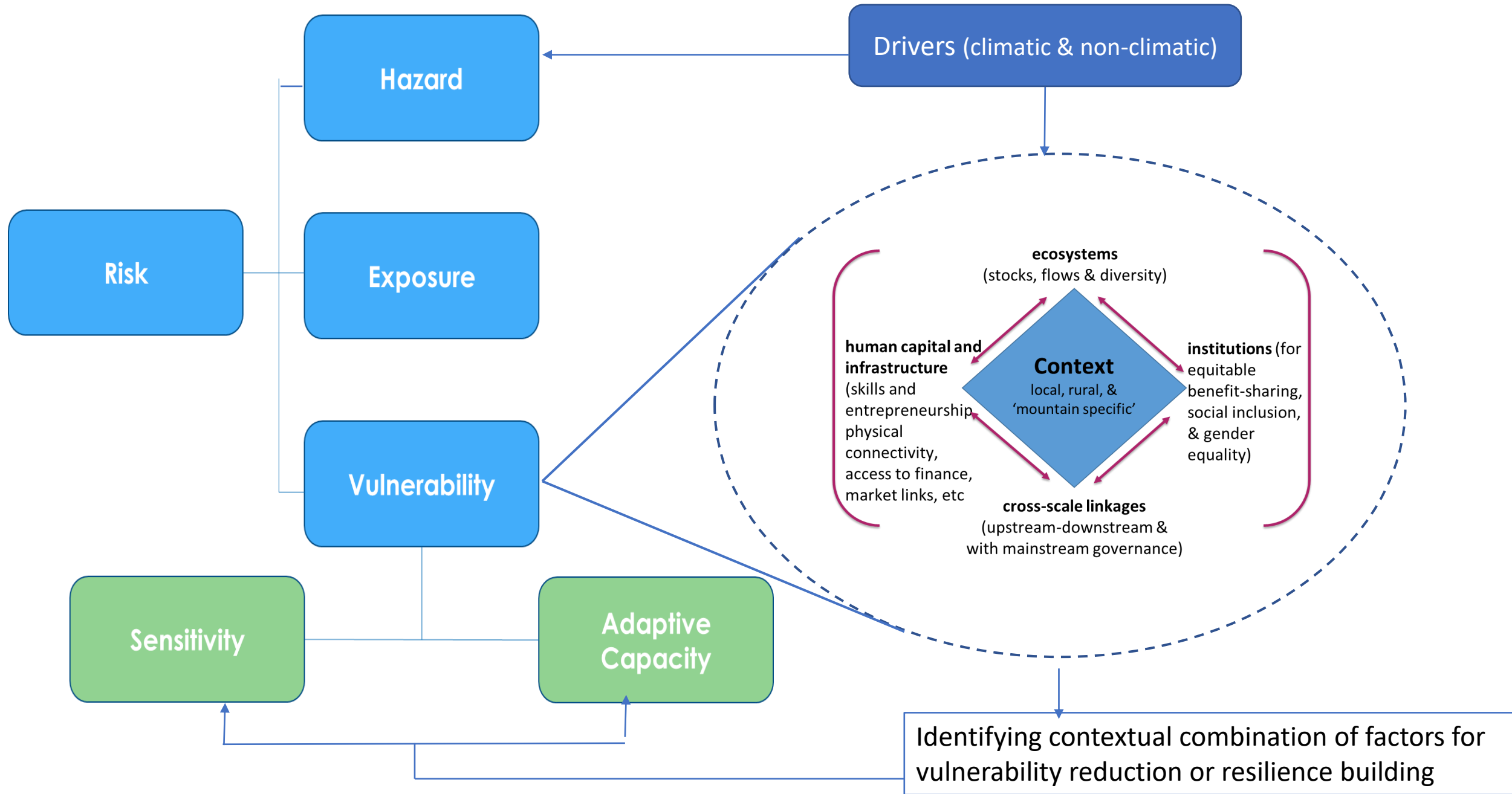
Shifts

Disaster loss ⇒ disaster risk

What to do ⇒ how to do

Top down ⇒ people centered

IPCC Risk Framework



Example 1: Regional Cooperation

Create networks to build enabling environment for learning and sharing

- **Transboundary Working Groups** on GLOFs, Landslides and Sedimentation, Floods, Drought, CBDRM, KMC, policy advocacy, and hydropower on priority areas for the country (data gaps, coordination gaps, opportunities for synergies in on going programs and projects)



Example 2: Resilience to multi-hazard risks

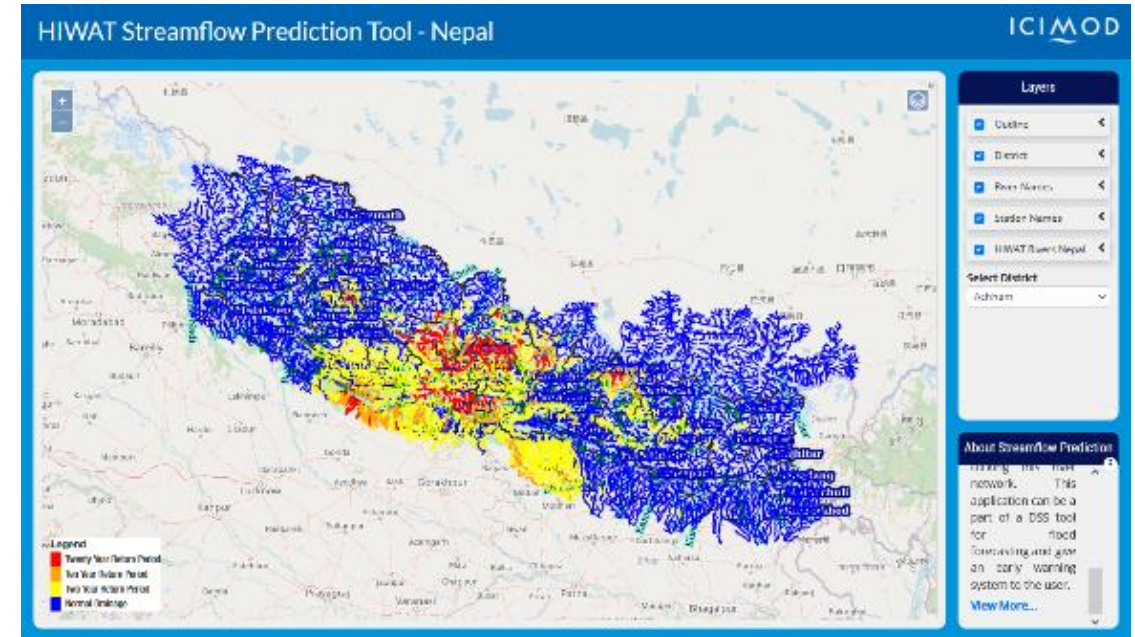
Partner with scientific organizations for anticipating risk

Flood modelling and forecasting

Regional flood information

Permafrost monitoring

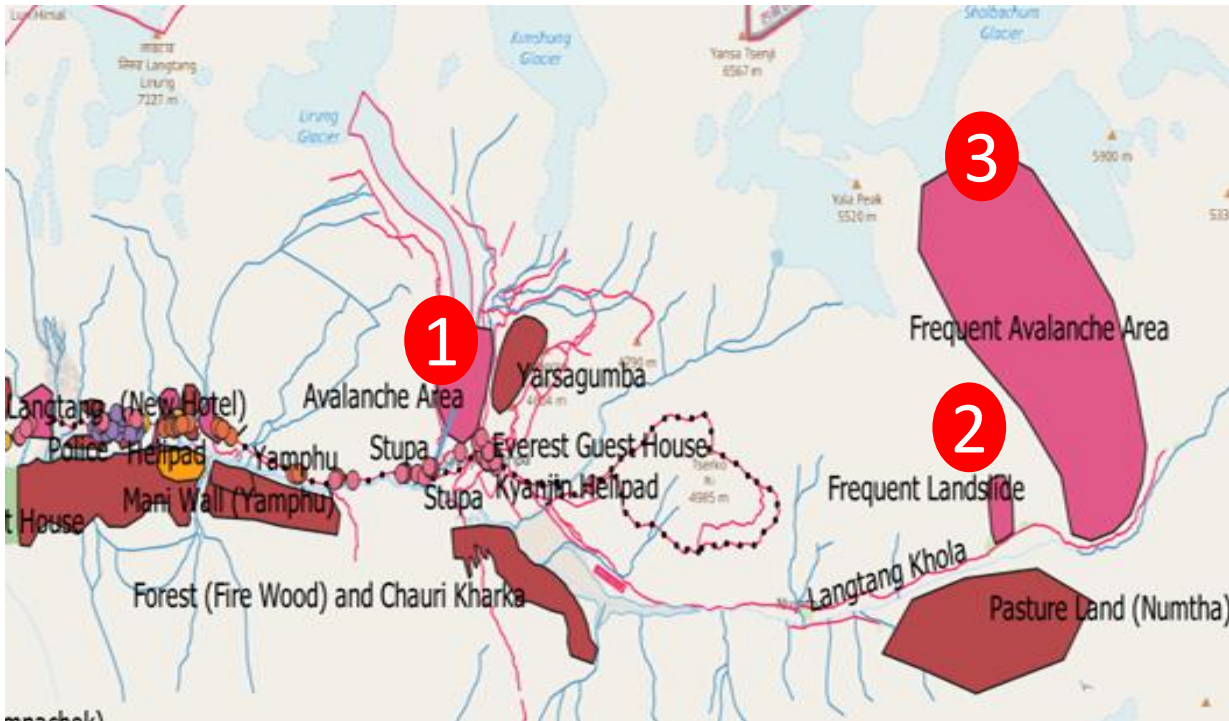
Glacial lake monitoring/ GLOF modelling



Example 3: Promoting Citizen Science

Engage with local communities to understand risk knowledge

Participatory hazard risk mapping with local knowledge system (settlements, resource collection sites, cultural sites, infrastructure)



Example 4: Showcasing actions on the ground: Community Based Flood Early Warning System (CBFEWS) Upscale and outscale successful practices

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 Dhemajee 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



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Dr. Partha J Das, a river researcher and renowned environmentalist told this correspondent that in this context it was very important to monitor weather system, especially in synoptic situations 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.

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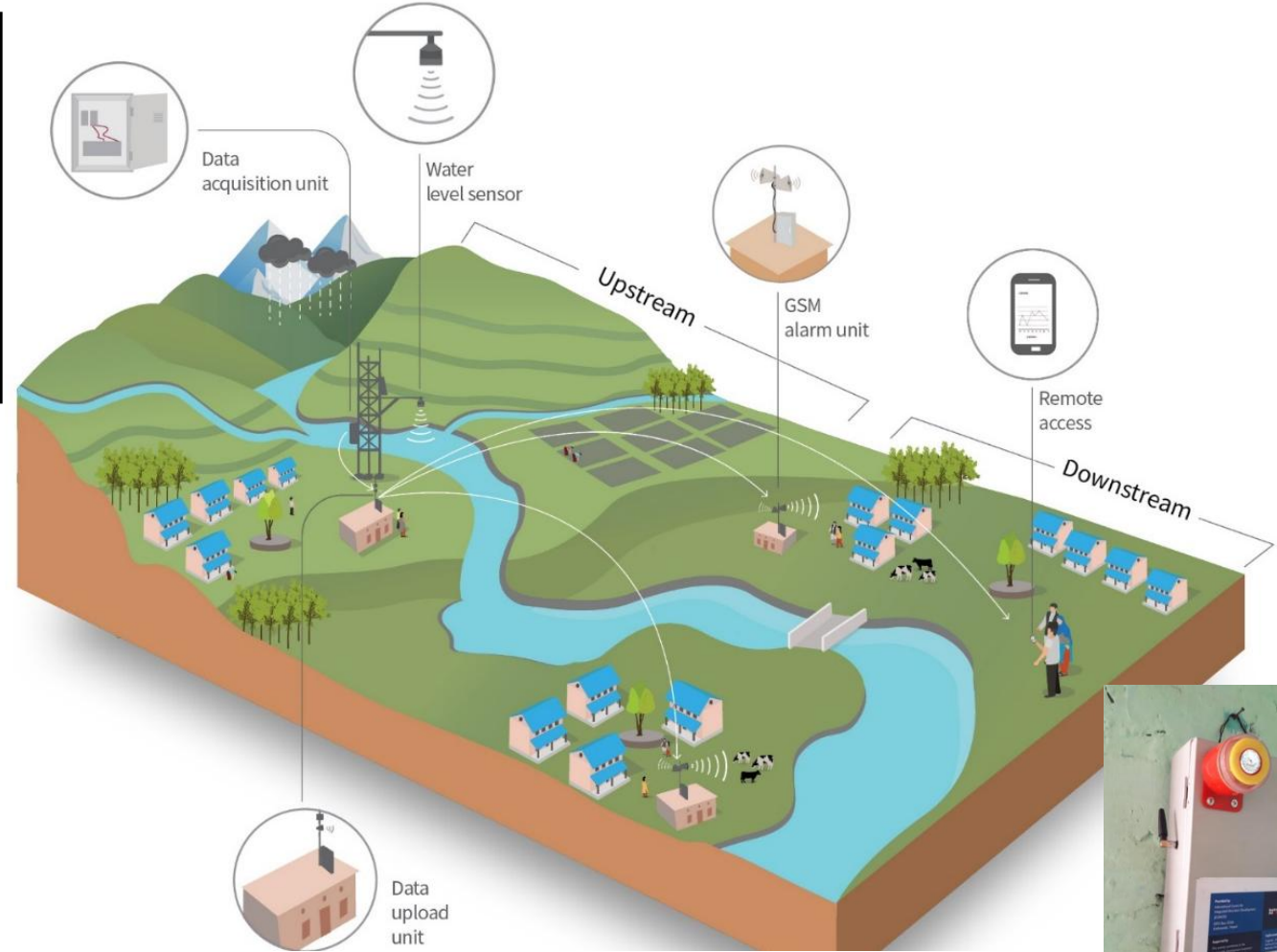
Data Acquisition Unit



Data Upload Unit



Alarm Unit



THE NATION
TUESDAY, 24 MAY 2022

Floods warning gadgets save lives in Karonga

ANDREW MKONDA
MALAWI NEWS AGENCY

People around Songwe River in Traditional Authority Mwakaboko in Karonga District have said early warning gadgets saved their lives and livestock from floods this year.

Speaking on Saturday when Malawi Red Cross Society officials appreciated the impact of the gadgets in the area, Mwakaboko Village Civil Protection Committee chairperson Moffat Mwaseya said previously, people were caught unawares by floods, thereby losing lives.

He said: "But this year, no single life has been lost as people were able to escape to the upland on time following alerts from the gadgets.

"Without the gadgets, we would have lost many lives because Songwe River flooded beyond expectation."

One of the flood survivors, Dickson Ngonya, whose house collapsed during the disaster, said his family fled to safety after hearing an alarm showing that the river had flooded.

He said: "We were fast asleep when the alarm rang. We quickly woke up and left the house surrounded by water. "No sooner had we left, than the house collapsed."

Malawi Red Cross Society disaster preparedness and mitigation specialist Cecilia Banda said it was interesting to learn that community members were following warnings using modern equipment.

She said: "We are impressed with how people are using the gadgets. It shows that Modernised Climate Information and Early Warning System Project we are implementing is bearing fruits."

Community-based early warning system gadgets were installed in four rivers in the district with financial support from UNDP. The rivers are Kyungu, North Rakuru, Lufiya and Songwe.

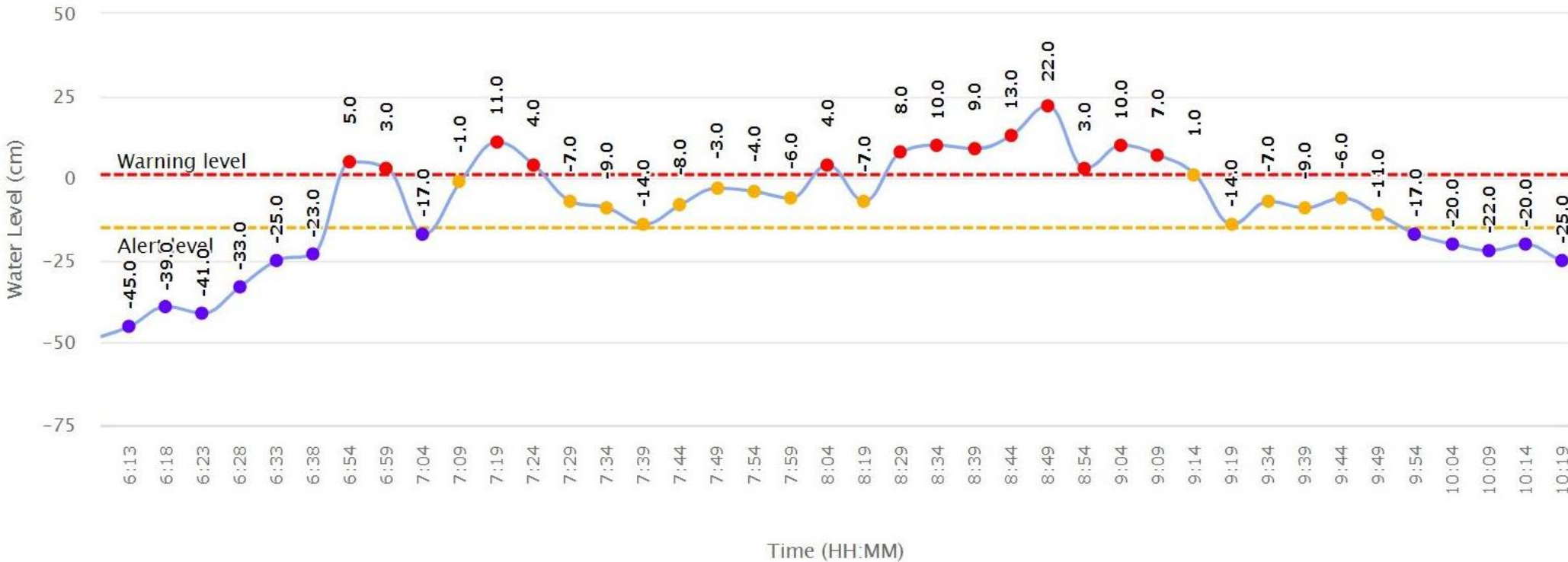
Karonga is one of the disaster-prone districts in the country and this year, over 6 000 households were affected by floods in the district. ■





Warning Level	UPSTREAM		DOWNSTREAM	
	Color Code	Siren signal	Interpretation	Action
Level 1	● (Blue)	No siren	Normal water levels	No Action
Level 2	● (Yellow)	Beeping sound	Stay alert: Water level is rising	Activate communication chart. Alert downstream recipients to BE PREPARED
Level 3	● (Red)	Continuous ringing	Flood is coming	Alert downstream communities to EVACUATE

Source Date: 2019-07-12



Sanjay Yuganter
 in Ratu river at Srikhandi bhitmore, sursand block water has reached above 243 CM and is now overflowing from the breach that had occurred prior to in 2017. The water has entered ward 5. Though people have taken precautionary measures due to early warning
 9:49 am

Mahendra Bikram Karki
 I am really worried for sarpallo, Jaleshwar and Bhityamod....what is the situation right now...here we don't have electricity and network....
 9:53 am

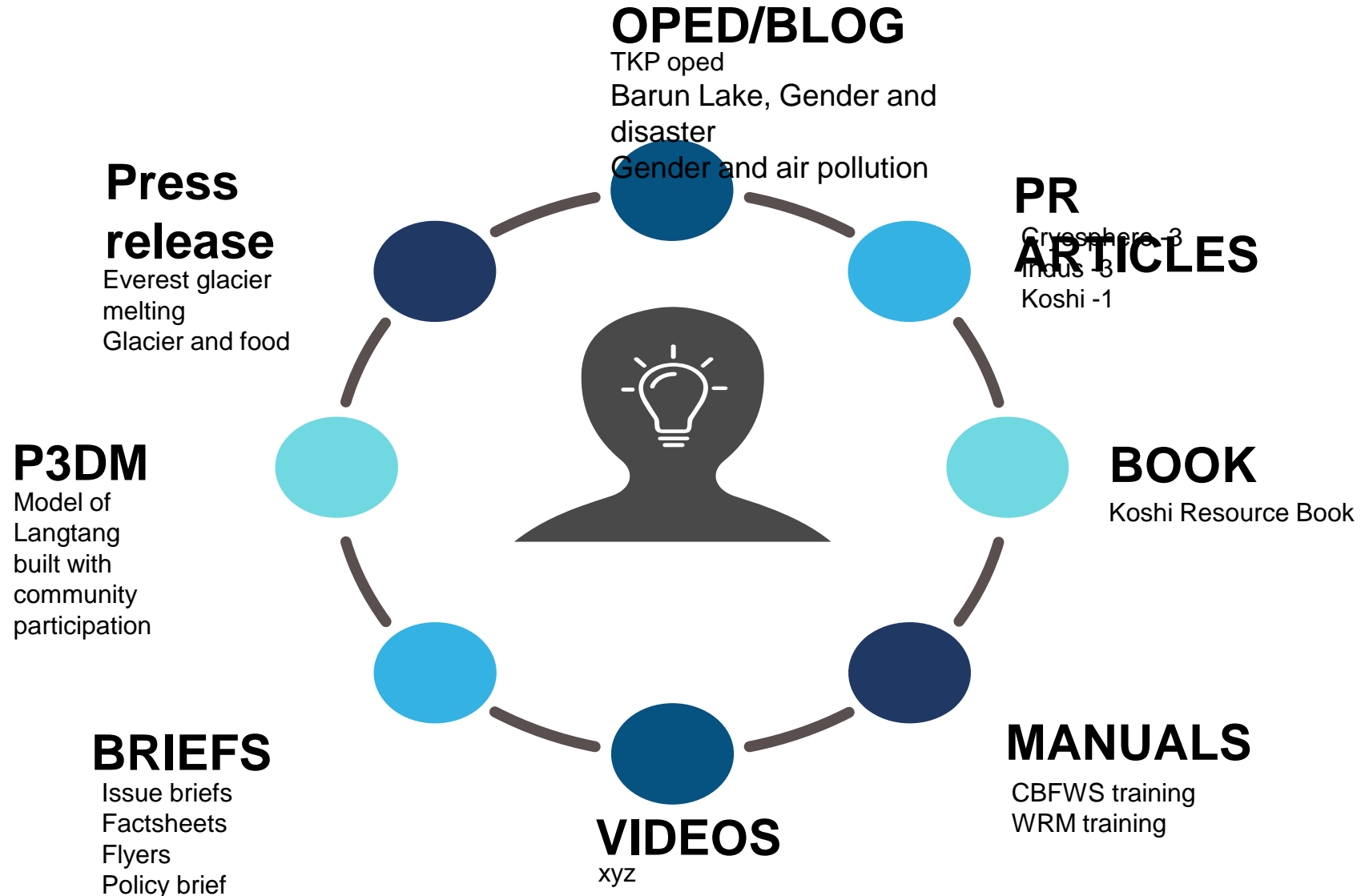
here is heavy rainfall...so be safe and alert...
 9:53 am

I have contact to all the stakeholder about the situation ...Cdo,redcross! apf,journalist...it is hard to connect to rajkumar ji..
 9:53 am



Example 5: Diversifying knowledge products

Use various mode to disseminate the risk information to the vulnerable communities



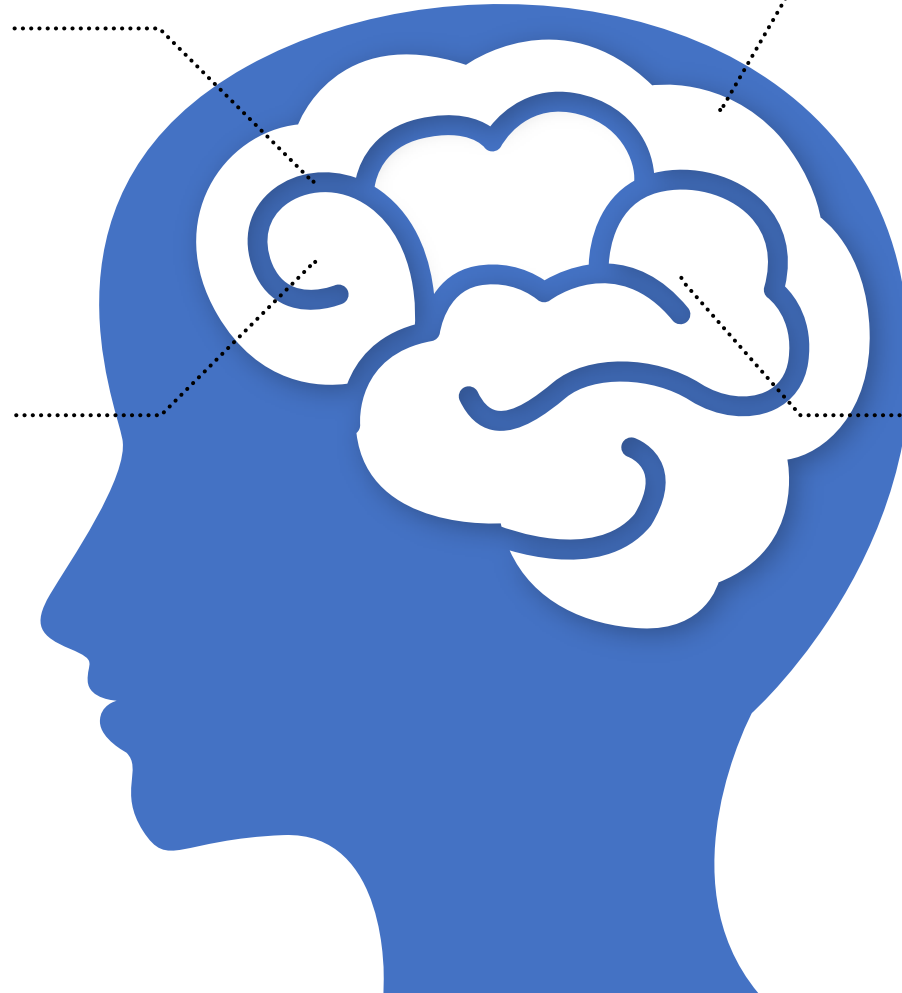
Major lessons learnt

PRIVATE SECTOR ENGAGEMENT

Private sector engagement for locally manufacturing WRM and DRR technologies ensures better scaling opportunities

POLICY ENGAGEMENT

Documentation of the processes, learnings, challenges and recommendations of the pilot interventions, could potentially help in policy support to relevant government institutions



PARTNERSHIP IN SCIENCE

Involving more partners and local communities in science can contribute to sustainability.

NETWORK AND DIALOGUES

UIBN and KDKH has proven that Tr2/Tr3 dialogues help build trust and bring together riparian countries

Thank you

