

# ENVISIONING A CLIMATE CHANGE-PROOF FUTURE

## Climate change is not the only environmental threat

Extreme rainfall events, flash floods, landslides, and earthquakes are impacting the traditional livelihoods of Gurung communities, leading to loss of life, community displacement, and infrastructure destruction.

## Traditional livelihoods under severe impact

Prolonged snowfalls and cold periods, extreme rainfall events, unusual seasonal temperatures, and reduced soil productivity are climate change impacts affecting their food sovereignty. However, these are aggravated by the appearance of new crop diseases, abundance and distribution of weed species and increased frequency of human-wildlife conflicts.

## Local adaptations against multiple stressors

Gurung have implemented various adaptation strategies, including tunnel farming, construction of canals, cultivation of new crop varieties, construction of fences, and guarding crops in the field, to mitigate the impacts of natural disasters, climate change, and human-wildlife conflict.

## LOCAL COMMUNITIES AS FUNDAMENTAL ACTORS IN THE CO-MANAGEMENT OF NATURAL RESOURCES

Gurung people possess deep knowledge of traditional varieties and local environmental characteristics. Combining this with soil testing services can promote sustainable soil management to address low crop productivity and help reduce the economic burden. Local knowledge is important to restore and manage degraded pasture lands to improve ecological resilience and traditional livelihoods.

## BRIDGING THE GAP BETWEEN LOCAL CLIMATE CHANGE PERCEPTIONS AND GLOBAL UNDERSTANDING

It is important to implement an awareness program to educate the local population about climate change and promote sustainable practices. Gurung people have a historical/deep ecological knowledge of their region, perceiving local changes and interactions among different impacts and drivers. However, they need to understand the medium and long term consequences of natural resources overexploitation.

## LEARN MORE



LICCI is a European Research Council (ERC) funded project aiming to bring Indigenous and local knowledge to climate change research. Visit the project website for more details and research results.  
[www.licci.eu](http://www.licci.eu)

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Credit: Bibek Raj Shrestha

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Local Indicators of  
Climate Change Impacts



## Gurung people, Laprak Gorkha district, Nepal

Gurung people, located in the middle hills of Nepal, are experiencing more frequent extreme rainfall events, flash floods, landslides and cold waves, disrupting traditional agricultural calendars and livestock productivity, and impacting food security and the local economy. Climate change also introduces new diseases and invasive species, compounding the challenges faced by the community.

Credit: Bibek Raj Shrestha

## THE GURUNG PEOPLE

The Gurung are an Indigenous community primarily inhabited in the mid-hills of Central Nepal. Their subsistence agricultural practices are deeply ingrained in their culture, as well as livestock herding and gathering of medicinal plants.



## ACTIVITIES



Agriculture: mainly maize, potatoes, barley, and vegetables.



Gathering of extensive variety of medicinal plants.



Herding: goats and sheep.



# TERRITORY AND CLIMATE

Credit: Shirish Maharjan




## Monsoon-influenced temperate CLIMATE

### Changes in the climate

 11°C avg	1-0.3°C per decade and longer heat waves.
 1250 mm/year. Monsoon season from June to August.	Rainfall has increased 31.06 mm/decade since the 1970s. Slight delay in onset of monsoon period.
 Presence of snow from October to February.	Increasing snowfall days and snow cover during the last five years.

## ACCESS TO NATURAL RESOURCES

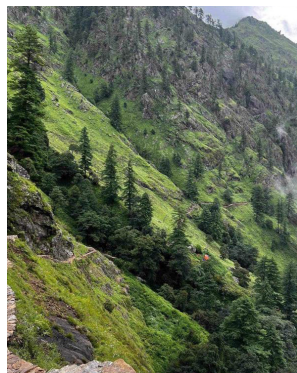
### Changes in the territory

	High-land communal pasture areas are shared during summer. Slopes for subsistence farming of crops and vegetables.
	Mountain streams and natural springs are their main source of water.
	Wood and stone collection as well as medicinal plants gathering.

In 2007, a road brought access and trade to Laprak. Around 2010, a hydropower project provided electricity to the villagers. Post-2015 earthquake, houses were rebuilt with new roofs. Progress has shaped their lives. The region is currently grappling with invasive species, which is leading to significant crop losses.

## VOICES OF LOCAL KNOWLEDGE

Gurung people have a profound ancestral environmental knowledge related to pasture and agricultural management, but their livelihood is now threatened by climate change. Additionally, invasive alien species, new crop varieties, and exodus to cities are affecting their food security and social structure.



Credit: Santosh Gurung

*"Overexploitation of medicinal plant resources is like biting the hand that feeds us."  
"We have made a mistake, and we should correct it. We must start using natural resources more sustainably, protecting the remaining natural areas. We must do this for our children's sake."*

*"With the opening of the road, our traditional food habits have been disrupted. We used to rely on locally sourced ingredients, but now processed and fast food options have flooded our community."*

*"Roads not only paved the way for the arrival of goods but also unwittingly ushered to unwelcome companions: mosquitoes and invasive weeds."*

*"Roads do not just reshape landscapes, but also the very fabric of our society, altering not only the conditions of an entire area but also the essence of our culture."*

Overexploita-  
tion of  
resources

Climate  
change

Infrastructures



Drivers of change



Credit: Bibek Raj Shrestha

*"Climate change is a silent killer. It's not just the big storms, floods and landslides that we need to worry about. It's the cold-related diseases that are becoming more common as our winters get colder and longer."*

*"These subtle climate shifts silently nudge us towards the clutches of poverty, robbing our crops and destabilizing our livelihoods."*



Credit: Narayan Gurung

## IMPACTS ON LIVELIHOODS AND CULTURE



Credit: Uma Dhungel

### Same pastures for growing demands

Extended snow duration has disrupted agricultural calendars, and degraded soils –due to wind and rainfalls–are decreasing crop yield. Consequently, people are exerting more pressure on lands by increasing livestock herds and medical plant gathering.



Credit: Jamuna Prajapati

### Now is cold for everyone

Cold periods and increased snow duration have reduced agricultural production, increased livestock diseases and mortality, but escalated cold-related disease illnesses, especially children and elderly people.



Credit: Shirish Maharjan

### Strained relations for people and wildlife

Wildlife raids on crops and livestock cause financial losses, affecting income and food security. To protect their livelihoods, farmers respond with measures like fencing, scare devices, or crop diversification, altering traditional agricultural practices.