

## Moving to Adapt

Migration and adaptation to environmental stress in the Gandaki, Upper Ganga, Indus and Teesta River Basins



# About HI-AWARE

HI-AWARE aims to enhance the adaptive capacities and climate resilience of the poor and vulnerable women, men, and children living in the mountains and flood plains of the Indus, Ganges, and Brahmaputra river basins. It seeks to do this through the development of robust evidence to inform people-centred and gender-inclusive climate change adaptation policies and practices for improving livelihoods.

The HI-AWARE consortium is led by the International Centre for Integrated Mountain Development (ICIMOD). The other consortium members are the Bangladesh Centre for Advanced Studies (BCAS), The Energy and Resources Institute (TERI), the Climate Change, Alternative Energy, and Water Resources Institute of the Pakistan Agricultural Research Council (CAEWRI-PARC) and Wageningen Environmental Research (Alterra). For more details see [www.hi-aware.org](http://www.hi-aware.org).

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# Key Message

Labour migration in the Hindu Kush Himalaya boosts household adaptive capacities by spreading risk and diversifying livelihoods. It is incumbent on policy makers to make migration more beneficial for people, and to help build household resilience in the face of environmental change. However, migration is a costly and complicated pathway, which is not available to, or feasible for, all households. Thus, other in-situ adaptation options are equally important.



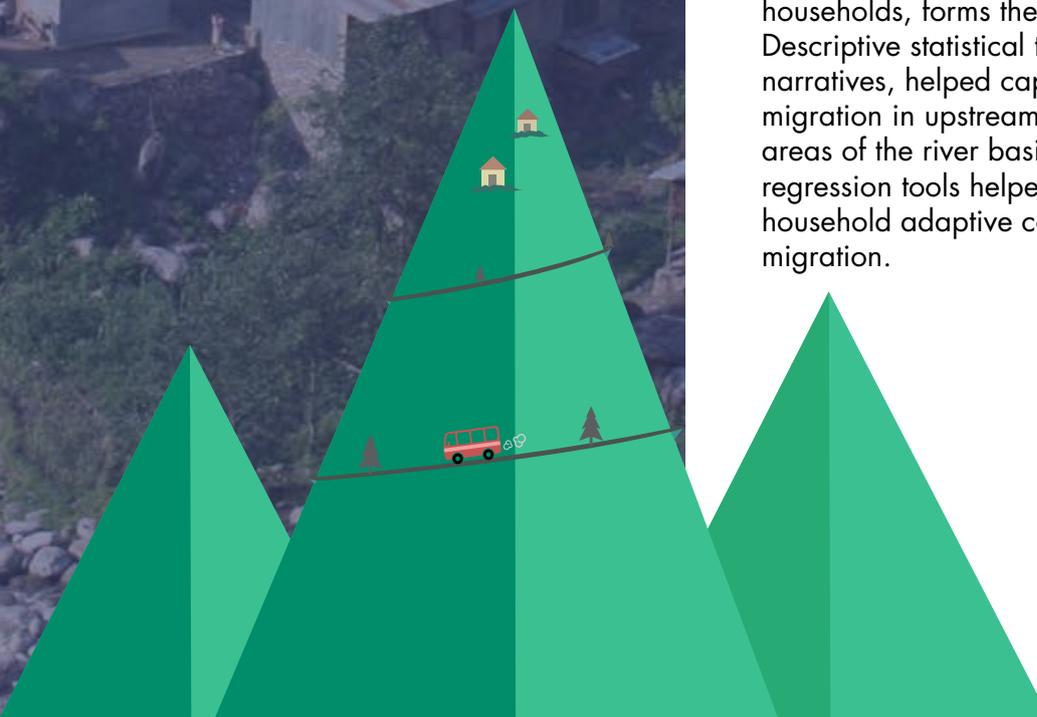
# Introduction

“Recent empirical evidence shows that migration can be a powerful adaptation strategy for populations facing global environmental changes.”

Communities living in the river basins of the Hindu Kush Himalaya (HKH) are increasingly becoming vulnerable to the impacts of climate change. Vulnerabilities are more acute and access to solutions extremely challenging in the mountain and hills due to the mountain specificities. The sedentary bias in development overlooks the important role that human mobility and migration play in the livelihoods of people and societies. Migration has traditionally offered people the opportunity to escape socioeconomic and other pressures in their areas of original habitation, and to diversify livelihoods in ways that make their households less vulnerable in general, and to the impacts of global environmental changes in particular (Piguet 2013).

Labour migration and resulting remittances play an important role in rural livelihood strategies in the face of slow-onset climate change impacts such as desertification, variable rainfall patterns, and temperature changes, by increasing the ability of the households to rely on existing household resources (Tacoli 2011). Recent empirical evidence shows that migration can be a powerful adaptation strategy for populations facing global environmental changes (Black et al. 2011). However, there are gaps in empirical understanding as many studies are limited to single documented events or natural resources, and quantitative studies are limited. Under HI-AWARE, a survey of around 2,000 households in four study basins – Indus, Upper Ganga, Gandaki and Teesta – was conducted in the mountains, hills and plains, to contribute to the empirical literature on the role of migration in household adaptive capacities in the HKH region. We analyzed the adaptive capacity of households in four critical sectors – agriculture, livestock, water, and forests.

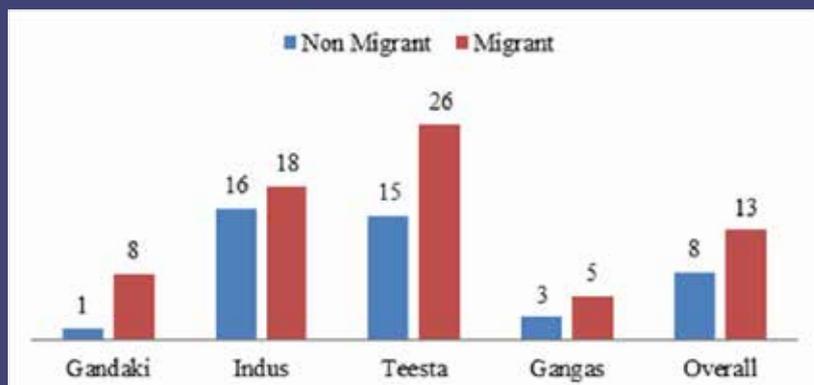
The household survey data, covering some 2000 households, forms the major dataset for the analysis. Descriptive statistical tools, supported by field narratives, helped capture the diverse nature of labour migration in upstream, midstream, and downstream areas of the river basins. A causal analysis using regression tools helped to analyse the drivers of household adaptive capacity, including the role of migration.



# Major Findings

The survey focused on migration in the HKH and investigated the role that it plays in the adaptive capacities of households in the four river basins under study. The findings revealed that labour migration is an important response measure taken by households to increase their adaptive capacity. However, it is not an option affordable or feasible for all households. Individuals from only about 30% of the roughly 2,000 households surveyed in the study areas were involved in labour migration. This shows that not all are able to or willing to migrate. A higher proportion of households were involved in migration in the mountains as compared to the plain areas. Furthermore, migration is gendered, with women facing much higher barriers in moving than men, a finding similar to that of Gioli et al. (2017).

Consistent with previous findings, the main driver of migration is reported as economic, often associated with better employment opportunities elsewhere. Environmental drivers have weak attribution in the self-reported migration decisions in the study sites, which is also in line with the findings of other published studies. However, a higher proportion of migrant households reported temporary displacement and loss of property to extreme events in the last decade as compared to non-migrant households. It is not clear if these experiences influenced their migration decisions and this needs to be explored further.

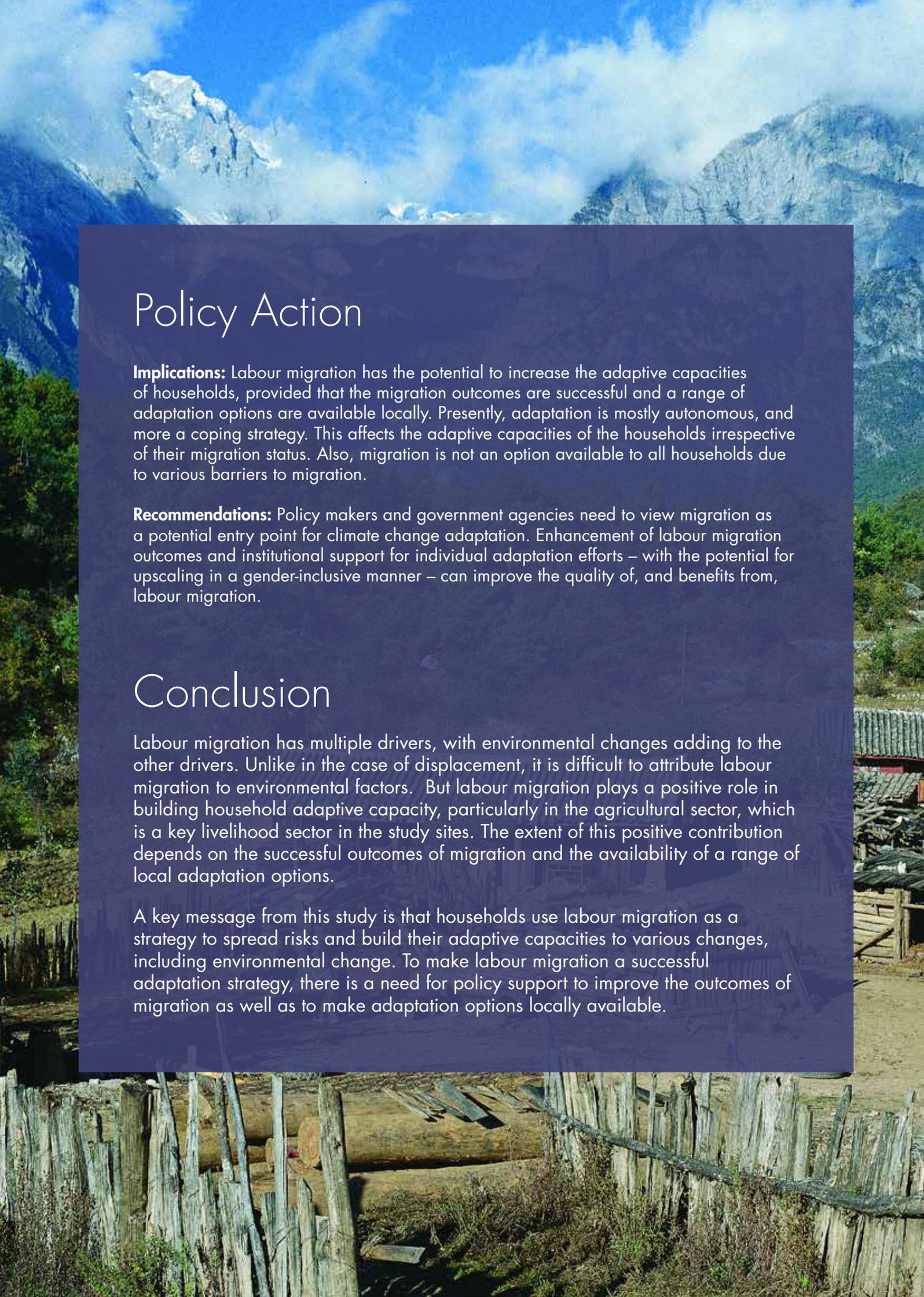


Percentage of household temporarily displaced by extreme events by migration status

An overwhelming majority (91%) of the households perceived changes in climate over the last decade. They reported an increase in annual average temperature, average temperatures in summer, and milder winters. Similarly, they say that there has been a decrease in annual rainfall but also that it has become more erratic. They also report that snowfall in upstream regions has decreased. However, only a limited proportion of households (35% regarding water, 30% for agriculture, 15%

regarding livestock and 7% in the forest sector) reported undertaking adaptive response measures to reduce the negative impact of environmental changes. Most response measures undertaken by households are autonomous, with short term benefits, but often detrimental in the long term. Again, there is a distinct difference observed in mountain and plains, with much lesser adaptation in mountainous areas due to the inherent mountain specificities. These findings are similar to that reported by Hussain et al. (2018) in the Koshi River basin, Nepal.

The survey revealed a positive effect of migration in augmenting household adaptive capacity, but is statistically significant only for the agricultural sector. Lower remittances, which are mostly used to meet the household food and non-food consumption requirements, with little savings for investments, could be a reason for non-investment in adaptation measures. Apart from migration, access to external stakeholders, information, and technology are essential for improving the adaptive capacities of households. So, even when households have sufficient remittances, non-availability of adaptation options locally also affects the ability of households to adapt.



## Policy Action

**Implications:** Labour migration has the potential to increase the adaptive capacities of households, provided that the migration outcomes are successful and a range of adaptation options are available locally. Presently, adaptation is mostly autonomous, and more a coping strategy. This affects the adaptive capacities of the households irrespective of their migration status. Also, migration is not an option available to all households due to various barriers to migration.

**Recommendations:** Policy makers and government agencies need to view migration as a potential entry point for climate change adaptation. Enhancement of labour migration outcomes and institutional support for individual adaptation efforts – with the potential for upscaling in a gender-inclusive manner – can improve the quality of, and benefits from, labour migration.

## Conclusion

Labour migration has multiple drivers, with environmental changes adding to the other drivers. Unlike in the case of displacement, it is difficult to attribute labour migration to environmental factors. But labour migration plays a positive role in building household adaptive capacity, particularly in the agricultural sector, which is a key livelihood sector in the study sites. The extent of this positive contribution depends on the successful outcomes of migration and the availability of a range of local adaptation options.

A key message from this study is that households use labour migration as a strategy to spread risks and build their adaptive capacities to various changes, including environmental change. To make labour migration a successful adaptation strategy, there is a need for policy support to improve the outcomes of migration as well as to make adaptation options locally available.

This brief is based on the following HI-AWARE publications:

Gioli, G, Maharjan, A., Gurung, M. (2017) Neither heroines nor victims: Women migrant workers and changing family and community relations in Nepal, UN WOMEN Working Paper Series.

Maharjan, A., Hussain, A., Bhadwal, S., Ishaq, S., Ahmed Basharat, S., Sachdeva, I., Ahmad, B., Hassan S.M, T., Tuladhar, S., Ferdous, J. (2018) Migration in the lives of environmentally vulnerable populations in four river basins of the Hindu Kush Himalayan Region. HI-AWARE Working Paper 20. Kathmandu: HI-AWARE

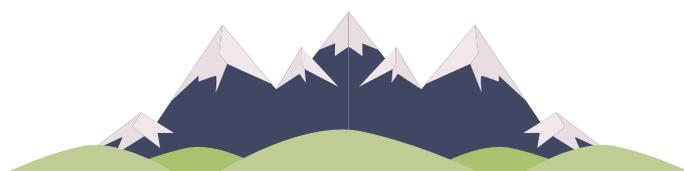
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Black, R., Bennett, S. R. G., Thomas, S. M. and Beddington, J. R. (2011). Climate Change: Migration as Adaptation. *Nature*, 478 (7370), 447–449.

Hussain, A., Rasul, G., Mahapatra, B., Tuladhar, S., 2016. Household food security in the face of climate change in the Hindu-Kush Himalayan region. *Food Security*, 8, 921–937. <https://doi.org/10.1007/s12571-016-0607-5>

Piguet, E. (2013). From 'Primitive Migration' to 'Climate Refugees': The Curious Fate of the Natural Environment in Migration Studies. *Annals of the Association of American Geographers*, 103, 148–62.

Tacoli, C. (2011). *The links between environmental change and migration: A livelihoods approach*. London: International Institute for Environment and Development.



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