MIGRATION IN NEPAL THROUGH THE LENS OF CLIMATE CHANGE

Case studies from Siraha, Bardiya, Ramechap and Udayapur districts.

Manthali municipality village, Ramechap district.

LI-BIRD

CANSA CLIMATE ACTION NETWORK South Asia

actionaid

Brot für die Welt

ACKNOWLEDGEMENTS

AUTHORS:
Lakpa Sherpa
Geeta Bhatrai Bastakot (Independent Consultant)

RESEARCHER:
Indrajit Bose (Independent Consultant)

LOCAL PARTNERS AND NGOS:
National Farmers Group Federations (NFGFs) in Siraha and Udayapur
ActionAid Nepal in Bardiya
Agriculture Knowledge Centre in Ramechap district

CONTRIBUTORS:
Durga Upadhyay (Climate Adaptation Expert, Nepal)
Dipak Gyawali (Nepal Academy of Science & Technology)
Harjeet Singh (ActionAid)
Mahesh Badal (ActionAid Nepal)
Sanjay Vashist (CANSA)
Rushati Das (CANSA)
Laxman KC (LIBIRD)
Shailendra Yashwant

EDITOR: Jessica Faleiro
DESIGN & LAYOUT: Roopa Rampura, Interactive Solutions.
DATE: January 2021
PUBLISHED BY: Climate Action Network South Asia (CANSA)

The authors are grateful to Ms. Pamela Metschar of South Asian desk of Bread for the World (BftW), Mr. Abhishek Dutta and Mr. Sandeep Sharma from Financial Management Service Foundation (FMSF) for their funding and support for execution of the project.

CONTACT:
Sanjay Vashist, Director
Climate Action Network South Asia (CANSA)
c/o Bangladesh Centre for Advance Studies Rd No 16/A,
Dhaka, Bangladesh.
KvK number in The Netherlands: 55304583
Website: www.cansouthasia.net Email: info@cansouthasia.net

CONTENTS

EXECUTIVE SUMMARY

It is widely established that unemployment, political dissatisfaction among youth, lack of quality education and better payment in wages abroad are major factors that drive migration in Nepal,[1] however, climate change is insufficiently recognized as one of the push factors driving migration in South Asia although there is evidence that it is happening.[2]

The Intergovernmental Panel on Climate Change (IPCC) reported that environmental change and natural disasters have been major drivers of migration (IPCC, 2014). It also highlighted that climate change would surge migration of people and their movement as weather-related disasters such as extreme precipitations and temperatures become more frequent and intense for the 21st century, impacting peoples' livelihood due to changes to climate conditions (IPCC, 2014).

While economic pull factors are widely assumed to be the driving force for migration in South Asia, there is a lack of data that captures the extent to which climate change is acting as a push factor that forces people to leave their place of residence. Communities do not receive sufficient support to cope with climate impacts and disasters, leaving them forced to migrate to find work, homes, and food. Poor and vulnerable people are thus leaving their homes and lands due to a climate problem that they did not cause. This trend is certain to escalate over a period of time, as climate change impacts worsen.

A recent study by ActionAid and Climate Action Network South Asia projects that even if the global community acts on their greenhouse gas (GHG) mitigation pledges and targets, about 37.5 million people will still be displaced by 2030 and an estimated 62.9 million by 2050 within the five South Asian countries. Nepal will see about 1.3 million people being forced to migrate from their homes by 2050 due to climate disasters, i.e. over three times more than the figures for 2006-2020. Current global pledges and targets see us on track for between 2.1°C and 3.3°C.[3]

This report captured qualitative research from discussions with communities across four research locations in Nepal. In doing so, it aims to contribute to the limited pool of existing data about the presence of climate-induced migration in Nepal. The research captured that changes in precipitation and temperature resulted in agricultural livelihoods being affected to such a degree that people were forced to migrate in search of livelihood.

While migration allowed households to sustain themselves, the absence of males in villages had some adverse impacts on those left behind.

Migration is also leading to a growing phenomenon of the feminization of agriculture as the women left behind tend to their family's agricultural lands on their own. Current and projected changes in climate will only exacerbate the impacts of disasters and migration. It is clear from this report that while more in-depth research is required to capture the scale of climate-induced migration, conversations with communities reveal that it is already happening.

In 2019, Local Initiatives for Biodiversity, Research, and Development (LI-BIRD), in collaboration with Climate Action Network South Asia CANSA), and

ActionAid International, and with support from Bread for the World, conducted a participatory research study of four sites across four of Nepal's districts namely: Siraha, Bardiya, Ramechap, and Udayapur (for research methodology details, please see Annex 1). The study aims to lend people's voices to the discourse looking at the climate change impacts on agricultural livelihoods, particularly related to migration, and to add to the available literature on the subject.

While the focus of the research was qualitative data collected from engagement with the communities, due to time and resource constraints, the sample was smaller than envisioned and dependent on local partner's presence in the research site locations. Another research limitation was that though a global literature review was conducted, it was challenging to find direct linkages between climate change and migration in Nepal. However, there are clear links between failure in agriculture leading to income loss and lack of employment, an established driver of migration.

1. INTRODUCTION

Nepal is flanked by the Himalayas to the north and the Indian Gangetic plains to the south. While this makes it a very ecologically diverse country, it also makes it one of the most multi-hazard prone countries in the world. Nepal's major hazards include earthquakes, floods, landslides, drought, cold waves, forest fires, and GLOFs (glacial lake outburst floods).[1] The Germanwatch Global Climate Risk Index 2020 ranks Nepal in the 20th position for countries suffering from weather-related loss events in 2018 and places it in 9th position for weather-related loss events from 1999-2018.[2] The Internal Displacement Monitoring Centre reported 121,000 new displacements due to disasters in Nepal in 2019, of which 29,000 people were living as internally displaced persons that year.[3]

The National Adaptation Programme of Action (NAPA) 2010 indicated of 75 districts, 29 districts are highly vulnerable to natural hazards such as landslides, 22 districts to drought, 12 districts to GLOFs, and nine districts to flooding.[4] A situation report on the recent Nepal flood and landslide event, which resulted in the displacement of people across 13 districts of Nepal, reported the displacement of 7,106 (35,530) families due to landslide and flooding, mostly in the mid-hills of Nepal.[5]

A recent study by ActionAid and Climate Action Network South Asia projects that even if the global community acts on their greenhouse gas (GHG) mitigation pledges and targets, about 37.5 million people will still be displaced by 2030 and an estimated 62.9 million by 2050 within the five South Asian countries. Nepal will see about 1.3 million people being forced to migrate from their homes by 2050 due to climate disasters, i.e. over three times more than the figures for 2006-2020. Current global pledges and targets see us on track for between 2.1°C and 3.3°C.[6]

Nepal's Human Development Index (HDI) for 2018 positioned it at 147 out of 189 countries, ranking its scale of progress in human development indicators, such as health, standards of living, and life expectancy, compared to other countries.[7] Most of the country's 28 million inhabitants live in rural areas, with only between 12 to 15 percent of the population concentrated in urban areas. Small-scale subsistence agriculture uses about 78 percent of the country's workforce and provides 36 percent of Nepal's Gross Domestic Product (GDP). Resource-dependent livelihoods are common in Nepal, and the country has low literacy rates, high hunger rates, and widespread poverty. Nepal contains a significant amount of freshwater derived from glaciers, snowmelt, and rainfall. These water sources and the associated river systems supply water for a large portion of the 178 million people who live in the Ganges River basin.[8]

Nepal is divided into three ecological zones: Terai (plains), mid-hills, and high hills. These ecological zones represent different climate zones, ultimately exposed to a diverse range of climate impacts.[9] About 60% of Nepal's total working population is employed in agriculture, forestry, and fishing, of which 73.6% are female, and 50.5% are male (CBS, 2014).[10] It has been challenging to modernize agriculture because of the country's hilly or mountainous topography and its climatic conditions, so modernization of agriculture has been slow or impractical in most cases. Added

to this, erratic monsoon rains, drought, and water scarcity, compounded by a growing population and under-employment, has resulted in migration becoming a livelihood strategy for many Nepalese.[11]

A 2016 International Organisation for Migration (IOM) study on the nexus between climate change, environmental degradation, and migration in South Asia observed that some households engaged in agriculture sent family members abroad to offset the loss of livelihoods that occurred due to shifting seasons, reduced rainfall and longer hot seasons.

This migration was temporary and circular and helped households adapt to the changing weather conditions.[12]

A 2011 research study by Asian Development Bank, looking at climate change migration scenarios in Asia and the Pacific concluded the following with respect to Nepal:

Migration—internal and international, permanent and temporary—has been significant in the past, partly in response to environmental pressures. The country's ecosystems are at great risk of freshwater unreliability and degradation. In some communities (e.g., Mustang), people have migrated because of water shortages. Climate change impacts, such as more extreme monsoon rainfall and associated landslides and floods, would impoverish many Nepalis in the hill and mountain valley regions.

Furthermore, glacial lake outburst floods will become more frequent, leading to a potentially significant increase in migration to other areas. The Terai, in the southern part of the country along the Indian border, is expected to be regularly affected by floods. This could lead to population movements to other parts of the country or abroad, particularly across the border to India. Estimates suggest that there could be some half a million migrants by 2030. The social impacts of these migratory movements need to be considered carefully, as they could increase tensions and competition between and within communities.[13]

While some evidence exists of the link between environmental degradation, water scarcity, and reduced income from agricultural livelihoods as push factors driving migration, more research is needed to establish clear linkages of climate change as one of the main drivers for migration. This research report seeks to contribute to the limited pool of data on climate-induced migration in Nepal. It begins with a background section about the current and projected changes in temperature, rainfall, and weather and the impacts of these changes. It then goes on to present the findings from all four research sites.

The second half of the report presents a study of institutional arrangements for climate-induced migration in Nepal and a review of national policies that could potentially be used to support people who are migrating due to climate change impacts. It concludes with a set of recommendations for policymakers and other stakeholders.

2. NEPAL AND CLIMATE CHANGE IMPACTS

2.1 Current changes in climate, and impacts

Nepal has become warmer.[1] According to the Government of Nepal's submission on Nationally Determined Contributions (NDC), data on temperature trends from 1975 to 2005 shows a 0.06°C rise in temperature annually, whereas mean rainfall has significantly decreased on an average of 3.7 mm (-3.2 percent) per month per decade.[2] There has been a steady increase in hot nights and a decrease in cold nights; droughts are becoming more frequent, and there is an increased incidence of Glacier Lake Outburst Floods (GLOFs).[3]

In relation to precipitation, the average annual rainfall has decreased since 1960, by an average of 3.7 mm per month, per decade.[4] This decrease is particularly significant during the monsoon period (June-September).[5] Regarding the change in precipitation, however, there is still a lack of a clear trend.[6] Studies have also found that the frequency and intensity of weather extremes are increasing in the Koshi river basin.[7] The Ministry of Forests and Environment's report on 'Climate Change scenarios for Nepal' as part of their National Adaptation Plan (NAP) stated that the number of rainy days is increasing significantly mainly in the north-western districts,[8] that very wet and extremely wet days are decreasing significantly, mainly in the northern districts[9] and that trends in warm days and warm nights show a significant increase in the majority of the districts.[10] Similarly, warm spell duration is increasing significantly in the majority of the districts.[11]

These observed changes have come with a cost. A 2013 study on Economic Assessment of Climate Change in key sectors (agriculture, hydropower, and water-induced disasters) has estimated that the direct cost of current climate variability and extreme events is equivalent to 1.5 to 2 percent of current GDP/year (approximately USD 270-360 million/year in 2013 prices) and much higher in extreme years.[12]

Increasing temperatures and rainfall variability have resulted in shifts in agro-ecological zones, prolonged dry spells, and a higher incidence of pests and diseases.[13] An increase in the frequency and intensity of droughts can lead to forest fires; in 2016, fires impacted 50 districts and damaged 12,000 community forests.[14] Due to increasing drought, wetlands (especially in the Terai) have been depleted, resulting in the destruction of aquatic plants and fish.[15]

Agriculture is a source of both income and food security.[16] The most productive agricultural areas are in the floodplains of the Terai, which are vulnerable to floods and riverbank cutting.[17] Most agricultural area is rainfed (75 percent) and is affected by droughts, floods, and monsoon rainfall, which reduce crop and livestock production.[18] Droughts are becoming more frequent, particularly during the winter months and in the western Terai plains due to the late arrival of monsoons.[19] Rice yields are particularly sensitive to climatic conditions and may decline in this region, threatening food security.[20]

The impact of the 2008-2009 winter droughts on farming and local food security was severe.[21] In that period, most monitoring stations received less than 50% of normal rainfall, 30% recorded no

precipitation at all, and temperatures were 1-2°C above average.[22] At the national level, wheat and barley production decreased by 14.5 percent and 17.3 percent, respectively and the 2009 maize production was also seriously affected.[23] Communities that supplement their food supply from agriculture with forest products found that the drought had severely reduced what they could harvest.[24]

2.2 Projected changes in climate, and impacts

Under various climate change scenarios for Nepal, mean annual temperatures are projected to increase between 1.3-3.8°C by the 2060s and 1.8-5.8°C by the 2090s.[25] Over the 2016-2035 period, the global mean surface air temperature is very likely to be between 1-1.5°C above the 1850-1900 mean.[26] Yet, one major caveat applies.[27] These figures are reported at the global level.[28] However, what is relevant for Nepal is the local temperature change: Intergovernmental Panel on Climate Change (IPCC) Working Group 1 data reveals that a global average of 2.5- 3.5°C warming means a local warming of 3-4° C for Nepal.[29] Furthermore, for 2081-2100, local warming in Nepal is projected to be approximately 1.5°C higher than the global average.[30] In Nepal, where local warming is projected to exceed 4°C, the gulf between productivity and demand is expected to result in 'very significant' risks for food security.[31]

In relation to precipitation, annual precipitation reduction is projected to be in a range of 10 to 20 percent across the country.[32] Intense precipitation events are likely to increase in frequency, with extremely wet days expected to increase at a higher rate than very wet days.[33] The number of rainy days is likely to decrease in the future. This, in combination with the increase in precipitation intensity, is likely to create more water-related hazards in the future.[34] Indices of climate extremes related to temperature and precipitation suggest that more extreme events are likely in the future.[35] This is expected to affect different developmental sectors, such as water, disaster management, energy, biodiversity, agriculture, health, urban planning, and livelihoods.[36]

According to a 2015 study, the impact of climate change on Nepal's agriculture is likely to reduce GDP by about 0.8 percent per year in 2050.[37] Amongst other things, this will come from more intense and frequent droughts that can damage crops and reduce yields.[38] A 2019 study carried out in the Karnali Basin by Center of Research for Environment Energy and Water (CREEW), International Centre for Integrated Mountain Development (ICIMOD), and International Water Management Institute (IWMI), characterizing drought events over a 34-year period, revealed incidences of drought in the following recent years: 1984–85, 1987–88, 1992–93, 1994–95, 2004–09, and 2012. The study noted that the winter droughts of 1999, 2006, 2008–09 were widespread, and the monsoon drought increased its frequency. The study also related changes in precipitation patterns during these periods to changes in crop yields (particularly paddy, maize, millet, wheat, and barley) in the area.[39]

Changes in precipitation will be the primary source of Nepal's vulnerability to climate changes.[40] Changes in precipitation, combined with changes in the rates and timing of glacial melt, could

change the variability and availability of Nepal's water resources.[41] Too much or too little water will have serious implications for Nepal's biodiversity andforestry, agriculture, and hydropower energy production.[42] Too little rainfall will reduce rice and maize cultivation, which is the main source of food for much of the country's population.[43] In-adequate rainfall would disproportionally affect already vulnerable populations, including women, the poor, and other disadvantaged groups.[44] Too much rainfall can also destroy crops and increase topsoil erosion.[45]

Agriculture in Nepal will face immense challenges as seasonal drought increases.[46] Studies suggest that rice yields will decline by a 4.2 percent yield relative to current levels by 2100,[47] and an estimated loss of rice yield ranging from 1.5 percent by the year 2030 to 4.2 percent by 2060 and 9.8 percent by 2090.[48]

Climate change is also a critical stressor that interacts with other stressors such as high levels of poverty, low human development, high inequality, and cultural and institutional factors that shape development outcomes.[49]

The increase in the number and intensity of natural disasters will prevent many Nepali households from rising above the poverty line.[50] Under median climate change projections, the flood impact on each household will double, and the number of households affected directly will increase by 40 percent.[51]

For years, Nepali hill people have coped with food shortages through seasonal migration, but recently the rates of out-migration have soared.[52] Migration, whether seasonal or long-term, is a crucial strategy of adaptation for many households.[53] While it does reduce risk and, in the short term, can contribute financial resilience through remittances and reduced reliance on land-based livelihoods, it also alters community relationships and local resource management dynamics.[54] The long-term implications of such a strategy could debilitate the social and economic health of the country as domestic skill and expertise declines.[55]

Box 1:

Major Climate Change Impacts Identified by IPCC's 5th Assessment report, for Nepal:

- Increase in poverty in low and lower middle income countries, including high mountain states
- Increase in mountain phenomena such as slope instabilities, mass movement, glacial lake outbursts, and increase in hazards due to moraine-dammed lakes
- Decrease in mountain glaciers
- Increase in economic losses from weather and climate-related events.
- Decrease in biodiversity in mountain ecosystems given the limited range of population movement of the species
- Greater radiative effect of deposited soot and, therefore, a more significant impact on snowmelt

Source: https://climateanalytics.org/media/briefing_ipccar5-implications_for_nepal_final.pdf

3. NEPAL'S MIGRATION PROFILE

Historically speaking, the origins of migration in Nepal are traced as far back as 500 BCE, where movements in and out of Nepal were influenced by the Trans-Himalayan trade between India, Tibet, China, and Nepal.[1] In the previous century, labour migration for foreign employment from Nepal was characterized by the outflow of people to India, where, because of the open border, Nepalis did not require any documentation to cross over to the other side.[2]

International labour migration has picked up substantially in recent times, and at present, almost half of all the households in Nepal have a family member abroad or a returnee. The top destinations for migration are the Gulf States like Qatar and the United Arab Emirates, and countries in East and Southeast Asia, such as Malaysia.[3] Also noted are migration trends of rural Nepalese moving to India and urban areas of Nepal as seasonal migrants, to earn money during low workloads, usually between planting and harvesting seasons. In terms of trends, internal migration is generally characterized by movement from the hilly to the Tarai regions or rural to urban migration.[4]

Migration aspirations, particularly for youth, are driven by a perceived lack of suitable employment opportunities combined with apathy towards and mistrust of the political system. The wage differential between Nepal and abroad is also a significant push factor.[5]

Remittances contribute to nearly a third of Nepal's Gross Domestic Product (GDP) and are credited for the significant reduction in poverty rates. Migrant returnees are also more enthusiastic about entrepreneurship and economic development upon their return, as they try their hand at various economic ventures.

Research indicates that while the migration is economically beneficial to migrant households, the extent to which migrants and their families benefit from migration varies by caste, ethnicity, class, and region. For example, hill and Tarai Dalit migrants, including those from the lowest economic background, earned relatively less during their experience abroad compared to other groups. Migrant households are in more debt with moneylenders than non-migrant households as they need to take loans to finance the migration of their family members abroad, for example. Such loans can't easily be accessed from banks, so they turn to moneylenders instead. Migrants are also able to afford land purchases more easily compared to non-migrants.[6]

In terms of gender relations, the migration of male family members can be both empowering and disempowering for women. Those left behind have greater autonomy and decision-making power when it comes to tending their agricultural lands or taking care of the family, as well as increased mobility and exposure to the outside world, for example, but many find it more stressful without the male family members present to balance out the responsibilities and decision-making of looking after the household and assets.[7]

There have been very few studies in Nepal that have looked into the climate change, environmental degradation, and migration nexus. However, a few studies on climate change and disasters have recorded cases of labour migration, dis-

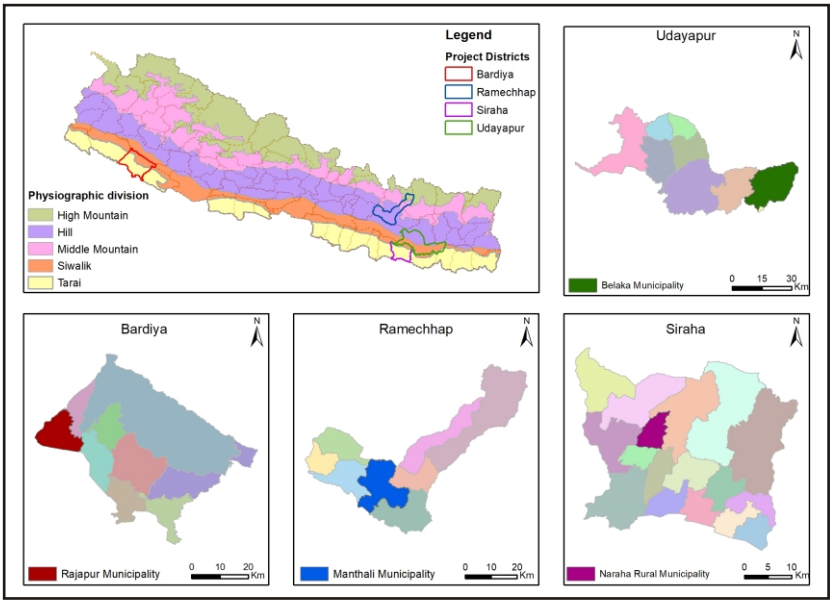


Figure 1: Location of Participatory Research Study (PRS) sites - Siraha, Udayapur, Ramechap and Bardiya districts.

placement, and temporary or permanent migration in search of better livelihood measures. An example of this being: "In essence, in areas of rain-fed agriculture, it is farmers and their families that cope with drought in whatever manner they can. Often this entails extending seasonal migration for work (called nimek garne) by leaving earlier[8] and staying out for a longer period'.

Similarly, a case study prepared by ISET-Nepal for the International Centre for Integrated Mountain Development (ICIMOD), based on their study of four eastern and central districts of Nepal to understand the community responses to "too much and too little water," observed temporary migration for wage labour to various internal and international cities from these areas, particularly after any major crop-destroying disaster. On the part of disaster-led migration, a 2011 study by Banerjee et al.[9] conducted in eastern hills and Tarai of Nepal mentions that chances of migration were higher in communities exposed to rapid-onset disasters compared to the slow-onset ones.[10]

It is evident that more research needs to be done to categorically identify climate change as one of the push factors driving migration. This research study, though qualitative, seeks to contribute to the existing pool of data on climate-induced migration in Nepal through discussions with farmers and villagers from four districts across Nepal.

4. COMMUNITY VOICES: SIRAHA DISTRICT

Participatory Research Assesment with villages of Siraha. (Photo credit: LIBIRD)

"We can't rely on agriculture for our income or cover our expenses anymore. Furthermore, there is a growing demand for low and semi-skilled Nepalese labour to go overseas. We can earn much more income than if we stay in Nepal." (Ram Kumari Nayak, 32, Ward no 1, Naraha, Siraha district)

Naraha is a rural municipality in Siraha district, located in the Terai ecological zone. The residents of Naraha mainly belong to the Madhesi ethnic group. Rain-fed agriculture is the main occupation for the majority of households. They have two cropping seasons: they plant rice during the monsoon season and wheat, vegetables, lentils, and potatoes during the winter period. The houses use shallow tube-wells for irrigation and have several natural ponds around the area. They use pond water for household chores such as washing, cleaning, religious purposes, and livestock-raising.

4.1 Climate change impacts

The participatory research study involved focus group discussions with people from Naraha, Wards number 1 & 2, which have a combined total of about 1300 households. The people said that although they faced problems of flooding and water-logging every year since the start of the settlement, the intensity of flooding and number of incidences of flooding events had increased in the last 2 to 3 decades.

With increased flooding of the Kamala river, Gagana stream, and Balan stream, community settlements near riverbeds have been exposed to flash floods and soil erosion along the riverbanks.

Discussions revealed that, in 2019, about 100 Bigha (0.13 sq. km) of land was impacted and/or destroyed by the flooding situation in the Siraha district.

Inundated lands remain waterlogged for about 6 to 7 days, and during each monsoon season, there are, on average, 3 to 4 flooding events of this scale.

When asked what specific problems they faced, farmer Ramsewak Yadav, said, ***"The floods destroy our fields and crops. We have to re-invest in preparing the fields for another round of plantation, without any guarantee that the re-investment will produce a good yield. Survival here isn't easy."*** During the flood periods, people reported mobility problems and a lack of access to safe drinking water, food, and shelter. Traditional mud houses, commonly built in this area, washed away during flood events. In addition to the destruction of crops, livestock such as chicken and goats died.

4.2 Impacts of migration

Discussions with women in the groups revealed that they faced unique challenges in the absence of males, who had migrated in search of a better income. Households with male members shared chores and activities, even during flooding. Still, otherwise, women struggled to look after their households and perform chores if left behind, with their children or elderly family members. They struggled to manage the cooking and washing because of increased floodwater levels in the settlement. In such a situation, mobility was an issue, and going to the toilet was a particular challenge due to toilets' inundation during flooding. The study village lacked alternative toilet facilities, such as raised toilets found in some villages in Nepal's western terai districts. People usually sleep in elevated areas such as schools, built roads, or flood shelters.

People added that they had also been experiencing erratic rainfall patterns during the monsoon season in the last 2 to 3 decades. Notably, the delayed onset of monsoon had caused delays in the plantation, sowing, and drying of crops because of prolonged dry spells and inundation of crops due to excessive rainfall in the latter part of the monsoon. Crop yields were decreasing, and households were suffering from a shortage of income and the inability to manage their household expenses. This, coupled with the rising cost of living, resulted in male members migrating.

The communities said that about 500 male members from 1300 households had migrated to different places to earn a livelihood. Out of this, 60% of the migrant men had gone to the Gulf countries, Malaysia and India. The rest had migrated within Nepal to cities like Kathmandu, Biratnagar, and Lahan. Seasonal migration was mostly to cities and India. For example, people migrated to Punjab during the harvesting season to earn an income and return. Households who didn't have the resources to travel further away to India or even bigger cities within Nepal just took up daily labour or monthly paid work nearby.

Remittances from migrants in the Gulf countries were used to construct elevated, modern cement houses, replacing traditional mud homes so that the new homes didn't wash away or get easily flooded.

Doing a problem tree analysis with the community (see Figure 2) showed that the main reasons for migration centered around decreasing income due to lower crop yields or destroyed fields. The decrease in profit from agriculture com-

bined with the increased investment and production costs such as the expensive purchase of manure, seed, pesticide, labour charges, and cost of irrigation, had forced the male popula-tion to migrate to earn some money.

Climate variations such as erratic rain-fall, too much or too little rain, shortage of precipitation in the summer season, and cold season variations also affected crop production to such a degree that men were forced to migrate to survive.

The positive impacts of migration, for people, were the assurance of their household expenditure being covered for a certain period, back home.

Remittances were used to construct stronger houses that wouldn't wash away during flooding.

The challenges people faced with migra-tion were the loss of social cohesiveness as families managed without the male members of their families.

Children suffered from a lack of the father's presence and the additional burden on women family members.

Women struggled to manage when children or elderly family members fell sick, on top of their regular household duties and the additional burden of responsibilities they had when men were absent.

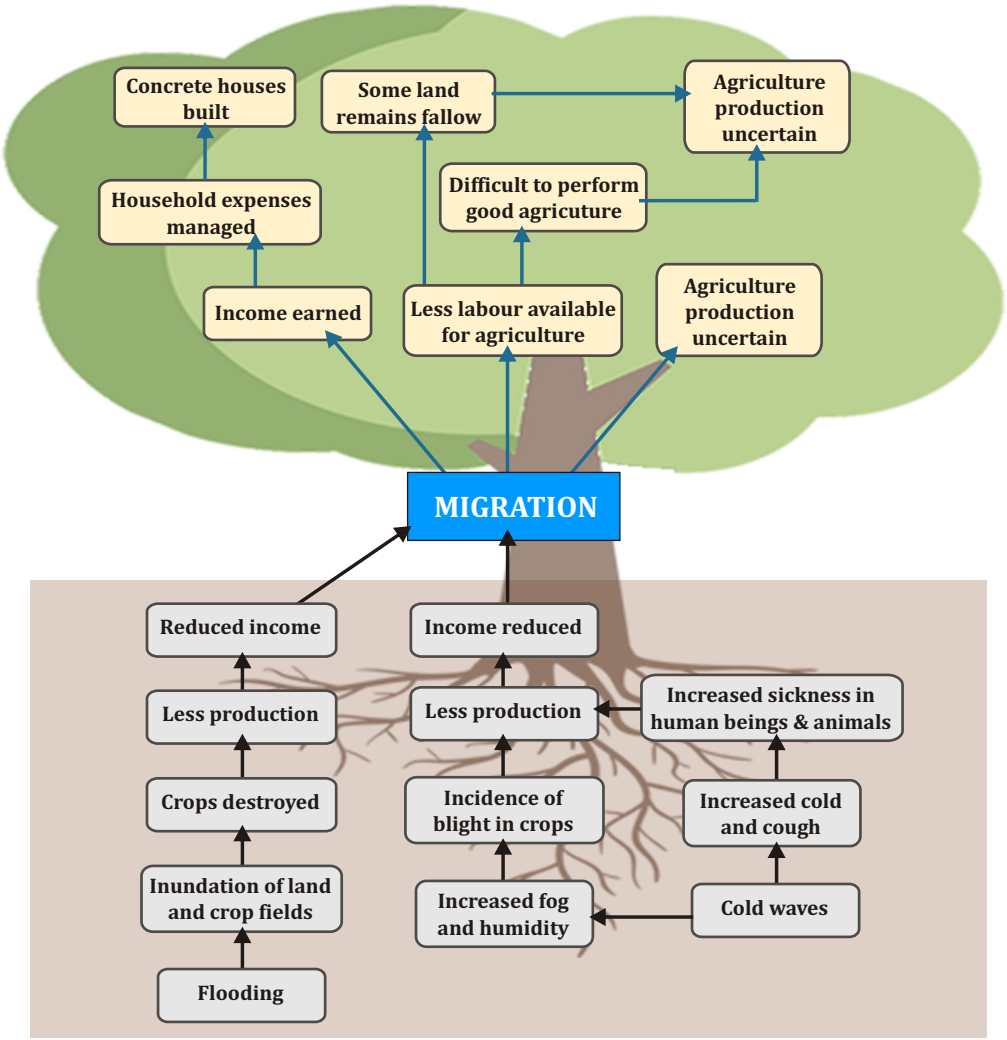


Figure 2: Problem Tree Analysis – Siraha District

Rain-fed agriculture is the main occupation for the majority of households in the Terai region of Nepal. (Photo credit: Shailendra Yashwant)

4.3 People's solutions to address climate change and migration:

When asked how they'd like changing climatic conditions to be addressed and for solutions to minimize migration in their communities, people put forward the following suggestions:

The rural municipal government authorities should introduce support programs that promote flood and drought-resistant crop seed varieties.

The rural municipal authorities should fund, provide, and promote solar irrigation facilities that help utilise groundwater to deal with long dry spells so that farmers can still cultivate crops. This is a climate-smart, energy-efficient option for irrigation.

Rural communities want to be taught the skills for agricultural management practices that could help them more.

They wanted the creation of employment opportunities for youth and more vocational training skills beyond agriculture.

Communities wanted the local administrative unit to enhance their technical support and coordinate and link in more with agriculture extension officers and soil and watershed management officials.

5. COMMUNITY VOICES: BARDIYA DISTRICT

"We had to consume dry foods, mainly noodles and biscuits. Pregnant and lactating women were worse off, as they needed more nutritious food but couldn't get it. We lost our furniture, clothes and food grains – they were all destroyed by floodwaters. It was also every difficult to manage children and the elderly, as they needed more care. We had only 3 boats that the community could use to travel up and down on the floodwaters. My kids and I survived eating a handful of rice and water every day." - Balkumari Tharu, 30 years old, Sangharshanagar.

Rajapur municipality is located in the Bardiya District, in the Terai ecological zone of Nepal. It has ten wards with 10,916 households residing there. The total population is 59,553, out of which 30,632 are female, and 28,921 are men. The majority of the population belongs to the Tharu community.

As part of the participatory research study, focus group discussions were held with groups of people from Sangharshanagar, in Ward no. 4 of Rajapur municipality. The people from Sangharshanagar are mostly from a marginalized group called the Mukta Kamaiya (Freed Bonded Labour Community) who are of Tharu ethnic origin and were historically kept as bonded labour as collateral or payment against loans taken from landlords. They were given to households to do chores and carry out laborious work in return for food, clothes, and shelter provided to them by the family they worked for.

This type of relationship lent itself to discrimination and abuse over time, until 15 years ago, when the government decided to free these bonded labourers through legislative decrees, granting the ability to receive identity cards and agricultural lands.

However, out of 636 freed families in 2005, only 230 have received identity cards. Those without any identity cards are not free to move around if they have to, in search of an income.

5.1 Climate change impacts

Speaking with the communities, it was found out that this area was prone to flooding events and drought. People said that unpredictable rainfall resulted in too little rain during the monsoon period, causing drought and resulting in lower crop yields, and too much rain fell in intense amounts, out of season, causing flooding events at unusual times. They described a major flooding event in 2017 when people suffered as they had to move to elevated roads for shelter, living there until floodwaters subsided.

In the last two to three decades, particularly prolonged dry spells in the summer season every year has resulted in water sources drying up in the mid-hills area and thereby reducing the amount of available surface water in the Terai region. The groundwater table dropped. People reported increased daily temperatures in the summer season, which worsened the water shortage problem.

Surtiya Tharu, a farmer from Sangharshanagar, said, 'During drought, there are frequent disputes and fights that break out over access to limited deep tubewell water, which has a strict allocation period.'

The most affected ones are the Mukta Kamaiya people who own a small land parcel for cultivation and get reduced crop production due to the drought situation. As a result, the food is not enough to meet their consumption needs for the year. It compels them to look for wage labour options in nearby cities or even migrate seasonally to different parts of India.

Floods have led to the inundation of fields and households, destroying crops, livelihoods, and shelter and forcing people to live in a temporary shelter on elevated roads. Drought has resulted in less water available at the right times for paddy production and other crop growth, resulting in low yields and bad harvest.

Reduced incomes and disputes over access to limited water during severe shortages forced male community members to migrate to improve their income situation and provide for their families.

5.2 Impacts of migration

Migration seems to be the only way people can earn enough to pay their household bills and expenses. But when flooding occurs, the lack of men in the area makes it more difficult for women, children, and the elderly to escape the rising floodwaters to safety. Some single elderly women without men in the family to care for them had a more challenging time escaping to safety. Other women said they had a tough time when men from the family had migrated but didn't send any remittances home. The lack of men in the communities has created an additional burden on women's work, as they look after children and the elderly themselves and agricultural fields left fallow. Still, when floods occur, they are left to cope with the household losses themselves. Figure 3 outlines the problem tree analysis captured in discussion with the communities.

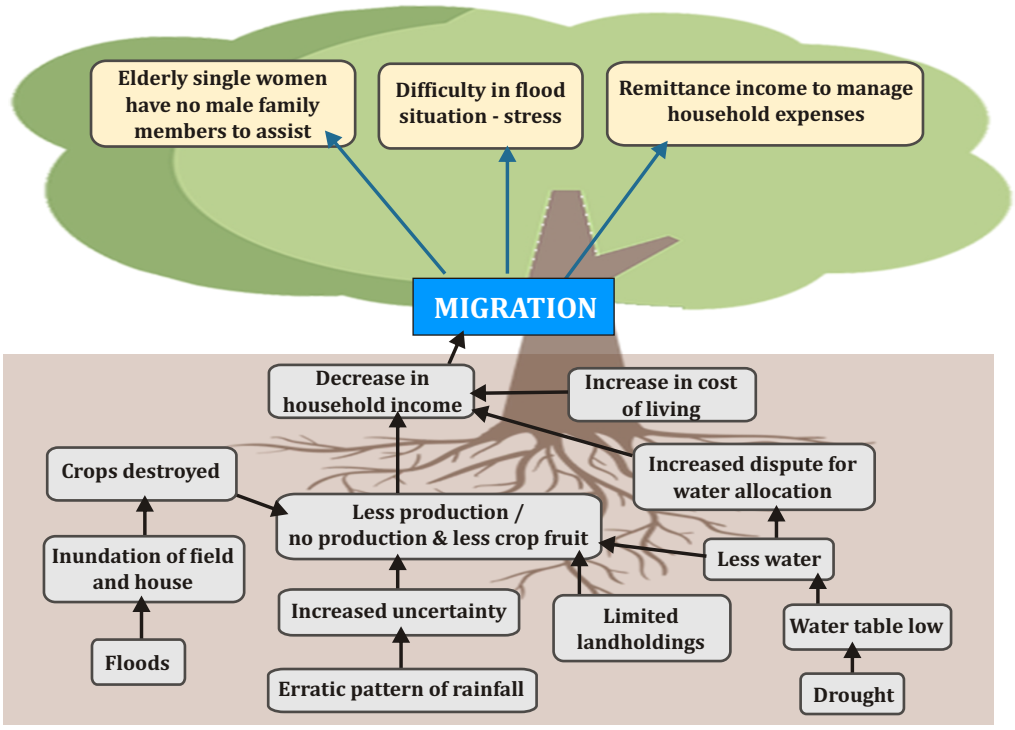


Figure 3: Problem Tree Analysis – Bardiya District

Participatory Research Assessment with villagers. (Photo credit: LIBIRD)

Discussions with the communities revealed that 25 to 30% of the local population had migrated to earthquake affected districts like Ramechap, Dolakha, Surkhet, Gorkha and Pokhara to earn an income from earthquake reconstruction jobs that were available. About 5 to 9% of the population migrated to Gujarat and Delhi, in India. Most of the communities in this ward did not have the resources or networks to support their migration to the Gulf or Malaysia.

5.3 Peoples' solutions to address climate change and migration:

To address the changing climatic conditions and minimize migration the people put forward the following solutions:

People want local government to provide flood and drought tolerant seeds and crop varieties so that their agricultural production is less affected by floods or drought.

People would like to receive training and skills-building in alternative livelihoods to earn an income and so that they can become more employable in other industries

The youth, and marginalized, in particular, should receive skills-training, so that they are more employable in industries other than agriculture

People want to be encouraged to create and set up enterprises, as well as receive government support and training to do this.

6. COMMUNITY VOICES: RAMECHAP DISTRICT

An abandoned house in a village upstream in Ramechap district. (Photo credit: LIBIRD)

"In recent years, rainfall has declined and temperature has increased in this village. As a result we have faced different new kinds of pests and diseases affecting our crops. Changes in rainfall pattern and pest infestation has affected crops production in our village." - Mr. Sabin Subedi of Sani Madhav village

Ramechap district, in the mid-hill ecological zone of Nepal, is in a semi-arid to dry area that is vulnerable to drought. Ramechap became one of the most badly affected districts in Nepal, during the 2015 earthquake. The municipality of Manthali is its urban district headquarters. The participatory research study was carried out in Ward number 8, Sani Madhav, which is one of the wards within Manthali municipality.

6.1 Climate change impacts

People from Ward number 8, Sani Madhav said that about 15 years ago, 8 out of the 16 water springs and streams in their locality dried up due to erratic rainfall patterns. As a result, about 30 households migrated to Sani Madhav from upstream areas. Agriculture was affected by the limited amounts of water available for irrigation and crops failed. A study carried out using recorded data from the hydrological station in Manthali revealed the increasing rise in temperature and decrease in number of dry months that resulted in a decrease in total annual rainfall. Such changes in rainfall patterns have affected the cropping pattern. This research also indicated the high drought exposure index of Pakarbas and Chisapani villages of Ramechap, which led villagers to migrate to areas where water was available to carry out agriculture.[1]

Similarly, respondents from Sani Madhav clearly stated that one of their main reasons for migrating downstream was low agriculture production due to water shortages caused by lack of rainfall and

exacerbated by high temperatures. Additionally, they had no alternative livelihood options and suffered from a scarcity of suitable drinking water.

As people's incomes declined, the male members of some families migrated to India, in search of work. Since 8 of the 16 water sources still had water, house settlements located upstream shifted downstream, where they had better agricultural production and could access water more easily from the remaining water sources. Eventually, as their financial situation improved, migration to India decreased in the area. Recently some people (about 2% of the adult male population) have migrated to Saudi Arabia as unskilled labourers through manpower agencies. In 2015, the period of reconstruction that followed post-earthquake provided paid work for people, which resulted in a decline in migration at that time.

People have changed their crop plantation calendar to adjust to the changing pattern of rainfall. Plantation and harvesting times are happening later than before. However, **in the last 8 years or so, three more water sources have dried up leaving only five water sources that can still be used for agriculture.** At the time of the participatory research study, the people revealed that even the remaining five had dried up that season, worsening an already vicious cycle of drought that they were trying to cope with. The erratic pattern of the monsoon rains hadn't produced sufficient water to recharge the streams and water sources, nor was it sufficient to provide a steady supply of water for the different stages of paddy cultivation. Due to the repeated problem of water shortage for nearly 8 years, last year, farmers grew maize as an alternative, instead of paddy, as it requires less water. The maize grains did not grow properly and for many, their maize crop was destroyed by an infestation of the Armyworm pest.

Crops destroyed by an Armyworm infestation in Ramechap district
(Photo credit: LIBIRD)

Climate change has been considered as one of the reasons for the outbreak and spread of Armyworm in Nepal, particularly the changes in temperature. It is said that the pest entered Nepal through India while importing fruits and vegetables due to poor quarantine procedures and lack of proper checks at the open border points. The Armyworm severely affected the growth of maize in different parts of Nepal and farmers could not adopt any control measures due to the lack of awareness about the pest. Since this was a new outbreak in Nepal the concerned authorities also seemed ill-prepared.

Research studies show that the armyworm thrives in a tropical, warm climate with mean annual temperatures from 17 to 35 degrees Celsius and mean annual rainfall between 1 and 400 mm. South Asia's tropical wet and dry, humid and subtropical, and semi-arid climate provides a favourable environment for the armyworm pest to thrive year around. Economically, it poses a threat to crops like rice, sugarcane, sorghum and maize.[2] A research study by the Centre for Agriculture and Bioscience international (CABI) and the University of Exeter linked climate warming as one of the reasons for the successful spread of the armyworm across regions where the optimal conditions for its growth could be found.[3] The Food and Agriculture Organisation released a report in 2020 that identified the wide spread of the armyworm in Nepal as a threat to food security.[4]

6.2 Impacts of migration

People said that more households had migrated from the upper belt to downstream Manthali Municipality, to have access to better facilities in the municipality, like drinking water pipes. The impact of this move in households means that there will be a long term impact in the availability of water from a limited number of sources, not only for crop irrigation, but also for drinking and household purposes. Manthali municipality has already put controls in place to ration the drinking water supply. Reduced agricultural income, rising costs of living and inflation led to male members of the family migrating to India and young family members to Saudi Arabia to earn an income. Figure 4 outlines the problem tree analysis captured in discussions with villagers from Ramechap district.

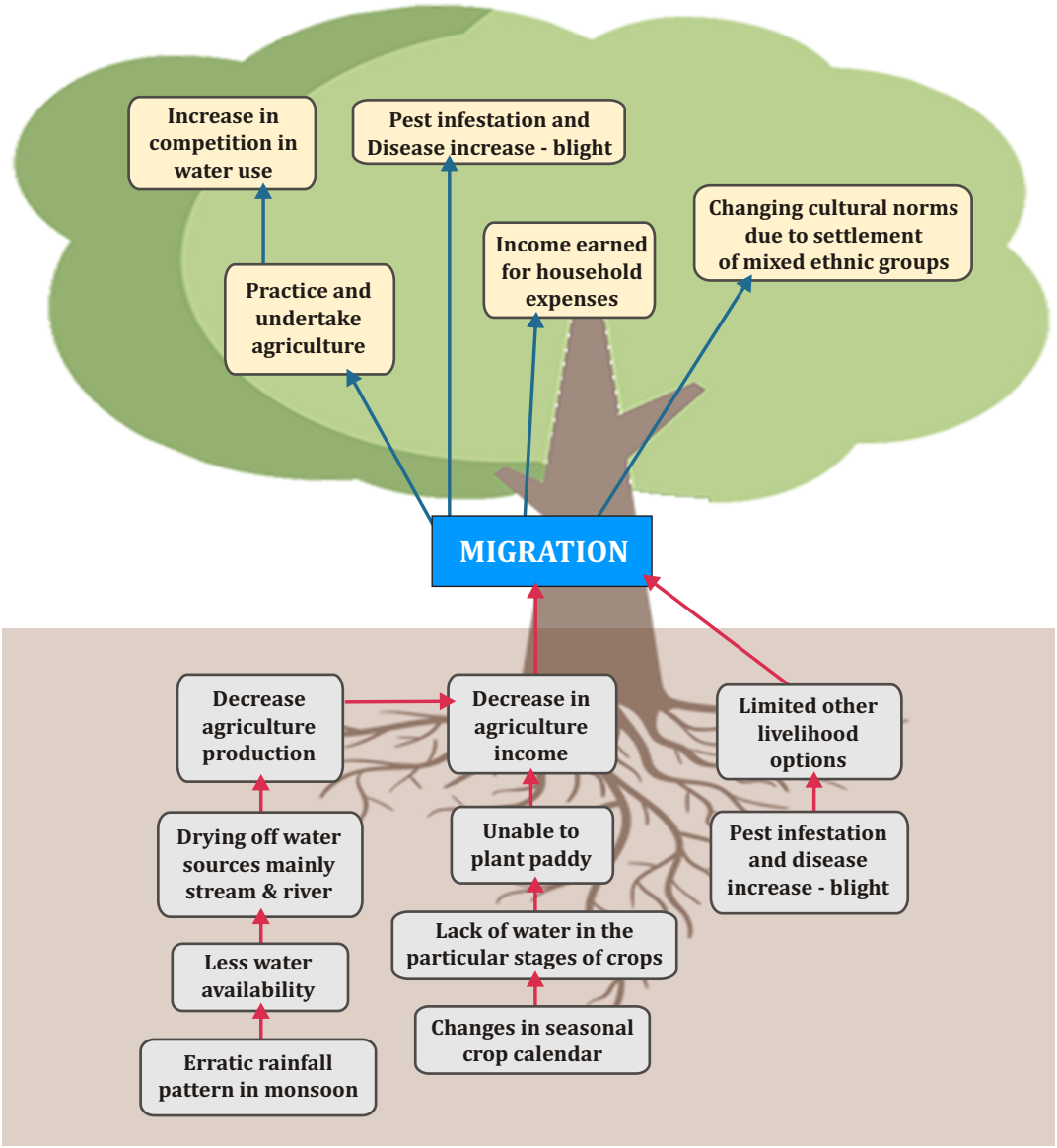


Figure 4: Problem Tree Analysis – Ramechap District

The experience at Sani Madav demonstrates that with access to enough water for agricultural production, for drinking water and to fulfill necessary household purposes, people prefer to not migrate. However, water scarcity due to erratic rainfall patterns directly lowers people's income from agricultural production, forcing them into a situation where they have to migrate for work. It also demonstrates that limited water sources will not be able to meet future needs, as access to water resources dwindle due to projected climate change predictions, among other factors.

Internal migration from upstream to downstream areas is already starting to put pressure on a limited water supply and the people in the focus group discussions said that additionally, the changes in local social structure due to the entrance of different ethnic groups from upstream areas, having different cultural and social values, could potentially lead to challenging conflicts over time, exacerbated by water scarcity in the area.

A recharge pond in Ramechap District. (Photo credit: LIBIRD)

6.3 Peoples' solutions to address climate change and migration

To address changing climate conditions and minimize migration, the communities put forward the following solutions:

Since this is a semi-arid to dry area, government should prioritise addressing the water shortage problem by constructing different ponds for soil moisture recharge.

Additionally, they should plan, develop and implement an irrigation program to address the crop irrigation challenges this area is currently facing.

People lack the financial resources or networks to develop irrigation facilities or recharge ponds, so government bodies should work with non-profit organisations, for example, to support these activities and make them happen.

Government agencies to support the introduction of crop varieties and seed that can tolerate drought and the Armyworm pest

Government need to provide information flow to farmers to act immediately when a crop pest infestation occurs so that farmers could adopt proper control measure.

Local people also opined that they require some sort of social safety nets or security funds from the government at different levels, from federal, provincial and local levels, during times of climate shocks, to help cover their losses from pest infestations.

People want training in local alternative livelihoods and opportunities for local employment, so they won't be as reliant on migration for an income.

7. COMMUNITY VOICES: UDAYAPUR DISTRICT

"We are facing erratic patterns in rainfall, sometimes there is no rainfall for long period whereas sometimes there is too much of rainfall. People in the village find it difficult to cultivate paddy in time due to lack of water in time. Again in later stage of crop there is too much of rainfall destroying the standing crops. It has resulted in significant decline in paddy production. Many people in the village even find it difficult to meet their food requirements for the whole year." - Mrs Kamala BK, 30, Ghumne village.

7.1 Climate change impacts

The participatory research study was conducted with villagers from Ghumne, Ward number 5 in Belaka municipality. Communities said that the fluctuating rainfall pattern resulted either in not enough water during the different stages of the planted crop cycle, or so much rainfall that crop manure was washed away, both resulting in bad fruit or grains, and low crop harvests. Farmers were unable to live off the low income from lower crop yields. Additionally, the Armyworm pest infestation means that they had to increase their purchase and usage of pesticides, which increased their cost of agricultural inputs. Commercial agriculture is impossible as it requires larger volumes of water, which is unavailable due to shortages in the area. Agricultural extension services are not good and farmers have no knowledge and capacity to deal with climate variability.

7.2 Impacts of migration

Unable to cover their household bills and with the increased cost of living over time, the only way to earn an income is for the men to migrate overseas to Malaysia and Korea. Communities said that they went to Malaysia because of the networks of people present there that could help them. In comparison, they found the Gulf countries too hot and said the visa processing took more time. Households with limited resources migrate to India on a seasonal basis for income generation and return in the monsoon season to plant their crops. Figure 5 outlines the problem tree analysis developed from discussions with villagers in Udayapur district.

Money from remittances was used to pay the household expenditure and other bills. Families could invest in their children's education. But, there were many downsides to migration too, according to the communities. Youth, seeing the economic benefits of migration, look to migrate for work themselves, soon after their secondary education. As a result, many of the youth have migrated, creating a disconnection between them and the family they've left behind. There are less young people available for agricultural labour and many parcels of land are kept fallow due to lack of labour to work on them in the areas where migration is high. There are less people left behind to conduct religious rituals and funerals. Consequently, the social and cultural fabric of the area is disintegrating, due to migration.

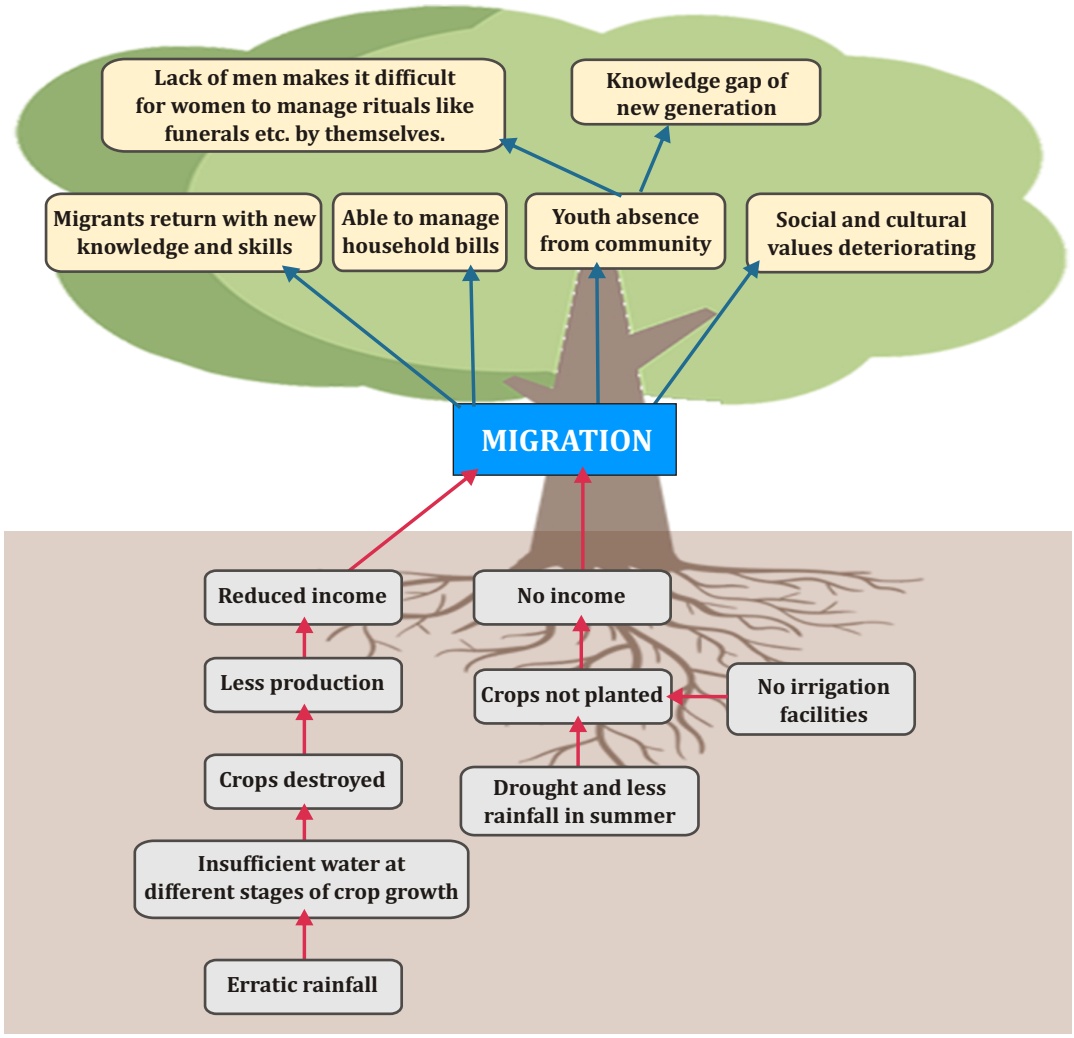


Figure 5: Problem Tree Analysis – Udayapur District

7.3 Peoples' solutions to address climate change and migration:

To address the changing climatic conditions and minimize migration, the community people put forward the following solutions:

The municipality in coordination with villages should provide and build irrigation infrastructure and channels to provide a steady water supply for agricultural production.

The municipal government should promote and provide drought-resistant crops and seeds that are also climate variation tolerant and can assure crop production.

The local municipalities in coordination with other organizations should provide capacity building training for new technology and crop management practices.

Targeting youth, the government should create self-employment programs in a larger scale to minimize migration. This can also be linked to upscaling of the knowledge of returnee migrants to their local place, particularly in relation to new agricultural practices and livelihood options.

The government should provide vocational skills trainings to youth and support the start-up of business and promote entrepreneurship.

Participatory Research with villagers from Belaka municipality.
(Photo credit: LIBIRD)

8. THE FEMINIZATION OF AGRICULTURE

Women have to carry the extra burden of agriculture as more and more men migrate to cities (Photo credit: Shailendra Yashwant)

Speaking to women from flood-affected Naraha in Siraha District, they said that the absence of male members, who had migrated for work, made life very difficult for women left behind. Women felt burdened with looking after children, taking care of household chores, and managing agricultural activities while men were trying to earn an income further away from home. Women struggled to maintain agricultural land and tend to livestock. Pregnant women faced a stressful time on their own, especially if a flood event occurred, and they required help from their neighbours or extended family. Women struggled to take care of sick children or elderly family members on their own while still tending to household needs. Community discussions revealed that households relied on young female family members to perform house duties and chores.

When men migrated, the women were expected to take over the overall management, not only of the household but also of agricultural activities and responsibilities. This was driving the feminization of agriculture.[1,2] But, though women were given the responsibility, in some cases, they did not have the power of decision-making and still had to consult their husbands or male family members about issues to do with money investments or larger purchases.

Similarly, women from Ghumne village in Ward no. 5, in drought-affected Udayapur District said that a huge disadvantage of migration was that the women left behind could not handle the work burden of managing household chores, family duties, and tending to agricultural lands without the male members of the family present.

Usually, there is a division of labour that relieves the pressure on women, but without male members present, women had to bear the brunt of household work and agricultural labour.

A 2015 study undertaken in the Khotang and Udayapur districts of Nepal focusing on the gendered effects of migration clearly showed that the migration of males to work in Malaysia and the Gulf countries left profound impacts on left-behind women. While it captured the observation of increased work burden on women, it also captured shifts in male-female ownership of productive assets and stated that, in Udayapur district, "…49 percent of land purchases in urban areas (Gaighat) and 25 percent in rural areas were made under the names of women. Considering that land was not generally bought under women's names in the past, this new trend triggered by migration and remittances is an interesting change in terms of asset ownership for women." While the study goes on to say that this doesn't necessarily mean women have decision-making authority over the land, it does present a variety of factors that have led to women feeling more empowered and having a stronger voice in decision-making within the community they live with, at least until the migrant male member returns. Until then, women are heading households and getting involved in traditionally male-dominated agricultural work such as ploughing, threshing, and maintaining terraces.[3]

The study noted that an estimated 3 million Nepalese men are working in foreign countries, including India. There is very little literature about the impacts of this on women, particularly working in agricultural livelihoods. It also noted that most women surveyed in the study preferred to have their husbands at home, helping them raise their children and farm the land. The study adds that more research needs to be done to fully understand the gendered-impacts of male migration on women.[4]

9. THE IMPACT OF COVID-19 ON MIGRATION IN NEPAL

Since the World Health Organisation (WHO) declared the spread of COVID-19 as a global pandemic on 11th March 2020, Nepal has officially recorded 180,000 registered cases in-country, with around 1000 deaths from the virus, as of November 2020.[1]

On 24th March 2020, Nepal's government announced a national lockdown to control the spread of the disease at the community level. The borders with India and China were sealed off, education centers were shut, and public services and transportation operated with strict restrictions. Within 24 hours of the lockdown, 4 million daily wageworkers and their employers were impacted.

200,000 internal migrant workers left the capital city, Kathmandu, to return to their village homes elsewhere. One month later, reports were still coming in of labourers seen walking long distances to get home and being harassed by police, stigmatised by locals, and suffering from lack of food and water. The lockdown, which lasted about four months from 24th March to 21st July 2020, wiped out over 90% of informal, daily wage jobs.[2]

The pandemic has also severely impacted the lives of Nepali migrants abroad and the households that rely on them for remittances, as jobs were lost overnight. Remittances from Nepalis working abroad account for almost 30% of the nation's GDP.

High rates of remittances have contributed to higher levels of education and healthcare at both the household and national level, reducing Nepal's overall poverty rate.[3]

From 22nd March to 8th June, between 400,000 and 750,000 Nepalis entered Nepal from India via land borders, and about 50,000 workers who were stranded in the Gulf states and Malaysia were repatriated to Nepal in June and August.[4] Many of these workers come from low-skilled, poorer socio-economic backgrounds and rely heavily on the informal sector for paid work. They usually don't have any contractual agreements securing their shelter, food, or healthcare and rely on daily wages to make their way.[5]

Upon reopening the border, the surge of migrants entering the country proved impossible for local authorities to handle. Though the government arranged awareness-raising activities, made polymerase chain reaction (PCR) testing available, and maintained quarantine and isolation centres in each province, financial and technical constraints prevented them from effectively fighting against the spread of the virus due to lack of enough testing kits, safety measures, medical equipment, and primary care facilities in quarantine camps.[6] Quarantine facilities established in a makeshift fashion to accommodate the influx were often set up in empty schools with a lack of sufficient, safe water, toilets, or hygiene facilities. The quarantine centres have been criticised as being more likely to increase the risk of COVID-19 transmission than prevent it.[7]

The government has tried to provide assistance to citizens, such as a 10% discount on food items from government companies and food rations made available at local authorities' discretion. However, it is unclear how consistently this type of assistance was available in different areas of the country. There have

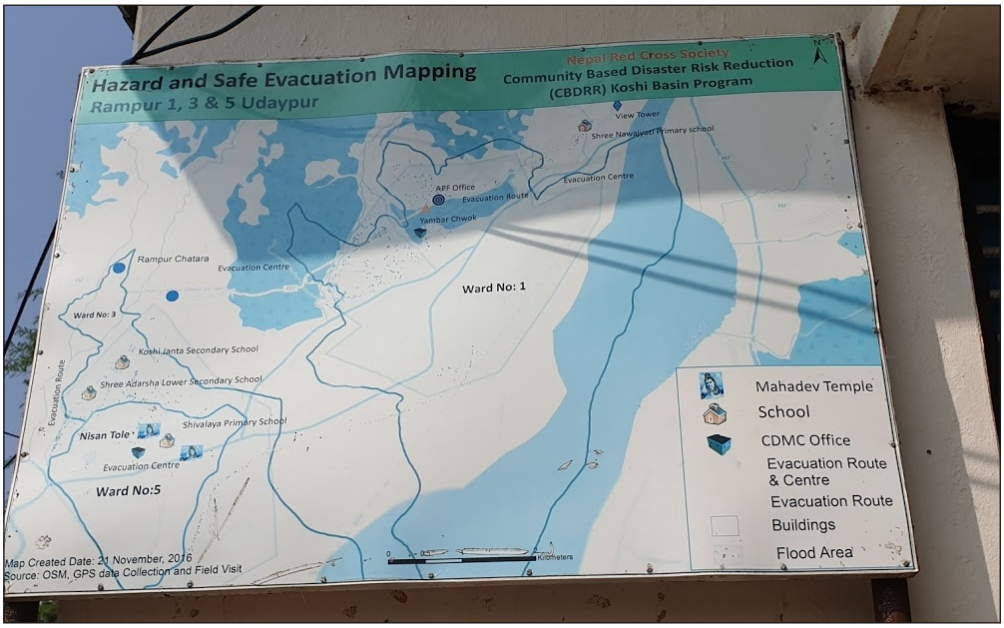
been no specific measures targeting support to migrant workers. When the surge of cross-border migrants returning from India caught local governments unprepared, a number of civil society initiatives emerged to fill the gap, providing hot meals, information on coronavirus prevention measures, and food supplies to migrants on their journeys home. The government acknowledges the need to reintegrate returning migrants into the local economy, but measures thus far have a longer-term focus. Migrants returning from India, for instance, are not eligible for programmes targeting returnees because, unlike other overseas migrants, they do not contribute to the Foreign Employment Welfare Fund.[8]

As a result of the COVID-19 pandemic, the Nepali government is facing a dual challenge of safely repatriating workers who have lost their jobs or otherwise wish to return home, as well as providing employment options for a huge number of returning migrants, on top of an already suffering national economy.[9]

Some of the provincial authorities have started initiatives to support migrant returnees. For example, in Province 1, the ''Chief Minister Youth Entrepreneurship Programme'' has been proposed to create self-employment opportunities for the youth and returnees and to utilise the knowledge, skill, expertise, and capital they have gained from abroad.

Similarly, Province 2 plans to actively engage the private sector in the economic well-being of the migrant workers. They have programs to provide 50 percent of grants to returnees of foreign employment interested in setting up small industries that can modernize agriculture. Likewise, Province 5 aims to promote youth entrepreneurship, vegetable farming, beekeeping, fisheries, flower cultivation, and mushroom farming, targeting employment generation among youth. It also aims to provide concessional loans and a contract-based land-lease system.[10]

10. INSTITUTIONAL SUPPORT FOR CLIMATE-INDUCED MIGRATION AT THE LOCAL LEVEL



A hazard and safe evacuation mapping information board in Belaka district (Photo credit: LIBIRD)

Flood-affected districts:

Community people and municipality officials in both the flood-affected districts, of Bardiya and Siraha, reported that the District Disaster Management Committee, in coordination with local government, was responsible for providing information to address disaster and post disaster support. The local government has been allocated an emergency and contingency fund to act when disaster occurs. Local government is setting up an early warning system service at Bardiya and Siraha, to disseminate weather information to communities, particularly about rainfall. This has been done with the support of Red Cross and the local government unit.

An interview with the Agriculture Knowledge Center, the district level office of Provincial Ministry of Land Management, Agriculture and Cooperatives in Nepal, revealed that local government in Bardiya is going to pilot and implement the Climate Smart Village programme in different villages. Climate Smart Village Programme is the initiative of provincial government that aims to promote climate smart agricultural technologies to deal with climate risks faced by the smallholders. This programme is being implemented in all parts of the province.

Likewise, the Forest and Watershed management offices of both visited sites are undertaking programmes related to conservation and environmental degradation. The district level authroities are conducting capacity building and knowledge dissemination seminars and workshops for communities. Forest species plantation activities are happening as well, as communities are being supported to plant teak, mahogany, jamun and various nursery plants species.

In Siraha, interventions of commercial farming, vegetable farming, lease or contract farming, solar irrigation programs and agro-advisory services programs are being implemented at the local level.

Drought affected districts:

The drought affected districts of Ramechap and Udaypur have received very little support to help address the impacts of climate change. They had self-initiated a goat farming group where the community members pooled together their savings, created a revolving fund and provided credit to group members to buy goats. Goat farming is less susceptible to drought and people do it in order to meet the meat demand in nearby markets. Goat farming helps ensure income generation of smallholders.

A local government initiative provided drinking water taps for each house. Further, the agriculture knowledge center provided people with knowledge support for planting vegetable and maize seeds. In Belaka municipality, there was no intervention to deal specifically with climate change. There were interventions wherein the marginalized Mushar community population were supported with income generation packages under contract lease farming for vegetable production, in coordination with the local government. Stock taking and inventory of land use, houses and natural resources for the district was done in Belaka Municipality. The municipality/ local government has developed plans for integrated urban development, for better management of population and settlements.

Key Gaps:

Interviews with local government officials demonstrated a gap in understanding the linkages between climate change scenarios and their long-term impacts on people's livelihoods. There also a lack of understanding of the push factors that drive the internal migration of people. At the local level, planning and preparedness for development, in the context of migration, mobility and relocation, is not being discussed and conceptualized. “The increase in the rise of population was mainly due to factors such as roads, markets, land, schools more of pull factors rather than the push factors of climate changes and environment” says Administrative Officer of the Belaka municipality in Udaypur district.
Due to recent changes in the federal structure in Nepal, there have been some coordination gaps between new institutions and old ones, resulting in lack of clarity about which departments are handling which sectors. For example, there is confusion amongst newly appointed local leaders and technical staff of different thematic sectors at local level such as forest, soil and agriculture.

11. INSTITUTIONAL ARRANGEMENTS FOR CLIMATE-INDUCED MIGRATION AT THE NATIONAL LEVEL

The Government of Nepal has formulated several policies, strategies, programs, and plans for responding to climate change however, these policies have not sufficiently addressed the interlinkages between climate change and migration in Nepal.

The policy framing in Nepal is comparatively inclined towards protecting people from natural disasters.[1] The policy goals focus on the requirement of physical infrastructure and timely information about disasters. Similarly, the National Water Plan (2002) (Government of Nepal, 2005)[2] and Irrigation Policy (2003; revised in 2013) (Government of Nepal, 2003; 2013)[3] have policy goals stressing on water-induced disasters. Department of Water Induced Disaster Management was established in 2000.[4]

From 2003 onwards, Nepal explicitly framed how natural disasters increase vulnerability and risk for the poor.[5] This is illustrated in the 10th Five Year Plan or FYP (2002), in which the government stated that "...behind regional inequalities in Nepal is the centralized structure and vision of the State, political instability, ...environmental degradation and natural disasters".

1

In 2005, the government also ratified the Kyoto Protocol, as they saw opportunities for funding through the LDC fund and Clean Development Mechanism. Specific goals on Disaster risk reduction (DRR) were formulated in the 10th and 11th FYP to promote the security of life and property from floods. Furthermore, the National Strategy for Disaster Risk Management (NSDRM) & 11th FYP announced to establish a national disaster fund for relief and rehabilitation.

In 2009, climate change adaptation emerged as a new policy paradigm in Nepal.[6] Policy goals started to emphasize that adaptation is important for all the development sectors, and the implementation of adaptation should take place at the local level.

Nepal established the Climate Change Council in 2009, which was chaired by the Prime Minister. It is comprised of 25 members, including ministers of relevant ministries, the vice-chair of the NPC, and nominated experts. In 2010, a Multi-Stakeholder Climate Change Initiatives Coordination Committee (MCCICC) was established to serve as the key national platform for ensuring regular dialogue and consultation on climate change-related policies, plans, finance, projects, and activities. In 2011, the Climate Change Co-ordination Committee was established to coordinate the Pilot Program on Climate Resilience (PPCR), and its role was expanded in 2013 to focus on overall coordination, facilitation, and information sharing between climate change programs and activities at the ministerial levels.

Nepal developed its Climate Change Policy in 2011 (Government of Nepal, 2011),[7] which provides the overarching policy direction on climate change for the country (MoFE, 2018).[8] The policy envisions "a country spared from the adverse impacts of climate change" with a focus on climate justice and the linkages between environmental conservation, human development, and sustainability. It addresses both mitigation and adaptation, with the adaptation component focusing on adaptation and resilience for local communities, in line with the priorities identified in the National Adaptation Programme of

Action (NAPA) (MoE, 2010).[9]

The policy commits to establishing a climate change fund and allocating at least 80 percent of the total budget from this fund directly to implementation at the community level.

Nepal's Climate Change Policy has been revised most recently in 2019[10] (Government of Nepal, 2019). The new policy has the vision to build a climate-resilient community contributing to the development of a prosperous nation. However, the policy fails to discuss migration or address the interlinkages between climate change and migration in Nepal.

Alongside the Climate Change Policy, the National Planning Commission (NPC) developed its framework for Climate-Resilient Planning, which could potentially be a useful document for the government to integrate planning for climate-induced migration. The document envisions a society and economy that is resilient to a changing climate. It defines a climate-resilient development plan as one that "takes stock of felt as well as anticipated risks, creates synergy between mitigation and adaptation, improves climate knowledge and helps improve the governance of development."[11]

During the NAPA process, the Nepal Climate Change Knowledge Management Centre (NCCKMC) was established (MoFE, 2018).[12] The centre aims to enhance public access to climate change and related information while also strengthening collaborative and interdisciplinary climate change research and facilitate the interface between scientific research and policy-making.

In 2011, the government developed National Framework on Local Adaptation Plans for Action (LAPAs), presenting an approach for "delivery of adaptation services to the most climate-vulnerable areas and people" (GoN, 2011).[13] The LAPA framework aims to ensure that approaches to integrating climate change adaptation and resilience-building in development efforts are bottom-up, inclusive, responsive, and flexible. It outlines a process for local adaptation planning that involves sensitization, vulnerability and adaptation assessment, and prioritization of adaptation options, leading to the formulation of a LAPA, which is then integrated into local planning for implementation and monitoring. The LAPA process uses climate vulnerability assessments to identify the village development committees, municipalities, and livelihoods most at risk of climate change. A manual was also developed to guide the development of LAPAs (MoFE, 2018).[14]

The Nepal Climate Change Support Programme (NCCSP) started with the aim to ensure the poorest and most vulnerable communities in Nepal can adapt to the effects of climate change. This is the first significant intervention on climate change adaptation in Nepal. In the earlier phase of NCCSP (2013-17), the programme was guided by the National Adaptation Programme of Action (NAPA) and National Framework on Local Adaptation Plans for Action (LAPA). NCCSPI implemented LAPAs in 100 villages covered 14 districts. Continuing these efforts and considering the changed federal context of Nepal, with the technical support of UNDP and financial assistance of DFID, the Ministry of Forests and Environment (MoFE)/GoN

has led the implementation of NCCSP I-Transition Extension (NCCSP I-TE). Under the Transition Extension Phase, NCCSP implemented a total of 78 climate-resilient development projects (CRDPs) in 14 local bodies in the Fiscal Year 2018/19. Currently, NCCSP is engaged in planning and designing CRDPs to be implemented in 2019/20 in 26 local bodies, including 14 local bodies engaged in FY 2018/19.[15]

In 2015, Nepal launched a process to formulate and implement National Adaptation Plan (NAP) to address medium and long-term adaptation needs and reduce climate vulnerabilities (Government of Nepal, 2016).[16] The two main objectives of the NAP are to reduce vulnerability to climate change impacts by improving resilience and adaptive capacity to integrate climate change adaptation into new and current policies, programs, activities, and development strategies across all sectors and levels of government (MoFE, 2018).[17] The NAP thematic areas and cross-cutting issues include:

- Agriculture and food security.
- Water resources and energy.
- Public health and water, sanitation, and hygiene.
- Urban settlements and infrastructure.
- Forests and biodiversity.
- Climate-induced disasters.
- Tourism, natural, and cultural heritage.
- Gender and social inclusion.
- Livelihoods and governance.

Responsibility for climate change has shifted to the Ministry of Forests and Environment (MoFE, 2018).[18] The institutional arrangements for climate change, and the NAP process specifically, will inevitably evolve due to this change; however, there is no clarity at present as to what the new structure will look like.

In 2016, Nepal submitted its first Nationally Determined Contribution (NDC) to the UNFCCC (Government of Nepal, 2016).[19] This document outlines Nepal's planned contribution to the achievement of the goals outlined in the Paris Agreement. It emphasizes the importance of adaptation and resilience-building in protecting lives, livelihoods, and ecosystem services from the impacts of climate change and reiterates Nepal's commitment to a localized approach to climate change adaptation, referencing both the LAPA framework and the commitment to channel climate finance to the local level. The NDC highlights the NAP as a key mechanism for articulating its adaptation needs, considering regional diversity and needs in different sectors. According to Nepal's NDC, the country will study and understand further loss and damage associated with climate change impacts with the support from scientific and academic communities.

The concept of loss and damage is relatively new to Nepal's climate change policy discourse. While Nepal's NDC document includes a provision for further research and study on climate-induced loss and damage in collaboration with scientific and academic communities, the National Climate Change Policy 2019, for example, warns of increased climate-induced losses in the future but focuses primarily on adaptation and mitigation as the key measures to address climate change. Nepal's plans, policies, and activities need to integrate concepts of loss and damage beyond adaptation or mitigation. Proper institutional arrangements across climate change, disaster risk re-

reduction, and other areas, are also required to deal with loss and damage.[20]

In 2017, for example, Nepal experienced incessant rainfall that impacted 35 districts, 18 of which were severely affected. The flood destroyed or partially damaged over 190,000 houses and displaced tens of thousands of people. 134 people died, and 1.6 million were affected. Total losses across all sectors, including health, agriculture, irrigation, and housing, were estimated at 584.62 million USD12.

Under the UNFCCC, developed countries channel climate finance into developing countries through various mechanisms such as the Global Environmental Facility (GEF), the Green Climate Fund (GCF), the Least Developed Countries Fund (LCDF), and the Special Climate Change Fund (SCCF), but there is no dedicated mechanism to finance loss and damage, issues as they crop up yet.

12. OPPORTUNITIES TO INTEGRATE CLIMATE-INDUCED MIGRATION INTO FRAMEWORKS, POLICIES AND PRACTICE

In Nepal, social security has received a boost since the 2006 political change, which sought to end the exclusion of marginalized groups from access to government services and provide social protection to the poor and the vulnerable.[1] Many cash transfer programmes for older people, women, and children have been introduced, and these have significantly helped close the poverty gap.[2] However, implementation of the social protection schemes remains a far cry. There is an opportunity to include climate migrants in the fold, as measures are taken to widen the scope of implementation of the schemes.

Currently, the formal social security systems (provident fund and citizen's investment fund) cover mainly civil servants, army, police, and teachers.[3] The Government is the single largest employer in the country.[4] Any private enterprise with more than 10 employees can join the provident fund voluntarily. In contrast, all enterprises can join the retirement plan under the citizen's investment fund.[5] However, there is no mandatory social insurance provision for the private sector.[6] Aside from the formal sector social security provisions, there are various informal, partly traditional, community-based insurance arrangements (microinsurance).[7]

Social welfare arrangements for certain groups such as the elderly, disabled, widows, internally displaced persons due to the insurgency, children, and victims of natural calamities, who are mainly under the Ministry of Women, Children and Social Welfare (MWCSW), depend largely on the availability of funds which are generally low.[8]

The Nepalese laws' dealing with the informal sector are limited.[9] The informal sector is characterized by variation in wage rates, conditions of employment, and discrimination based on gender and age.[10] It is difficult to estimate the size of the informal sector.[11] However, the Nepal Labour Force Surveys indicate that more than 90 percent of the agricultural sector workers and 60 percent of the workers in the non-agricultural sector are outside the formal sector.[12] The participation of female workers in the informal sector is considerably higher than that of their male counterparts. Secondly, the deprived section of the population comprises Dalits, marginalized ethnic groups, minorities, and people living in remote geographical regions are deprived of access to social services.[13] There is, therefore, a need to amend the Labour Act to make it more flexible and in line with the introduction of better basic social insurance arrangements that consider vulnerable populations' ability to cope with threats to income and livelihood.[14]

Small farmers belonging to rural cooperatives rely on technical assistance from the Department of Agriculture and NGOs to form their own mutual crop insurance schemes.[15] The increasing use of microcredit institutions and cooperatives for social insurance is a positive trend. Still, existing legal frameworks are unable to prevent misuse of funds.[16]

Given the need to develop a more comprehensive plan to strengthen social protection programs and initiatives in Nepal, the National Planning Commission constituted the National Steering Committee on Social Protection under the chair of the Member-Secretary of the Commission.[17] The committee was given the responsibility of reviewing existing

social protection programs and suggesting necessary improvements in the scope, implementation modality, financing, and institutional strategies, through developing a consolidated national social protection framework.[18]

As a result of the initiatives undertaken, and for the first time in the history of Nepal's development plans, a special chapter on social protection was included in the Three-Year Plan (FY2011–FY2013) for Nepal.[19] This has continued under the Thirteenth Plan (Fy2014–FY2016), underlining the sustainable major policy impact of the TA.[20] The draft national social protection framework prepared with the TA support was submitted to the National Planning Commission at the time of the TA conclusion.[21]

A big gap remains still. None of the existing social protection schemes are disaster responsive.[22] There are thus thousands of citizens who do not fall under any social protection program but who are nonetheless made highly vulnerable by earthquakes, floods, landslides, and the like.[23] Shockingly, 75 percent of the 1.7 million people affected by floods in the summer of 2017 – the worst floods in 15 years – were not covered by any government social protection program.[24] In the absence of a constitutional regime to provide social protection for disaster-affected people, the Government has been responding to wide-scale disasters like earthquakes in an ad-hoc fashion, guided by a welfare-based mindset rather than a rights-based one.[25] Moreover, the victims of localized but devastating disasters, like landslides, are often left with no government support at all.[26]

Further, disasters also push non-poor people into poverty. According to a study, around two-fifths of Nepal's poor in 2010 were not poor in 2003, with disasters a primary cause for their downward mobility.[27] Similarly, it is believed that the devastating 2015 earthquakes pushed an additional 2.5 percent to 3.5 percent of Nepalis, or 700,000 people, into poverty.[28] And one in four households experienced at least one shock (earthquake; flood or landslide; drought; fire, hail or lightning; pests/disease/harvest loss; livestock loss; riots/blockade; death in the family; disease or injury in the family; personal economic shocks) in 2017.[29] With dire climate change projected for the country, the poverty trap will increase manifold. Social protection programs can play a fundamental role in building citizens' resilience to cope with the consequences of disasters.[30]

The Disaster Reduction and Management Act 2017 is the primary legislation regarding disaster management and risk reduction in Nepal.[31] The Act's preamble defines its objectives as protecting human lives, private and public property, natural and cultural heritage, and physical infrastructure.[32] However, it makes no mention of empowering or building the resilience of disaster-affected people.[33] Nevertheless, the Act does call for the provision of relief aid to affected persons: Article 14 requires Provincial Disaster Management Committees to develop basic standards for relief packages, while Article 16 recommends that the Federal Government do the same.[34] But, neither the federal nor the provincial governments have yet developed such standards.

The Contribution-Based Social Protection Act 2018, which introduces a social

insurance scheme (social security fund) for all workers, is the first of its kind in Nepal.[35] Workers in the formal and informal sectors, as well as the self-employed, are eligible to enlist in contribution-based schemes for medical, accident, disability, and unemployment insurance, as well as maternity leave and retirement pensions.[36]

13. CONCLUSIONS

According to the findings of this report the root cause of migration was the uncertainty of agricultural income. Erratic rainfall patterns, reduced water availability affected crop harvests, and the income from agriculture alone was insufficient to maintain and manage household expenses. The cost of living had increased over time. Therefore, men migrated to different areas to earn an income to pay for household expenditures, children's education, and look after their families back home.

The research was carried out in four sites across four districts, where agriculture is the main livelihood: Siraha, Bardiya, Ramechap and Udayapur.

Discussions with vulnerable communities across all research sites revealed that during the monsoon seasons, floods, especially in Siraha and Bardiya, severely affected people's incomes and assets, as households and fields were flooded and inundated, resulting in substantial income losses. Dairy animals and livestock died during floods. Additionally, people faced mobility problems, access to safe drinking water, lack of food provisions, and access to proper shelter. Traditional mud houses washed away, and communities living close to river banks lost their lands to riverbank erosion during heavy flood periods.

All forms of migration patterns were found in the research areas including, rural to rural, rural to urban, seasonal, temporary, and permanent migration. Men migrated to cities like Kathmandu, within Nepal, and further to India, Malaysia, Korea, and the Gulf countries to improve their incomes.

Women bear the brunt of the migration, as their responsibilities increase considerably, both at home and in the agricultural fields, leading to the widespread phenomenon of the feminization of agriculture, as women took over the task of planting and sowing the fields usually done by the male members.

Although it was challenging to link climate change with migration directly, there is evidence from reviewed literature and reports from the communities spoken to, that precipitation and temperature changes affect crop yields and access to water.

Flooding and drought are happening more frequently than before, and projected climate change means that one cannot ignore the future impact of climate change on the most vulnerable population of Nepal. Research studies have already established a link between drought and seasonal migration for work in Nepal, but further research is required to capture data and evidence of climate change as the main push factor driving migration in Nepal.

Limited social protection schemes and social welfare arrangements exist. They are a far cry from what is required in terms of implementation and scale of assistance. As mentioned earlier, none of the existing social protection schemes is disaster responsive, which puts thousands of people at risk of the multi-hazards that affect Nepal annually. The lack of social protection and scale of people's needs was highlighted when the COVID-19 global pandemic resulted in thousands of migrant returnees crossing borders back to Nepal. Nepali households' dependence on remittances cannot be underestimated, and the need for social protection has never been more acute.

14. RECOMMENDATIONS

Considering the above, and based on discussions with communities and their suggestions for how to move forward while safeguarding their livelihoods and assets, this report makes the following recommendations:

At the institutional level:

• More research needs to be invested in by governmental and non-governmental authorities and carried out to understand the impacts of climate change in driving migration in Nepal.

• Investment needs to be made in researching the gender-impacts of climate change that push males to migrate, leaving an additional burden on women and creating the feminization of agriculture.

At the local level:

• Local authorities need to urgently prioritise and address water scarcity problems, particularly in drought-affected areas, by building water ponds and effective irrigation systems.

• Local government authorities should introduce programmes of support to farmers that promote the use of flood and drought-resistant crop seed varieties and increase awareness of these programmes so that farmers can easily access them.

• Communities want to upgrade agricultural management skills and be given more technical support to respond to changing climate patterns, through agriculture extension officers, soil and watershed management officials.

• People, particularly the youth, women and marginalized communities, should receive training & skills-building in alternative livelihoods to earn an income and so that they can become more employable in other industries.

• People and government authorities need to be made more aware of the impacts of climate change and future issues that may arise due to projected changes so that they can be better prepared with alternative livelihood strategies.

• People should be made aware of any programme support or government subsidies to help them either to improve their agricultural production or to diversify their livelihood options.

• People want to be encouraged to create and set up enterprises and receive government support and training to do this.

At the national level:

• Government authorities need to systematize information flows to communities about weather conditions that will impact agricultural activities and warnings about pests before it is too late.

• Women should receive more support to help them cope with the additional burden of being left behind to look after their families or themselves, without the presence of males to provide help and support.

• Government agencies need to increase their understanding of the linkages between climate change scenarios and projections and the issues currently facing communities regarding their lack of livelihood options.

• There needs to be better coordination between agencies to address climate-

induced migration as a growing issue that needs to be appropriately and holistically addressed from the community level upwards.

• Support needs to be provided to those considering migration as a livelihood strategy instead of being forced to migrate due to a lack of income from agriculture.

• More investment in climate science research should be reflected in national, provincial, and local annual plans for better forecast the extreme events and to generate science-based evidence on the impact of climate change in all sectors of society, including environment, social and economic.

• Nepal's plans, policies, and activities need to integrate concepts of loss and damage beyond adaptation or mitigation.

At the regional level:

• Government and non-governmental agencies should work together, especially on cross-border thematic areas, to address the integration of climate-induced migration into broader climate change frameworks, policies, and practice.

At the international level:

• There is a need to strengthen policies, legal frameworks, and institutional capacities to provide support to the Nepal Government and civil society to help those facing climate induced displacement and forced migration.

15. REFERENCES

Executive Summary:

1 Labour Migration and the Remittance Economy ; The socio political impact CESLAM 2017
https://www.ceslam.org/books-and-reports/the-socio-political-impact
2 Climate Change Knows No Borders, An analysis of climate induced migration, protection gaps and need for solidarity in South Asia December 2016, Teresa Anderson, Md Shamsuddoha, Ajaya Dixit
https://cansouthasia.net/wp-content/uploads/2020/12/Climate-Change-knows-no-border.pdf
3 Costs of Climate Inaction: Displacement and Distress Migration by Harjeet Singh, Jessica Faleiro, Teresa Anderson and Sanjay Vashist, December 2020
https://cansouthasia.net/costs-of-climate-inaction-displacement-and-distress-migration/

Chapter 1:

1 Displaced and Landless: An unabated ordeal of disaster survivors, published by Prakriti Resources Centre and ActionAid Nepal, January 2018.
2 Germanwatch, Global Climate Risk Index 2020, December 2019
https://germanwatch.org/sites/germanwatch.org/files/20-2-01e%20Global%20Climate%20Risk%20Index%202020_14.pdf
3 Internal Displacement Monitoring Center
https://www.internal-displacement.org/countries/nepal
4 Government of Nepal, Ministry of Population and Environment, NATIONALLY DETERMINED CONTRIBUTIONS October 2016
https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20First/Nepal%20First%20NDC.pdf
5 Nepal Floods and Landslides- July 2020. https://reliefweb.int/disaster/fl-2020-000165-npl
6 Costs of Climate Inaction: Displacement and Distress Migration by Harjeet Singh, Jessica Faleiro, Teresa Anderson and Sanjay Vashist, December 2020
https://cansouthasia.net/costs-of-climate-inaction-displacement-and-distress-migration/
7 Human Development Report 2020The Next Frontier: Human Development and the Anthropocene, Briefing note for countries on the 2020 Human Development Report, Nepal http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/NPL.pdf
8 USAID Climate Vulnerability Profile, Nepal, Annex to UDAID agency sustainability plan and agency adaptation plan, October 2012.
https://www.climatelinks.org/sites/default/files/asset/document/nepal_climate_vulnerability_profile_jan2013.pdf
9 CBS, N. (2012). National population and housing census 2011. National Report.
10 National Population and Housing Census 2011 (Tables from Form-II). CBS, NPC, Kathmandu, published in 2014.
11 Manandhar, Sujata & Schmidt-Vogt, Dietrich & Perret, Sylvain & Kazama, Futaba. (2010). Adapting cropping systems to climate change in Nepal: A cross-regional study of farmers' perception and practices. Regional Environmental Change. 11. 335-348. 10.1007/s10113-010-0137-1.
http://www.researchgate.net/publication/226986595_Adapting_cropping_systems_to_climate_change_in_Nepal_A_cross-regional_study_of_farmers'_perception_and_practices
12 IOM 2019. Migration in Nepal: A country profile
13 Climate change and migration in the Asia and the Pacific, ADB 2011.
https://reliefweb.int/sites/reliefweb.int/files/resources/7C240AE3C0B2EE0949257830001BB23B-Full_Report.pdf

Chapter 2:

1 Government of Nepal, Ministry of Population and Environment, NATIONALLY DETERMINED CONTRIBUTIONS October 2016
https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20First/Nepal%20First%20NDC.pdf
2 Ibid.
3 USAID Climate Vulnerability Profile, Nepal, Annex to UDAID agency sustainability plan and agency adaptation plan, October 2012.
https://www.climatelinks.org/sites/default/files/asset/document/nepal_climate_vulnerability_profile_jan2013.pdf
4 Ibid.
5 Ibid.
6 Climate Change Scenarios for Nepal, National Adaptation Plan, February 2019
http://mofe.gov.np/downloadfile/MOFE_2019_Climate%20change%20scenarios%20for%20Nepal_NAP_1562647620.pdf
7 Ibid.
8 Ibid.
9 Ibid.
10 Ibid.
11 Ibid.
12 Government of Nepal, Ministry of Population and Environment, NATIONALLY DETERMINED CONTRIBUTIONS October 2016
https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20First/Nepal%20First%20NDC.pdf
13 NCVST (2009) Vulnerability Through the Eyes of Vulnerable: Climate Change Induced Uncertainties and Nepal's Development Predicaments, Institute for Social and Environmental Transition-Nepal (ISET-N, Kathmandu) and Institute for Social and Environmental Transition (ISET, Boulder, Colorado) for Nepal Climate Vulnerability Study Team (NCVST) Kathmandu.
https://www.preventionweb.net/files/12565_ClimatescenariosReport1.pdf
14 Ibid.
15 Ibid.
16 Ibid.

15. REFERENCES

17 Ibid.
18 Ibid.
19 Ibid.
20 Climate Change in Nepal: Impacts and Adaptive Strategies : By Ajaya Dixit, Institution for Social and Environmental Transition-Nepal
https://www.wri.org/our-work/project/world-resources-report/climate-change-nepal-impacts-and-adaptive-strategies
21 Ibid.
22 Ibid.
23 Ibid,
24 Government of Nepal, Ministry of Population and Environment, NATIONALLY DETERMINED CONTRIBUTIONS October 2016
https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20First/Nepal%20First%20NDC.pdf
25 The IPCC's Fifth Assessment Report and Its Implications for Nepal, Rishikesh Ram Bhandary The Fletcher School at Tufts University, October 2014
26 Ibid.
27 Ibid.
28 Ibid.
29 Ibid.
30 Ibid.
31 Government of Nepal, Ministry of Population and Environment, NATIONALLY DETERMINED CONTRIBUTIONS October 2016
https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20First/Nepal%20First%20NDC.pdf
32 Climate Change Scenarios for Nepal, National Adaptation Plan, February 2019
http://mofe.gov.np/downloadfile/MOFE_2019_Climate%20change%20scenarios%20for%20Nepal_NAP_1562647620.pdf
33 Ibid.
34 Ibid.
35 Ibid.
36 Nepal launches new project to minimize climate change impacts on agriculture, Integrating Agriculture in National Adaptation Plans. FAO, 3 October 2016
http://www.fao.org/in-action/naps/news-events/detail/en/c/448894/
37 Ibid.
38 Kabi Raj Khatiwada, Vishnu Prasad Pandey, Characterization of hydro-meteorological drought in Nepal Himalaya: A case of Karnali River Basin,Weather and Climate Extremes, Volume 26, 2019, 100239,ISSN 2212-0947
https://www.sciencedirect.com/science/article/pii/S2212094718302044
39 USAID Climate Vulnerability Profile, Nepal, Annex to UDAID agency sustainability plan and agency adaptation plan, October 2012.
https://www.climatelinks.org/sites/default/files/asset/document/nepal_climate_vulnerability_profile_jan2013.pdf
40 Ibid.
41 Ibid.
42 Ibid.
43 Ibid.
44 Ibid.
45 Ibid.
46 Climate Change in Nepal: Impacts and Adaptive Strategies : By Ajaya Dixit, Institution for Social and Environmental Transition-Nepal
https://www.wri.org/our-work/project/world-resources-report/climate-change-nepal-impacts-and-adaptive-strategies
47 The impact of climate change on rice production in Nepal, 01/05/2014 South Asian Network for Development and Environmental Economics (SANDEE)
http://www.indiaenvironmentportal.org.in/content/398008/the-impact-of-climate-change-on-rice-production-in-nepal/
48 Ibid.
49 The IPCC's Fifth Assessment Report and Its Implications for Nepal, Rishikesh Ram Bhandary The Fletcher School at Tufts University, October 2014
https://climateanalytics.org/media/briefing_ipccar5-implications_for_nepal_final.pdf
50 NCVST (2009) Vulnerability Through the Eyes of Vulnerable: Climate Change Induced Uncertainties and Nepal's Development Predicaments, Institute for Social and Environmental Transition-Nepal (ISET-N, Kathmandu) and Institute for Social and Environmental Transition (ISET, Boulder, Colorado) for Nepal Climate Vulnerability Study Team (NCVST) Kathmandu.
https://www.preventionweb.net/files/12565_ClimatescenariosReport1.pdf
51 Ibid.
52 Ibid.
53 Climate Change in Nepal: Impacts and Adaptive Strategies : By Ajaya Dixit, Institution for Social and Environmental Transition-Nepal
https://www.wri.org/our-work/project/world-resources-report/climate-change-nepal-impacts-and-adaptive-strategies
54 Ibid.
55 Ibid.

Chapter 3:

1 Governing Labour Migration in Nepal, An Analysis of Existing Policies and Institutional Mechanisms, Bandita Sijapati, Amrita Limbu, Updated edition: 2017Published by Himal Books for the Centre for the Study of Labour and Mobility.
https://www.ceslam.org/uploads/backup/Governing%20Labour%20updated%20edition%202017.pdf
2 Ibid.
3 Ibid.
4 Sharma, S. and D. Thapa 2013, Taken for Granted: Nepali Migration to India. Research Paper III, Centre for the Study of Labour and Mobility (CESLAM), Kathmandu.

5 Labour Migration and the Remittance Economy The Socio-Political Impact, March, Centre for the Study of Labour and Mobility (CESLAM), Kathmandu. https://www.ceslam.org/uploads/backup/Labour_Migration_and_the_Remittance_Economy_web.pdf
6 Ibid.
7 Ibid,
8 Moench, M. and A. Dixit (eds.) 2004 Adaptive Capacity and Livelihood Resilience: Adaptive Strategies for Responding to Floods and Droughts in South Asia. The Institute for Social and Environmental Transition, International, Boulder, and the Institute for Social and Environmental Transition, Colorado and Kathmandu.
9 Banerjee, S., J.Y. Gerlitz, and B. Hoermann 2011 Labour Migration as a Response Strategy to Water Hazards in the Hindukush Himalayas. International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal.
10 Assessing the Climate Change Environmental Degradation and Migration Nexus in South Asia, December 2016, International Organization for Migration (IOM).
https://publications.iom.int/system/files/pdf/environmental_degradation_nexus_in_south_asia.pdf

Chapter 6:

1 Dongol, Robert & Joshi, Neekita. (2017). Severity of Climate Induced Drought and its Impacts on Migration: A study of Ramechhap District, Nepal.
https://www.researchgate.net/publication/321307677_Severity_of_Climate_Induced_Drought_and_its_Impacts_on_Migration_A_study_of_Ramechhap_District_Nepal/citation/download
2 file:///C:/Users/abc/Downloads/LamsaletalFAW.pdf
3 Forecasting the global extent of invasion of the cereal pest Spodoptera frugiperda, the fall armyworm, Regan Early, Pablo González-Moreno, Sean T. Murphy, Roger Day bioRxiv 391847; doi: https://doi.org/10.1101/391847
4 FAO.2020. The Global Action for Fall Armyworm Control: Action framework 2020–2022. Working together to tame the global threat – Rome. https://doi.org/10.4060/ca9252en

Chapter 8:

1 Climate Change Knows No Borders, An analysis of climate induced migration, protection gaps and need for solidarity in South Asia December 2016, Teresa Anderson, Md Shamsuddoha, Ajaya Dixit
https://cansouthasia.net/wp-content/uploads/2020/12/Climate-Change-knows-no-border.pdf
2 Labour Migration and the Remittance Economy: The Socio-Political Impact
Author(s): Bandita Sijapati, Ang Sanu Lama, Jeevan Baniya, Jacob Rinck, Kalpana Jha & Amrita Gurung, 2017
https://www.ceslam.org/our-publications/the-socio-political-impact
3 Adhikari, Jagannath and Hobley, Mary. 2015. "Everyone is leaving. Who Will Sow Our Fields?" The Livelihood Effects on Women of Male Migration from Khotang and Udaypur Districts, Nepal, to the Gulf Countries and Malaysia.. HIMALAYA 35(1).
https://digitalcommons.macalester.edu/himalaya/vol35/iss1/7
4 Ibid.

Chapter 9:

1 Chalise HN. COVID-19 situation in Nepal. Arch Psychiatr Ment Health. 2020; 4: 033-034.
2 The Day the Workers Started Walking Home, May 13, 2020, By Sagar Prasai
https://asiafoundation.org/2020/05/13/the-day-the-workers-started-walking-home/
3 David Johnson; Does COVID-19 portend dark days in Nepal's Future? The Diplomat 24th April 2020
https://thediplomat.com/2020/04/does-covid-19-portend-dark-days-in-nepals-future/
4 Migrant vulnerability in Bangladesh, India, and NepalCOVID-19 and labour migration Thematic series: Migration–October2020, ACAPS https://reliefweb.int/sites/reliefweb.int/files/resources/20201012_acaps_thematic_series_on_migrant_vulnerability_in_south_asia_0.pdf
5 Ibid.
6 COVID-19: Nepal in Crisis , By Peter Gill and Janak Raj Sapkota, June 29, 2020
https://thediplomat.com/2020/06/covid-19-nepal-in-crisis/
7 Quarantine centres are turning into Covid breeding ground, National Human Rights Commission warns, Binod Ghimire, June 12, 2020 https://tkpo.st/3hiNRTG
8 Migrant vulnerability in Bangladesh, India, and NepalCOVID-19 and labour migration Thematic series: Migration–October2020, ACAPS https://reliefweb.int/sites/reliefweb.int/files/resources/20201012_acaps_thematic_series_on_migrant_vulnerability_in_south_asia_0.pdf
9 Ibid.
10 Impact of COVID-19 on Nepali Migrant Workers: Protecting Nepali Migrant Workers during the Health and Economic Crisis1Work in Freedom (WIF) project and the Integrated Programme on Fair Recruitment (FAIR) / ILO Country Office Nepal
https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-kathmandu/documents/briefingnote/wcms_748917.pdf

Chapter 11:

1 Vij, S., R. Biesbroek, A. Groot, and K. Termeer. (2018). Changing climate policy paradigms in Bangladesh and Nepal. Environmental Science & Policy, 81: 77-85.
2 Government of Nepal. (2005). National Water Plan (2002 - 2007). Water and Energy Commission Secretariat, Singha Durbar, Kathmandu, Nepal.
3 Government of Nepal. (2013). Irrigation Policy (2070). Government of Nepal. Singha Durbar, Kathmandu, Nepal.
4 Ibid.
5 Ibid.
6 Ibid.
7 GoN. (2011). National framework on local adaptation plans for action (LAPA). Singha Durbar, Kathmandu: Government of Nepal, Ministry of Environment.
8 MoFE. (2018). Nepal's National Adaptation Plan (NAP) Process: Reflecting on lessons learned and the way forward. Ministry of Forests and Environment (MoFE) of the Government of Nepal, the NAP Global Network, Action on Climate Today (ACT) and Practical Action Nepal.
9 MoE. (2010). National Adaptation Programme of Action (NAPA) to Climate Change. Ministry of Environment, Government of Nepal. Singha Durbar, Kathmandu, Nepal.
10 Government of Nepal. (2019). National Climate Change Policy. Government of Nepal. Singha Durbar, Kathmandu, Nepal.
11 Developing Nepal's Social Protection Strategy, Asian Development Bank, Social Protection Project Briefs. https://think-asia.org/bitstream/handle/11540/1487/nep-social-protection.pdf?sequence=1
12 MoFE. (2018). Nepal's National Adaptation Plan (NAP) Process: Reflecting on lessons learned and the way forward. Ministry of Forests and Environment (MoFE) of the Government of Nepal, the NAP Global Network, Action on Climate Today (ACT) and Practical Action Nepal.
13 GoN. (2011). National framework on local adaptation plans for action (LAPA). Singha Durbar, Kathmandu: Government of Nepal, Ministry of Environment.
14 MoFE. (2018). Nepal's National Adaptation Plan (NAP) Process: Reflecting on lessons learned and the way forward. Ministry of Forests and Environment (MoFE) of the Government of Nepal, the NAP Global Network, Action on Climate Today (ACT) and Practical Action Nepal.
15 Developing Nepal's Social Protection Strategy, Asian Development Bank, Social Protection Project Briefs. https://think-asia.org/bitstream/handle/11540/1487/nep-social-protection.pdf?sequence=1
16 Government of Nepal. (2016). Nationally Determined Contributions. Ministry of Population and Environment, Government of Nepal. Singha Durbar, Kathmandu, Nepal.
17 MoFE. (2018). Nepal's National Adaptation Plan (NAP) Process: Reflecting on lessons learned and the way forward. Ministry of Forests and Environment (MoFE) of the Government of Nepal, the NAP Global Network, Action on Climate Today (ACT) and Practical Action Nepal.
18 Ibid.
19 Government of Nepal. (2016). Nationally Determined Contributions. Ministry of Population and Environment, Government of Nepal. Singha Durbar, Kathmandu, Nepal.
20 Developing Nepal's Social Protection Strategy, Asian Development Bank, Social Protection Project Briefs. https://think-asia.org/bitstream/handle/11540/1487/nep-social-protection.pdf?sequence=1

Chapter 12:

1 Social Security/Social Protection in Nepal: Situation Analysis, ILO Country Office for Nepal, 2013 https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-kathmandu/documents/publication/wcms_216490.pdf
2 Ibid.
3 Developing Nepal's Social Protection Strategy, Asian Development Bank, Social Protection Project Briefs. https://think-asia.org/bitstream/handle/11540/1487/nep-social-protection.pdf?sequence=1
4 Ibid.
5 Ibid.
6 Ibid.
7 Ibid.
8 Ibid.
9 Social Security/Social Protection in Nepal: Situation Analysis, ILO Country Office for Nepal, 2013 https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-kathmandu/documents/publication/wcms_216490.pdf
10 Developing Nepal's Social Protection Strategy, Asian Development Bank, Social Protection Project Briefs. https://think-asia.org/bitstream/handle/11540/1487/nep-social-protection.pdf?sequence=1
11 Social Security/Social Protection in Nepal: Situation Analysis, ILO Country Office for Nepal, 2013 https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-kathmandu/documents/publication/wcms_216490.pdf
12 Ibid.
13 Ibid.
14 Developing Nepal's Social Protection Strategy, Asian Development Bank, Social Protection Project Briefs. https://think-asia.org/bitstream/handle/11540/1487/nep-social-protection.pdf?sequence=1
15 Social Security/Social Protection in Nepal: Situation Analysis, ILO Country Office for Nepal, 2013 https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-kathmandu/documents/publication/wcms_216490.pdf
16 Ibid.
17 ADB Briefs, No. 30, Social Protection Brief, Social Protection Framework in NepalDecember 2014 https://www.adb.org/sites/default/files/publication/152072/social-protection-framework-nepal.pdf

18 Ibid.
19 Ibid.
20 Ibid.
21 Ibid.
22 Policy Landscape of Social Protection in Nepal, 2019, Niti Foundation
http://nitifoundation.org/wp-content/uploads/2019/07/Policy-Landscape-of-Social-Protection-in-Nepal-Web.pdf
23 Ibid
24 Ibid.
25 Ibid.
26 Ibid.
27 Ibid.
28 Ibid.
29 Nepal's pathway towards Universal Social Protection, A conference in Kathmandu calls for integration and harmonisation of social protection schemes
https://health.bmz.de/events/Events_2019/nepals_pathway_towards/index.html
30 Policy Landscape of Social Protection in Nepal, 2019, Niti Foundation
http://nitifoundation.org/wp-content/uploads/2019/07/Policy-Landscape-of-Social-Protection-in-Nepal-Web.pdf
31 Ibid.
32 Ibid.
33 Ibid.
34 Ibid.
35 Ibid.
36 Ibid.

ANNEX 1: RESEARCH METHODOLOGY

A combination of qualitative methods was used to collect the information. These included a desk review of relevant climate change and migration reports; using participatory research methods with farmers, and key informant interviews with representative local government from the selected study sites.

A global literature review of national and international publications to help inform the background and context to the research study was conducted, along with an analysis of legislation, plans and policies in Nepal related to climate change and migration. Reports from the Department of Foreign Employment, International Organization for Migration, Asian Development Bank, Center for the Study of Labour and Mobility, Central Bureau of Statistic and IPCC were analyzed to understand the existing data, migration status, climate change and migration nexus.

The Participatory Research Study (PRS) sites, also known as migration hotspots, were selected using the following criteria: typology of disasters, geo-climatic zones, livelihoods of communities, socio-economic profiles, scale of displacement, urban rural spread and presence of local partners to facilitate the study. A participatory research methodology was used in the 4 districts (see Annex 1) selected by the study team.

A participatory research module was developed by Climate Action Network South Asia (CANSA), ActionAid and Institute for Participatory Practices, India (PRAXIS), to carry out this study. The research was conducted by LI-BIRD staff members, working closely with local partners National Farmers Group Federations (NFGFs) in Siraha and Udayapur, with support from ActionAid Nepal in Bardiya and Agriculture Knowledge Centre in Ramechap districts. A combination of data collection methods were used such as focus group discussions, key informant interviews and recording case studies from the field. Participatory research tools, such as Problem Tree Analysis, Mobility maps, Paired Comparison matrix and Matrix scoring were used in the focus group discussions in field sites to engage the communities and collect data in the process. The field-based evidence was substantiated by literature reviews, wherever possible.

Key informant interviews were carried out with the ward chairs, administrative officers, and representatives of farmer federations from the study sites.

Table 1: Profile of participatory research study sties:

Identified hotspot	Ecological zone	Typology of disaster	Livelihood	Scale of displacement	Focus Group discussion site	No. of Participants
Siraha	Terai	Flood in Monsoon season, Erratic rainfall, Drought in summer	Agriculture	Medium	Ward no: 1 and 2 Naraha, Nigoul Rural Municipality	54
Bardiya	Terai	Flood during monsoon season, Drought in summer, Erratic rainfall	Agriculture	Medium	Sangharsha nagar, ward no 4 Rajapur Municipality	24
Ramechap	Mid hill	Erratic rainfall, Drought during monsoon and summer, Landslide	Agriculture	Medium	Sani Madav-ward no 8 Manthali Municipality	15
Udayapur	Mid hill	Erratic rainfall, Drought in summer, Landslide	Agriculture	Medium	Ghumne , Ward no 5 Belka Municipality	30

MIGRATION IN NEPAL THROUGH THE LENS OF CLIMATE CHANGE

Case studies from Siraha, Bardiya, Ramechap and Udayapur districts.

ActionAid is a global movement of people working together to achieve greater human rights for all and defeat poverty. We believe people in poverty have the power within them to create change for themselves, their families and communities. ActionAid is a catalyst for that change.
http://actionforglobaljustice.actionaid.org
International registration number: 27264198
Website: www.actionaid.org
Telephone: +27 11 731 4500
Fax: +27 11 880 8082
Email:mailjhb@actionaid.org
ActionAid International Secretariat,
Postnet Suite 248, Private Bag X31,
Saxonwold 2132, Johannesburg, South Africa.

Climate Action Network – South Asia (CANSA) is a coalition of over 280 organisations spread across all South Asian countries. We promote equity and sustainable development through effective climate change policies and their implementation in South Asia and at the global level.
KvK number in The Netherlands: 55304583
Website: www.cansouthasia.net
Email: info@cansouthasia.net
Climate Action Network – South Asia c/o Bangladesh Centre for Advance Studies,
Rd No 16/A, Dhaka, Bangladesh.

January 2021