From Risk to Resilience

How Climate Change is Deepening Child and Forced Labor in Nepal, and what to do about it

goodweave®

Table of Contents

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About Goodweave International

GoodWeave (goodweave.org)— a nonprofit organization founded in 1994 by Nobel Peace Prize laureate Kailash Satyarthi— is the leading international institution working to stop child and forced labor in global supply chains through a market-based system with a rights-based approach. GoodWeave and its locally led and governed affiliates partner with companies and local producer communities to bring visibility to hidden supply chains; protect workers' rights; and provide assurance that products are free of child, forced and bonded labor; and restore childhoods.

About New ERA

New ERA (newera.com.np) was established in 1971 as Nepal's first non-government not-for-profit research organization. Run since 1977 entirely by a team of Nepali professionals, it engages in theoretical, policy and action-oriented research in collaboration with multilateral and bilateral aid agencies, international research institutes and universities. New ERA specializes in development research, technical assistance, technology transfer and training for Nepal's development. The organization is active in many development sectors, including, but not limited to health and nutrition, population and family planning, education, agriculture, drinking water and sanitation, gender, conflict management, environment, forestry, human resources, livestock, migration and resettlement, rural development and tourism.

Acknowledgements

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Abbreviations

BRICW – Adult brick worker research participants
CARPW – Adult carpet worker research participants
CBS – Government of Nepal Central Bureau of Statistics
CHLDL – Heads of households with current or former child laborers who participated in research
COMHH – Heads of comparison households with no current or past child laborers who participated in research
DHM – Government of Nepal Department of Hydrology and Meteorology
FEMHH – Female household heads who participated in research
FGD – Focus Group Discussion
IDI – In Depth Interview

ILAB – U.S. Department of Labor, Bureau of International Labor Affairs
ILO – International Labour Organization
KII – Key Informant Interview
MoHA – Government of Nepal Ministry of Home Affairs
MoLESS – Government of Nepal Ministry of Labour, Employment and Social Security
MoLJPA – Government of Nepal Ministry of Law, Justice and Parliamentary Affairs
MoWCSC – Government of Nepal Ministry of Women, Children and Senior Citizens
NAP – Nepal National Action Plan
NGO – Non-Governmental Organization
NHRC – Nepal Health Research Council
NPR – Nepalese Rupees
TVPRA – U.S. Trafficking Victims Protection Reauthorization Act
UNICEF – The United Nations Children's Fund
USD – U.S. Dollars

Key Terms

Child labor – The ILO states that child labor "refers to work that is mentally, physically, socially or morally dangerous and harmful to children, and/or interferes with their schooling by: depriving them of the opportunity to attend school; obliging them to leave school prematurely; or requiring them to attempt to combine school attendance with excessively long and heavy work." In Nepal, child labor includes any work done by children under age 14, and any hazardous work, which includes all carpet and brick production work, by children under age 18.

Forced labor is defined by the ILO Convention 29 as all work or service exacted from any person under the menace of any penalty and for which the said person has not offered themselves voluntarily.

Hazardous work is work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety, or morals of the worker.

Vulnerable people / communities – the term vulnerable is used to describe people or communities of people who are often in the most precarious circumstances and who more easily suffer devastating consequences to even small changes in access to resources, job loss, or food production. These groups often include women, children, people who are economically, socially and/or politically marginalized, disabled and indigenous people. Vulnerable communities can include those in remote locations with limited access to resources and dependent on agriculture and local resources.

Labor broker is any person (or business) who, for a fee, recruits or provides workers to a client (e.g., business). The broker may be responsible for recruitment paperwork, wage payments and transportation to the work-site against reimbursement by the client.

Remittances are transfers of income from an earning family member outside of Nepal to family members or relatives remaining in Nepal. Remittances are estimated to contribute over 20% of Nepal's Gross National Product.

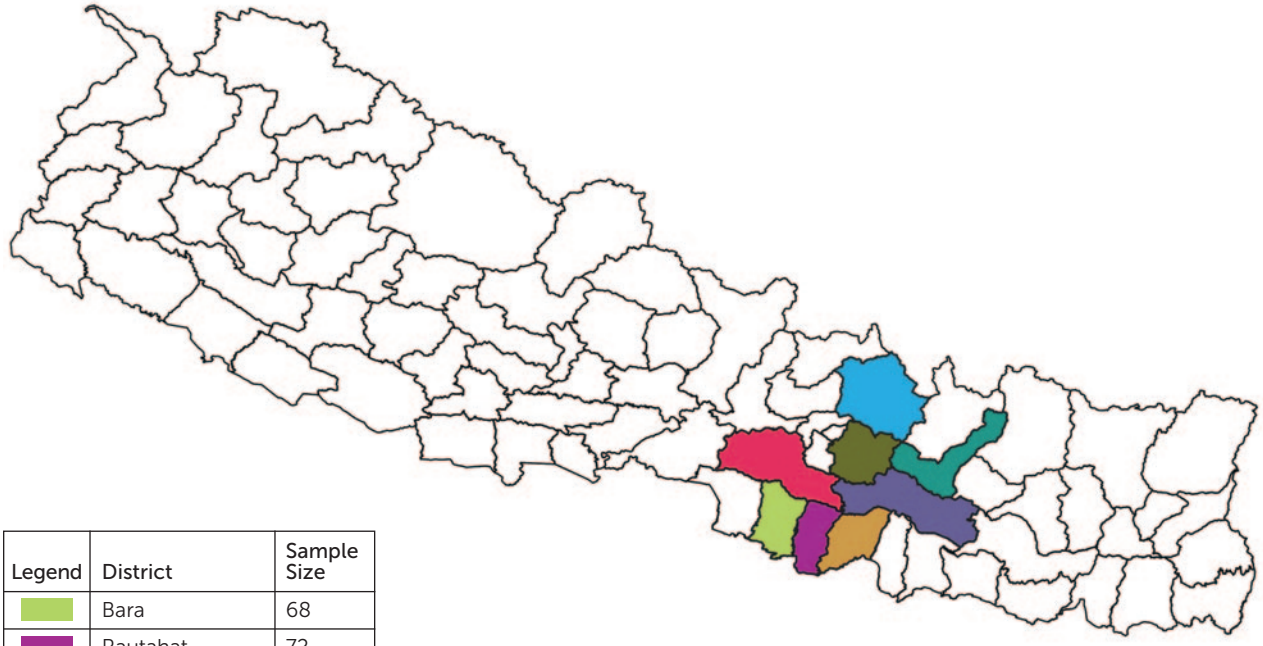
Executive Summary

Every morning, migrant laborers from rural Nepal go to work in carpet factories and brick kilns (seasonally) in the Kathmandu Valley. Many represent the latest generation of their families to make this migration journey. Many are children, earning money to support their families, who are back home or working alongside them. Agriculture is a primary source of livelihood in their home communities, which have suffered the effects of climate change, such as drought, pest infestations, flooding (including devastating floods in 2024), landslides, prolonged heat waves, and other severe climate impacts. The degree to which climate change has directly or indirectly contributed to the migrant workers' decisions to work in these two high-risk sectors for child and forced labor has not been formally studied. This study aims to begin addressing that gap by investigating potential links between changing climate patterns and child labor and forced labor risk in Nepal's carpet and brick sectors. It tells the stories of how these adult workers, children, and other vulnerable groups in their communities experience, cope with and adapt to climate change and the hardships that accompany it.

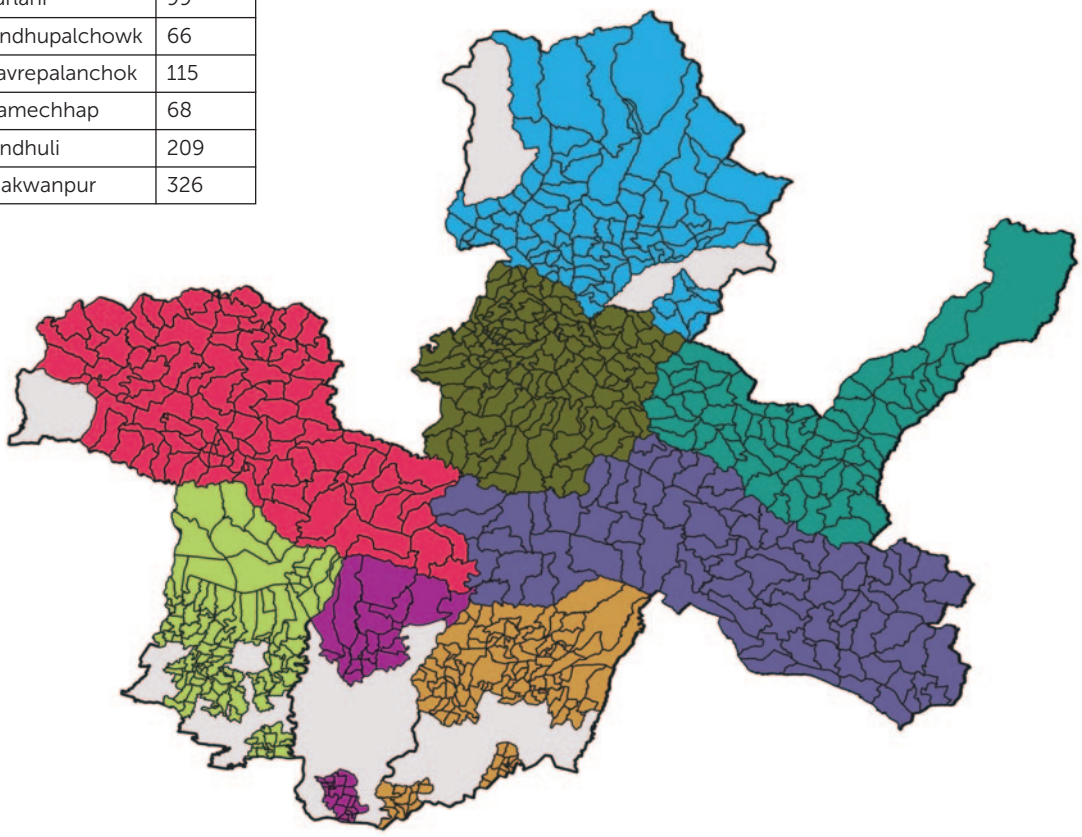
Participants in this study come from eight rural districts: Sindhupalchowk, Kavrepalanchok, Makwanpur, Ramechhap, Sindhuli, Sarlahi, Rautahat, and Bara. These districts were purposively selected for this study as origin communities for child laborers and adult workers in Nepal's carpet and brick industries which are concentrated in the Kathmandu Valley, and for their high exposure to climate change.

Figure 2: Eight Study Districts

The colored areas represent all municipalities that are source areas of the surveyed respondents (adult carpet and brick workers, households of former/current child laborers, households of comparison households, and the female heads of households). The numbers are the total number of interviews conducted through quantitative surveys.



Legend	District	Sample Size
	Bara	68
	Rautahat	72
	Sarlahi	99
	Sindhupalchowk	66
	Kavrepalanchok	115
	Ramechhap	68
	Sindhuli	209
	Makwanpur	326



Research Questions

To assess whether and to what extent climate impacts are linked to child and forced labor, the research team formulated the following six research questions:

1. Are climate impacts a factor in child labor and risk of forced labor in the carpet and brick sectors?
2. What proportion of sampled child laborers and adults at risk of forced labor migrated due to climate-related circumstances?
3. Which child labor or forced labor indicators appear among those who migrated due to climate-related stress?
4. What does the typical migration journey look like for workers affected by climate impacts?
5. What interventions may increase the resilience of Nepali communities to climate-induced vulnerability to child labor and/or forced labor?
6. What are the roles of the Nepali government, civil society, and private sector in addressing these risks?

Methodology, Respondent Groups, and Timeline

Using a mixed-methods approach, the study combined 30 years of climate trend analysis with surveys and interviews. A total of 1,023 individuals participated in the quantitative survey, including:

- Parents of current/former child laborers (n = 102)
- Heads of households without child labor (n = 81)
- Female household heads (n = 80)
- Adult carpet workers (n = 600)
- Adult brick workers (n = 160)

Qualitative interviews with former child laborers, heads of agricultural households, labor contractors, community leaders, NGO representatives, and government officials added context and depth.

The research drew on existing national and global data sets to establish the prevalence and patterns of climate change impacts and child and forced labor risk in Nepal. With these two phenomena already well-documented, the study's central analytical focus was on exploring whether a relationship exists between them in affected communities. To prevent confusion or ambiguity about the definition of climate change, respondents were asked about their experiences with the following climate events and weather pattern changes specific to Nepal: unseasonal or heavy rainfall, excessive summer temperature/heat waves, severely low winter temperature/cold waves, prolonged drought, severe flooding, landslides, forest fires, and insect/pest infestation.

The research was conducted in three phases from June 2024 to June 2025:

- Phase 1 (June-December 2024): Ethical approval, scoping study, literature review, development, pilot testing, and refinement of research tools
- Phase 2 (January-February 2025): Quantitative data collection, qualitative interviews, and climate data analysis
- Phase 3 (March-June 2025): Data cleaning, analysis, reporting

Key Findings

- **Climate change contributes to children's and adults' decisions to work in carpet and brick production.** 35% of adult brick workers, carpet workers, and parents of child laborers said that climate events had a role in their decision to work or have their children work. 17% cited climate events as playing an "extreme" role. Brick workers were most likely affected, with nearly three quarters (73%) citing changing climate patterns as a factor, and nearly half (48%) describing it as an extreme factor. Respondents who reported a link between changing climate patterns and their migration to these sectors most frequently cited prolonged drought, insect-pest infestations, floods, and landslides as the most impactful climate events.

- **Food insecurity is a critical impact of climate change and a push factor for adults and children to migrate for carpet and brick work.**
  Although a minority of respondents directly linked climate change to their decisions to seek work, nearly all reported economic hardship due to climate events. 91% experienced reduced agricultural production; 80% reported lost income; and 46% lost farmland. Qualitative interviews contextualized these findings, with a consistent theme emerging of declining agricultural production due to climate events forcing families to buy more food than in past years, borrow money, and seek alternative income to address the gap. 28% of households of child laborers had run out of food in the prior year.
- **Female-headed households are affected by climate impacts in proportions similar to other respondent groups in their communities.**
  Female household heads reported similar frequencies and severities of climate change on aspects of their livelihoods as the other respondent groups in their communities. Further, their average annual household income is significantly higher than that of current or former child laborers' households, and they are more likely than other sampled groups in their communities to report remittances as their primary income source. This evidence does not support the research team's hypothesis that female-headed households are more severely affected by changing climate events and patterns than other respondent groups.
- **Debt, food security, and land ownership emerged as differentiators between respondents who believe that climate change influenced their decisions to work or have their children work, and respondents who do not believe this claim.**
  Households that incurred debt due to climate shocks were 6.3 times more likely to report that climate played a role in their decision to migrate. Households that ran out of food were 5.9 times more likely to make the same attribution. Additionally, advance payments from labor brokers were significantly associated with climate-driven migration. In contrast, owning agricultural land reduced the likelihood of attributing migration to climate factors.
- **Study participants most frequently requested financial and agricultural support to address climate-related economic vulnerability.**
  Three quarters (74%) of respondents sought financial support to increase resilience. This was followed by training in alternative livelihood options (46%). Suggestions included support for drought-resistant crops, vocational training, emergency assistance during climate crises, and education subsidies. Priorities differed among respondent groups. Farmers, both male and female, emphasized economic and livelihood diversification, climate change adaptation and disaster risk reduction. In contrast, former child laborers strongly preferred education, skills development, social protection and child safeguarding.

Recommendations for Public and Private Sector Leaders

1. Design and implement targeted protections for climate-vulnerable children and adult workers in high-risk sectors.
2. Strengthen agricultural resilience and land access.
3. Enhance income-generating opportunities and livelihood diversification.
4. Strengthen children's education and safeguarding, and improve climate awareness.
5. Enhance climate change adaptation and disaster risk reduction.
6. Promote occupational safety and health among brick-kiln and carpet workers and employers.
7. Increase collaboration and coordination.
8. Expand existing Labor and Social Protection Frameworks in Nepali law to ensure adequate safety of children.

1. Introduction

As the global climate crisis intensifies, its impacts are felt most acutely by the world's poorest and most vulnerable populations. Nepal is a country marked by both ecological diversity and economic fragility exposed to climate extremes. Environmental shifts are not only disrupting ecosystems and livelihoods but may also be contributing to deeper social and economic harms, including child labor and forced labor, particularly in informal and hazardous sectors. Recognizing this urgent concern, GoodWeave International partnered with New ERA to examine potential links between climate change and child labor and risk of forced labor in carpet weaving and brick making, where cases of child labor and labor violations have been documented. Through this collaborative effort, the study aims to assess whether there is a connection between climate-driven vulnerabilities and exploitative labor dynamics in these sectors, and to inform strategies for building more resilient communities in the face of climate change.

1.1 Nepal's changing climate

Climate change is characterized by long-term shifts in temperature and weather patterns driven largely by human activities. Since the late 19th century, global surface temperatures have risen by over 1.1°C, with warming distributed unevenly across regions. Low-income and climate-vulnerable countries like Nepal bear a disproportionate share of the burden of climate change (IPPC, 2021).

Although Nepal contributes only about 0.06 percent of global greenhouse gas emissions, it ranks among the most climate-vulnerable countries (Child-Centered DRR and CDCC, 2023). Its diverse geography, from lowland plains to some of the world's highest peaks, makes it acutely susceptible to the adverse impacts of climate change (IFRC, 2021). Nepal's average annual maximum temperature has increased by approximately 0.06°C per year since the 1970s, with warming most pronounced in the high mountain regions (DHM, 2023). In 2023, Nepal recorded one of its warmest years since 1981, with average maximum and minimum temperatures reaching 27.9°C and 15.6°C, respectively, which are substantially above long-term averages. Precipitation

Children in a Nepali village where GoodWeave, with support from Walk Free, conducted research

patterns have also grown more erratic, with deficits exceeding 70% early in the year followed by a 60% spike in March, continuing through the monsoon season. Overall, 2023 was the eighth driest year since 1981, highlighting a broader shift toward more extreme and unpredictable climatic conditions (DHM, 2023). In September 2024, the Kathmandu Valley suffered extreme and devastating flooding, from which the region continues to recover.

1.2 Impacts of climate change

According to research (UNICEF, 2021), climate change disrupts institutional protections, drives migration, and intensifies economic stress — conditions that increase the vulnerability of children and marginalized groups. From natural disasters to climate-related conflict to forced migration, climate change is already taking a toll on children's safety, education, and health. Natural disasters, environmental degradation, and forced displacement due to climate stressors are increasingly linked to exploitation, including child and forced labor (Brown, et al., 2019).

The 2023 International Labor Organization (ILO) Issue paper on child labour and climate change illustrates the growing adverse socio-economic impacts of climate change, disproportionately affecting marginalized and vulnerable groups, especially children. The paper, which assessed over 100 international reports on the topic, highlights the issue of children who are pushed into child labor due to declining agricultural productivity in India, Nepal, and Peru.

The relationship between climate change and hazardous labor is well documented. An FAO study (2023) on the Ivory Coast, Ethiopia, Nepal, and Peru found that in climate-affected areas, declining agricultural productivity or disaster-related displacement often forces families to resort to informal or hazardous labor, frequently involving children. Similarly, another study in India suggests that as climate change affects crop yields and agricultural productivity, families are pushed into poverty and everyone including children and women are forced to work in hazardous conditions to contribute to their family's income (Pattanayak et al., 2021).

In Nepal, child labor and forced labor remain persistent issues, particularly in informal and hazardous sectors. The Government of Nepal has deemed both carpet and brick work hazardous. A 2021 study on Nepal from the ILO and the Government of Nepal Central Bureau of Statistics (CBS) finds that nearly 1.1 million children are involved in child labor, including 200 thousand children involved in its worst forms. In 2024, the United States Department of Labor's Bureau of International Labor Affairs (ILAB) listed bricks, carpets, embellished textiles and stones as produced by child labor and forced labor in Nepal, in violation of international standards, as required under the Trafficking Victims Protection Reauthorization Act (TVPRA) of 2005 and subsequent reauthorizations. These sectors frequently rely on low-paid, informal work and have a documented presence of exploitation. The United States Department of State estimated, in the 2024 Trafficking in Persons Report, a significant or significantly increasing number of severe forms of trafficking in Nepal.

While the environmental and economic effects of climate change for Nepal are increasingly evident, its potential role in contributing to child and forced labor in Nepal has not been empirically explored. This study addresses that gap by examining whether exposure to climate events, especially slow-onset changes such as rising temperatures and shifting rainfall patterns, is associated with increased risk of child labor and forced labor in the brick and carpet sectors. By exploring whether climate exposure is linked to child and risk of forced labor in carpet and brick sectors, this study provides a deeper understanding of how climate risks interact with social vulnerabilities, and informs the government, civil society, and other stakeholders in designing more integrated, resilience-focused policies that protect vulnerable populations.

The study focuses on eight districts selected for their high exposure to climate change, socio-economic vulnerability, and status as origin districts for child and adult workers in the carpet and brick industries: Sindhupalchowk, Kavre, Makwanpur, Ramechhap, Sindhuli, Sarlahi, Rautahat, and Bara (see Figure 2).

1.3 Objective

The main objective of this study was to document links between climate impacts and child and risk of forced labor in the carpet and brick sectors in Nepal if they exist. Specifically, the research aimed to answer the following questions:

1. Are climate impacts a factor in child labor and risk of forced labor in the carpet and brick sectors?
2. What is the proportion of sampled child laborers and adults at risk of forced labor in the brick and carpet sectors who have migrated from study districts due to climate change-induced circumstances?
3. Which child labor and/or risk of forced labor indicators appear among sampled brick and carpet workers who have migrated from study districts due to climate change?
4. What does the typical migration journey among sampled climate migrants look like?
5. Which interventions may increase the resiliency of Nepali local communities to climate-induced vulnerability to child labor and/or risk of forced labor?
6. What is the role of the Nepali government, local civil society organizations, and the private sector in reducing climate-induced vulnerability to child labor and/or risk of forced labor?

2. Methodology

The study began in June 2024. Preparatory work, including a scoping study, tool design, recruitment and training of enumerators, and pilot testing, was conducted between June and December (Figure 1 shows the research phases of the project). Ethical approval from the Nepal Health Research Council (NHRC) was sought and granted prior to data collection which took place in January and February 2025, followed by analysis and reporting from March to June 2025. GoodWeave and New ERA collaborated throughout all phases of the study, with New ERA also managing the logistical aspects, including programming, data collection, and data analysis.

Figure 1: Research Phases

2.1 Scoping Study

In July 2024, the research team conducted a scoping study to understand the context and inform the design of the study. Nine wards across the districts of Makwanpur, Sindhuli, Rautahat, and Sarlahi were selected because they are origin areas of former child laborers whom GoodWeave recently remediated from carpet factories in the Kathmandu Valley.

The scoping study sought to understand whether climate change has impacted these communities whose residents already face risk of child labor and/or forced labor. This was investigated via focus group discussions with long term community residents and farmers. This informed their suitability as locations to study for potential links between climate change and child labor / risk of forced labor. The scoping study yielded strong evidence that all selected communities were experiencing significant climate-related stressors, such as:

- Increasing summer temperatures and more frequent heat waves;
- Delayed and shortened monsoon seasons;
- Decreased winter rainfall and growing water scarcity;
- Increased incidence of drought, crop failure, and pest infestations.

The scoping study confirmed both the feasibility and relevance of investigating climate-labor linkages in these areas. It also supported the design of the main study by identifying research questions related to climate-induced labor exploitation, highlighting the need to explore community-level dynamics, including migration trends, and guiding the selection of appropriate tools, such as stakeholder interviews and group consultations.

2.2 Study design and data sources

The exploration of potential links between climate change and child labor and forced labor risk is based on the premise that both phenomena are present in Nepal. This premise is well evidenced through:

- GoodWeave's own identification of over 1,600 child laborers in carpet and brick production in Nepal over the past 30 years,
- Publications from the ILAB (2024) and ILO, UNICEF and CBS (2021) substantiating the presence of child and forced labor in these sectors,
- Historical climatological data published by the Government of Nepal's Department of Hydrology and Meteorology (DHM) (see section 4),
- Testimonials from long term residents of target districts collected during the scoping study.

Establishing child labor or forced labor risk is a complex task requiring expertise and trust, and potentially exposing the respondent to traumatic memories, employer retaliation, or other protection risks. Therefore, research design focused on whether links exist, rather than on identifying child labor or forced labor risk among respondents, or seeking respondent perceptions of shifting climate patterns and events.

The main study utilized a mixed-methods approach, incorporating a quantitative questionnaire, qualitative focus group discussions (FGD), in depth interviews (IDI) and key informant interviews (KII), and an analysis of climate data of the past 30 years obtained from the DHM, Nepal. The purpose of the quantitative component in this study was to collect structured, measurable information from study participants that could be analyzed to identify patterns, relationships, and trends related to the research questions. The qualitative component aimed to explore in depth 'why' and 'how' questions through participants' experiences, and generate rich, nuanced insights that triangulate and help interpret the quantitative findings. All questionnaires and guides were initially drafted in English and then translated into Nepali for field use. All potential participants gave informed consent to participate in the research and were free to withdraw from the interview or request that their completed interview be excluded. The physical climate data allowed objective and scientific examination of climate change in the study districts. The main study covered the districts included in the scoping study, and also included four additional districts that are vulnerable to climate change and origin areas of adult carpet or brick workers or former child laborers: Bara, Sindhupalchok, Kavrepalanchok, and Ramechhap. Figure 2 shows the location of the eight districts represented in the research sample.

Four different groups of respondents from the eight districts were selected for participation in the main study.

Parents of current or former child laborers (CHLDL): GoodWeave remains in contact with 55 remediated former child laborers in the carpet sector in the sampled communities whose households were invited to participate in the study. The research team further expanded the sample in the same communities by identifying additional current or former child laborers aged 10-17 in the carpet or brick sectors through snowball sampling. Parents of current or former child laborers were interviewed rather than the children themselves, because the parents are likely to have better understanding and memory of the factors driving their decisions for children to work.

Comparison households with no child labor (COMHH): Households with children aged 10-17 who had no prior history of child labor were surveyed to examine whether, and in what ways, they differ from households with former or current child laborers in the carpet and brick sectors.

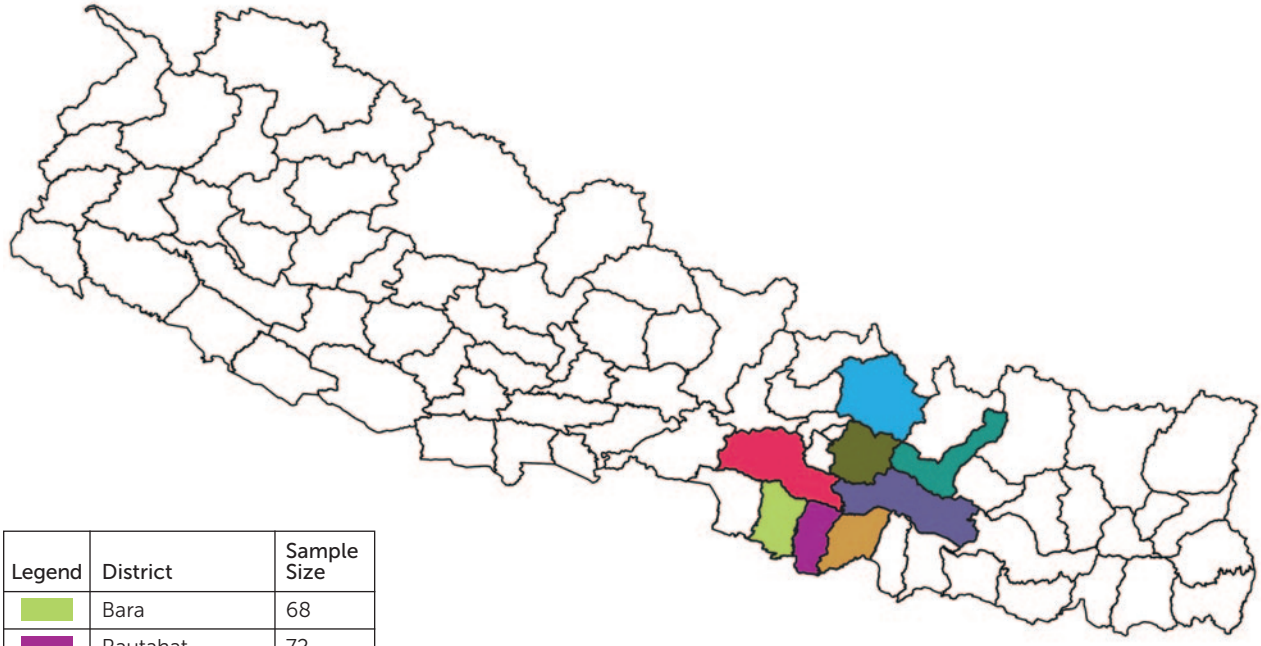
Female-headed households (FEMHH): Women identifying as heads of household from the same communities as current and former child laborers were surveyed to explore their climate-induced vulnerabilities and determine if they encounter different or more severe impacts than other study groups. Such households were referred for participation by other community members, and were not identified as having child laborers.

Carpet (CARPW) and brick (BRICW) workers: These workers comprise the majority of the sample and were interviewed to assess potential links between climate events in their home districts and their decisions to migrate for work in carpet or brick production. Brick workers are seasonally employed on kilns during the production months of November-April.

Research interviews with adult carpet and brick workers took place in the factories and kilns where they work in the Kathmandu Valley, where they answered questions about life in their origin districts. Interviews with parents of current and former child laborers, parents of children who have never engaged in child labor, and female-headed households were conducted in Makwanpur, Sarlahi, Sindhuli, Rautahat and Bara. Samples were based on the number of individuals available in GoodWeave's list of former child laborers and what was considered sufficient to generate valid indicative findings, given the specialized nature of the study population and the resources available. Table 1 presents respondent groups, planned versus actual number of interviews, and interview locations for each population type in the quantitative survey.

Figure 2: Eight Study Districts

The colored areas represent all municipalities that are source areas of the surveyed respondents (adult carpet and brick workers, households of former/current child laborers, households of comparison households, and the female heads of households). The numbers are the total number of interviews conducted through quantitative surveys.



Legend	District	Sample Size
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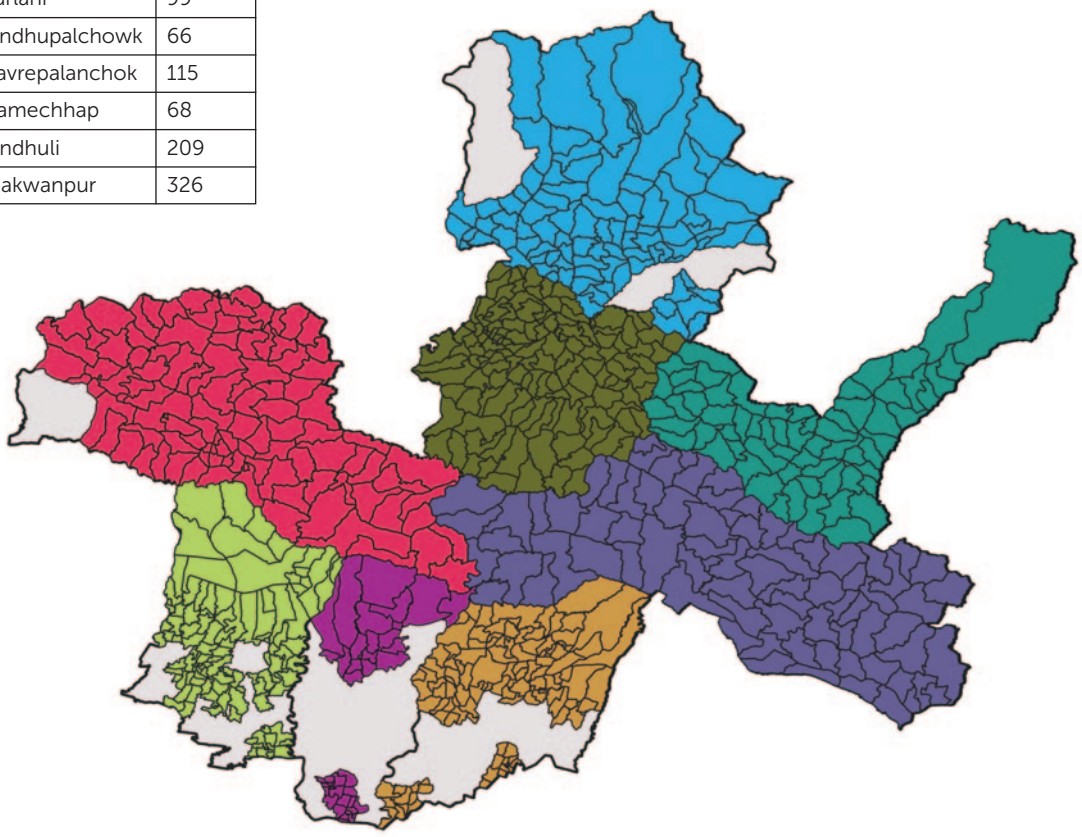

Table 1: Sample of Respondents for Quantitative Component

Population Type	Respondent	Planned number of Interviews	Actual number of Interviews	Population Type
Households with former child laborers remediated by GoodWeave (CHLDL)	Parent/ Knowledgeable Guardian	55	52	Respondent's residence in the community (Makwanpur, Sindhuli, Sarlahi, Rautahat, and Bara districts)
Households with current/former child laborers 10-17 years (CHLDL)	Parent/ Knowledgeable Guardian	50-75	50	Respondent's residence in the community (Makwanpur, Sindhuli, Sarlahi, Rautahat, and Bara districts)
Households with children 10-17 years without prior child labor history (COMHH)	Parent/ Knowledgeable Guardian	50-75	81	Respondent's residence in the community (Makwanpur, Sindhuli, Sarlahi, Rautahat, and Bara districts)
Female-headed households (FEMHH)	Female household heads (18-50)	50-75	80	Respondent's residence in the community (Makwanpur, Sindhuli, Sarlahi, Rautahat, and Bara districts)
Adult carpet workers (CARPW)	Worker himself/ herself (50 years or below)	550	600	Carpet factory (Kathmandu Valley)
Adult brick workers (BRICW)	Worker himself/ herself (50 years or below)	250	160	Brick factory (Kathmandu Valley)

Qualitative informants were included in the study to validate, corroborate, and add context to quantitative findings.

Focus group discussions (FGD) were held with:

Agricultural Households: Farmers and households that rely on agricultural harvests were selected for focus groups due to their reliance on stable climatic patterns for their livelihoods, and their firsthand knowledge of how climate events have affected their farming.

In depth interviews (IDI) were held with:

Former Child Laborers: Former child laborers who GoodWeave withdrew from carpet work described

the circumstances driving them to seek work as children. They provided insight on push factors motivating them to migrate, and pull factors that made carpet work appealing.

Finally, interviews were conducted with key informants (KII) in the following categories:

Labor Contractors: Labor contractors recruit carpet and brick workers, including children, and have insight on trends driving labor migration, and personal stories of migrating carpet workers.

NGO Leaders: These NGO leaders work to address child labor and climate change. Their presence on the ground gives them current information on each issue in the Nepali context.

Provincial and Federal Government: Government personnel have robust understanding of these issues and the responses that local municipalities and national agencies are pursuing.

Ward Chairs: Possessing decades of experience in their communities, Ward Chairs have witnessed the effects of climate change in the short and long term, and can describe the responses, coping mechanisms, and adaptations members of their communities have pursued. Table 2 presents the number and types of participants involved in interviews and focus group discussions for the qualitative component.

Table 2: Participants for Qualitative Interviews and Focus Groups

Type	Participants*	Number
In-depth interviews (IDI)	Former child laborers remediated by GoodWeave	Total 15 10 (Kathmandu) & 5 (Makwanpur, Rautahat, Sindhuli)
Key Informant Interviews (KII)	Ward Chairs	Total 6 3 (Sindhuli); 1 (Makwanpur); 2 (Rautahat)
	Contractors of carpet factories and brick kilns	Total 9 1 (Sindhuli); 2 (Makwanpur); 1 (Sarlahi); 2 (Kathmandu); 1(Kavre); 2 (Bhaktapur)
	Administrators at NGOs working in the labor sector in Kathmandu	Total 3 1 (Hetauda); 2 (Kathmandu)
	Provincial government	Total 2 1 (Hetauda); 1 (Janakpur)
	Federal government (Nepal Child Rights Commission)	Total 1 (Kathmandu)
Focus Group Discussions (FGD)	Adult agricultural household members in the communities where former child laborers reside	Total groups 9 (59 participants) 5 (Females); 4 (Males)

2.2.1 Quantitative Data Collection

The questionnaires (linked in Annex 6) focused on topics relevant to each respondent type, and covered the following themes:

- Socioeconomic characteristics of households;
- Impacts of major climate events over the past 15 years on livelihoods. 15 years was selected as most respondents have lived in their communities at least this long. It is long enough for respondents to reliably remember changes over time, without being so long that they struggle to remember individual events and how they coped. Specific events included unseasonal or heavy rainfall, excessive summer temperature/heat waves, severely low winter temperature/cold waves, prolonged drought, severe flooding, landslides, forest fires, and insect/pest infestation;
- Coping mechanisms adopted;
- Reasons respondents or their children take work in the carpet or brick sectors;
- Migration journeys to carpet and brick factories;
- Potential ways to increase community resilience to climate change.

Enumerators administered questionnaires via in-person interviews at participants' homes or workplaces. Enumerators formatted the interviews as conversations to facilitate information sharing and establish a more natural interaction than a strict question and answer format would allow. Questionnaires were programmed in Survey CTO for data collection using Computer-Assisted Personal Interviewing (CAPI).

2.2.2 Qualitative data collection

Qualitative tools (Annex 7) were customized for specific participant groups and collected detailed information on:

- the impacts of climate change in communities;
- climate-related livelihood disruptions;
- the dynamics that push children and adults into hazardous work like carpet and brick production;
- migration journeys to the carpet and brick factories; and
- policy-level questions related to the role of the Nepali government and local civil society organizations in reducing climate-induced livelihood disruption.

All qualitative interviews and discussions were recorded using audio recorders, in addition to note taking.

2.2.3 Climate Data

Time series climate data covering the past 30 years (1995–2024) were obtained from the DHM to assess climate trends in the study areas. This data was collected from meteorological stations near the eight districts represented in the study. Temperature (Celsius), precipitation (mm), and relative humidity (%) were reviewed due to their direct impact on agriculture. Data is provided in section 4 and Annex 3.

2.3 Pilot Test

The quantitative tools were field-tested over five days with 14 households in Bara and Rautahat, and 18 workers in three carpet factories and one brick kiln in the Kathmandu Valley. Additionally, brief cognitive interviews were conducted with respondents to assess question wording and comprehension and inform improvements to questionnaires.

Insights from the pilot led to several refinements in the tools, such as:

- simplifying language to enhance respondent understanding;
- removing less relevant questions to improve focus on the core research objectives;

- limiting the list of climate events to from 17 to eight major types based on findings from the pilot and other studies[1].

2.4 Data cleaning, preparation, and analysis

All analyses were guided by the research questions. Annex 1 shows how each research question is linked to specific tools and data sources. Quantitative data were cleaned before analysis. Open-ended responses were translated into English and recoded to enable efficient analysis. To ensure data protection, all personal identifiers in both qualitative and quantitative data were replaced with unique codes during data entry and analysis. Access to raw data was restricted to authorized team members only, with files stored in encrypted, password-protected systems. Qualitative transcripts were anonymized by removing identifiers that include names, specific locations, phone numbers and other identifying details, while quantitative datasets exclude any personal identifiers. Similarly, enumerators and field researchers were instructed to destroy any personal information collected from respondents.

Quantitative data was analyzed in STATA, including descriptive statistics and logistic regression exploring how the relationship between climate events and decisions to work in the carpet or brick sectors is affected by different variables.

Qualitative data were transcribed and translated into English, then processed and analyzed using MAXQDA, with thematic coding aligned with research objectives. Analysis focused on identifying key patterns, quotes, and exceptions to enrich quantitative findings.

The daily records of climate data from the last thirty years (1994–2024) on precipitation (mm), maximum temperature (°C), and maximum relative humidity (%) were analyzed for patterns and trends over the 30 years.

2.5 Limitations and challenges

a) *Scope of study:* This study focuses specifically on the brick and carpet sectors, because these are GoodWeave's primary areas of engagement, and the presence of child labor and forced labor in these sectors is well-documented. However, this limited sectoral focus may restrict broader conclusions about the impact of climate change on child and risk of forced labor across other industries.

b) *Respondent hesitancy and data reliability:* Despite careful rapport-building and explanation of the study's purpose, some households with current child laborers were suspicious that their participation could lead to legal consequences or jeopardize livelihoods. Some respondents denied their children were working illegally or overstated children's ages. However, as field teams provided reassurance and interviews progressed, most respondents became more willing to share information. Still, this initial mistrust may have introduced some reporting bias.

c) *Challenges in recalling climate events and impacts:* Younger respondents and those from households with limited agricultural or livestock engagement often struggled to recall specific climate events, their timing, or consequences. Similarly, carpet workers—many of whom spent extended periods in factory settings with limited connection to their home communities—found it difficult to reflect on how climate conditions may have influenced household decisions.

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[1] Initially, 17 climate events were included, but this was found to be fatiguing and less relevant for the piloted households. Additionally, if there was no evidence of a particular climate event's prevalence in a given district, related questions were omitted for respondents from those districts.

d) *Sampling and statistical limitations:* The study population was purposively selected rather than randomly sampled, limiting the generalizability of findings beyond the study districts, groups and industries. The relatively small sample size, especially of current and former child laborers in the brick and carpet sectors, also constrained the use of more advanced statistical analyses. As such, the findings should be considered indicative and exploratory, rather than statistically representative.

e) *Logistical challenges:* The remoteness of certain communities created logistical difficulties, including long travel distances, limited transportation options, and inadequate lodging. These factors constrained the time field teams could spend in each community, affecting their ability to build trust and maximize sample sizes.

f) *Respondent comprehension and interview fatigue:* Despite refining the questionnaire to improve comprehension, enumerators found that many respondents struggled to fully understand some questions. Enumerators often had to explain key terms and concepts, which sometimes led to fatigue on both sides and may have affected the quality of the responses, especially toward the end of longer interviews.

g) *Comparability limitations across quantitative respondent group data:* While several data points were universally collected across all three respondent groups (parents, carpet/brick workers, female headed households), certain information, such as annual household income, or educational attainment were collected from only one or two groups. This restricted the team's ability to identify differentiating factors between respondent groups.

h) *Limited climate data on temperature and humidity:* Time series data on temperature and relative humidity are available only from Bara, Makwanpur, and Sarlahi districts. This is due to the DHM reportedly being unable to collect data regularly from the other five districts. Therefore, the time trends for these two variables could be analyzed only for the three districts. In contrast, precipitation data are available from all eight stations and were analyzed.

i) *Limited number of meteorological stations and data coverage:* There is no meteorological station in Kavrepalanchok. Therefore, data from nearby Chautara Station in Sindhupalchowk was used as a proxy. Sindhupalchok has a second station at Bahrabise, which was used for that district. Furthermore, the climate data were obtained from a limited number of meteorological stations (see Figure 5 in section 4), which may not adequately represent the geographically scattered locations where the survey participants reside or originate from (see Figure 2 in this section). This is particularly relevant in study districts that span diverse ecological zones – from high hills to mid-hills or even lowland Terai plains. As a result, the climate data may not correspond precisely to the experiences reported by individual participants.

3. Demographics and Other Descriptive Findings

This section presents demographic and economic characteristics of study participants and their households collected through quantitative interviews with parents of child laborers, parents of children who have never been in child labor, female household heads, and adult carpet and brick workers, and qualitative discussions with former child laborers, key informants, and community members.

The quantitative sample included 1,023 individuals from five respondent groups. Demographic details relevant to the research findings for each group are provided below. Table 3 provides the percentage of each quantitative respondent group by source district while Table 4 provides the demographic information of each respondent group.

Adult carpet workers (CARPW)
Carpet workers (n = 600) in this sample live and work in factories in the Kathmandu Valley, having migrated from their home districts. The highest proportion of carpet workers surveyed (39%) have homes in Makwanpur district, with the other seven districts comprising 4%-17% of the sample. Like brick workers, they were included due to their participation in an industry with documented child and forced labor. The gender distribution of those surveyed was close to even, with 50% each male and female. Carpet workers have the lowest levels of educational attainment, with 79% never having attended school or stopping school after grades 1-5. Almost all carpet workers are from Janajati castes. Just over half (52%) reported carpet work as their household's primary income source, with remittances (18%) and farming (23%) comprising the majority of the remaining households. This may reflect the varied pay scales and variability of work in the carpet sector, where higher skilled weavers earn considerably more than the lowest skilled workers. Additionally, the proportion of carpet workers who report farming as their household's primary income source is comparable to that of the other sampled groups in the plains and hills districts (Sindhuli, Sarlahi, Bara, Rautahat, Makwanpur), suggesting that carpet work is a supplementary income for households that do not derive enough income from agriculture.

Carpet weavers hand-knotting on a loom in Nepal

Adult brick workers (BRICW)

Brick workers (n = 160) in this sample live and work on kilns in the Kathmandu Valley during the brick production season, from November through April. They were included in the research due to their participation in an industry with documented child and forced labor. 63% of sampled brick workers were male[2]. This gender disparity is reflective of the workforce composition on brick kilns. More than half (52%) came from Kavrepalanchok district, with another 28% from Ramechhap district. These are hilly regions that are topographically distinct from the flatter plains topography of other districts in the sample. 74% of brick workers have never attended school or stopped school after grades 1-5[3] (see Figure 3). As with other sampled groups, nearly all brick workers are from Janajati[4] or Dalit castes. They were the least likely respondent group to report remittances as their primary income source (6%), with 71% reporting brick work as their primary income source (Table 5). This is 20 percentage points more than the proportion of carpet workers who report that carpet work is their primary income source, despite carpet work being an income source available year-round. It may be an indicator of vulnerability that most brick workers do not generate as much income in the seven months of the year that they live at home as they do in the five months that they work in kilns.

Heads of households with current or former child laborers (CHLDL)

These households (n = 102) have experienced both climate events and child labor, making them ideal sources of information on to what degree the climate events affected the decision for children in the household to go to work. They are in Makwanpur, Sindhuli, Sarlahi, Bara, and Rautahat districts, with the former child laborers having previously worked at carpet worksites in the Kathmandu Valley. These households have the lowest average annual income (186,000 NPR / 1,328 USD) and are the most food insecure of the quantitative sample groups, with 28% reporting that the household ran out of food in the previous year (Figure 4). They are the most likely to report unskilled labor as the household's primary source of income, with 34% doing so, compared to 3%-6% among carpet workers, brick workers, and female headed households. Households with current or former child laborers surveyed are 99% Janajati caste. These statistics illustrate greater economic vulnerability compared to the other sampled groups, and highlight potential drivers that compelled children from these households to pursue carpet or brick work. Nonetheless, child laborers from these households were more likely to have attended school, with 79% attending at least some school, compared to 67% of adult brick workers and 62% of adult carpet workers.

Heads of comparison households without child labor (COMHH)

These households have children who are not and have never been engaged in child labor. They are in the same communities as the child labor households and served as a comparison group (n = 81). As with female headed households, remittances are the most frequently reported primary source of income, accounting for 27% of households. An additional 20% identified farming as the primary income source. These income sources contribute to comparison households having the highest average annual income (366,000 NPR / 2,614 USD) compared to households with child labor and female headed households. They are the most food secure among this group, with 4% reporting that they had run out of food in the previous year.

Female household heads (FEMHH)

The research team hypothesized that female headed households (n = 80) are particularly vulnerable to the impacts of climate events, because they bear the entire burden of providing for their households. The households were selected from the same communities in Makwanpur, Sindhuli, Sarlahi, Bara, and Rautahat districts, as the

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2 As far as possible, efforts were made to include an equal number of male and female adult workers; however, this was less feasible in the case of brick workers.

3 Education is compulsory in Nepal from grades 1 to 8, students age 5 to age 12.

4 Janajati people is the umbrella term used to identify the ethnic indigenous people in Nepal comprised of 63 ethnic groups. The large percentage of Janajati people in this study, including Tamang Chepang, Magar, and others could be because the art of carpet weaving was introduced by Tibetan refugees, who initially employed Janajatis from nearby hill districts—communities that were culturally close to them. These early workers, in turn, brought more people from their own communities, and this gradually became an intergenerational trend.

households with current or former child laborers, to ensure similar experiences with climate events as other sampled groups. Similar to the caste breakdowns of other respondent groups, 93% are Janajati and 7% are Dalit. 50% report remittances as their primary income source, a significantly higher proportion than any other respondent group. Relatedly, their average annual household income is 330,000 NPR / 2,356 USD, 77% higher than that of households of current or former child laborers in the same communities. This suggests that remittances, combined with existing income sources, place these households in comparatively better financial health than those that resort to child labor. Nonetheless, food insecurity affects female household heads, with 13% reporting that they had run out of food in the previous year. The mean age of the female heads of household was 35 years.

Qualitative informants were included in the study to validate, corroborate, and add context to quantitative findings. Limited demographic information was collected from each group.

Agricultural household heads (FGD)
There were 59 participants across the 9 FGDs. The majority (83%) of FGD participants were Janajati (73% being Tamang), slightly over half (53%) were female, and were between 29-78 years of age (average age 41 years).

Former child laborers
Former child laborers who GoodWeave withdrew from carpet work described the circumstances driving the decision for them to seek work as children. Among the 15 GoodWeave-remediated former child laborers who were interviewed, all are Janajati (Tamang) and 40% are female. Their age range is 13-18. The educational attainment of former child laborers is slightly higher (average grade of 8.3) among those currently at school in Kathmandu compared to those studying in their origin communities (average grade of 5.7).

Labor contractors
All nine contractors interviewed are male, with an age range of 34-42 and average educational attainment of grade 5.3.

NGO leaders
Three NGO leaders gave interviews (2 male, 1 female). Their ages ranged from 34-47, and all hold Masters degrees. Two have 24+ years of experience in their sector, while the other has four years' experience.

Provincial and federal government
Two provincial government representatives gave interviews: one from Madhesh and the other from Bagmati Province. Both are men in their 50's, who have been working in various government sectors for the past 25 years. One has been in his current ministry role for 2.5 years while the other is new to his position. The federal government representative is a 48 year-old male officer on the National Child Rights Council, who has served in this role for 19 years.

Ward Chairs in Makwanpur, Sindhuli, and Rautahat
Five males and one female were interviewed. The average age is 44, ranging from 31 to 54 years. Four have completed Grade 10, one has completed Grade 5, and one is illiterate.

Table 3: Distribution of Quantitative Study Population by Source District

Population Type	N	Source District (%)							
		Bara	Kavre	Makwanpur	Ramechhap	Rautahat	Sarlahi	Sindhuli	Sindhupalchok
CHLDL	102	9.8	-	30.4	-	15.7	8.8	35.3	-
COMHH	81	6.2	-	37	-	12.3	6.2	38.3	-
FEMHH	80	7.5	-	37.5	-	5	13.8	36.3	-
CARPW	600	7.5	5.3	39.0	4.0	6.8	10.5	16.5	10.3
BRICW	160	1.3	51.9	0.6	27.5	0.6	6.9	8.8	2.5
TOTAL	1023	6.6	11.2	31.9	6.6	7.0	9.7	20.4	6.4

Table 4: Demographic Information of Quantitative Study Population

Population Type	N	Sex		Age/Years		Years in Job	Ethnicity*		
		% Male	% Female	Current Age	Average age at job entry		% Janajati	% Dalit	% Other
CHLDL	102	52.0	48.0	16.1	12.8	1.4	99.0	1.0	0.0
COMHH	81	NA	NA	NA	NA	NA	87.7	6.2	6.2
FEMHH	80	0.0	100.0	35.0	NA	NA	92.5	7.5	0.0
CARPW	600	49.8	50.1	30.7	16.7	15.0	93.3	3.5	3.2
BRICW	160	63.1	36.9	31.8	19.0	13.8	70.6	11.3	18.1
TOTAL	1023	-	-	-	-	-	89.8	5.0	5.2

*Aggregated totals are calculated only for ethnicity, as totals for sex and age-related factors would not be meaningful.

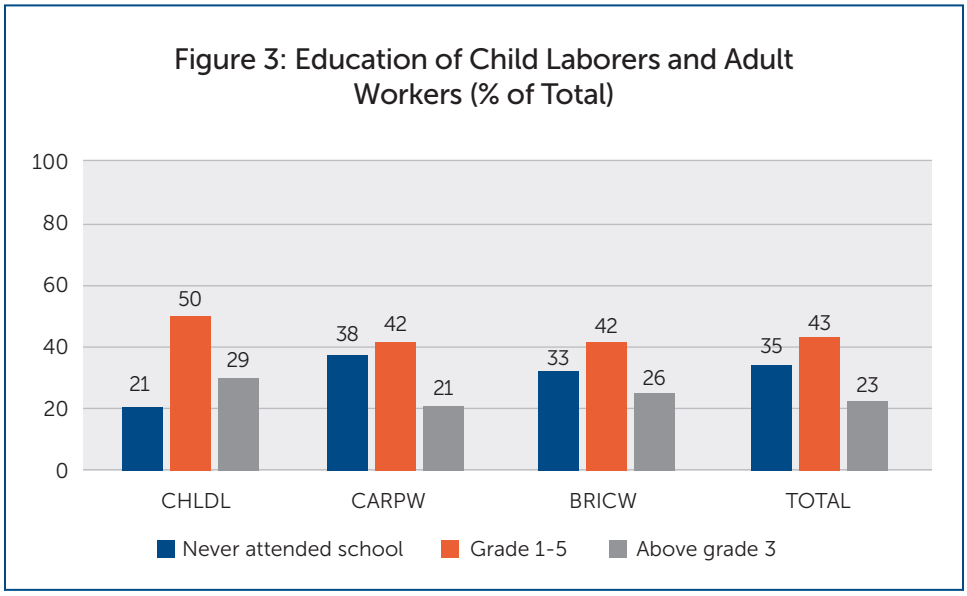
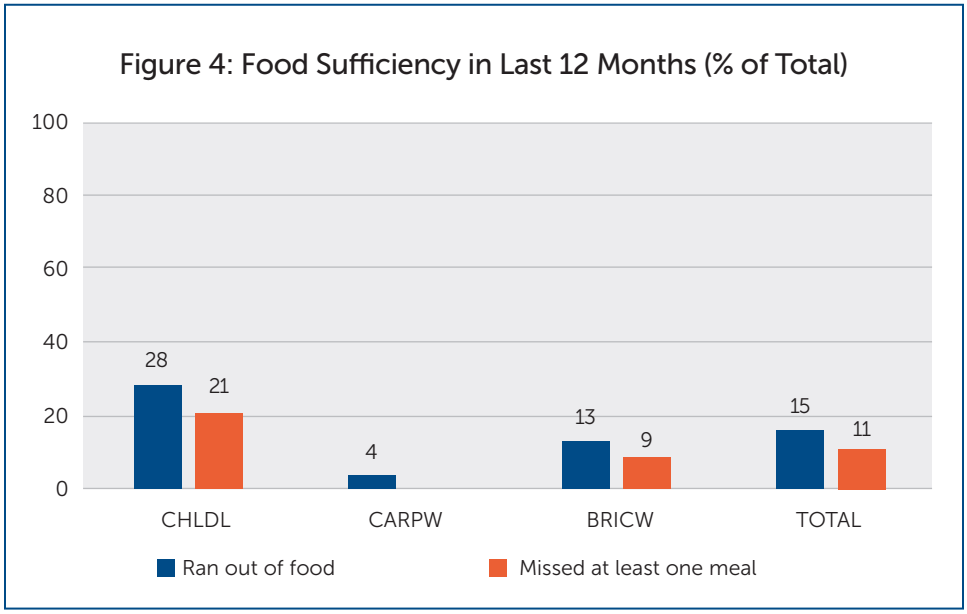


Table 5: Primary Source of Income of Quantitative Study Participants

Population type	N	Primary source of income						Annual Income (1000 Rs)
		Farming	Unskilled Job	Skilled Job	Remittance	Carpet/ Brick	Other	
CHLDL	102	18.6	34.3	22.6	18.6	2.9	2.9	186
COMHH	81	30.9	14.8	27.2	27.2	0.0	0.0	366
FEMHH	80	26.3	6.3	11.3	50.0	0.0	6.3	330
CARPW	600	23.3	2.7	4.7	17.7	51.7	0.0	-
BRICW	160	18.1	2.5	3.1	5.6	70.6	0.0	-
TOTAL	1023	22.9	7.1	8.5	19.2	41.7	0.8	285*

* Average annual income for the total category is for the households surveyed in the communities (excludes adult carpet and brick workers).



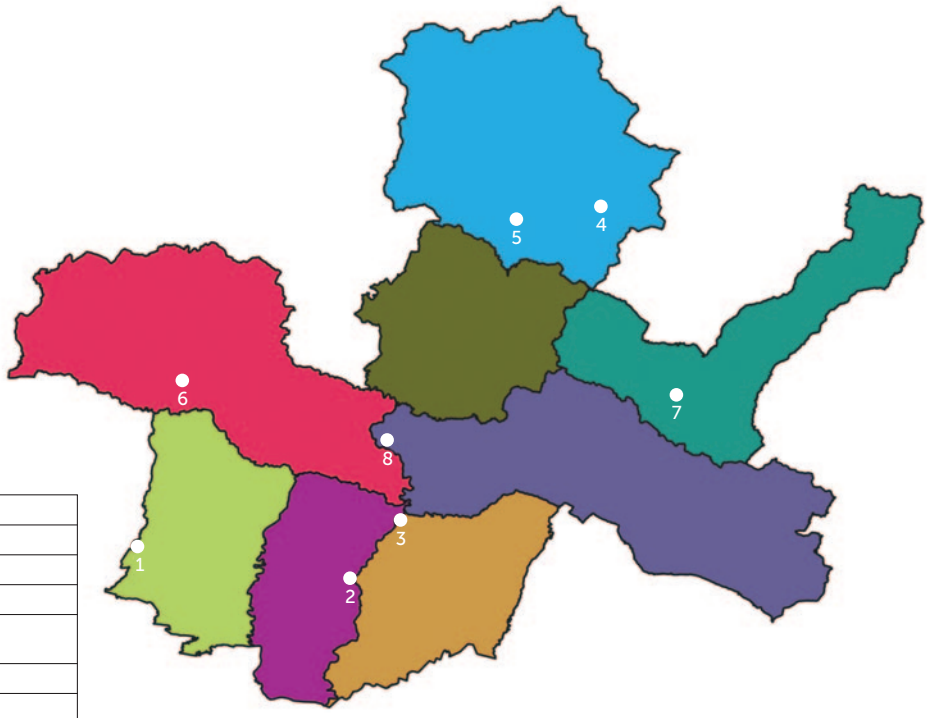
4. Evidence of Climate Change in Study Districts

Changes in climate patterns in the eight focus districts have been observed over the last 30 years. This section presents scientific evidence and personal observations of climate pattern changes by the study participants in these districts, to establish how the selected districts have been affected. The research team used this data to inform questionnaire design, by ensuring respondents from each district would be asked only about climate events that occurred in their district. The questionnaire therefore did not focus on validating the presence of climate change in these districts, rather on the impact of climate events and pattern changes in respondents' lives.

4.1 Scientific evidence of climate change in study districts

Daily records of climate data from 1994–2024 on maximum temperature (°C), precipitation (mm), and relative humidity (%) from eight meteorological stations were analyzed to identify climate trends in the study districts. The locations of these eight stations are shown in Figure 5. As mentioned in the limitations section, data from the nearby Chautara station of Sindhupalchok was used as a proxy for Kavrepalanchok.

Figure 5: Locations of Meteorological Stations Used



Legend	District	Staion Location
	Bara	1. Parwanipur
	Rautahat	2. Ramoli Bairiya
	Sarlahi	3. Karmaiya
	Sindhupalchowk	4. Bahabise 5. Chautara
	Makwanpur	6. Hetuda N.F.I.
	Ramechhap	7. Manthali
	Sindhuli	8. Hariharpur Gadhi Valley
	Kavrepalanchok	No staion in Kavre

Emerging climate trends across the study districts indicate increasing variability in rainfall and humidity, signaling a gradual shift toward drier and less predictable conditions, generally with delayed monsoons and drier winters. Community feedback echoes this pattern, with many reporting difficulty coping with changing weather patterns. Unlike previous years, farmers now face uncertainty regarding when to plant, irrigate, apply fertilizers, and harvest, due to untimely rainfall and fluctuating temperatures that have made farming significantly more challenging. The 30-year trend in average maximum summer temperatures shows significant warming in Bara, Sarlahi, and Makwanpur, though frequent winter cold waves, another climate change phenomenon, cause annual average

temperatures to remain relatively steady. Bara, Sarlahi, and Makwanpur also exhibit decreasing humidity over the 30-year period. This often correlates with reduced precipitation, leading to rapid soil moisture loss, reduced water availability, and increased drought risk, resulting in greater irrigation demands for farmers. Additionally, numerous studies indicate that rising temperatures create more favorable conditions for pest infestations (Shrestha, 2019; Skendžić et al., 2021).

Rautahat has exhibited high year-to-year rainfall variability, leading to alternating periods of floods and water shortages. Sarlahi and Ramechhap show a consistent drying trend, particularly since 2015, while Sindhuli's rainfall remains relatively stable, though recent data suggest emerging water stress. A sharp decline in winter rainfall has been observed across all stations.

Table 5 summarizes the observed climate trends and significant changes across the study districts, while Annex 3 pictorially illustrates the trends for each of the variables used and insights that can be drawn from the trends. While some districts have experienced more volatility and variability, others have experienced consistent trends. In all districts the climate events have increased challenges for farming and agriculture.

Table 5: Climate trends from 1994–2024

District	Observed Climate Trend	Significant changes in 30 year meteorological data
Bara (Parwanipur)	Gradual decrease in annual rainfall with erratic fluctuations. Prolonged drought spells. Increasing summer temperatures and decreasing winter rains.	Rainfall used to be more evenly distributed during monsoon seasons but now shows irregular onset and retreat along with dry winters, with declining rainfall contributing to more frequent periods of water scarcity. Though the average annual temperature has been consistent, there has been a gradual increase in summer maximum temperatures since 2015 with abrupt short term heat waves.
Rautahat (Ramoli Bairiya)	High year-to-year rainfall variability without a consistent trend with drying winters.	Earlier, rainfall was relatively predictable, but the recent alternation between intense flooding and drought years has disrupted seasonal agricultural cycles. Declining winter rain has also affected farming.
Sarlahi (Karmaiya)	Increased variability in precipitation and humidity, with a consistent drying trend after 2015 in humidity and rainfall.	Historically, the region received moderate and consistent rainfall, but recent patterns show prolonged dry spells, particularly in winter (December to February). Average Summer high temperature have surged since 2015.
Kavre Chautara, Sindhupalchok, Proxy for Kavre	Consistent decrease in both annual and winter rainfall.	This region previously benefited from reliable rainfall supporting terrace farming, but now experiences reduced precipitation, particularly in winter, threatening water availability and increasing the risk of landslides due to soil destabilization.
Makwanpur (Hetauda)	Drastic decline in rainfall and summer humidity; temperature increases over the past 30 years with more frequent heatwaves.	Earlier, summer temperatures were moderate with adequate humidity and rainfall, but current conditions feature longer, hotter dry spells that strain water sources. Decreasing winter rainfall is also observed.

Ramechhap (Manthali)	Gradual shift toward drier conditions with more frequent dry years in the past decade.	This region previously experienced moderate rainfall across the monsoon, but now faces failures of seasonal rain, leading to drying of springs and higher agricultural risk. Winter rainfall has also dropped to very low levels.
Sindhuli (Hariharpur Gadhi Valley)	Rainfall largely stable but decreasing over the last 15 years.	While previously considered a water-secure district, emerging signs of rainfall reduction suggest early stress on groundwater recharge and traditional irrigation systems.
Bahrabise (Sindhupalchowk)	Consistent decrease in both annual and winter rainfall.	Reliable rainfall previously enabled terrace farming, but now reduced precipitation threatens water availability and risk of landslides is greater due to soil destabilization.

4.2 Climate events affecting the study population

Survey respondents were asked whether their households or other households in their community had been affected by any of eight major climate events or pattern changes over the past 15 years (2010 AD / 2066-2067 BS). They include:

- heavy rainfall,
- excessive summer temperature/heat waves,
- severely cold winter temperature/cold waves,
- prolonged drought,
- severe flooding,
- landslides,
- forest fires, and
- insect/pest infestation.

Figure 6: Climate Events Experienced by the Study Population (% of Total)

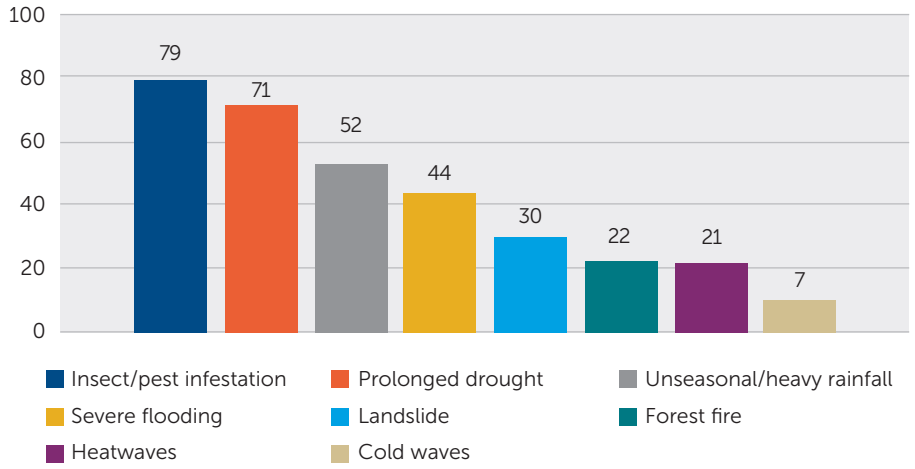


Figure 6 shows the proportion of respondents (n = 1,023) per climate event, who reported a negative impact on their household. Insect-pest infestation was reported by 79% of all respondents stating they had experienced this climate event, including 99% of female-headed households, followed by prolonged drought (71%), unseasonal or heavy rainfall (52%), and severe flooding (44%).

Earlier, spraying pesticides once or twice was sufficient, but now even spraying three times is not enough to control pests.

- 54 year old male farmer, Rautahat

The production has decreased by about three out of four parts... in both corn and rice yields... a decline in other crops like millet and buckwheat.

- 38 year old male farmer, Rautahat

Agricultural workers and Ward Chairs from all areas reported more severe pest infestations affecting major crops like maize and rice. They described encountering new types of pests, such as armyworm in Sindhuli, Sarlahi and Rautahat. The pest damages crops, decreasing production so much so that some farmers are forced to abandon their crops. They also reported that many farmers' production plummeted by half, and in rare instances, it fell to zero. One Ward Chair shared the severity of pest infestations by saying, "people stopped planting corn because of pests." Farmers strongly corroborate the severe impact of pests on crop yields, particularly rice and maize," which are the staple crops and described pests attacking crops at various stages of growth, even after harvest. They reported that frequent and intensive pesticide use proved largely ineffective.

Due to the increased temperature this year, even though vitamins and medicines were given, cauliflower production was not possible.

- 37 year old female farmer, Rautahat

There's no rain when it's supposed to come. Even the sources of water are drying up. Our stream has no water anymore. We raise a few cows and goats, but they don't have water to drink.

- 47 year old male farmer, Rautahat

All farmers reported prolonged drought over the past 10-15 years, delaying winter crop sowing, causing crop failure, and reducing crop yields, aligning with the quantitative findings. This was echoed by government representatives and contractors. Most farmers noted altered rainfall patterns, including reduced winter rain and unseasonably heavy rainfall during harvest, leading to flooding and crop damage. Hill-area (Sindhuli and Makwanpur) respondents reliant on rain-fed cultivation reported extremely poor yields and struggled to maintain even two crop cycles (four-crop cycles in plains) due to climate change. Respondents from both hill and plains areas (Sindhuli, Bara, Rautahat, Sarlahi, Makwanpur) observed drying up or shrinking streams and ponds. NGO and government representatives supported this observation.

Key informants and FGD participants noted more frequent and larger floods in recent years destroying land, rice fields, and crops (except one Ward Chair from Sindhuli who said floods remain unchanged). Main paddy, spring/winter maize, summer maize, green vegetables, legumes, millet, and other vegetables were the major crops reportedly damaged by changing climate patterns. Goats and chickens were the primary livestock affected among those who reported livestock losses.

Agricultural households and farmers reported experiencing hotter summers and colder winters over the past 10-15 years, disrupting agriculture and crop yields. Extensive and extended cold delayed ripening and sowing of local varieties, while rising summer heat forced farmers to abandon mustard cultivation. Many participants from Terai reported having to work at night or early in the morning to avoid excessive heat. Most KII respondents reported annual forest fires, with mixed views on frequency, while most farmers noted a decrease.

These qualitative reports from participants corroborate the trends exhibited in the 30-year meteorological data. Together, they confirm the presence of climate change and disruptive climate events in the studied districts.

5. Findings on the Research Questions

This section discusses the results of the six research questions, drawing on quantitative and qualitative data as well as desk review.

5.1 Findings on Climate Change as a Factor in Child and Forced Labor in the Carpet and Brick Sectors

These findings cover research questions 1 and 2: Are climate impacts a factor in child labor and risk of forced labor in the carpet and brick sectors? What is the proportion of sampled child laborers and adults at risk of forced labor in the brick kiln and carpet sectors who have migrated from study districts due to climate change-induced circumstances?

The research found that the impacts of climate change have directly and indirectly contributed to decisions to send children or migrate for work in the carpet and brick sectors. The following findings support and contextualize this result.

Women workers at a brick-making machine in Nepal

Many respondents directly attributed their children's engagement in child labor or their own decision to work in carpet or brick production to climate events.

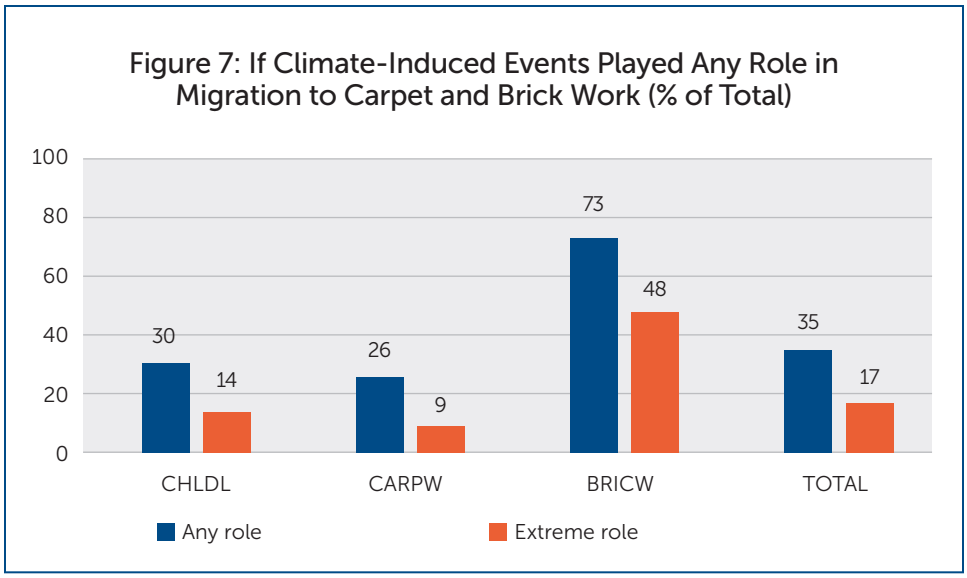
Adult carpet and brick workers and the parents of former and current child laborers were asked whether they believed that the climate events their household had experienced had an extreme, some, or no role at all in their decision to migrate or send their children to work in the carpet or brick sectors. 35% of those surveyed reported that changing climate patterns played some role in their decision to work or to send their children to work in the carpet or brick sectors, and 17% indicated it played an extreme role (Figure 7). While other groups reported a lesser influence of climate, the connection remains evident—26% of carpet workers and 30% of the parents of child laborers acknowledged climate as at least a contributing factor in these work decisions. These proportions are significant, given that migration to work in carpet and brick production is an established, intergenerational practice in these communities. The phenomenon of climate change is relatively novel amidst preexisting drivers that have persisted for generations, so the clear emergence of climate impacts as additional stressors behind labor migration of adults and children is notable.

Respondents who reported a link between climate and their migration to these sectors most frequently cited prolonged drought, insect-pest infestations, floods, and landslides as the most impactful climate events (data not shown). Parents often cited economic necessity stemming from low household income, limited agricultural land, low agricultural productivity, and the need to repay household debt as significantly influencing their decisions to send children to work in the carpet sector.

Adult brick workers were far more likely than parents of child laborers or adult carpet workers to attribute their decision to climate-related factors.

73% of adult brick workers believed climate played some role in their decision to pursue brick work, and 48% said it played an extreme role, compared to parents of child laborers (30% some role and 14% extreme role) and adult carpet workers (26% some role and 9% extreme role). Differences between brick workers and other respondents may explain this disparity in experience. Firstly, 80% of sampled brick workers' households are in the more mountainous Kavrepalanchok or Ramechhap Districts, compared to 9% of carpet workers' households. Respondents from these districts were most likely to report losing agricultural land due to climate events, comprising 76% of respondents from Kavrepalanchok and 63% from Ramechhap, compared to 29%-52% in the primary carpet worker home districts. Land ownership is linked to agricultural productivity and for many, income generation, making loss of land acutely harmful. Loss of land is also an immediately observable and profoundly memorable impact of climate pattern changes, so those who experience it may be more likely to directly link climate events to their or their children's pursuit of work in brick or carpet production. Further, nearly half (48%) of brick workers reported loss of physical structures as a result of climate events, making them twice as likely as the rest of the sample (23%) to experience this impact. This may be linked to 64% of brick workers reporting that landslides affected their households, compared to 24% of the rest of the sample. Two other differences between carpet and brick sector work are notable. First, that brick work is seasonal, occurring between November and April each year, and does not require the same level of technical skill as carpet weaving. Second, that brick workers are more likely to migrate with their families to the kilns and then return home together, whereas carpet workers can remain in the Kathmandu Valley factories for several years while their family remains in their home community. These differences cannot confirm per se why brick workers are more likely than carpet workers or parents of child laborers to believe that climate events led to their decisions. Further study would provide a more complete understanding and would increase information about potential responses to support these populations.

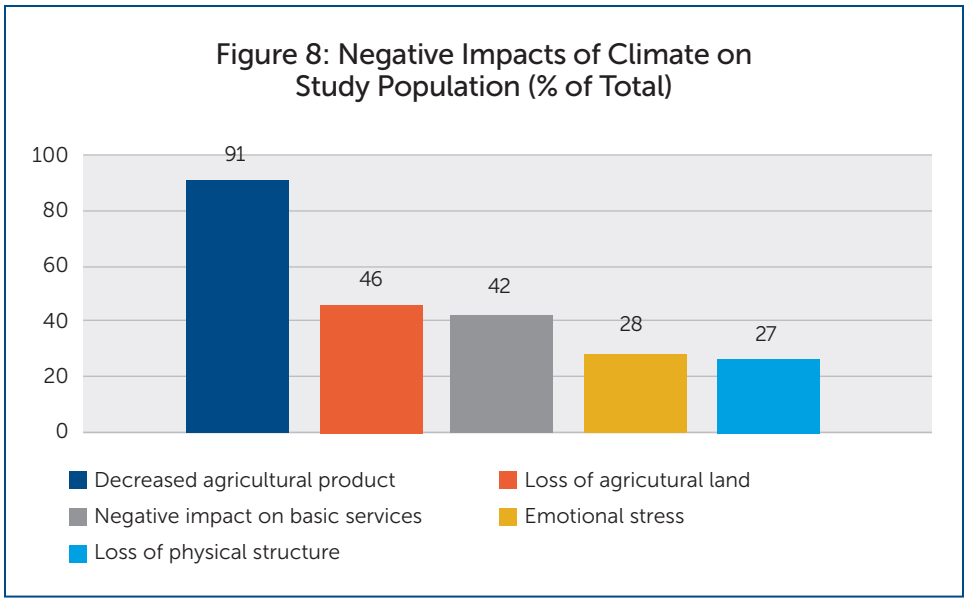
> *Those who do not have enough food to last the whole year have been affected the most. To buy rice, they have to weave carpets. That is the only skill they have; they do not have other options.*
>
> - 28 year old female farmer, Makwanpur



Secondary links between changes in climate patterns and child labor and risk of forced labor are apparent for a majority of respondents across carpet and brick work.

The majority of brick workers directly attributed climate impacts to their or their children's decisions to work in brick production, while carpet workers or parents of child laborers in carpet production were less likely to perceive an immediate cause-effect relationship between climate events and child labor or adult work in carpet production. Nonetheless, almost all indicated that the hardships of climate events moved their households further along a continuum of economic vulnerability. Such vulnerability is a risk factor for child labor or forced labor, given that poverty is generally considered the underlying condition exposing people to these abuses. Therefore, climate events may contribute to the more immediate or prominent causal factors that respondents explicitly see driving their decisions to work or have their children work in carpet production. The following observations are indicative of such potential secondary links.

Food insecurity emerged as a widespread and significant hardship caused by climate impacts. 91% of respondents said climate impacts have reduced their agricultural production, and 90% said their food consumption has decreased. Nearly half (46%) of respondents have lost agricultural land due to climate impacts. Figure 8 presents the five most frequently reported types of negative impacts experienced by respondents.



Qualitative insights provide context to these data, with focus group discussants reporting that increased heat, reduced rainfall, and pest infestations have harmed yields of traditional crops such as rice, mustard, maize, and lentils. Most farmers said that insufficient crop production due to changes in climate patterns has driven many to manual labor and taking loans as primary coping mechanisms to meet subsistence needs. Decreased harvests sustain the family for fewer months, with participants in focus groups estimating that a substantial number of households can only feed themselves from their own production for six months or less. This requires them to buy more food than they have in past years to bridge the gap, placing a significant strain on their limited financial resources.

We had a good harvest, we could sell it for income, but now, we barely produce enough for ourselves. There is no additional income.

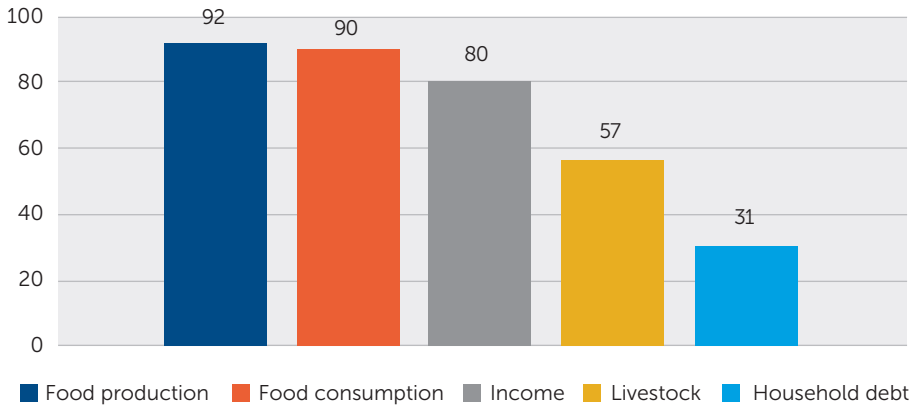
- 38 year old female farmer, Sindhuli

Since there was not enough rain back then, agricultural production wasn't very good, and we had to buy rice from outside. My brothers used to send money, and it was used to sustain the household during that season.

- 17 year old boy, previously employed in a carpet factory

Changing climate patterns also deepen economic vulnerability. 80% of respondents reported that one or more climate events resulted in lost income and 31% reported increased debt (Figure 9). Livestock production has also been disrupted, with 57% of respondents saying climate events had a negative effect. These economic impacts are closely linked to the agricultural losses respondents reported, as agriculture is both a source of income and household food supply in these regions, and the economic and agricultural hardships can reinforce each other.

Figure 9: Negative Impacts of Climate on Basic Aspects of Livelihood and Household Debt (% of Total)



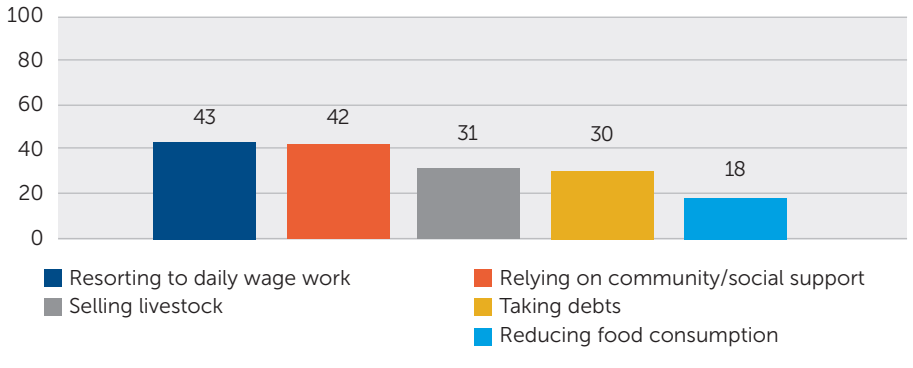
Survey and qualitative data confirmed that the compounding effects of reduced food supplies and lost income drive households to adopt coping mechanisms in order to survive. The most common responses to changing climate patterns respondents utilized are resorting to daily wage work (43%) and relying on community and neighbor support, including accepting food or money (42%) (Figure 10). Notably, carpet and brick workers were the only groups that relied on community and neighbor support, with 57% doing so, while only one respondent from households of current or former child laborers and zero from female headed households did so.

Other common coping mechanisms are taking debt (30%), selling livestock (31%) and reducing food consumption (18%).

Homebased Carpet Weaving

Weaving carpets at home is one form of wage work enumerators repeatedly observed in the sampled communities. Payment is typically given per unit of production, so weavers work on looms on their own schedule. This introduces risk of child labor within the home environment, where identification and remediation is difficult due to the hidden nature of the worksite. The scope of this risk, and its link to climate events cannot be quantified in this study, which focused on children who migrated to work in carpet factories in Kathmandu. Home-based child laborers therefore represent a potentially undercounted cohort in this study.

Figure 10: Measures Taken to Reduce Livelihood Impacts of Climate (% of Total)



Communities in this research suffer from intergenerational poverty, and such coping mechanisms are well established. Some workers may have already been employing coping mechanisms before increasing their use or taking up others in response to climate events. These pre-existing hardships underscore the numerous variables involved in decisions for children or adults to work in carpet or brick production and may partially explain why the majority of respondents did not directly attribute their own or their children's work to climate events, despite universally resorting to coping mechanisms because of these events.

Greater food security appears to mitigate the risk of children working.

Food security emerged as the most significant factor in respondents' decisions to send their children to work.

> *One person from our village went to work in a brick kiln for the first time this year. There was no rice or maize harvest, so he had no choice.*
>
> - 37 year old female farmer, Makwanpur

Climate induced food insecurity is particularly acute among households of current or former child laborers. Nearly 3 in 10 (28%) such households reported running out of food in the previous 12 months, making them seven times as likely to run out of food as households with children who have not engaged in child labor (4%). **Only two of 15 former child laborers interviewed reported that their households were food secure throughout the previous year,** and five saw reduced agricultural production or lack of food at home as compelling them to find work in carpet factories. Running out of food is a significant driver of debt, with respondents using their debt to purchase food when their own abilities to produce or purchase food runs out. Focus group discussions and in-depth interviews independently surfaced the theme of climate impacts exacerbating the already difficult burden of providing enough food for the household, requiring coping mechanisms that include borrowing from neighbors or lenders, or children migrating for work in carpet or brick production. Participants, including former child laborers, emphasized the decline in agricultural productivity and income from food sales, with traditional sources of income such as selling lentils or vegetables, becoming unsustainable.

> *At home, we didn't have enough to eat, so I felt the need to start earning. When I was in the fifth grade, I was 10 years old. I wanted to go to work mainly because there was not enough food at home.*
>
> - 15 year old boy, previously in child labor
>
> *Selling a few sacks of lentils or vegetables used to bring in some cash to buy rice. That source of income has disappeared.*
>
> - 29 year old male farmer, Sindhuli

Factors including land ownership and debt affect the likelihood that adult carpet and brick workers cite climate as a factor in their decisions to work in these sectors.

In the absence of a comparison group to adult carpet and brick workers, the research team utilized regression analysis (see Annex 4) to identify differential characteristics of workers who directly attributed their decisions to work in these sectors to climate impacts, finding several statistically significant associations that underscore the importance of food security. The model explained about 24% of the variation in whether climate-induced vulnerability was considered a factor in migration to carpet or brick work, which is considered moderately strong for social science research.

- Sector of work: Brick workers were much more likely (4.7 times higher odds) than carpet workers to attribute their migration to climate change. This is possibly due to their higher exposure to landslides and flooding in their home districts, and greater likelihood of reporting destruction of property, compared to carpet workers from plains districts.
- Agricultural land ownership: Having more agricultural land significantly reduces the likelihood of climate-related migration (odds ratio 0.56, i.e., about 44% lower odds per additional hectare), plausibly because it provides a higher level of food production.

- Advance payment: Workers who received an advance payment upon migration were more likely (1.8 times higher odds) to link their move to climate factors. While the advance payment itself is not linked to climate vulnerability, it may have acted as a pull factor to work in the carpet and brick sectors during periods of climate-related vulnerability.
- Extreme climate impacts on household debt, food production, and income: Debt increase due to climate shocks was the strongest predictor (6.1 times higher odds) of attributing climate change as a reason for migration to these sectors. Similarly, negative effects of climate on food production nearly doubled the odds (odds ratio 1.93), and reduced household income due to climate also more than doubled the odds (odds ratio 2.33), indicating strong pathways from climate impacts on these factors to migration for carpet and brick work.
- Non-significant factors: Gender, household size, and extreme impacts on food consumption and livestock production were not significantly associated with climate-related migration.

These data complement the above findings on food security and child labor by highlighting factors closely linked to food security that are similarly linked to adults' decisions to work in the carpet and brick sectors.

Data from female household heads indicates agricultural hardships linked to climate events. As shown in Table 6, 99% (n = 80) of female household heads report climate events have decreased agricultural production, and 64% describe an extreme impact on food production. 25% of female household heads experienced extreme impacts on their household income due to climate events. These findings are comparable to those of parents of child laborers from the same communities, who report extreme impact on food production (61%) and income (26%) at similar levels, but well below the levels of carpet and brick workers, among whom 75% report extreme impact on food production and 47% report extreme impact on income. The average annual income of female-headed households of 330,000 NPR is significantly higher than that of households of current or former child laborers (186,000 NPR), suggesting a greater ability to cope with the economic impacts of climate events. This difference may be due to the vast disparity in remittance income detailed in the demographics section, with female-headed households approximately three times as likely as carpet workers and households of current or former child laborers, and nine times as likely as brick workers, to report remittances as their primary income stream. Female household heads were also more likely to rely on their savings as a coping mechanism after climate events (73%) than households of former child laborers. These variations suggest that the research team's hypothesis that female-headed households are more vulnerable to effects of climate change than the other sampled groups is not supported, and that households receiving foreign remittances should be a comparison group in further research.

Table 6: Climate impacts on food production and consumption, income and debt

Population type	N	Extreme Impact/Role (%)				Any Impact/Role (%)			
		Food production	Food consumption	Income	Household debt	Food production	Food consumption	Income	Household debt
CHLDL	102	60.8	18.6	25.5	14.7	89.2	90.2	83.3	36.3
COMHH	81	55.6	13.6	28.4	8.6	95.1	88.9	85.2	32.1
CARPW	600	71.0	45.0	42.5	7.2	89.7	88.3	76.2	23.2
BRICW	160	90.6	70.6	63.1	25.0	98.1	98.1	85.0	54.4
FEMHH	80	17.5	17.5	25.0	8.8	98.8	91.3	83.8	30.0

Respondents Shared Various Reasons for Migrating to Kathmandu.

To gain a deeper understanding of why parents sent their children or why adult workers themselves chose to enter the carpet or brick sectors specifically, direct questions were posed to surveyed parents and adult workers. Parents often cited familial precedent, suggesting a pattern of intergenerational employment, as well as economic necessity stemming from low household income, limited agricultural land, low agricultural productivity, and the need to repay household debt. These factors significantly influenced their decisions to send children to work in the carpet sector. Conversely, many parents reported that it was the children's own choice, often driven by peer influence, attraction to city life in Kathmandu, the prospect of food and income, and exaggerated perceptions of the benefits of carpet work.

Among adult workers, decisions to enter the carpet and brick sectors were similarly shaped by family and community history, along with a lack of alternative employment opportunities amid economic hardship. Additional reasons included the perception that the work was less physically demanding; the provision of free food and housing at job sites; relatively stable income; and access to loans. Some workers were motivated by a desire to explore Kathmandu, earn money for personal enjoyment, or learn new skills. A few hoped to support the education of their children or siblings, particularly in rural areas where access to higher-level schooling was limited.

5.2 Child labor and/or risk of forced labor indicators appearing among brick kiln and carpet workers who have migrated from study districts due to climate change

These findings cover research question 3: Which child labor and/or risk of forced labor indicators appear among sampled brick kiln and carpet workers who have migrated from study districts due to climate change?

In the initial research plan, worker participants were to provide information about conditions of work through quantitative and qualitative interviews. However, early in research design, the team recognized that this approach could place both workers and enumerators in uncomfortable situations and would require establishing a mechanism to support workers to pursue remedy of workplace abuses. Provision of remedy was beyond the scope of the research and represented an additional participation risk for workers who fear speaking about child or forced labor in their workplaces. This question is therefore addressed with GoodWeave and ILO data on child and forced labor risk factors in these sectors.

Carpet weaving is tedious and repetitive work requiring the weaver to sit for long hours. Informal weaving sheds with tin rooves are often poorly lit and hot. Weavers often suffer from reduced vision in the long-term and generally do not have access or resources for corrective glasses. The carpet industry is considered hazardous in Nepal and children under 18 years of age are prohibited from working in the sector. GoodWeave withdraws child laborers from carpet factories and supports them to enroll in education or vocational training. Inspectors describe the conditions of work in which the children are found, and consistencies across the 93 child laborers removed from illegal work in carpet factories in 2023-2025 are evident. 31% of these cases are bonded child labor, whereby the child is compelled to stay in the job to pay off advances paid to their families at the time of the employment agreement. Employers typically do not provide the children with documentation of their work hours or rate of repayment on the advance and frequently exploit the children's vulnerability and eagerness to support their families by assigning them to work hours that greatly exceed the amount needed to pay off the advance. The most common scenario is for children to live in factory dormitories where meals are provided, and work 60 hours per week, with some working as many as 78 hours per week. GoodWeave's data on over 1,700 adult carpet workers also shows the majority working 60 hours per week, but only 1% working in excess of 60 hours per week. This disparity suggests that children are exploited through excessive hours while adults are not. Living and working conditions vary among individual factories.

UNICEF and ILO conducted a survey of brick kiln workers in Nepal in 2020, finding that nearly half of children living in brick kilns are engaged in child labor (49%), with 3.2% of all workers in forced labor, where forced labor is defined as work that is both involuntary and performed under menace and coercion. Further, child labor was found on more than half (47%) of kilns inspected by GoodWeave in 2021. Involuntariness was most frequently linked to a repercussion if the worker left their job, while coercion was most frequently linked to unpaid debts and withholding of wages. Work conditions include exposure to extreme heat, exposure to dust or flames, and requirements to carry heavy loads. These conditions constitute hazardous work, yet children are subject to them. Living conditions in dormitory structures are generally poor.

As noted in the background, the US Department of Labor's 2024 List of Goods Produced with Child or Forced Labor finds both child and forced labor in Nepal's carpet and brick industries, citing evidence in a variety of publications which refer to the conditions mentioned above.

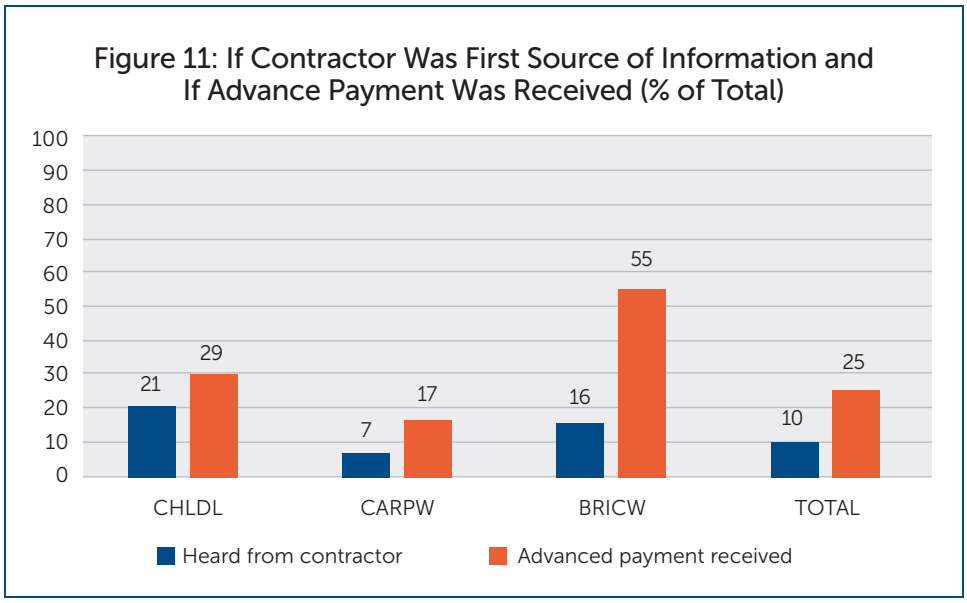
5.3 A typical migration journey among climate migrants

These findings cover research question 4: What does the typical migration journey among sampled climate migrants look like?

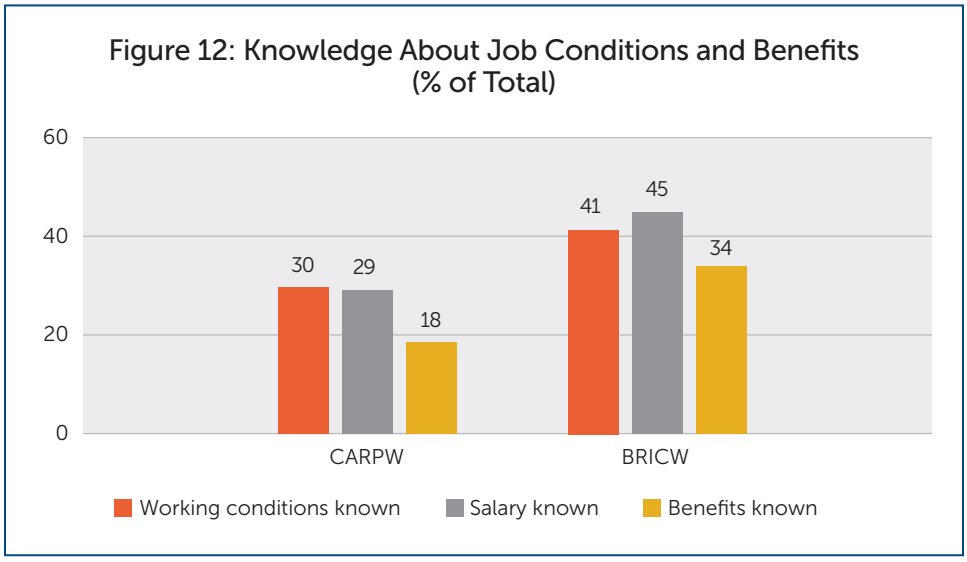
Research participants who left or whose children left to work in the carpet or brick sectors were asked about their migration journey with the aim of understanding if children and workers encounter additional risks or exploitation on their trip from home to workplaces. Findings overall indicate that these migration journeys generally proceed as the travelers had expected, and workers travel free from exploitation or restriction, usually in groups. Most child and adult workers migrated with family members or acquaintances, and over 80% had secured jobs before leaving home. Contractors played a key role in recruitment, often visiting communities and providing advance payments that influenced migration decisions. Brick work involved greater family accompaniment than carpet work, and nearly all traveled with someone they knew, with no reports of coercion, trafficking, or exploitation. Journeys were typically short, using public or contractor-arranged transport. Detailed findings are presented below.

Most respondents learn about work opportunities from relatives and friends.

Respondents stated that contractors visit communities before the work season or around major festivals like Dashain to recruit potential child or adult workers. They often offer advance payments, which families desperately need. While most household heads learned about the work through relatives, neighbors, or family members already employed in these sectors, visiting contractors were reportedly the first source of information for one in ten (10%) parents of child laborers, carpet, and brick workers considered together (Figure 11). This proportion was notably higher among parents of child laborers (21%) and brick workers (16%) when disaggregated from carpet workers. Moreover, a quarter (25%) of all respondents, including over half (55%) of brick workers and 29% of parents of child laborers, reported receiving advance payments from contractors at the time of migration, potentially influencing their decision to migrate.



Over 80% of all workers, including child laborers, reported that their job was secured when they left home. However, fewer than half of adult workers had knowledge of the working conditions, salary, and other benefits when they accepted their jobs, with lower levels of knowledge among carpet workers than brick workers (Figure 12).

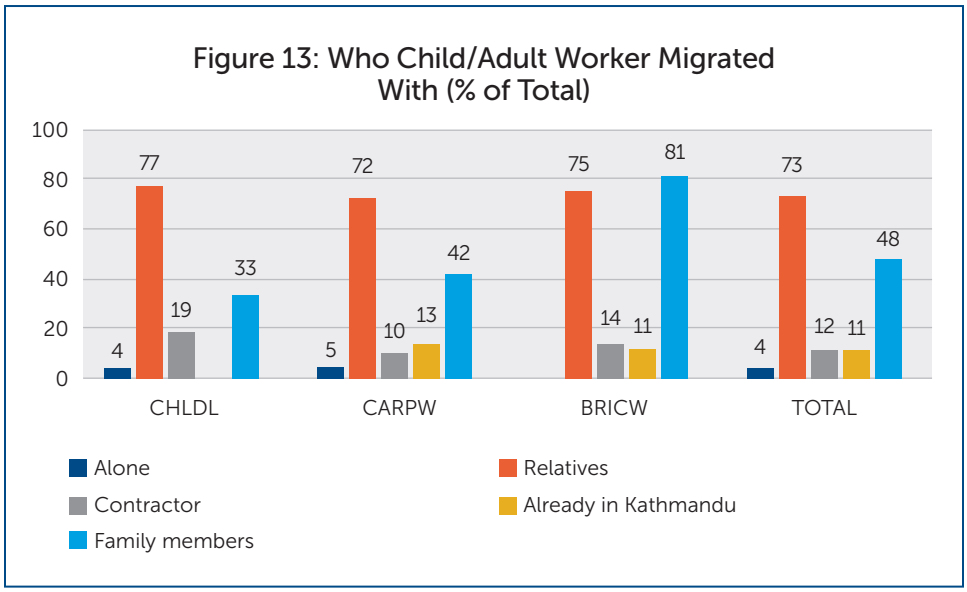


Most workers, including children, travel with relatives, friends, or neighbors.

About three-quarters of respondents (73%) traveled with family members, relatives, friends, or neighbors (Figure 13). 19% of child laborers traveled with the contractor, compared to 10% of carpet workers and 14% of brick workers. Almost half (48%) of all workers, including over four-fifths (81%) of brick workers, were accompanied by a family member during their first migration. No cases of coercion, trafficking, or violence were reported during the survey.

Adult carpet and brick workers reported that public transportation was the most common mode of travel, with pickup trucks or vans arranged by brick kiln contractors used occasionally.

About one-eighth of the carpet and brick workers were already in Kathmandu (i.e., did not have to travel from a village) when they entered these sectors. These respondents reported that they were mostly accompanying elderly family members and living at the factory. Many attended nearby schools and/or helped care for younger siblings or performed small chores before eventually starting paid work.



> *We traveled after celebrating Dashain and Tihar, around the months of Kartik and Mangsir (October–December). To reach Kathmandu, we took a Tata Sumo vehicle. It took us about an hour to walk to the place where we could get the vehicle... There were other people from the village traveling with us, including some who were also going to work in the carpet factory.*
>
> – 14 year old boy, previously in child labor

In-depth interviews with former child laborers aged 10-18 provided detailed accounts of their migration journey from rural villages to carpet factories in Kathmandu. They did not mention any instances of coercion, physical, or emotional exploitation during the journey.

Children mostly used public transportation and were usually accompanied by family members/relatives. Most of them left home in the morning. Some reported physical discomfort like fatigue and motion sickness, with younger children more likely to express fear and sadness about leaving family or traveling alone.

5.5 Interventions that may increase community resiliency to climate-induced vulnerability to child labor and/or risk of forced labor

Findings in this section cover research question 5: Which interventions may increase the resiliency of Nepali local communities to climate-induced vulnerability to child labor and/or risk of forced labor?

People living in climate impacted communities lack resources to adapt to the increasingly unstable environment. To increase their resiliency, research respondents indicated that financial aid, investment in their communities and infrastructure, and diversification in agricultural and livelihood opportunities are necessary.

Most respondents have not received support related to climate change vulnerability. Limited aid, when received, came primarily from local governments in the form of pesticides or emergency relief. Respondents expressed interest in receiving financial aid, training in alternative livelihoods, and access to climate-resilient agricultural

practices. Barriers to accessing support included remoteness, lack of timely information, and discriminatory distribution practices. Farmers, ward officials and former child laborers called for diverse interventions, including livelihood diversification (e.g., livestock, tailoring, vegetable farming), disaster preparedness, climate-smart farming, education, vocational training, and child safeguarding. Notably, former child laborers emphasized the need for quality, accessible education and food support to prevent child labor. The need for stronger collaboration between government and NGOs also emerged as a recurring theme, along with better coordination and budget allocation for climate adaptation at local levels.

Most respondents report receiving no or limited support, with most support focusing on disaster relief.

Over 90% of households in the sampled districts stated they had not received any support for climate-induced vulnerabilities, while approximately a quarter of the carpet and brick workers reported receiving pesticides, river training and gabion support [5] after floods from local governments, NGOs, relatives, and other sources.

Participants also reported receiving disaster relief materials, food and agricultural assistance from local government and NGOs. Assistance included rice, lentils, clothes, blankets, mats, drought resistant seeds, fertilizer and pesticides. Participants also mentioned initiatives providing drinking water access and irrigation, along with training and capacity building in farming.

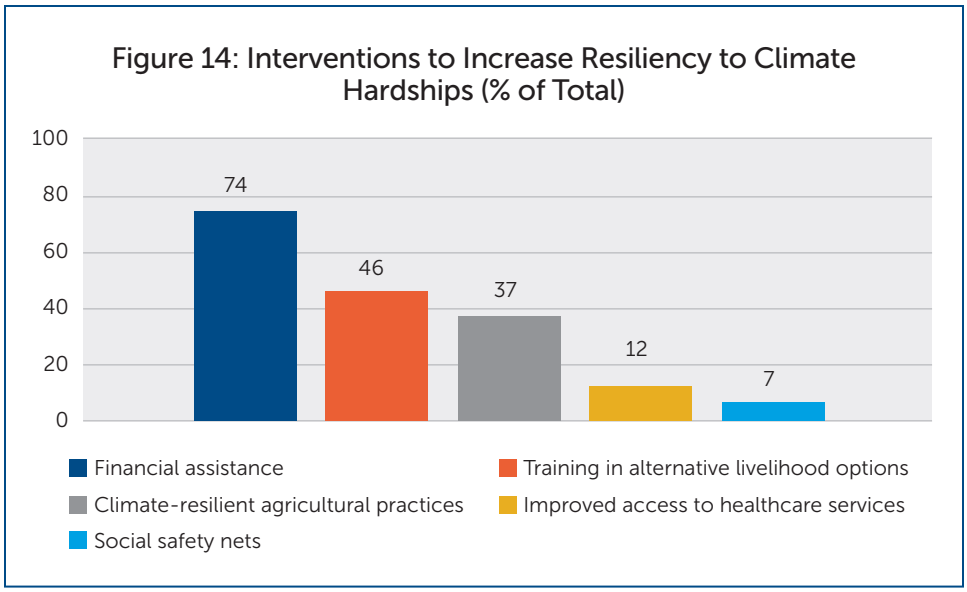
About one-fifth (18%) of brick workers expressed concern about the lack of timely information on available support in their communities, often due to remoteness, poor phone networks, and limited transportation. Lack of information was a barrier for only 3% of parents and 1% of female household heads, highlighting another notable difference between the experiences of brick workers and respondents from other districts. Less frequently mentioned barriers included lack of documentation, underestimation of actual loss or damage, favoritism or bias by authorities (based on social influence or ethnicity), support being given to acquaintances of elected officers or authorities rather than genuine victims, lengthy claim processes, and being without a husband, among female respondents.

Respondents prioritize financial assistance to increase resiliency to climate hardships.

Three quarters (74%) of respondents sought financial support to increase resilience (Figure 14). This was followed by training in alternative livelihood options (46%) and access to climate-resilient agricultural practices (37%).

[5] River training refers to constructions on or along a river to guide and control its flow, manage its riverbed, and ensure safe passage of water, especially during floods. These constructions aim to stabilize the river channel, prevent erosion, and protect surrounding areas from flooding.

Gabions are wired baskets used to hold rocks and construction materials to help prevent damage to river beds.



Note: The percentages shown represent responses from all 1,023 respondents surveyed across the communities and the factories.

The different respondent groups prioritized different types of support to address climate related crises, depending on whether they provide or receive assistance and how the stakeholder group is impacted by events. Ward Chairs, government officials and NGO representatives prioritized education, skill development, and economic and livelihood diversification. Farmers, both male and female, emphasized economic and livelihood diversification, climate change adaptation, and disaster risk reduction. In contrast, former child laborers strongly preferred education, skill development, social protection, and child safeguarding.

Respondents emphasized creation of new economic opportunities beyond agriculture.

All stakeholders (Ward Chairpersons, NGOs and government representatives, farmers, and former child laborers) suggested strengthening economic conditions and diversifying livelihood options. These options include sewing and weaving, livestock farming, vegetable cultivation, beekeeping, tailoring, and bamboo/ tree crafts. Many mentioned support from the government for business creation and expansion. Some Ward Chairs and NGO representatives stressed assisting farmers in accessing markets, building storage facilities and providing targeted financial support to households struggling to meet basic needs.

If the family is given a foundation for livelihood or income generation, this can resolve the issue. In such cases, children will not have to work for a salary or money.

- 47 year old male Ward chair, Sindhuli

For those who can afford food for about four to five months but struggle for the remaining seven to eight months, if we can create livelihood opportunities here, the work in brick kilns and carpet factories can be prevented.

- 40 year old male Ward chair, Rautahat chair

Priority preventative measures include disaster risk reduction and support for education.

Other assistance requests focused on disaster risk reduction. Most qualitative participants reported that declines in water sources severely impact irrigation and drinking water. One respondent stated, "due to lack of water, our field remained barren for five to six months." Respondents from hilly areas emphasized the need for irrigation infrastructure like dams or ponds, with arrangements for motors and pipelines. Structural interventions like building embankments, and ecological measures like

promoting afforestation (e.g. "planting ten trees for every tree cut") were also highlighted in FGDs. Additionally, community members called upon local authorities to raise environmental concern to higher levels, particularly advocating for afforestation initiatives and climate responsive construction standards. They further stressed the critical need to integrate these measures into comprehensive climate resilience and adaptation programs. Farmers brought special attention to the conservation of Chure region, a bio-diverse watershed that contains 26% of Nepal's natural forests, supports approximately 3.6 million people, and covers several of the districts in this research.

> *The first and most important thing needed to cope with climate change is the arrangement of irrigation facilities.*
>
> - 28 year old female farmer, Sarlahi
>
> *Tree planting and forest conservation should also be prioritized.*
>
> - 36 year old female farmer, Rautahat

Ward Chairs and farmers emphasized education, awareness and skill development, while government representatives as well as some farmers across the sample districts and one NGO representative highlighted broader climate change awareness. Most farmers stressed practical, hands-on training in climate smart agriculture, proper pesticide use, erosion control, resilient crops, and farming techniques. They stressed skill-based vocational training for members of vulnerable households to generate income, eliminating the need to send their children to work in hazardous jobs including brick and carpet production. Community members noted that NGOs play an essential role in implementing training and awareness programs and called for permanent agricultural extension services to guide farmers on climate smart farming techniques.

> *... if farmers are provided with new techniques and training in agriculture, they could improve their income, which would reduce the need for children to work.*
>
> - 31 year old female Ward Chair, Sindhuli
>
> *Their (former child laborers) guardians need to be provided with skills training.*
>
> - 48 year old male Ward Chair, Rautahat

Former child laborers highlighted distant schools, poor quality, and lack of free and adequate education supplies as barriers to education. Many of them expressed that support for school fees and food would eliminate the need for children to work in carpet factories. Child laborers rescued by GoodWeave emphasized the importance of removing children from exploitative labor, enrolling in school, and counseling parents about the importance of education. For example, a 13 year old boy former child laborer stated, "If schools were nearby, if children received love and care from their families, and if educational quality was improved, then children wouldn't have to work in carpet factories."

Most former child laborers interviewed urged the government and other organizations to provide food and financial aid to vulnerable families. In addition, some Ward Chairs mentioned crisis-specific relief such as targeted programs for women, children, and elderly citizens during crises. Nearly all former child laborers emphasized that providing families with adequate food and resources would prevent child labor, with a 16 year old boy stating, "if families had enough food and resources at home, children would not have to work." They also encouraged counselling children about the dangers and risks of working in hazardous work and making children aware of the importance of education.

Both Ward Chairs and farmers emphasized the need for reliable supplies of agricultural inputs like corn, maize, and vegetable seeds, and pesticides. They also stressed immediate disaster relief, including food, clothing and safe locations during climate emergencies. As a 52 year old male Ward Chair from Sarlahi pointed out, "...when climate-related disasters such as floods, landslides, or fires occur, it's essential to ensure that affected people are safely relocated and that concerned authorities provide food, clothing, and other essentials."

NGO representatives, provincial officials, and Ward Chairs emphasized that addressing climate change required stronger collaboration across all levels of government with one Ward Chair noting, "... collaboration among organizations and government could bring more resources and attention to [the] community." NGO representatives highlighted that their technical expertise and grassroots access complement government policy and funding capabilities. KII respondents highlighted the importance of active participation of all community members in tackling climate change issues. Some Ward Chairs and NGO representatives urged the provincial government to allocate and manage budgets for climate change adaptation while assigning local governments to execute those programs.

5.6 The role of the Nepali government, local civil society organizations, and the private sector in reducing climate-induced vulnerability to child labor and/or risk of forced labor

Findings in this section respond to research question 6: What is the role of the Nepali government, local civil society organizations, and the private sector in reducing climate-induced vulnerability to child labor and/or risk of forced labor?

Respondents consistently advocated for a multi-sectoral approach involving government, civil society, and community to effectively reduce climate-induced vulnerability and combat child and forced labor in Nepal. The government's central role is emphasized for policy formulation, funding disaster management, and implementing large-scale initiatives like irrigation and forest conservation, while civil society organizations are recommended for awareness, training, and collaboration with government and communities.

Government has an important role in addressing climate change.

Provincial government and NGO representatives emphasized the Nepali government's critical role in addressing climate-induced vulnerabilities and child/forced labor through policy (e.g. the National Climate Adaptation Plan) and local implementation. They considered funding for disaster management and state support to communities facing climate change imperative.

Farmers suggested that local and federal government implement a farmer-specific climate program. Additionally, Ward Chairs recommended building dams, relocating vulnerable settlements, and introducing modern farming techniques, including irrigation. Farmers urged local government to provide agricultural resources such as seeds, fertilizers and pesticides, and trainings. They also specified that large-scale irrigation and dam construction required federal government support, while forest conservation needs federal leadership with local collaboration.

> *To tackle climate change, the government needs to introduce a separate program specifically for farmers.*
>
> - 28 year old female farmer, Makwanpur

Respondents see important roles for civil society and the private sector.

Key informant interview respondents highlighted NGOs' key role in climate change awareness and addressing child/forced labor linkages, particularly through training programs for government and community members. They stressed NGO/civil society-government collaboration for effective multi-level policy making on climate change adaptation and mitigation strategies. In the same vein, community members in focus groups suggested civil society lead climate impact and adaptation training and anti-deforestation campaigns, and expedite irrigation.

KII respondents stressed that local government and community leaders must initiate community action and networks to address climate vulnerabilities. Farmers echoed this, emphasizing community leadership in

protecting local forests and raising awareness, rather than relying solely on government interventions.

In summary, respondents understand that government is leading initiatives to address climate change, but have ideas for specific trainings and projects that could benefit their communities. They also recognize the importance of local ownership and leadership.

... the role of organizations in providing expertise and identifying resources to train the government is extremely important.

- 34 year old female NGO representative

NGOs and other organizations should also play a role by providing agricultural training and awareness programs.

- 38 year old female farmer, Sarlahi

The community and society should offer more support to people like my mother, especially single women.

- 14 year old boy, previously in child labor

If everyone in the village comes together and builds a school, children won't have to come all the way to work in carpet factories.

- 14 year old boy, previously in child labor

6. Conclusion and Recommendations

6.1 Conclusion

Nepal is highly exposed to climate extremes and economic fragility and bears a disproportionate burden despite its minimal contribution to global greenhouse gas emissions. This study documents links between climate impacts and the heightened risk of child and forced labor, within Nepal's often informal and hazardous carpet weaving and brick making sectors.

Evidence of concerning climate trends is confirmed by both scientific meteorological data and the lived experiences of participants. Nepal has experienced an average annual maximum temperature increase since the 1970s. Study districts exhibit increasing variability in rainfall, delayed monsoons, drier winters, and more frequent heatwaves during summer and cold waves during winter, particularly in the Terai belt. Participants in this study consistently reported impacts from climate change such as insect infestations, prolonged droughts, unseasonal heavy rainfall and flooding. These translate directly into severe livelihood disruptions and intensified economic stress reported by research participants. Decreased agricultural production was the most significant negative impact reported, leading to decreased food availability and income loss, reduced household consumption, and in many cases, an increase in debt. Brick workers reported disruptive climate events such as floods and landslides at higher rates than other respondents, potentially due to the different topography of their home districts.

Crucially, the study establishes that climate impacts contribute to child and forced labor in the carpet and brick sectors. About one-third of child laborers, based on interviews with their parents, and a quarter of carpet workers linked their motivation to migrate for work to climate-induced circumstances. Brick workers, who are often heavily reliant on agriculture during off-seasons and more directly exposed to climate hazards, were most likely to attribute their migration to climate-related factors, with nearly three quarters doing so.

Data analysis further illuminates the pathways between climate impacts to labor exploitation for study participants. Ownership of agricultural land significantly reduces the likelihood of climate-induced migration, suggesting its critical role in food security and resource stability. Conversely, the receipt of advance payments from contractors, particularly common in the brick industry, acts as a significant pull factor, influencing migration decisions. The strongest predictors of climate-induced migration in this study were increased household debt due to extreme climate events, negative effects on food production, and reduced household income, highlighting the direct economic pressures that push individuals into hazardous work.

Beyond direct climate impacts, the decision to begin working in the carpet or brick sector is shaped by a complex layering of interconnected vulnerabilities. Research participants cited overriding economic necessity, stemming from low household income, limited agricultural land, and the need to repay household debt as primary drivers. Familial connections, lack of alternative employment, attraction to urban life, and the promise of free food, housing, and/or stable income also played roles. Former child laborers corroborated these reasons, adding food insecurity, parental separation, and chronic illness as significant stressors. Home-based carpet weaving also heightens the risk of child labor, particularly among girls, enabling their involvement without easy detection and potentially preparing them for future factory employment.

Research participants in surveyed communities described various coping strategies to climate impacts, including reducing consumption and selling land. Many respondents reported receiving no meaningful assistance; when support was received, it was often limited to pesticides or basic disaster relief, mostly from local authorities. Barriers to accessing support included remoteness, lack of timely information, and discriminatory distribution practices. Consequently, communities expressed a strong desire for financial assistance, training in alternative livelihoods, and access to climate-resilient agricultural practices.

In conclusion, this study effectively demonstrates that environmental disruption is a powerful, albeit previously undocumented, driver of child and forced labor in the brick and carpet sectors in Nepal. Its impacts are exacerbated by existing socio-economic vulnerabilities, potentially pushing already fragile households into exploitative labor. Addressing this complex issue requires a holistic and multi-sectoral approach that strengthens community resilience, diversifies livelihoods, ensures robust social protection mechanisms, and raises awareness of the risks and long-term damage of child and forced labor. As the parameters of the study were limited to certain groups and localities, the findings should be considered indicative and exploratory rather than statistically representative. Nonetheless, this systematic research provides a strong case for targeted interventions in high-risk communities, as well as suggests the need for broader research on the links between climate impacts and child and forced labor.

6.2 Recommendations

The recommendations in this study are informed by research participants and existing initiatives led by the Government of Nepal, local governments, NGOs, civil society, and communities. Such initiatives include Nepal's ambitious National Adaptation Plan (NAP). The NAP was launched in 2021 and outlines over sixty climate adaptation interventions across eight sectors, focusing on agriculture, forest and watershed conservation, and disaster risk reduction, many of them relevant to improving the resilience of participants in this study. The recommendations herein suggest a multi-sectoral approach involving national and local government, civil society, and stakeholders to protect the most vulnerable people and communities susceptible to adverse climate effects.

1. **Design and implement targeted protections for climate-vulnerable children and adult workers in high-risk sectors.**
    - Map communities vulnerable to child and forced labor for social, economic, and geographic reasons.
    - Ensure that community members are aware of labor protections that are already in place, and that they are able to advocate with their employers to enforce them.
    - Regulate advance payment and debt practices and monitor supply chains to enforce legal protections and prevent labor exploitation.
    - Provide through cash and subsidies, immediate disaster relief (food and clothing) during emergencies, and shelter to households affected by climate shocks.
    - Provide informal workers with access to subsidized staple food grains.

2. **Strengthen agricultural resilience and land access.**
    - Prioritize effective implementation of the National Land Policy, which supports recognition of informal tenure and equitable access to land for landless, smallholders and informal settlers, as this significantly reduces climate-induced migration risk.
    - Expand farmer access to climate-resilient seeds, improved irrigation systems that efficiently use water resources, low interest credit to invest in stable water sources (dams and ponds), and reliable pipelines for irrigation.
    - In support of the New Land Management Act, 2082, allow families who have lost land in climate disasters to enlist as landless and provide land allotment and free land renting services for farm workers via local banks for agriculture and business activities.
    - Extend Contributory Social Security schemes and health insurance facilities to informal sector workers and farmers through the Informal and Self-Employed Sector Social Security Scheme Operation Procedure 2079. Expand agriculture insurance to cover climate change disasters that impact agricultural livelihoods.
    - Especially in areas susceptible to climate related migration, implement farmer-targeted climate programs and ensure agricultural extension trainings are available to guide farmers on climate-smart farming techniques, including proper pesticide use, erosion control, and suitable crop selection.

Two children from a worker community in Nepal

3. **Enhance income-generating opportunities and livelihood diversification.**
    - Provide collateral-free, subsidized loans for disaster impacted families to restart their agriculture or start alternative businesses.
    - Develop vocational training for families in climate-change prone communities, linking skills to market opportunities.
    - Expand technical, vocational, and junior agriculture education among 14–20-year-olds through local primary and secondary schools.
    - Expand income-generating opportunities tailored to local capacities and linked to market demand, such as sewing, weaving, livestock farming, vegetable cultivation, beekeeping, tailoring, transportation, and bamboo/tree crafts.

4. **Strengthen children's education and safeguarding, and improve climate awareness.**
    - Improve access to and quality of education through better infrastructure, more schools in remote locations, trained and fairly compensated teachers, access to internet services, and free access to necessary supplies and books to vulnerable children.
    - Raise awareness about the importance of education, the harms of child labor, and risks of hazardous work. Involve organizations with expertise in child protection to lead child safeguarding campaigns in more communities, including educators, parents and children.
    - Ensure school hours are responsive to the additional demands placed on children due to climate-change driven adjustments to family members' work hours.
    - Conduct climate change awareness and adaptation campaigns with communities and local officials. Expand school level environment and climate education programs in climate-vulnerable areas to foster children's environmental awareness. climate-vulnerable areas to foster children's awareness.
    - Establish education facilities near brick kilns and carpet factory hubs to provide easy school access for children from working families.

5. **Enhance climate change adaptation and disaster risk reduction.**
   - Implement structural measures like building embankments along rivers and streams to prevent floods and promote afforestation, reforestation, and forest protection.
   - Integrate structural measures into comprehensive climate resilience and adaptation programs led by wards and communities.
   - Expand the weather forecast information system to all communities in climate vulnerable areas through SMS alerts or calls to enable better preparedness.

6. **Promote occupational safety and health among brick-kiln and carpet workers and employers.**
   - Educate community members and school administrators about occupational safety and health in agriculture, including practices to prevent excessive use of pesticide and fertilizers that cause an adverse impact on workers and children's health.
   - Ensure workplaces provide workers with personal protective equipment when working in rising heat or cold.
   - Provide training and financial incentives for employers to install climate friendly workplace infrastructure at brick kilns and carpet factories to protect workers from adverse climate impacts.
   - Promote psychosocial and mental health support for workers and their families, and employers, to prevent and recover from climate caused anxiety and grief.

7. **Increase collaboration and coordination.**
   - Strengthen partnerships between government levels (federal, provincial, local) and civil society organizations (NGOs/CBOs). Set policy frameworks, allocate resources, and mobilize civil society for their expertise.
   - Ensure active community participation in addressing climate change issues, by leveraging local knowledge and promoting local ownership of interventions.
   - Improve access to timely information about available support and address discriminatory practices in aid distribution, ensuring relief reaches those most at risk. Strengthen informational access through improved and expanded internet connectivity.
   - Promote police and social workers join highway interceptions to prevent child trafficking and transportation to hazardous or forced labor. Map and monitor public areas such as bus parks and public transport networks.
   - Sensitize businesses on due diligence, ethical recruitment and legal provisions against child labor at workplaces. Organize training for employers and contractors on preventing and remediating child labor in factories.

8. **Expand existing Labor and Social Protection Frameworks in Nepali law to ensure adequate safety of children.**
   - Amend the new Child Labour (Prohibition and Regulation) Act of 2000 to introduce stricter penalties for child labor violations, including increased imprisonment beyond 3 months and fines commensurate with the seriousness of the crime. Include provisions related to identification, investigation, monitoring, compensation, rehabilitation, and reintegration to the Penal Code of 2017.
   - Encourage coordination of child welfare officers to encourage family reunification and reintegration through rehabilitation and long-term protection.
   - Develop a comprehensive national framework clearly defining the roles and responsibilities of key government stakeholders, including MoLESS, MoHA, MoWCSC, MoLJPA, provincial and local governments. This framework should ensure coordination across federal, provincial, and local levels for prevention, protection, legal action, and reintegration of child laborers.
   - Introduce local and federal labor and employment related policies that facilitate cost-free migration of climate change impacted families. License and regulate contractors who are involved in recruitment of workers.

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Annexes

Annex 1: Research Questions Mapped to Tools and Data Sources

Research Questions	Tools	Quantitative Data Sources	Qualative Data Sources
1. Are climate impacts a factor in child labor and risk of forced labor in the carpet and brick sectors?	Structured questionnaire; FGD; KII; and IDI; Climate data	1. Adult workers questionnaire; 2. Parents questionnaire	1. Adult (18+) former child laborers (IDI); 2. Community leaders/ward chairs (KII); 3. Contractors (KII); 4. Agricultural households (FGDs); 5. NGOs working in labor practices (KII); 6. Provincial Government (KII); 7. Federal Government (KII)
2. What is the proportion of sampled child laborers and adults at risk of forced labor in the brick kiln and carpet sectors who have migrated from study districts due to climate change-induced circumstances?	Structured questionnaire	1. Adult workers questionnaire; 2. Parents questionnaire	NA
3. Which child labor and/or risk of forced labor indicators appear among sampled brick kiln and carpet workers who have migrated from study districts due to climate change?	Desk review	NA	NA
4. What does the typical migration journey among sampled climate migrants look like?	Structured questionnaire; IDI	1. Adult workers questionnaire; 2. Parents questionnaire	Adult (18+) former child laborers (IDI)

5. Which interventions may increase the resiliency of Nepali local communities to climate-induced vulnerability to child labor and/or risk of forced labor?	Structured questionnaire; FGD; KII; and IDI	1. Adult workers questionnaire; 2. Parents questionnaire; 3. Female household heads questionnaire	1. Adult (18+) former child laborers (IDI); 2. Community leaders/ward chairs (KII); 3. Contractors (KII); 4. Agricultural households (FGDs); 5. NGOs working in labor practices (KII); 6. Provincial Government (KII); 7. Federal Government (KII)
6. What is the role of the Nepali government, local civil society organizations, and the private sector in reducing climate-induced vulnerability to child labor and/or risk of forced labor?	FGD, KII, IDI, and structured interviews/survey	1. Adult workers questionnaire; 2. Parents questionnaire; 3. Female household heads questionnaire	1. Adult (18+) former child laborers (IDI); 2. Community leaders/ward chairs (KII); 3. Contractors (KII); 4. Agricultural households (FGDs); 5. NGOs working in labor practices (KII); 6. Provincial Government (KII); 7. Federal Government (KII)

Annex 2: Quality Assurance Measures and Ethical Considerations

Quality Assurance

Quantitative data collected from the field were transmitted daily to the SurveyCTO server, which had restricted access limited to authorized members of the study team. Qualitative data—audio-recorded along with accompanying notes—were backed up to a secure drive at the end of each data collection session.

A comprehensive approach was adopted to ensure data reliability, minimize errors, and maintain data integrity. Data received on the server were reviewed daily using frequency checks, outlier detection, check for data missing if any, check for misuse of "other specify", and monitoring for patterns such as enumerators deliberately skipping certain sections or manipulating responses. Any suspicious entries were immediately flagged for clarification and resolved with the field team. Entire field teams were contacted regularly to gather feedback on their experiences, discuss any issues or ambiguities in the questionnaire, address technical difficulties, and reflect on how respondents engaged with the survey or how the data aligned with the study objectives. On-site supervision was also carried out to monitor adherence to data collection protocols and to gain firsthand impressions of the field context. In addition, transcripts submitted by the qualitative team were randomly reviewed, and audio recordings were listened to in order to verify the accuracy and consistency of the data.

Ethical Consideration

The study strictly adhered to established ethical standards, human rights principles, and norms. All study team members, including the data collection team, received training from GoodWeave on ethical conduct and protocols for approaching former child workers, including procedures to follow if a child required help or counseling. The study prioritized the dignity, safety, and well-being of all participants.

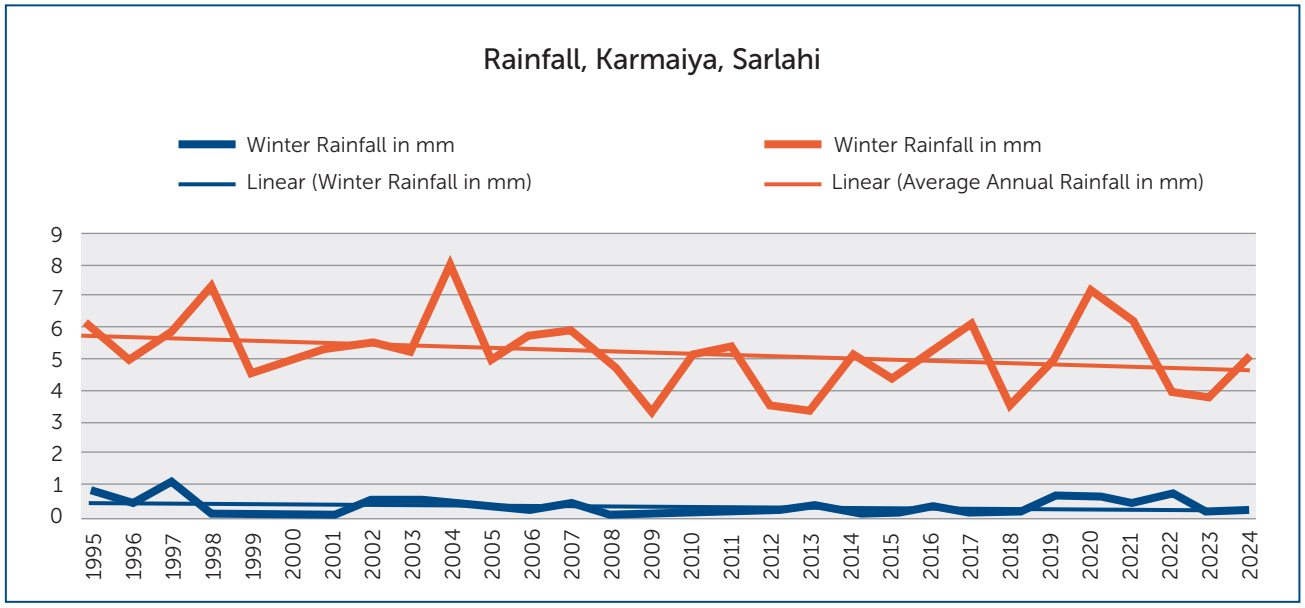
Informed written consent was obtained from all participants prior to any interview or discussion to ensure voluntary participation. For child respondents, additionally assent was obtained from a parent, guardian, or warden. Throughout the survey, strict standards for privacy, anonymity, and confidentiality were maintained. For adult workers, interviews were scheduled at factories during break times to prevent lowering worker productivity. To protect workers from potential retaliation, they were not asked questions about work conditions, pay, or factory management. All respondents received a phone credit of Rs 200 as appreciation for their time.

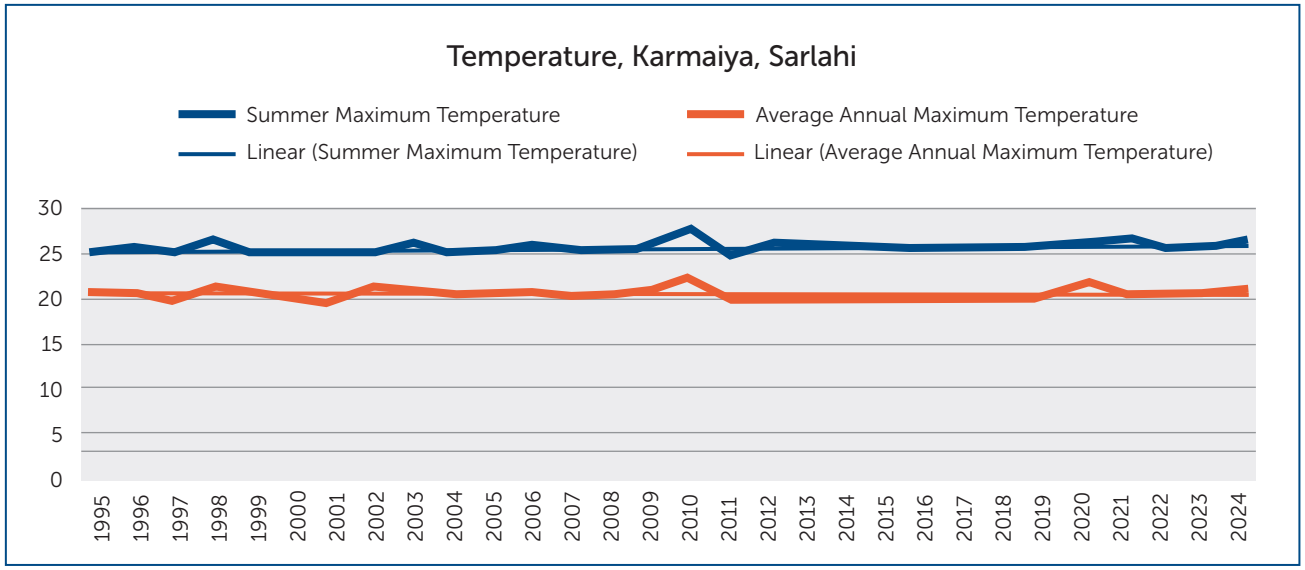
All digital data, transcripts, and forms were securely backed up with restricted access, while physical documents and consent forms were stored in locked file cabinets. Field researchers were closely supervised to ensure compliance with these ethical standards, with particular attention to socio-cultural sensitivities, gender equality, and social inclusion (GESI).

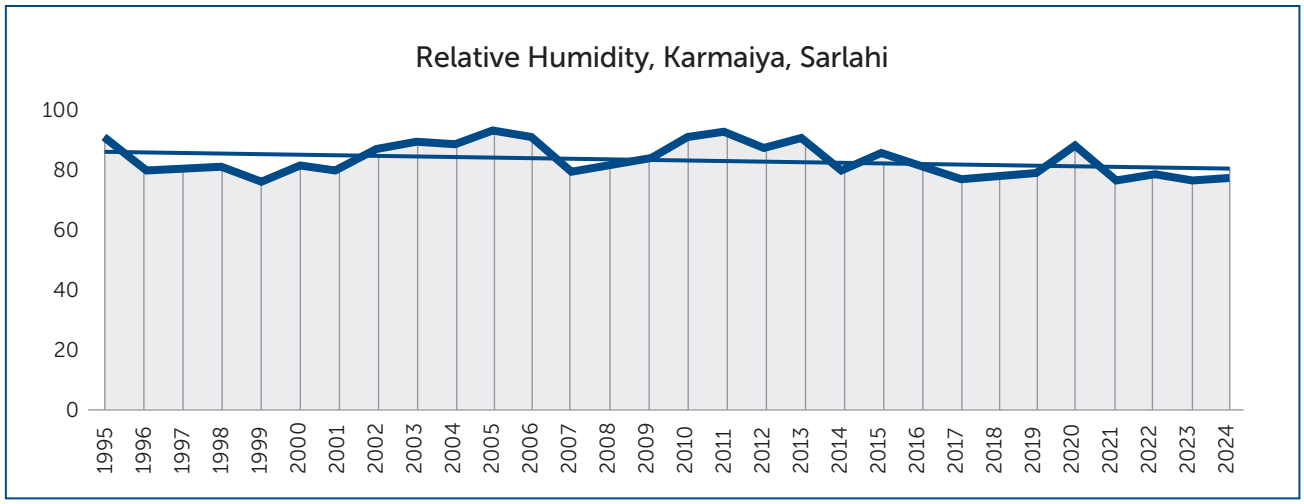
Annex 3: Climate Trends across Study Districts

1. Sarlahi (Karmaiya Station)

The rainfall, temperature and relative humidity charts for Sarlahi indicate that the area has been experiencing increasing dryness over the past 30 years, as evidenced by a decline in rainfall (both annually and in winter), consistently decreasing humidity levels, and a rising temperature trend.

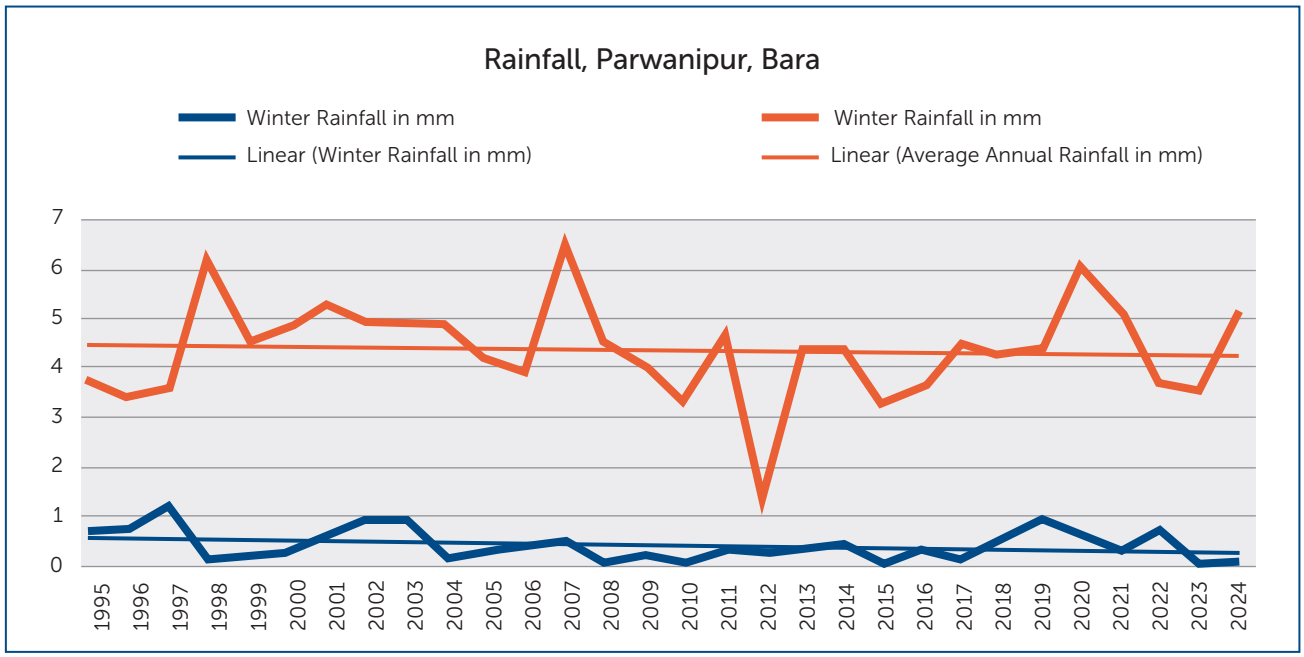


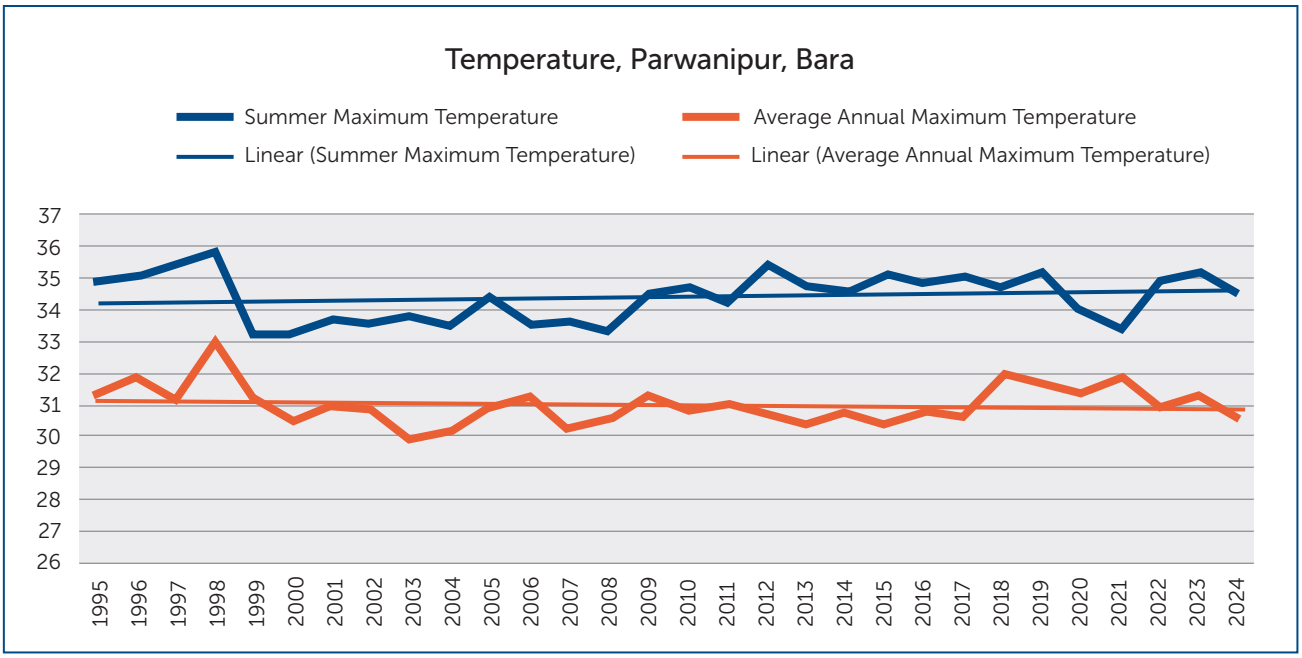




2. Bara (Parwanipur Station)

The charts below for Bara district, indicate a decrease in rainfall particularly the winter rains. Also, the drop in humidity have been significant, going from 81.1 % to 75.2 % in the last 30 years. There has been notable rise in the average mean maximum summer temperature, particularly since past 15 years.




Temperature, Parwanipur, Bara
Summer Maximum Temperature
Average Annual Maximum Temperature
Linear (Summer Maximum Temperature)
Linear (Average Annual Maximum Temperature)
37
36
35
34
33
32
31
30
29
28
27
26
1995
1996
1997
1998
1999
2000
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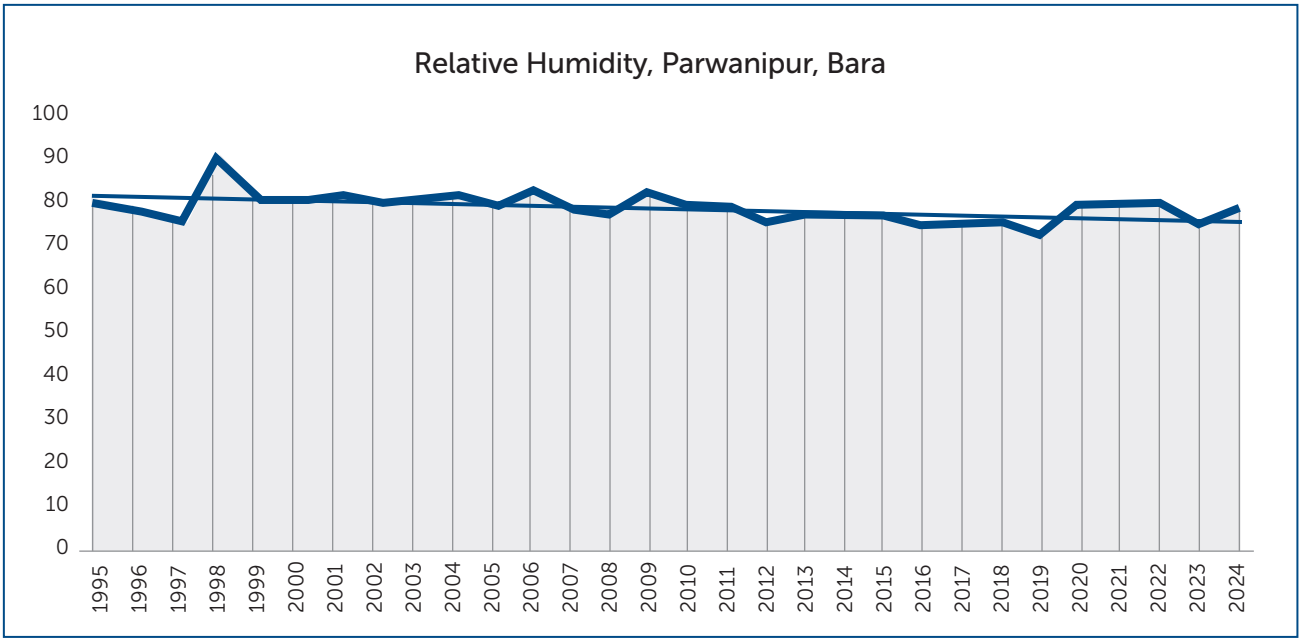
Relative Humidity, Parwanipur, Bara
100
90
80
70
60
50
40
30
20
10
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2004
2005
2006
2007
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2012
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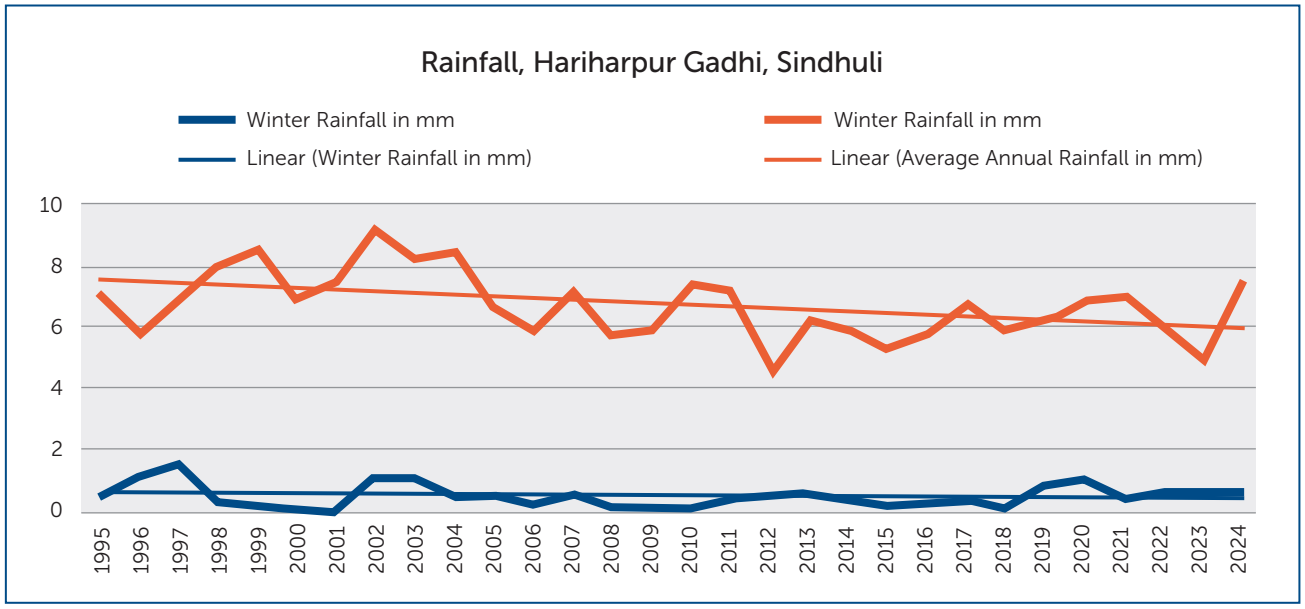
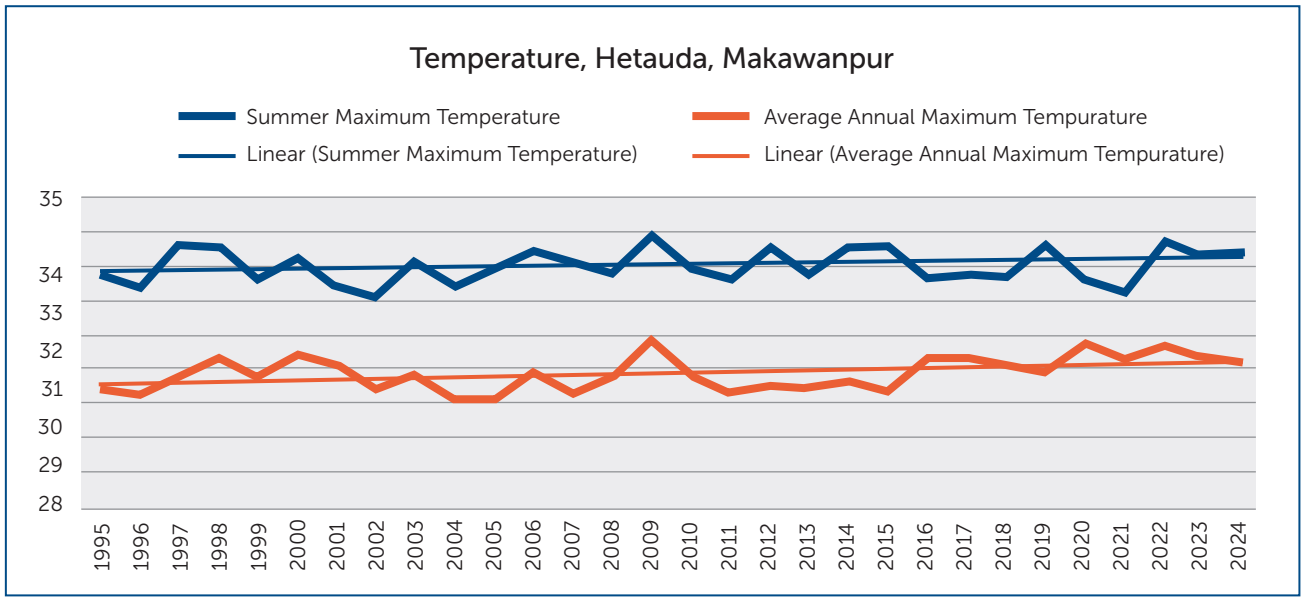
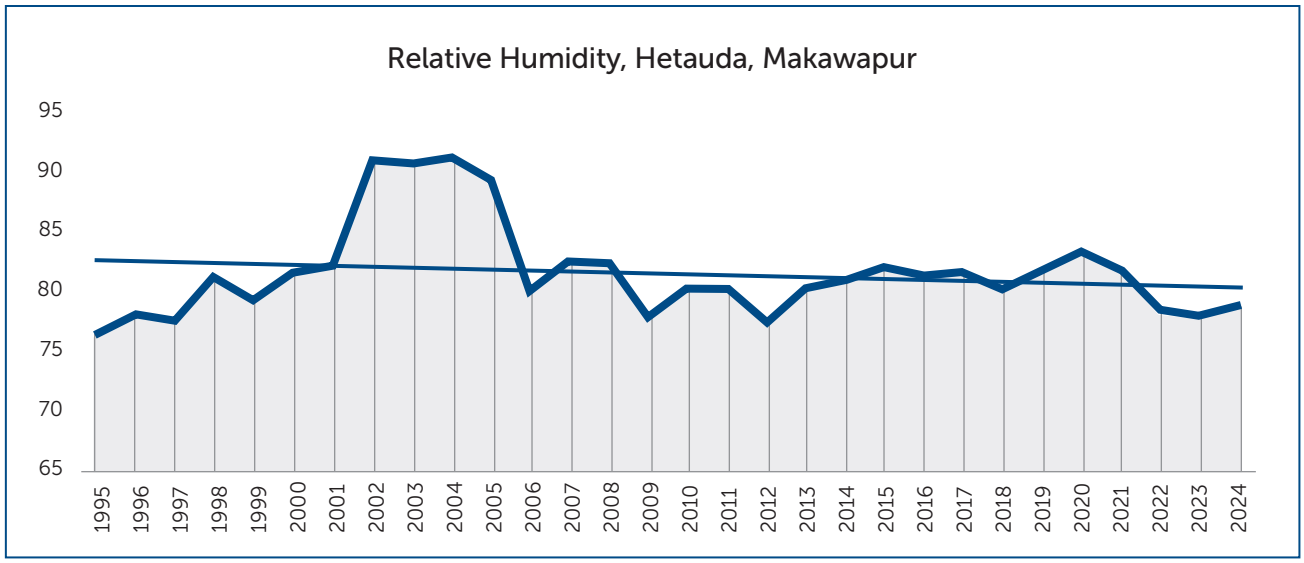
2024

3. Makwanpur (Hetauda Station)

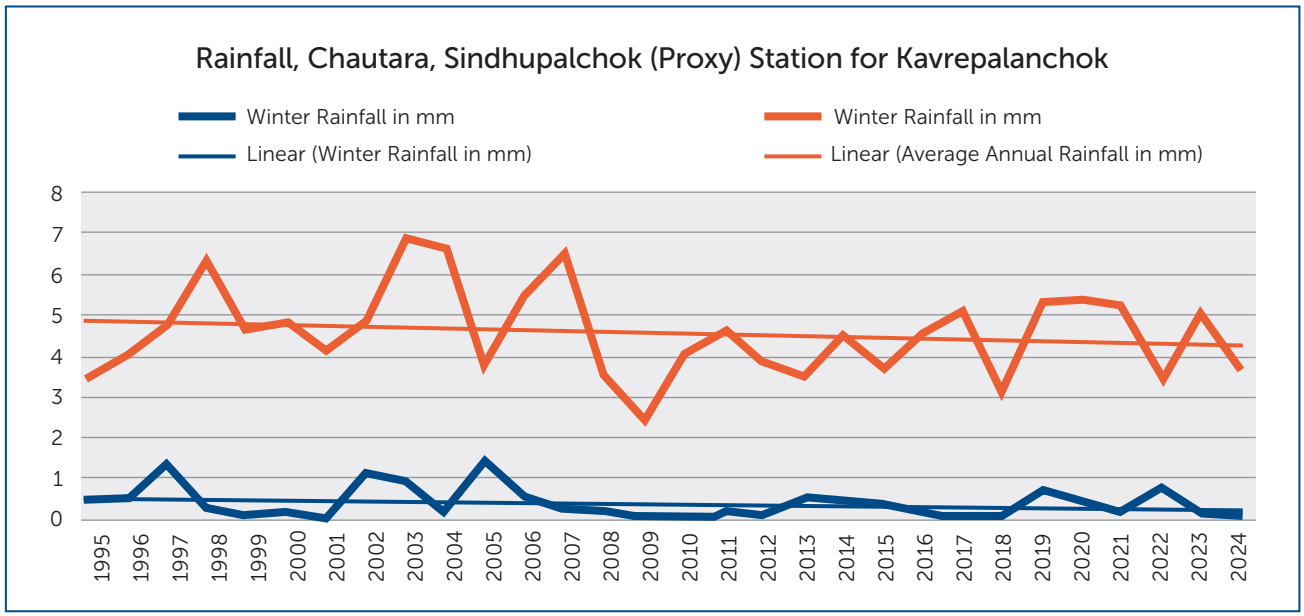
Three meteorological data charts for Makwanpur indicate a declining trend in rainfall over the past 30 years, with a notable reduction observed since 2012. This decline corresponds with a decrease in relative humidity, leading to increasingly drier atmospheric conditions across the years and most in winters. Meanwhile, average maximum summer temperatures have shown a slight but consistent rise, with an upward trend evident particularly since 2011.





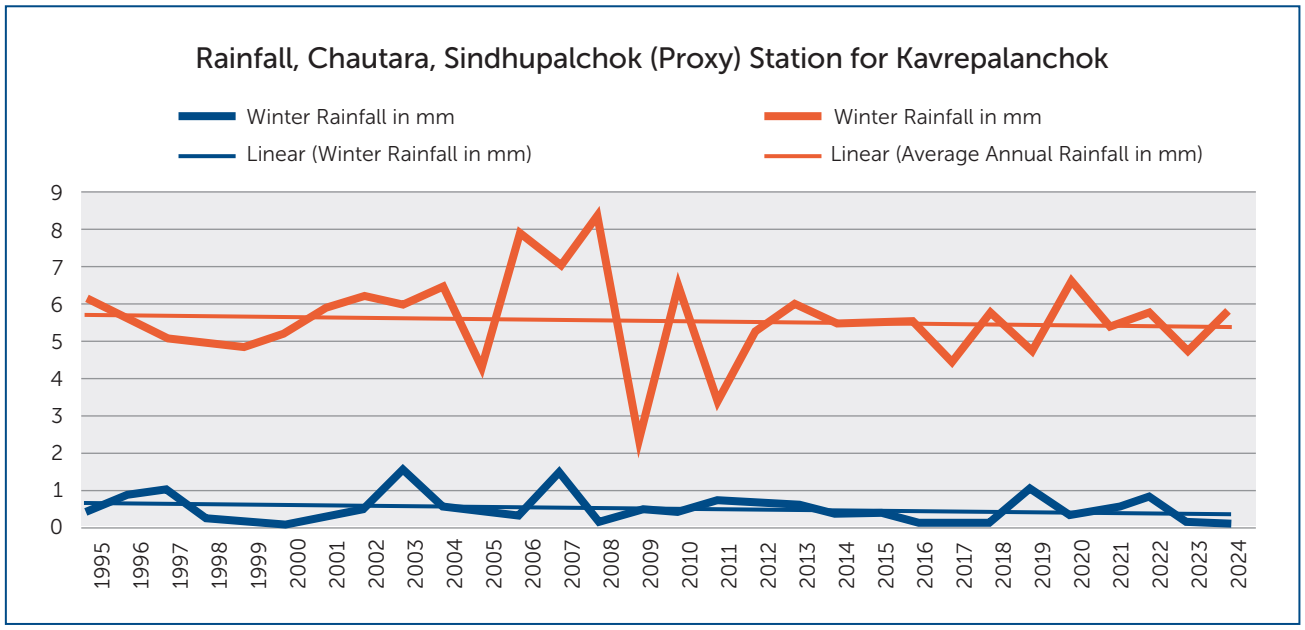


4. Rautahat (Ramoli Baraiya station)

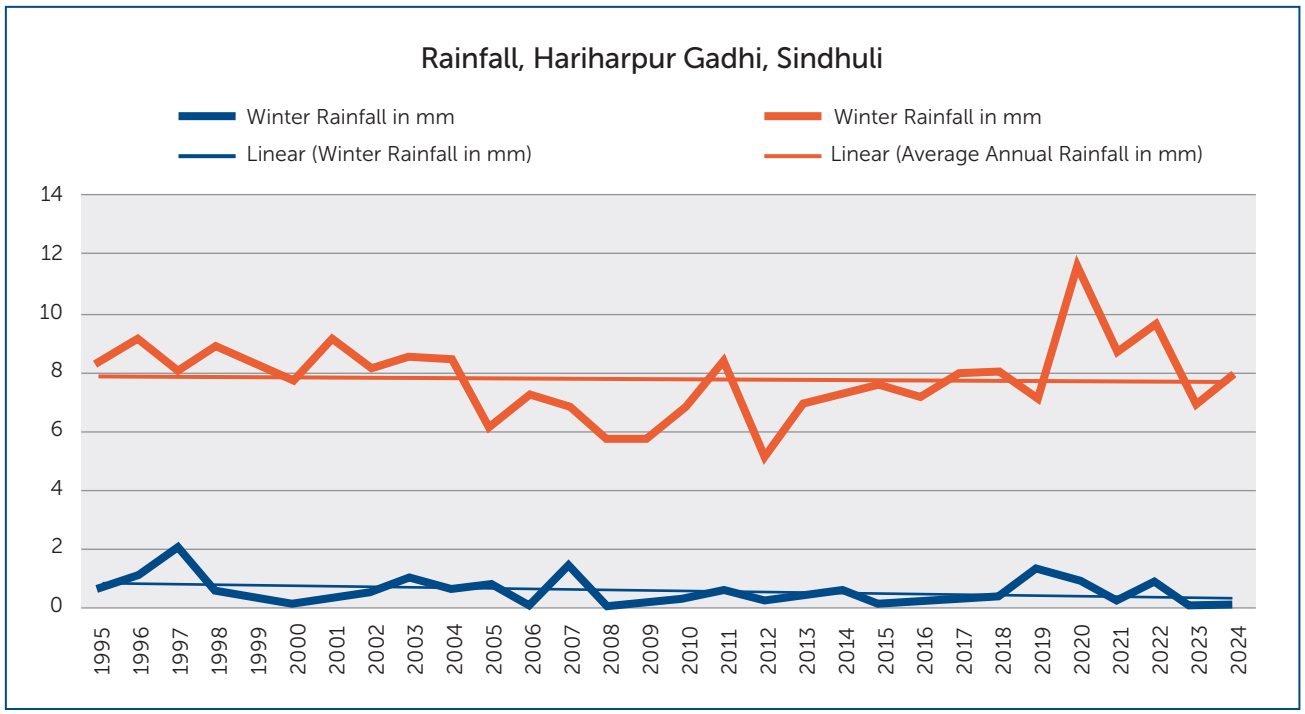


5. Kavrepalanchok

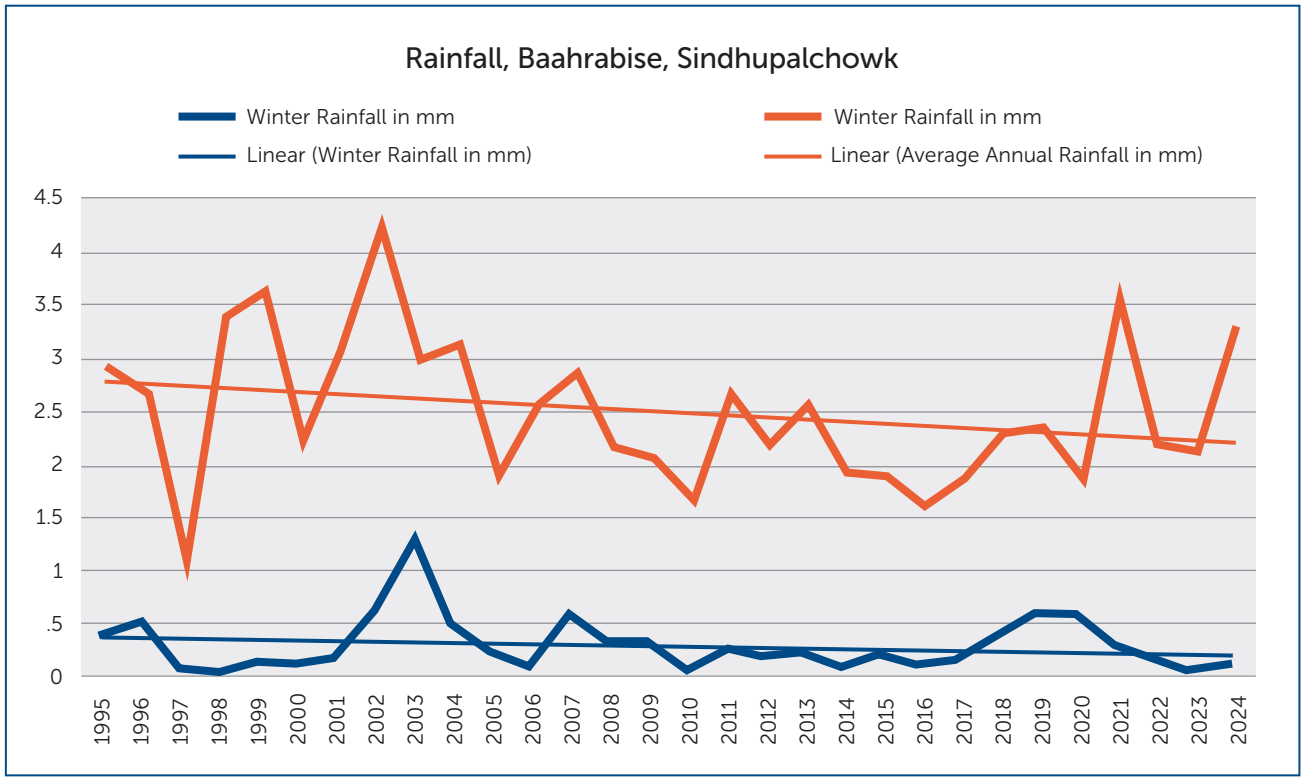
Chautara (Sindhupalchok) Station proximity to Kavrepalanchok



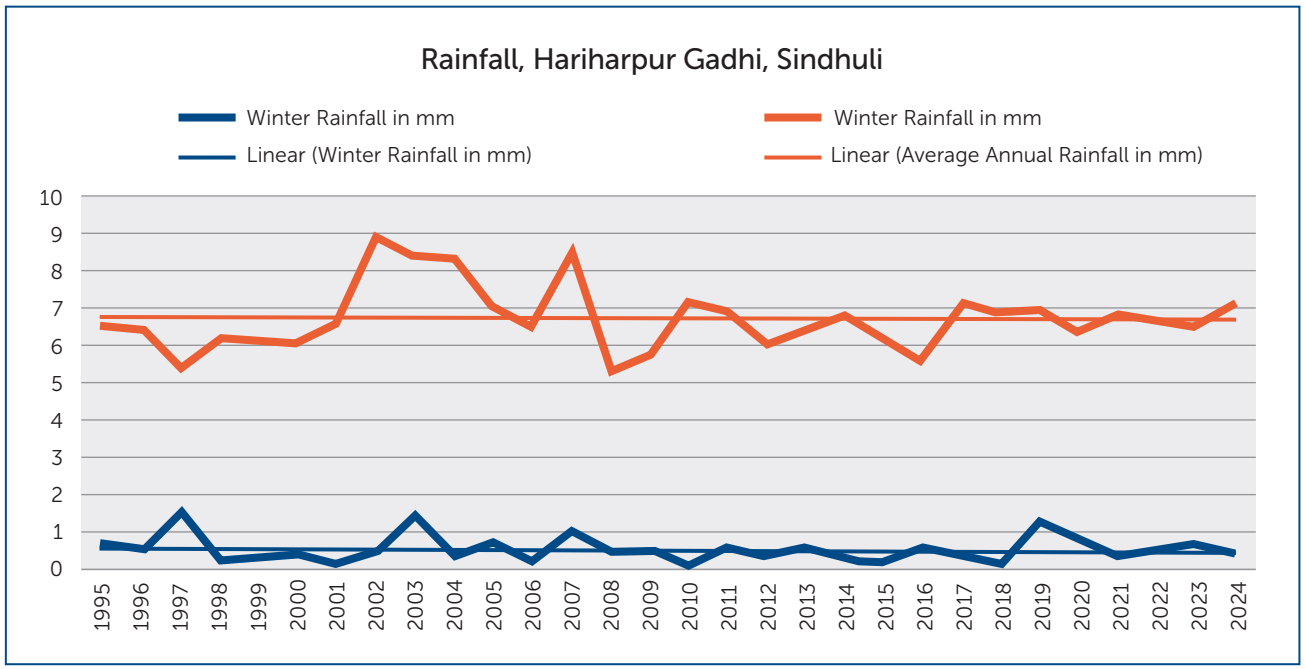
6. Sindhupalchowk



7. Ramechhap (Manthali Station)



8. Sindhuli (Hariharpur Gadhi Valley)



Based on the charts from Rautahat, Kavre, Sindhu, Ramechhap and Sindhuli, there are slight decrease in rainfall across the year, indicating the drier conditions that have developed over the last 30 years. Notably, rainfalls have particularly decreased since 2011 in these charts, with the exception of the Manthali station in Ramechhap, which experienced significant rainfall in 2021. Although the rainfall in winter has been erratic with high gaps in amount in different years, but broadly, winter rains have declined drastically over the past 30 years in all four districts.

Annex 4: Link Between Climate and Child and Risk of Forced Labor - Logistic Regression

To investigate what key factors associated with the adult carpet and brick workers attributing climate change as a driver for migrating to work in the carpet and brick sectors, we conducted the following logistic regression analysis.

The adult carpet and brick worker survey participants were divided into two groups - those who attributed some role (mild or extreme) to climate change in their decision to work in these sectors, and those who did not consider climate as a contributing factor.

The following logistic regression model was specified:

$$\text{logit}(p_i) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_k X_{ki} + \epsilon_i$$

where:

- p_i = probability that the i-th worker attributed any role of climate change to their migration decision;
- $X_{1i}, X_{2i}, \ldots, X_{ki}$ = independent variables

The independent variables initially considered were: **worker type** (carpet or brick), **gender, household size** (including family members at the community), **source district, total land possession** (in ha), **agricultural land possession** (in ha), **primary source of household income** (farming, carpet, brick, or other), **advance payment** (whether received at the time of first migration), **extreme climate impact on household debt** (if yes), **extreme climate impact on food production** (if yes), **extreme climate impact on livestock production** (if yes), **extreme climate impact on food consumption** (if yes), **and extreme climate impact on household income** (if yes).

After some experimentation with the model, the variable **source district** was dropped for insignificance; **total land possession** was dropped due to high correlation with **agricultural land possession** and the latter found to be a better predictor; and **primary source of household income** was also dropped due to high correlation with **worker type**, which was retained as the better predictor. The remaining variables were kept, even if some were not statistically significant, as their inclusion did not materially alter the results.

The odds ratios of the predictors, controlling for other variables, along with their standard errors, p-values, and selected model fit statistics are reported below. -

Regression Results

(Dependent Variable: Whether the adult worker attributes any role to climate change in their decision to migrate for work in the carpet or brick sector)

Variables	Odds Ratio
Female	0.861 (0.158)
Household Size	0.972 (0.0283)
Brick worker	4.649*** (1.087)
Agricultural land possession	0.563** (0.162)
Advance payment received	1.805*** (0.396)
Extreme climate impact on household debt	6.140*** (2.000)
Extreme climate impact on food production	1.931** (0.550)
Extreme climate impact on food consumption	1.029 (0.225)
Extreme climate impact on livestock production	1.384 (0.303)
Extreme climate impact on household income	2.328*** (0.474)
Constant	0.149*** (0.0491)
N	760
LR ^{2}(10)	236.92,p<.001
Pseudo-R2	0.2393

Note: (a) Standard error in parentheses (b) *** p<0.01, ** p<0.05, * p<0.1

Annex 5: Survey Questionnaires

Questionnaires

Investigating the Links Between Climate Impacts and Child and Forced Labor in Nepal_Adult Carpet and Brick Worker Questionnaire

Documenting the Links Between Climate Impacts and Child and Forced Labor in Nepal_ Female Household Head Questionnaire

Documenting the Links Between Climate Impacts and Child and Forced Labor in Nepal_ Parent Questionnaire

Documenting the Links Between Climate Impacts and Child and Forced Labor in Nepal
Focus Group Discussion (FGD) with Agricultural Household

S. N.	Name of Participants	Gender	Age	Caste/ Ethnicity	Occupation	Contact No.
1						
2						
3						
4						
5						
6						

Q.1. Please tell me about the agriculture practices followed here in this community?	
Probing Points	
1. Farming history 2. Types of crop/livestock 3. Irrigation sources 4. Land productivity 5. Change in pattern	
Q.2. Please tell me about any changes in the climate pattern in your area since 2010? When did the events happen? Who were affected?	
Probing Points	
1. Unseasonal/ Heavy Rainfall 2. Excessive Summer Temperature/Heat waves 3. Excessive Winter Temperature/Cold waves 4. Prolonged Drought 5. Flood 6. Landslide 7. Forest Fire 8. Insect-pest Infestation	
Q.3. How have these climate changes affected your farming productivity and livelihood?	
Probing Points	
1. Crop and Livestock loss 2. Irrigation disruption 3. Loss of income sources 4. Difficulty meeting basic needs 5. Forced to migrate 6. Separation of family members 7. Age groups affected	
Q.4. In order to cope with the impact of the climate change has anyone in your household resorted to leave the community to work within Nepal as a laborer?	
Probing Points	
1. What kind of work 2. Age group (including children) 3. Work sector (including carpet/brick) 4. Advance payment (cash/kind) 5. Any debt bondage	

Q.5. What strategies have the members in your community used to cope with the changing climate?	
Probing Points 1. How did you learn about these strategies? 2. Did these strategies worked well?	
Q.6. What would help your community become more resilient to climate impacts?	
Probing Points	
1. Support from government. 2. Support from others (CSOs, CBOs, NGOs, etc.)	
Q.7. What should be done to address the negative impacts of climate change on the community people?	
Probing Points **1. Role of Government** **2. Role of other organizations** **3. Role of community**	

Documenting the Links Between Climate Impacts and Child and Forced Labor in Nepal
In-Depth Interview Former Child Laborers

Participant Information			
S.N	**Question**		
1	What is your name?	_____	
2	How old are you?	_____ Years	
3	Gender	1. Male 2. Female	
4	In which grade are you studying?	_____ Not attending school	
	Place of Origin	*Name of the District* *Name of the Municipality* *Name of the village*	

Now, I am going to ask you a few questions about yourself related to your family.

Q. 1. Please tell me about yourself. Tell me about yourself, and your life from before you came to work in the carpet factories. (Let the children talk freely. If necessary, go to the probing points mentioned below.)	
Probing Points	
1. Origin Area	
2. Family • Composition • Socio-economic status (land-holding, agriculture practices, livestock) • Occupation and Income source • History of family members migrating for work • Family hardships (economic, physical, disasters, social, loan) • Education of family members including child's education history	
Now, I am going to ask you a few questions about your migration to Kathmandu to work in carpet factories.	
Q2. Please tell me how you first came to work in carpet factories.	
Probing Points	
1. Decision to go to work • Role of family • Role of friends • Role of Contractor • Who made the decision? • How was the decision made? • How were you feeling when this decision was made? (Happy, sad, afraid, proud to help the family, sad to have to leave school, no choice...) • Were you involved in other jobs before working in carpet? • What circumstances led to your work in carpet?	

• Why did you have to work in carpet instead of other jobs?	
2. Migration Journey to Kathmandu • With whom • In which season • Mode of transportation • Amount ot time to reach Kathmandu	
3. Debt • Family debt (When left to work) • Debt attached to work • Cash/Kind received by family • Debt payment • Child Sending money to family	
Now, I am going to ask you a few questions about your experience of the climate change and its impacts on your households livelihood.	
Q.3 Climate Change and its Impact	
1. When you came to work in carpet, do you remember any times when the weather was very different from normal or were there any climate related crises? When? How? 2. Did it have any impact on your household livelihood? How?	
• Unseasonal/ Heavy Rainfall • Excessive Summer Temperature/Heat waves • Excessive Winter Temperature/Cold waves • Prolonged Drought • Flood • Landslide • Forest Fire • Insect-pest Infestation	
Q.4. What kind of help would have made it easier for you to not go to work in carpet at such a young age ?	
Q.5. What should be done to prevent children from being in having to work at such a young age?	
Probing Points **1. Role of government** **2. Role of other organizations** **3. Role of community**	
Q.6. You have a lot of experience. In your opiniont, what can be done to improve the lives of children who are working in this sector?	

Documenting the Links Between Climate Impacts and Child and Forced Labor in Nepal
KII- Community Leader

Participant Information			
S.N.	**Question**		
1	What is your name?	_____	
2	How old are you?	_____ Years	
3	Gender	1. Male 2. Female	
4	Education	_____	
5	Current Occupation	_____	
6	Phone Number	_____	

Q.1. Please describe the ethnic and social composition and history of your community?	
Probing Points	
1. Major ethnic groups 2. Major occupations 3. Livelihood practices 4. Population trend 5. In and Out migration trends	
Q.2. Have this community experienced any climate-related changes since 2010 (such as floods, droughts, or changing weather patterns)? 1. Unseasonal/ Heavy Rainfall 2. Excessive Summer Temperature/Heat waves 3. Excessive Winter Temperature/Cold waves 4. Prolonged Drought 5. Flood 6. Landslide 7. Forest Fire 8. Insect-pest Infestation	
Probing Points	
1. What were they? When? Their impacts on the community? Who were affected most? 2. Does this lead to migration? • What kind of households migrate to work? • Length of migration • Migration destination • Nature of work 3. Are children also likely to migrate to work or work home based as a paid job? 4. Other coping strategies (other than migration)?	
Q.3. Have you noticed any change in migration from your community to work in sectors like brick kilns or carpet factories? What might be the reason?	

Probing Points	
1. Push and Pull factors for migration 2. How long has this been observed? 3. Length of migration? 4. What are the specific groups that migrate?	
Q.4. **What do the people in this community do when they need money for various needs such as food, health treatment, ceremonies, etc.?**	
Probing Points	
1. Reasons for borrowing. 2. Who do they borrow from? 3. Terms of borrowing (interest rate, repayment period,etc.) 4. Any debt bondage	
Q.5. Are there any programs or practices in place to protect vulnerable populations to support them during crisis such as extreme climate events, pandemic, etc. ? If yes, what are they?	
Probing Points **1. Type of support and when** **2. How many people benefited** **3. Who provided the support**	
Q.6. What interventions do you believe are needed to strengthen the resilience of this community to better cope with the impacts of climate related hardships?	
Probing points **1. Immediate relief** **2. Ways to make the community people resilient** **3. Make sure that vulnerable group (women, children, and elderly people) receive special attention during the crises.** **4. Making sure that childrens do not have to work in a paid job to meet the family needs.**	

Documenting the Links Between Climate Impacts and Child and Forced Labor in Nepal
KII- Contractor/Broker

Participant Information			
S.N.	**Question**		
1	What is your name?	_____	
2	How old are you?	_____ Years	
3	Gender	1. Male 2. Female	
4	Education	_____	
5	Current Occupation	_____	
	Current Location	_____	
6	Phone Number	_____	
7	Sector	Carpet..... 1 Brick..... 2	

Q.1. Can you Please describe your work experience as a _____[Labor Contractor/ Broker]? How long have you been in this role?	
Probing Points	
1. Major tasks 2. Job Responsibilities 3. Years of experience	
Q.2. What kinds of laborers come to work in this sector?	
Probing Points	
1. Origin, gender and age composition of workers 2. Economic condition and debt status of workers 4. Differences in the vulnerability of certain groups	
Q.3 Please describe about the how you identify potential workers and their recruitment process.	
Probing Points 1. Recruitment process 2. Cash/Kind attached to workers family 3. How do workers know of the availability of such jobs? 4. How is job task given to a worker decided?	
Q.4. Are there particular times of the year when migration to work in this sector is more common than at other times?	
Probing Points	
1. Seasonal patterns 2. Past vs. current trends	
Q.5. Do you think any climate-induced hardships plays a role in deciding the family to send their family members to work in this sector? If yes, how?	
Probing Points	
1. Climatic events in the past 2. Influence of such events 3. Age groups affected most	

Documenting the Links Between Climate Impacts and Child and Forced Labor in Nepal
KII- Contractor/Broker

Participant Information			
S.N.	**Question**		
1	What is your name?	_____	
2	How old are you?	_____ Years	
3	Gender	1. Male 2. Female	
4	Education	_____	
5	Current Occupation	_____	
	Current Location	_____	
6	Phone Number	_____	
7	Sector	Carpet..... 1 Brick..... 2	

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1. Seasonal patterns 2. Past vs. current trends	
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Probing Points	
1. Climatic events in the past 2. Influence of such events 3. Age groups affected most	

Annex 6: Study Team

Core Study Team	Role
Dr Udbodh Rijal	Team Leader
Mr Ujjwal Upadhyay	Climate Change Expert
Mr Ganesh Sharma	Qualitative Expert
Mr Dikra Prasad Dhakal	Research Officer
Mr Suraj Baskota	Programmer/ Data Manager

Data Collection Team	Role
Mr Kamal Timsina	Qualitative Researcher
Mr Dilip Joshi	Qualitative Researcher
Mr Govinda Raj Marasini	Qualitative Researcher
Mr Rabischandra Bhatta	Qualitative Researcher
Mr Bhawani Ghimire	Field Supervisor
Mr Laxmi Prasad Upadhayay	Field Supervisor
Mr Nirmal Kumar Chhetri	Field Supervisor
Mr Sagar Prasad Acharya	Field Supervisor
Mr Shiva Prasad Upadhayaya	Field Supervisor
Ms Junamshu Oli	Field Supervisor
Ms Nanu Gurung	Field Supervisor
Ms Ranjana Chaudhary	Field Supervisor
Ms Rita Tamang	Field Supervisor
Ms Yam Kumari Gurung	Field Supervisor
Ms Anita Tamang	Enumerator
Ms Asbina Syangbo	Enumerator
Ms Asha Moktan	Enumerator
Mr Hanim Manandhar	Enumerator
Mr Madhab Paudel	Enumerator
Ms Manita Tamang	Enumerator
Mr Mukesh Joshi Pandey	Enumerator
Mr Pawan Kafle	Enumerator
Ms Prakriti Adhikari	Enumerator
Mr Roshan Karki	Enumerator

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