Climate change, migration and vulnerability to trafficking

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The Climate Change Group works with partners to help secure fair and equitable solutions to climate change by combining appropriate support for adaptation by the poor in low- and middle-income countries, with ambitious and practical mitigation targets. The work of the Climate Change Group focuses on achieving the following objectives:

- Supporting public planning processes in delivering climate-resilient development outcomes for the poorest
- Supporting climate change negotiators from poor and vulnerable countries for equitable, balanced and multilateral solutions to climate change, and
- Building capacity to act on the implications of changing ecology and economics for equitable and climate-resilient development in the drylands.

This paper presents empirical evidence on the links between climate change, migration and trafficking. It then unpacks the underlying drivers that policymakers should target to deal with this nexus. The paper explores the extent and impact of climate change on distress migration and human trafficking in two diverse areas affected by slow-onset and rapid-onset climatic events.

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Background

Climate-related hazards affected close to 20 million people in India in 2020. Climate disasters add to the stress of socioeconomic factors like population density, income inequality and degrading environment. Together, they increase the risk of loss of life, food insecurity and loss of livelihoods, compelling vulnerable communities to adopt migration as a coping strategy.

But this strategy can put the most vulnerable migrants at risk of modern slavery and trafficking.[1] Meanwhile, it also generates social consequences for household members (mostly women, children and elderly) who are left behind.

Climate change and/or climate-induced migration intersects with severe forms of exploitation along at least three pathways: slow-onset disasters (droughts, crop failures), rapid-onset disasters (floods, cyclones) and an amalgamation of conflicts and climate change events. Yet policymakers have rarely considered climate change as a driver of human trafficking. The topic is also rarely discussed in the local, national or international policy discourse. In this paper, we build evidence on the links between climate change, migration and trafficking.

Methodology

IIED partnered with two grassroots organisations that have a strong rapport with marginalised communities on community rights, access to social protection initiatives, and rescue and rehabilitation of trafficking victims. Through both qualitative and quantitative tools, including a household survey, we covered two contrasting geographies: rapid-onset events in Kendrapara district in Odisha and slow-onset events in Palamu district in Jharkhand. In all, 420 households were covered, 210 in each location. The sample was distributed evenly across 14 villages (7 in each location). The sample comprised households with migrants and without migrants. We asked the sample households questions related to employment and working conditions that conformed to the definition of trafficking to identify trafficked households.

Findings[2]

Climate change vulnerability. Climate change multiplies vulnerabilities. More than 50% of respondents said that environmental stressors (flood, cyclone, erosion, etc.) were more hazardous and frequent in the last ten years. In Kendrapara, more than 60% said floods were a major climate stressor, while 87% in Palamu reported that they were vulnerable to droughts. Extreme events were reported to result in loss and damage to crops, livestock and equipment.

Migration trends. In both study areas, the dominant form of migration was seasonal.[3] Around 85% of migrants in both Kendrapara and Palamu migrated once or twice a year for less than six months. Most migrated for work (80% in Kendrapara; 51% in Palamu). In Palamu, people also migrated for reasons related to healthcare and debt. In Kendrapara, people migrated for housing (possibly due to destruction of houses from cyclones and floods) and education. Most migrants from both study locations were engaged as wage labour in construction (25% in Kendrapara; 32% in Palamu). Those from Kendrapara also worked in factories (24%); 65% of Palamu migrants worked as wage labourers in road laying, brick kilns, restaurants, hotels, supermarkets, farms and factories.

Nature and trends of human trafficking. Distress migrants become vulnerable to trafficking and suffer human rights violations. Slavery-like situations include forced labour, bonded labour, debt bondage, wage withholding and exploitative working conditions. The percentage of trafficked migrant households in Palamu was 42% compared to 16% in Kendrapara.

The dramatic difference between the two locations could be due to the nature of climate events. Palamu suffers from slow-onset events, which often do not

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[1] For the purpose of this paper, the term trafficking used throughout the paper also reflects slavery and slavery-like conditions. Human trafficking is the process of trapping people through the use of violence, deception or coercion and exploiting them for financial or personal gain (https://www.antislavery.org/slavery-today/human-trafficking/). Slavery is defined as a condition of being legally owned by someone else and forced to work for or obey them (https://dictionary.cambridge.org/dictionary/english/slavery). Modern slavery is the severe exploitation of other people for personal or commercial gain (https://www.antislavery.org/slavery-today/modern-slavery/).

[2] Although the terms migrant/respondent and household are used interchangeably in the paper, the findings are applicable to the household. Even if the household head migrates, it impacts the entire household.

[3] Seasonal migration is defined as "the movement of the household members who stay away from the village or town for employment or in search of employment for a period of 30 days to six months during last 365 days."

get the same attention as rapid-onset events in areas like Kendrapara. For moderate droughts, states must respond out of their own budgets. Thus, many states wait for droughts to become severe so they can access federal funds. As a result, many droughts either go unreported or declared so late that communities are forced into distress migration to survive and feed their families.

Remittances. In both locations, a high percentage of respondents sent remittances home. But Kendrapara migrants sent more than twice as much every month as Palamu migrants (₹11,032 vs ₹5,160). In both locations, remittances were used to meet consumption needs, day to day household needs and healthcare. We found no evidence of remittances invested in economic activities or assets.

Coverage of social protection schemes. Social protection schemes are expected to provide a safety net to vulnerable families during a crisis, including climate stress. But the coverage of most schemes among respondents was low in both study areas. There was high ownership of cards that ensure access to entitlements under such schemes, institutions and services (eg Aadhaar card, ration card and voter card). Still, MGNREGS job card coverage — which can provide employment during a climate crisis — was low in both locations (33% in Kendrapara; 42% in Palamu).[4]

Drivers of migration and trafficking. We analysed climate change impact on migration and resulting trafficking through five broadly recognised drivers of migration: economic, political, demographic, social and environmental (Figures A and B).

Our analysis offered interesting insights. Kendrapara had been one of the most fertile and prosperous regions of Odisha. But climate extremes, in the form of rapid-onset events, have proven that even stable ecosystems and prosperous economies can erode.

People in Kendrapara have better literacy and awareness levels, food security and average landholding, higher average household income and better infrastructure than people in Palamu. Most migrants from Palamu belonged to Scheduled Tribes and Scheduled Caste, whereas Kendrapara migrants were predominantly from Forward Caste and Other Backward Class communities.[5] They did not face social discrimination in their villages. The area, unlike Palamu, is free of left wing extremism.

Despite these positive aspects, people in Kendrapara are vulnerable, primarily due to climate change. Higher

Figure A. Drivers of migration and trafficking — Kendrapara of coastal Odisha

Note: drivers in red contribute negatively to migration and trafficking, while those in green are positive.
*The figure inside the parenthesis indicates the percentage of sample respondents trafficked.

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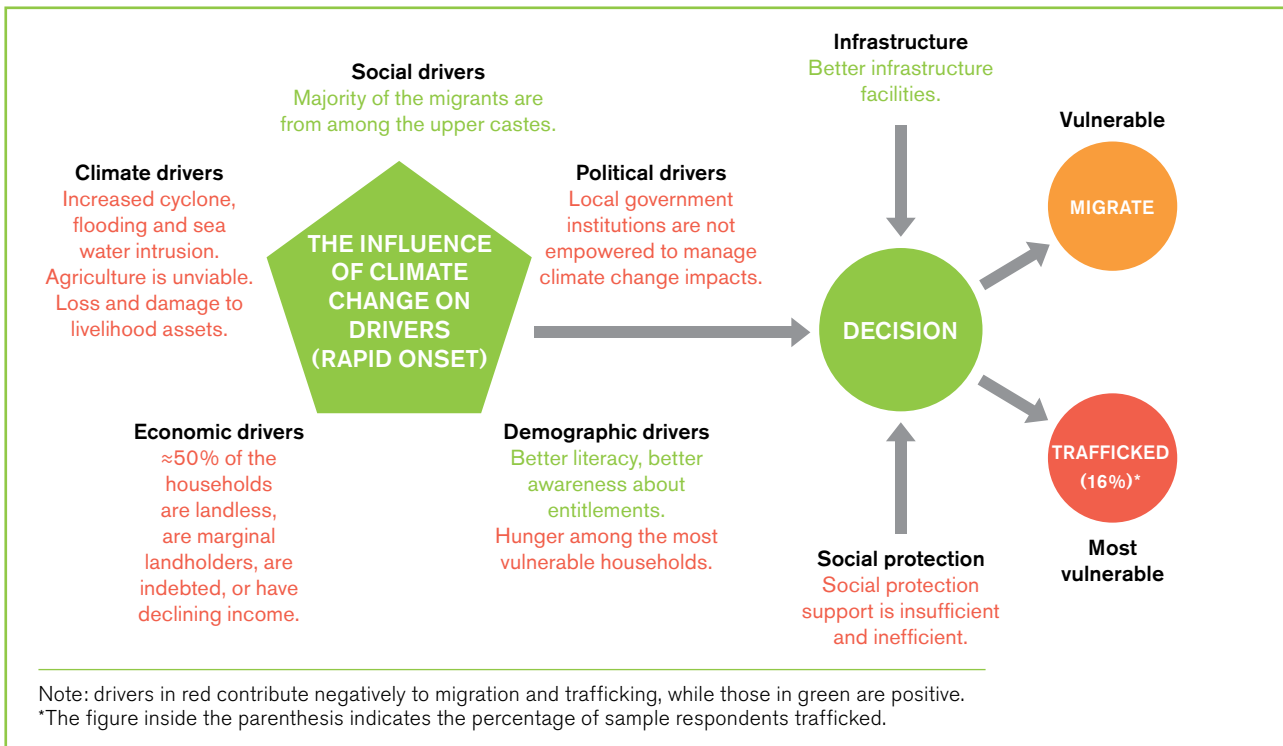
[4] The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is the largest social assistance programme in the world. It guarantees wage employment for a household in rural India for a maximum of 100 days.
[5] Other Backward Class is a collective term used by the government of India to classify castes that are educationally or socially disadvantaged. It is one of several official classifications, along with General Class, Scheduled Caste (SC) and Scheduled Tribes (STs).

Figure B. Drivers of migration and trafficking — Palamu of Jharkhand

Social drivers
SC and ST communities oppressed by high caste families, lands grabbed by high caste families.

Infrastructure
Poor infrastructure unsupportive of local livelihoods.

Climate drivers
Increased drought and frost. Agriculture is unviable. Forest resources are declining.

Political drivers
Lack of say for SC and ST people in local government. Effect of militant operations.

THE INFLUENCE OF CLIMATE CHANGE ON DRIVERS (SLOW ONSET)

Economic drivers
Lack of landholding, indebtedness, declining income.

Demographic drivers
Lack of education. Poor awareness about entitlements. Hunger.

DECISION

Vulnerable

MIGRATE

TRAFFICKED (42%)**

Most vulnerable

Social protection
Social protection support is insufficient and inefficient.

Note: drivers presented in red indicate factors that contribute negatively towards migration and trafficking.
**The figure inside the parenthesis indicates the percentage of sample respondents trafficked.

frequency of cyclones and flooding coupled with sea-level rise and sea water intrusion have caused loss and damage of livelihood assets, soil erosion and land degradation. Consequently, socioeconomic problems such as decline in income, unemployment and indebtedness have cropped up in the last few decades. An efficient social protection cover might potentially enhance people's absorptive and adaptive capacity. But the coverage of social protection programmes is inadequate. As a result, the vulnerable sections of the area are forced to migrate. The most vulnerable households are prone to trafficking.

By contrast, Palamu is chronically underdeveloped in terms of socioeconomic–political factors. Over time, its climate has shifted from sub-humid to semi-arid, causing frequent and prolonged drought and frost. This has severely affected livelihoods, leading to lower agricultural yields and fewer non-timber forest products. Food insecurity and starvation have increased among the weaker sections of the community, while water for drinking and domestic needs is growing scarcer.

Unfavourable and chronic socioeconomic–political– demographic pressures have further weakened the most vulnerable of the two communities. These factors have forced vulnerable people to voluntarily migrate or become exposed to the threat of human trafficking. Our study shows how climate change has become the new driver of migration and trafficking, dwarfing all others in its impact.

Recommendations

State level

Focus on programmes that support in-situ adaptation and prevent distress migration: adaptive capacity of households can be enhanced by integrating climate risk management and convergence of different social protection programmes to offer access to food, water, credit, health, education and skill development. IIED's earlier research has shown that social protection programmes like MGNREGS have the potential to enhance climate resilience.

Improve outreach of social protection programmes in climate-induced migration and human trafficking hotspots: coverage of social protection programmes needs to be targeted towards the most vulnerable households and individuals in areas prone to high climate impacts that are driving distress migration and displacement.

Promote registration of migrants using digital interfaces: state governments need to ensure that all migrant workers are registered with labour welfare boards and use digital interfaces to track the flow and status of migrants and where they are employed, to ensure compliance to worker rights and entitlements.

Ensure proper registration of workers at destination site: migrant workers should be registered at village Panchayat level and the Panchayats need to be empowered to issue licences under the Inter-State

Migrant Workmen Act, 1979. More labour inspectors need to be placed at the block level to monitor and enforce implementation of the Act. While registering, relevant data on the skillset of the candidates could be collected for skill mapping and linking them with appropriate livelihood opportunities.

Improve coverage of food and nutritional security programmes: state governments need to identify food insecurity hotpots and provide doorstep-delivery of key services to ensure the most vulnerable household areas do not fall prey to traffickers out of despair.

Promote gender-specific skill employment at migration sources: state governments need to reduce economic vulnerability of the women family members left behind and link them to entrepreneurial and other livelihood activities.

National level

Mainstream climate-induced migration and human trafficking into climate and development planning: development and climate policy discourse needs to consider climate-induced migration and human trafficking by developing policy responses and integrating adaptive actions into urban and rural climate resilience plans, migration response plans, and state and national development plans.

Promote climate-smart solutions among farmers: agriculture is the primary occupation for most migrants. The vulnerability of farming communities can be addressed through adoption of climate-smart solutions in the agriculture sector developed through scientific research. Extension outreach can be improved by designing programmes in collaboration with extension departments of agricultural research agencies and universities.

Base policy on local-level research and evidence: more empirical evidence needs to be generated through rigorous field research to develop need-based and area-specific policies that address climate change-driven displacement. Policymakers should research the differential impact of climate change on men, women, boys and girls and how this relates to human trafficking.

Integrate trafficking issues into Nationally Determined Contributions (NDCs) and ensure climate finance commitments: NDCs need to identify policies and actions for providing safe migration pathways and addressing human trafficking. This can help in creating the demand for climate finance (Green Climate Fund, Adaptation Fund).

Strengthen social safety nets for climate risk management: policymakers need to consider vulnerability to human trafficking in social protection and climate risk management frameworks. They should prioritise prevention of human trafficking by creating a rights-based framework. This would ensure that they have sufficient coping capacity in the face of climate and other crises. Such capacity could take the form of appropriate shelter, food grain, decent work/jobs, livelihood opportunities, skills, healthcare, justice system, etc.

Extend portability of entitlements to migrant workers: the Indian government has already piloted portability of entitlements for subsidised food grain through the One Nation One Ration Card scheme. This 'Aadhaar'-based portability needs to extend to other social protection schemes like employment, healthcare and integrated child development services. This would make basic services and entitlements available to migrants at the destination.[6]

International level

Take firm climate action on reducing risks of human trafficking: the international climate policy needs to recognise the scale of climate impacts leading to displacements and distress migration. Firm targets and action need to be considered within the United Nations Framework Convention on Climate Change (UNFCCC) mechanisms. This should be in line with Sustainable Development Goal (SDG) Target 8.7, which calls for effective measures to end forced labour, modern slavery and human trafficking, as well as child labour in all its forms.

Coordinate international efforts rooted in existing initiatives: Several ongoing international efforts target climate-induced migration and displacement issues like the Warsaw International Mechanism for Loss and Damage Task Force on Displacement (WIM TFD), SDGs, the Sendai Framework, the Nansen Initiative on Displacement, the Platform on Disaster Displacement and the High-Level Panel on Internal Displacement. But these approaches and action areas are scattered across several sectors and actors and do not consider the risks of trafficking within their purview. There is a need for a coordinated, inclusive approach that complements and draws upon the work of existing bodies and expert groups. This can facilitate continuous and well-structured dialogue, coordination and engagement among a range of relevant organisations, bodies and networks to foster the sharing of expertise and learnings across regions and countries.

Take preventive measures and embrace advance planning to relocate and resettle displaced communities: as climate shocks and stresses are set to worsen, climate change will displace many more millions in the coming decades. Anticipatory action to move people to safety before disasters strike, including plans to relocate and resettle displaced communities, can help reduce exposure to human trafficking.

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[6] The Aadhaar number is a 12-digit random number issued by the Unique Identification Authority of India (UIDAI) to the residents of India after satisfying its verification process.

1

Introduction

1.1 Climate change impacts in India are expected to worsen in the future

India experienced 2021 as the fifth warmest year on record since 1901 (IMD, 2021). Moreover, reports from previous years point towards a constant rise in average annual temperatures. Likewise, the country is observing major shifts in annual rainfall and the standard precipitation index. This has led to more frequent and intense extreme weather events like cyclones, drought, flood, landslides, lightning, hailstorms and dust storms (IMD, 2021).

India has also been listed as the seventh most vulnerable country to extreme climate change events (Eckstein, Künzel and Schäfer, 2021). According to the district-level climate vulnerability analysis completed by the Council for Energy, Environment and Water (CEEW), 27 of India's 35 states and union territories are vulnerable to extreme hydro-met disasters and their impacts. This represents more than 80% of the population or 17 of every 20 people. Climate-related hazards affected close to 20 million people in India in 2020, which amounted to about 1% of the total Indian population. In 2020 alone, the country suffered economic losses amounting to 0.9% of GDP (gross domestic product) (WMO, 2021).

Nearly 70% of people live in rural areas; agriculture is the primary source of livelihood for more than 60%. This makes most people vulnerable to the risks of climate change impacts (Mani et al., 2018). The interplay of climate disasters coupled with socioeconomic factors like population density, income inequality and the degrading environment increase the risk of loss of life,

food insecurity and loss of livelihoods. These risks compel vulnerable communities to migrate.

1.2 Climate change is pushing people towards migration

Migration is becoming established as a household adaptation strategy to cope with climate and economic stresses. In climate distress, slow-onset events such as drought threaten natural resource-based livelihoods such as agriculture, livestock and fishery. These events then compromise people's ability to earn a living, motivating them to consider searching for better economic opportunities through migration. Similarly, when rapid-onset hazards such as hailstorms or floods damage crops, cultivable lands and property, communities may have few or no options for in-situ adaptation. Under such situations, migration is the only viable option for survival.

Migration is multifaceted and complex. In any environment, several economic and sociopolitical factors interact with climate drivers to increase vulnerability. It thus becomes difficult to identify a single motivation or climate factor that incites an individual or household to migrate.

In earlier research (Bharadwaj et al., 2021a), IIED used a migration intention and binary logistic regression model to understand how climate change and socioeconomic factors affect intention to migrate. Our study used migration intention as a proxy to measure the likelihood of future out-migration from the study areas (Madhya Pradesh, Rajasthan and Uttar Pradesh

states). The study showed that climate change is acting as a stress multiplier to socioeconomic factors, pushing people towards distress migration. Of the 1,046 surveyed households, more than 70% of respondents indicated that drought/irregular rainfall is a significant stressor. In addition, 23% mentioned flood as a significant stressor, while 8.3% mentioned hailstorms. Overall, 69.74% of households across all three states reported that they migrate immediately after drought, flood, hailstorms or heat waves.

Among all South Asian countries, the risk of internal displacement is highest in India (IDMC, 2021). The Internal Displacement Monitoring Centre (IDMC) Global Report on Internal Migration identifies flooding and slow-onset hazards like drought as the key drivers of displacement. In 2020, 3.9 million people were displaced in India due to these disasters. About 2.3 million people are expected to be displaced annually due to sudden-onset hazards (IDMC, 2021).

While migration helps people cope during a climate crisis, it generates other social consequences, both for migrants and families (mostly women, children and elderly) left behind (Bharadwaj et al., 2021a). Migration has many costs and associated risks that are difficult for poor and vulnerable people to cope with. It leads to breaking up of families and affects gender roles. Migrant-receiving areas are often inadequately prepared to accommodate migrants with basic shelter and sanitation facilities that are safe for women.

Unsanitary conditions expose migrants to disease. Labour and workplace safety laws are widely disregarded. Migrants are often forced to overwork, paid less than non-migrants and exposed to polluting working conditions. Moreover, they do not have any employment security (Bharadwaj et al., 2021a).

1.3 People displaced by climate disasters are more vulnerable to trafficking

Worldwide, 40.3 million people are living in slavery (ILO and Walk Free Foundation, 2017). Modern slavery disproportionately affects the most marginalised members of society, such as women, children and minorities (Dahir, 2018). Of those reportedly living in modern slavery, 71% are female. Of this number, nearly three out of four women and girls were trafficked for sexual exploitation. In 2016, one in four (10 million) victims of modern slavery were below the age of 18. This age group also represents 21% of the victims of forced sexual exploitation and 18% of those subjected to forced labour exploitation.

Several socioeconomic, political, cultural and institutional vulnerabilities act as drivers to modern slavery. But these drivers are increasingly made worse by climate change impacts and environmental degradation (Bharadwaj et al., 2021b). While human trafficking is not always related to migration, people who undertake distress migration or are displaced due to climate disasters are particularly vulnerable to being trafficked (UNODC, 2016).

When people are forced into distress migration and displacement, the risk of vulnerability to trafficking and modern slavery increases as they deplete their resources and lose self-confidence while en route. Migrants are particularly vulnerable to human trafficking, forced labour and modern slavery (David, Bryant and Larsen, 2019). Research and evidence indicate climate change and/or climate-induced migration and severe forms of exploitation interact in at least three circumstances: slow-onset disasters, sudden-onset disasters and amalgamation of conflicts and climate change events (Bharadwaj et al., 2021b). Two recent examples of climate-induced human trafficking in India are noted below.

Marathwada, Maharashtra: the four drought-prone districts of Latur, Osmanabad, Beed and Nanded in the Marathwada region of Maharashtra are among the highest trafficked zones of India. This high vulnerability is due to the combined effect of socioeconomic and environment factors. Poor rainfall and recurring droughts along with caste and class-based discrimination for access to resources, exploitation, and landlessness among dalits and other minority groups result in trafficking by agents and intermediaries (SASCV, n.d.).

Assam: This north-eastern state shares borders with six other Indian states and the neighbouring countries of Bangladesh and Bhutan. In parts of lower Assam, conflict over land and identity between Bodo tribes, migrants from Bangladesh and other ethnic groups has resulted in periodic violence over the past 20 years. In the midst of this struggle for survival, climate change is acting as a stress multiplier. The melting glaciers in upstream Himalayas have resulted in prolonged floods, high rates of soil erosion and lost livelihoods. In the last two years, Assam has been among the top two states in India from where human trafficking takes place. Women eager to move in search of livelihood are lured by intermediaries and agents and sold to illegal placement agencies. They, in turn, sell the women as domestic help, forced labour and even brides for forced marriages (Sur, 2015).

1.4 Social safety nets are not geared/designed to curb trafficking

Factors such as poverty, social marginalisation, uneven development and gender inequality are recognised as shaping vulnerability to human trafficking. But social protection mechanisms like the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), public distribution systems (PDSs), mid-day meal schemes, and so on, are inadequate to help address these issues in the face of a climate or environmental crisis. These schemes do not have provisions for targeting migration and girls/women prone to human trafficking. When access and protection are not available, women and girls get exposed to exploitation and trafficking.

UNICEF confirms that climate change increases the risk of girls being pushed onto unsafe migration/displacement pathways that can expose them to the risk of modern slavery. "Girls are at increased risk of violence and exploitation, including sexual and physical abuse, and trafficking during and after extreme weather events. These risks are heightened when collecting food, water and firewood or when staying in temporary shelters or refugee camps. In addition, when a family is faced with economic hardship caused by climate change, studies suggest that the risk of child marriage can increase" (Pegram and Colon, 2019).

Social protection systems, access to basic public services and sustainable infrastructure are key to address trafficking. There is a need to consider vulnerability to trafficking in social protection and climate risk management frameworks. These frameworks should prioritise prevention of trafficking. In the face of climate and other crises, vulnerable communities need appropriate shelter, food grain, decent work/jobs/livelihood opportunities, skills, healthcare, justice, and so on. When these supports are lacking or inadequate, people — women and girls, especially — are exposed to exploitation.

The biggest shortcoming of anti-trafficking initiatives is a lack of effort to address its key causes. Despite glaring examples, policymakers have rarely considered climate change as a driver of human trafficking. The topic is also rarely discussed at the national and state levels. Until now, the nexus remains underexplored by academics, and evidence can be found only in grey literature. A review of policies for addressing trafficking and vulnerability in India is provided in Annex 1.

1.5 More knowledge is needed on links between climate change, migration and trafficking

There are three significant gaps in our understanding of the relationship between climate change and vulnerability to trafficking. First, we lack understanding of the underlying drivers that push disadvantaged communities into situations that amplify vulnerability to trafficking. Second, we need to know more about factors that increase the pull towards risky migration pathways that lead to exploitative work situations. Finally, we need to understand gaps in social protection during a climate crisis that expose poor households to trafficking. Better understanding can provide insights into how to strengthen social protection to support anti-trafficking efforts.

In this paper, we begin to address these gaps. To that end, we generate evidence from secondary analysis and primary research on the relationship between climate change, migration and vulnerability to trafficking. Prepared in partnership with grassroots organisations, the paper explores the extent and impact of climate change on forced migration and human trafficking from two contexts in India — slow onset in Jharkhand and rapid onset in Odisha.

2

Approach and methodology

2.1 Laying the groundwork

We combine qualitative and quantitative tools to establish an empirical and compelling evidence base on the links between climate change, migration and trafficking. In so doing, our study unpacks the underlying drivers that policymakers could target to deal with this nexus.

Climate change impacts happen on diverse temporal and spatial scales (UNFCCC, 2012). Siegele (2012) distinguishes between rapid- and slow-onset events. A rapid-onset event is a single, distinct event that happens over a few hours to a few days. Conversely, slow-onset events develop slowly from incremental changes over many years or from more frequent or intense recurring events.

The study covered these two types of events in two contrasting geographies (Table 1). Kendrapara district in Odisha covers communities affected by rapid-onset events (cyclones, floods, sea water intrusion and salinity). Palamu district in Jharkhand covers slow-onset events (recurring droughts and crop failures). A detailed profile of the study area is provided in Annex 2.

Given the sensitivity around trafficking and slavery issues, IIED partnered with two grassroots organisations with a strong rapport and connection with community. Both the Partnering Hope into Action (PHIA) Foundation and Aide et Action have been working with marginalised communities in Jharkhand and Odisha state, respectively, on community rights,

access to social protection initiatives, and rescue and rehabilitation of trafficking victims.

2.2 Research indicators

The research covered macro aspects of climate change impacts; policies and schemes; migration and trafficking trends; and the underlying linkages between climate change, migration and human trafficking. The review also analysed the trends of climate change impacts, demographic changes, socioeconomic profile, vulnerability and implementation of social protection schemes in the study areas of the two states.

Quantitative data: we collected primary data through a sample household survey using a bilingual interview schedule. The interview schedule covered information on various aspects like demographic and occupational profile; housing and assets; land ownership; wage employment; sources of income; indebtedness; household expenditure; food consumption status; functioning of PDSs, MGNREGS and other government schemes; gender issues related to migration and trafficking; climate change experience; coping strategies; status of migration; human rights violations in workplaces and perception about life satisfaction. Further, we enquired into the poverty-related conflicts and perception of respondents on climate change, migration and trafficking in the study area.

Qualitative data: for qualitative inquiries, we gathered data through focus group discussions (FGDs) and key informant interviews (KIIs). In this way, we sought

to understand community perceptions of changes in weather; its impact on livelihoods; determinants and dynamics of climate change; migration; and human trafficking among the villagers.

- KIIs with village opinion leaders and representatives of local government were completed using customised checklists. Three KIIs were undertaken in each village.

- FGDs with different groups in the village were completed using semi-structured interviews. We held two FGDs with men and women groups in each study village. We also interacted with community representatives like village head, villagers, Panchayat members and members of migrant households. We discussed study-related issues of climate change impacts, migration trends and trafficking incidences.

Sample design: the primary survey covered 14 villages in 4 blocks in 2 districts of Odisha and Jharkhand.

In all, the study covered 420 households — 210 in each location. The sample was distributed evenly across 14 villages (7 in each location), comprising households with and without migrants. We asked the sample households questions related to employment and working conditions, which conformed to the definition of trafficking, to identify trafficked households.

2.3 Respondent profile[7]

We interviewed 210 respondents in each location (see Annex 3 for summary).

Age: most migrants were in the 14–45 age group. The average age in Kendrapara was 35, while in Palamu it was 32. In Palamu, few migrants were below the age of 14, the legal age for working in India.

Marital status: more than 80% of respondents interviewed were married (92% in Kendrapara; 81% in Palamu).

Caste profile: while in Kendrapara, most respondents were from the General Category (59%) and Other Backward Class (OBC) (32%); in Palamu, most respondents were from Scheduled Tribes (STs)[8] (72%), followed by Scheduled Caste (SC)[9] (26%) (see Figure 1).

Education profile: while "no schooling" was the largest category among the migrants in both Kendrapara (34%) and Palamu (85%), the percentage of respondents who had not attended school was larger in Palamu. In Kendrapara, at least half of respondents had completed some level of primary education.

Livelihood profile: the main livelihoods of respondents in both study locations was in climate-sensitive sectors

Table 1. Area selected for the survey

STATE	ODISHA		JHARKHAND	
Climate impacts	Rapid onset (cyclones, floods, sea water rise, salination, soil erosion, droughts)		Slow onset (droughts)	
District	Kendrapara		Palamu	
Block	Rajnagar	Mahakalpada	Chainpur	Manatu
Villages	Satabhaya	Lunaghari	Semra	Chidikhurd (Ulwar)
	Debendranarayanpur	Ramnagar	Kumni	Surguja
	Dholmara	Baraja Bahakuda colony		Kedal
	Kaitha			Ghirsiri
				Daldaliya

like farming, fishing and livestock rearing (50% in Kendrapara; 87% in Palamu). In Kendrapara, around 22% of respondents worked in construction or factories; in Palamu, it was around 4%. While 15% were engaged as daily labourers in Kendrapara, 8% worked as homemakers in Palamu (see Figure 2).

Income profile: there is a huge variation in the average monthly income earned by the household at its source location: around ₹7,793 in Kendrapara and around ₹1,953 in Palamu. The mean monthly incomes for migrants at their destination was also high for migrants from Kendrapara (₹11,183) when compared to those from Palamu (₹8,460). The average income for non-trafficked migrants (₹11,331 in Kendrapara; ₹9,442 in Palamu) was higher when compared with trafficked migrants in the two locations (₹10,194 in Kendrapara; ₹7,612 in Palamu) (see Figure 3).

Figure 1. Caste profile of the two study areas (see Table 8 of Annex 3)
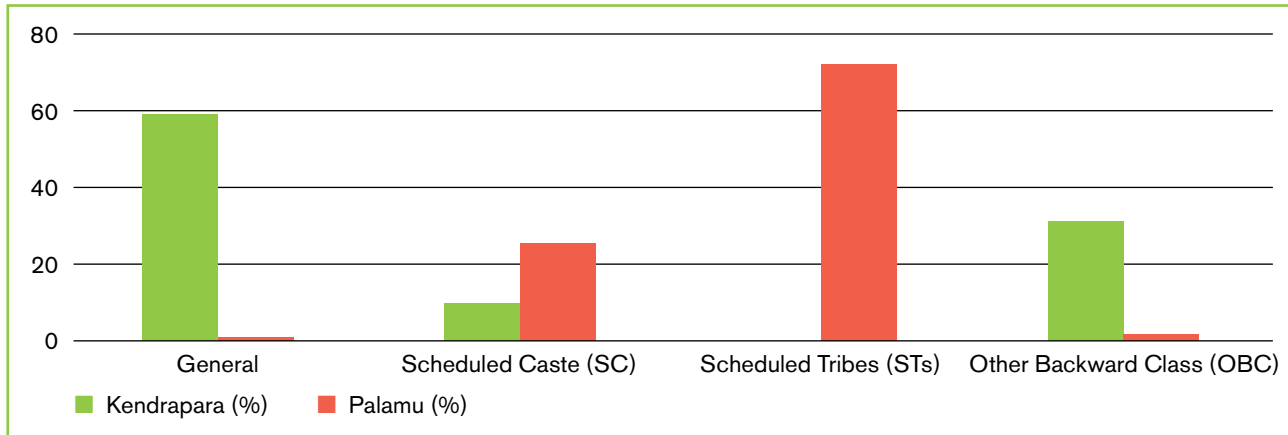
Figure 2. Livelihood profile of the study areas (see Table 8 of Annex 3)
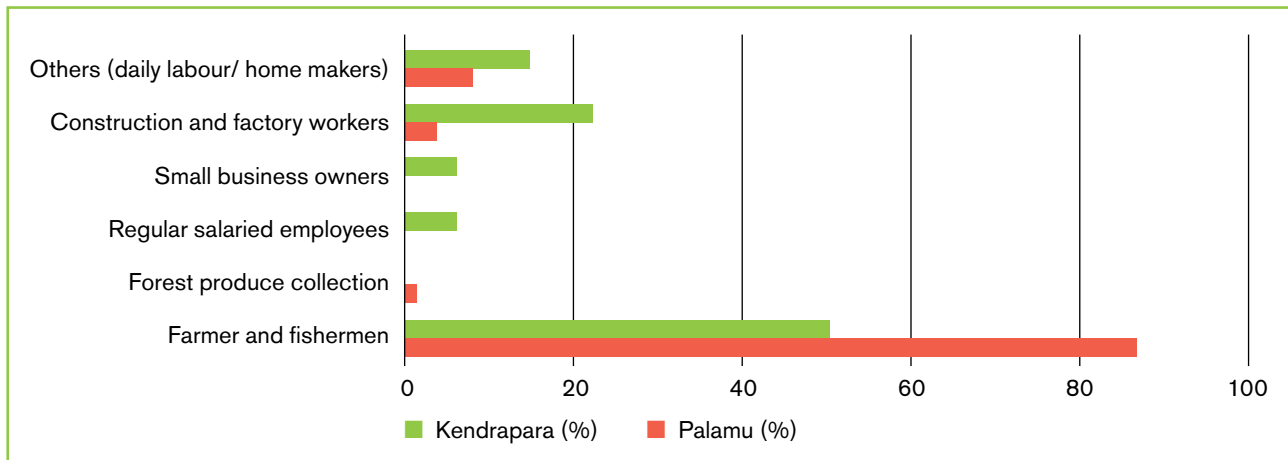
Figure 3. Mean average income in ₹ (see Table 8 of Annex 3)
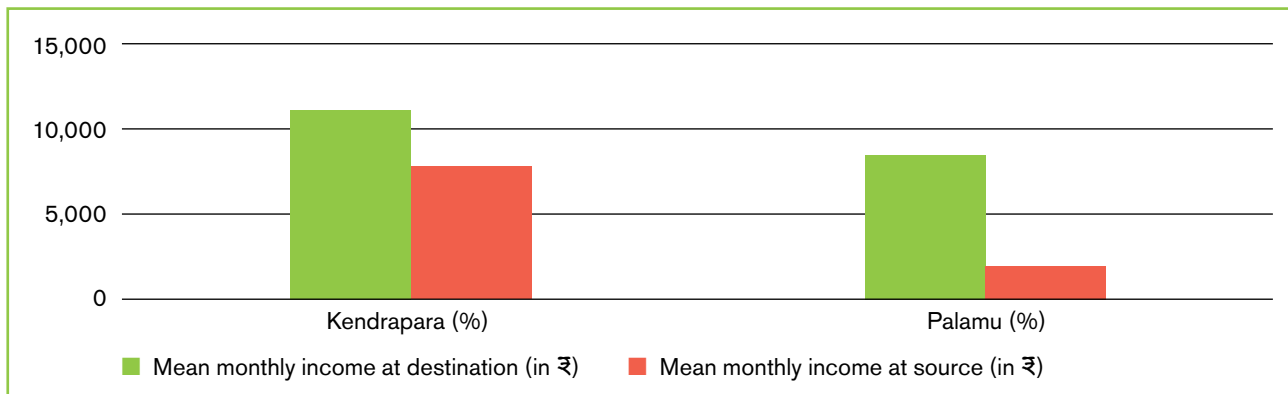
3

Findings

3.1 Climate change multiplies vulnerabilities of households

Climate change acts like a stress multiplier to existing vulnerabilities

Climate-related events are among significant stressors in both study areas as climate impacts heighten the vulnerability of households.

Major stressors: in Kendrapara, more than 60% of respondents indicated flood as a major climate stressor, while 87% of respondents in Palamu said they were vulnerable to droughts. In Kendrapara, 40% of households mentioned drought/irregular rainfall

as another stressor, while 24% mentioned cyclone. In Palamu, respondents reported flood (29%), soil erosion (28%) and storm surges (28%) as other major environmental stressors (see Figure 4).

Loss and damage: extreme events cause shocks to livelihoods of the local community. Survey results show that households experienced monetary losses due to crop, livestock and equipment damages and loss of life from extreme events. This indicates households are bio-physically more vulnerable (exposed to natural calamities). Respondents in the two study sites estimated the following losses and damages due to climate extreme events (see Figure 5):

• Losses and damages to crops were reported by 50% of total respondents in Kendrapara and 40% in Palamu. The average crop loss per annum reported was ₹13,590 in Kendrapara and ₹1,753 in Palamu.

Figure 4. Major climate stressors faced by the community (see Table 9 of Annex 3)
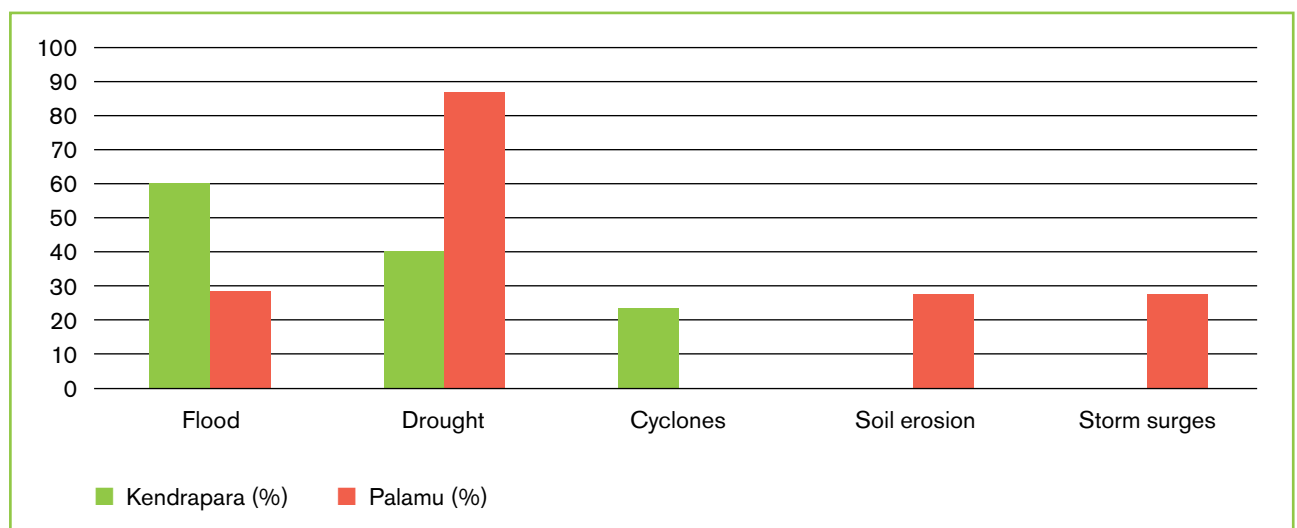
Figure 5. Loss due to extreme climate events in the two locations in ₹ (see Table 9 of Annex 3)
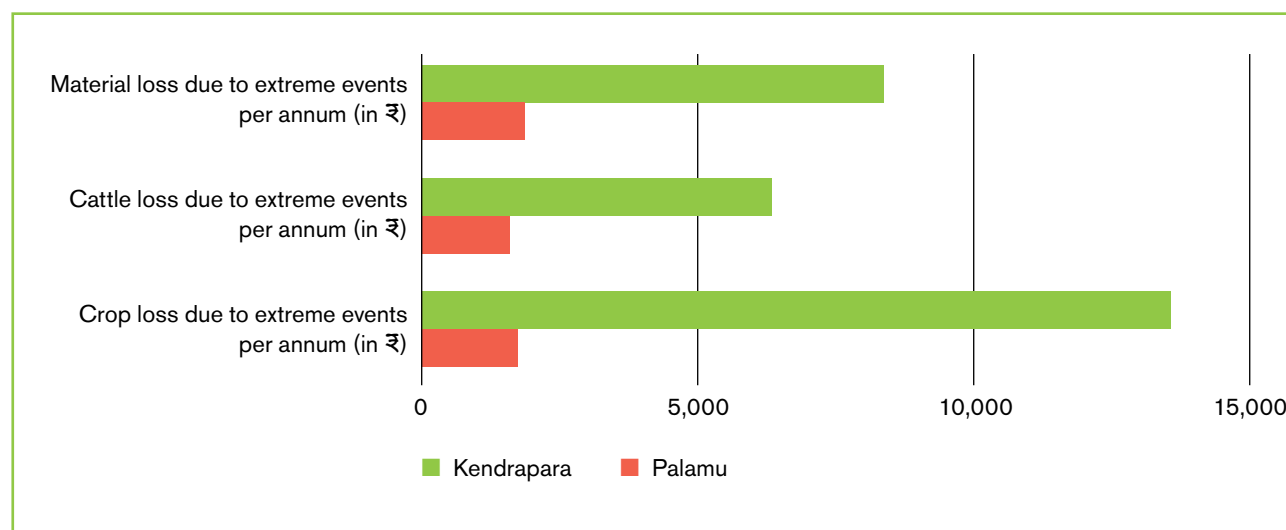
- Losses in livestock were reported by 42% of respondents in Kendrapara and 32% in Palamu. The average value of the loss was ₹6,375 in Kendrapara and ₹1,619 in Palamu.

- Losses in material and infrastructure were reported by 46% of respondents in Kendrapara, and 29% in Palamu. The average annual reported loss was ₹8,400 in Kendrapara and ₹1,869 in Palamu.

Community perceptions on impacts of climate change

Respondents in both locations reported changes in weather patterns and changes in rainfall and temperature extremes.

Kendrapara: all Kendrapara respondents perceived a change in precipitation and an increase in temperature over the previous five years. More than half of respondents reported environmental stressors (flood, cyclone, erosion, etc.) are more hazardous and frequent in the last ten years.

During the KIIs and FGDs, the community said that floods and cyclones have been increasing in the area in the past few years and that the direction of the sea waves is also changing. Community members believed the sea coast had come closer to their village due to sea erosion. Debendranarayanpur and Kaitha, two study villages of Rajnagar block previously about 2.5 kilometres from the sea coast, are now about 1.5 kilometres away (Bay of Bengal). These changes are attributed to climate change.

Palamu: during the FGDs and KIIs, respondents reported changes in the local weather pattern. This has manifested as declining rainfall trends over the past two decades, as well as irregular rainfall followed by long dry spells. Some also reported witnessing strong wind and thunderstorms during the monsoon season. Some FGDs reported the area had been experiencing distinct changes in rainfall pattern every five years over the past decades. These trends are more pronounced in the last 30 to 40 years. A few respondents felt that temperature during summer had increased, especially during the last year; it was even hot inside mud houses, which were otherwise cool in previous summers. They also reported that untimely rains, coupled with increased frost and mist, are an important climate variation in the last few decades. Respondents also believed that rainfall was untimely every third year and that this phenomenon has become more pronounced in the last two decades or so.

- **Impact on agriculture:** variations in local weather are affecting agricultural practices. Water scarcity has reportedly become a major issue in the region due to long dry spells. Respondents noted that most natural water resources usually dry up due to climate variability. This results in severe water scarcity, especially during the summers. They also reported that most hand pumps in the village did not work, especially during the summer. They further reported an inordinate reliance on rain-fed agriculture due to financial constraints preventing access to mechanised farm irrigation. Hence, they felt that anomalies in usual rainfall patterns have led to reduced productivity in their farms.

Several respondents indicated that lack of rain had adversely affected maize crop production. A few women respondents said that loss of forests led to significant reduction in groundwater level, which subsequently affected agricultural production. This phenomenon has intensified in the last two decades.

Increasing frost has led to adverse impacts on crops like pigeon pea. Most respondents said that frost lasted longer than expected in 2022. Pigeon pea is one of the predominant crops in Palamu district. The crop is considered to be tolerant to drought conditions and grows comfortably upland with little need for water. But changing weather conditions have led to more disease and drastically affected yields. FGD participants noted that cloudy weather at the fruiting stage of potato, peas and tomato increased insect infestation, which affected yields. Respondents reported that such seasonal disruptions have become more frequent, including in the current year.

• **Impact on forest resources:** during FGDs, communities reported historical use of a wide variety of indigenous foods from forests and local water bodies. But they said such foods have become less available because of climate variability. Indigenous varieties of fruits, mushrooms and leafy vegetables are accessed from the environment, but their availability has reportedly declined over the past two decades.

Community members, during FGD sessions, reported that due to untimely rains, production of forest products like van tusli and chakod (*Cassia tora*) had declined substantially. They noted these conditions have become more frequent in the last 5–10 years.

FGD participants noted that untimely rains significantly affected mahua production, which was one of the important sources of income for local communities, especially forest-dependent groups like Parhaiya. They stated that proper flowering of mahua needed warm weather; any rain would adversely affect production. Less or untimely rain was also reported to significantly affect production of fruits like mango, kendu and amla. Trees that previously produced two quintals of mango yielded only 50 kilograms in recent years. Many amla trees in the forest reportedly died due to severe water scarcity.

Due to reduced production of kendu (ebony) fruit and ber, monkeys have begun feeding on mahua flowers, leading to a significant loss of income for communities. Previously, communities said, monkeys had not consumed mahua flower but had now shifted their diet due to lack of food in the forest. Changes in precipitation patterns were reported to be significantly affecting returns from the collection of kiran and koya fruits from forests in Manatu area. In addition, extended misty weather had led to more frequent insect infestation.

Members of the Turi tribal community reported significant loss of bamboo in the Manatu area. Bamboo was a primary source of livelihood for these communities, who are traditional bamboo artisans. With no agricultural land of their own and no farming skills, this tribal community is facing a difficult time with reduced bamboo production. In recent years, they had to buy bamboo elsewhere to eke out a living, earning significantly lower income than before. Respondents from the Manatu area said that bamboo has completely disappeared from the forest and that this had significantly affected the Turi tribe.

While lack of sufficient rain might have less effect on production of fruit trees, respondents noted, tubers and roots that grow inside the soil needed rain to flourish. For example, *gethi kanda* (a type of yam) has significantly deteriorated both in terms of quantity and quality due to lack of timely rainfall. Women from the Manatu area reported that roots and tubers were previously abundant in the forest and that this had been a source of both food and cash income.

• **Impact on water availability:** the community reported that water scarcity has resulted in considerable hardships. This includes fulfilling basic necessities of life like drinking, cooking, bathing and cleaning. One respondent commented: "There is no water in the river. It used to be there earlier. For the last 10–15 years, there has been a shortage of water. Earlier there were small streams which had water all the year round. These days everything has dried up. The amount of produce (in forest) has reduced as compared to earlier days due to this change in weather."

Lack of resources and infrastructure at local level to cope with climate extreme events

Despite periodic climatic events, most study villages largely lacked an adequate strategy and resources to manage the threats.

In Kendrapara, people were discontent with the infrastructure for coping with disasters like cyclones and floods. In almost all villages, community members believed that additional infrastructure should be provided, including flood shelter buildings, irrigation facilities, community halls and multiple drinking water sources. During discussions, it was found that government and other agencies had distributed dry food and relief materials after natural disasters. But these are not meeting the needs of affected people. Water shortages for both irrigation and drinking persist.

Engagement of local institutions in disaster management

Early information on various climatic parameters and threats plays an important role in safeguarding people's livelihoods, lives and assets. It has been more effective through various local governance institutions like Gram

Sabha, village committees, Panchayat Raj institutions and self-help groups (SHGs). However, findings from the study villages show that these institutions have been far from successful in meeting community needs.

In Kendrapara, village disaster management committees exist at the Panchayat level to enhance community-level resilience. But almost all people interviewed were unaware of them. Even those who knew of them were largely ignorant of their objectives and functions.

No meeting or discussion on issues of climate change and migration has ever taken place either in Gram Sabha or in any Panchayat-level forums in any of the study villages in Kendrapara. But block-level officials inform the villagers through microphone prior to any cyclone. Weather and climate information is provided through TV channels.

Indicators for households under stress

Households can only cope with vulnerability stressors, both environmental and others, for so long. At a certain point, stressors start affecting households, which devise coping strategies. In both locations, households said being unable to buy food was a stress indicator (62% in Kendrapara; 72% in Palamu). Other stress indicators include being unable to send children to school or to afford healthcare services (see Figure 6).

Coping strategies

We observed that households had been coping with various climate- and non-climate-related stresses and shocks for many years. Strategies included migration, consumption loans, distress sale of assets, livelihood diversification and reliance on formal or informal credit markets. Unfortunately, these coping strategies were less fruitful in producing sustainable livelihood outcomes.

In Kendrapara, households adopted several strategies, including eating less expensive food (33%), eating less food (23%), borrowing money (15%) and buying fewer non-food items (13%). Other responses included taking children out of school and spending from savings. During discussions, communities shared a few additional coping strategies: improving irrigation and seeking work outside the village (see Figure 7).

The community believed that climate change indirectly triggers migration, thus making people prone to trafficking. The absence of non-farm employment and low agricultural production due to natural calamities have resulted in more seasonal migration. Due to adverse climate events, farmers and fisherfolk in the nearby villages were switching to other income-earning activities. These included wage-based labour in construction sites and porter work in Paradeep Port.

Survey findings showed that households in Kendrapara strongly advocate working outside the village as a time-tested and successful coping strategy to environmental stressors. Other successful strategies are crop diversification, cultivation of climate-tolerant crops and planting trees around the home.

In Palamu, apart from migration, the coping strategy is similar to that in Kendrapara. The top three responses were eating less expensive food (18%), eating less food (11%) and borrowing money (7%).

Figure 6. Indicators of a household under stress (see Table 10 of Annex 3)
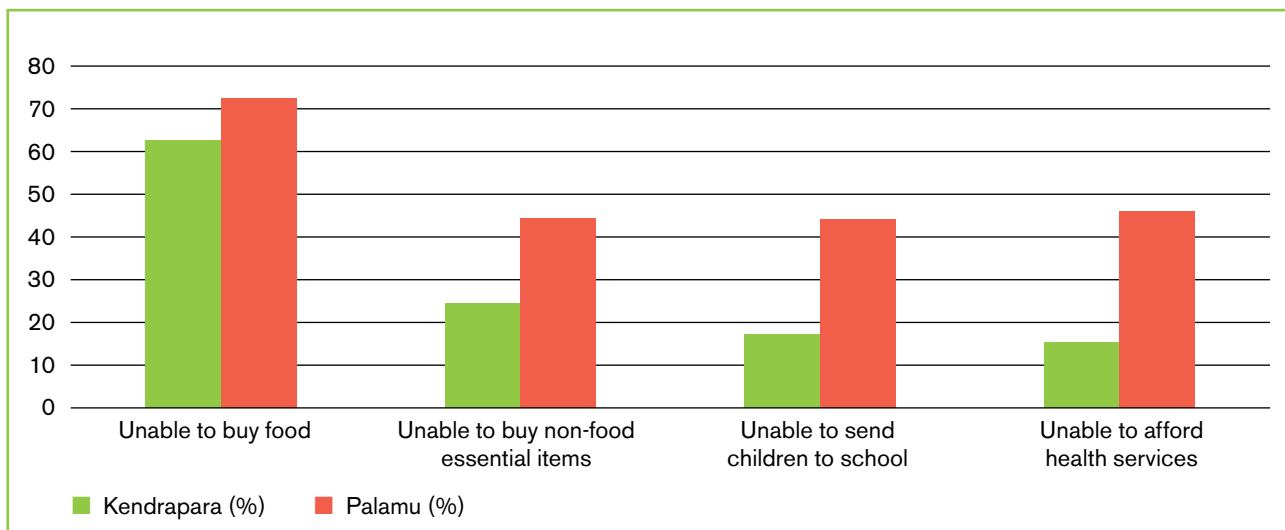
Figure 7. Coping strategies adopted by communities (see Table 11 of Annex 3)
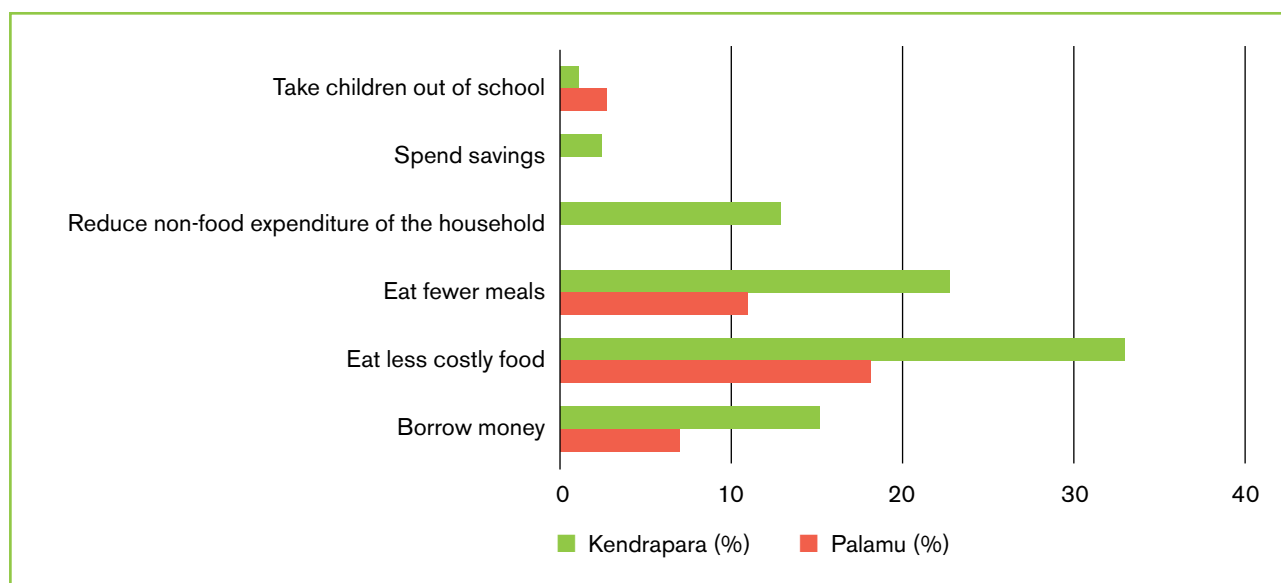
Most households (83%) borrowed from informal moneylenders. Friends and relatives were the second major source of borrowing (42%). A small number of respondents received loans from SHGs (5%). None of the sample households borrowed from banks. FGD respondents said that SHGs charge interest at 24% per annum for loans, while informal moneylenders charged an exorbitant 120%.

During the lean season, many Palamu households depend on minor forest produce for subsistence and/ or some kind of supplementary income. The most destitute gather wood for sale. A major part of the wood that head loaders and bicycle loaders carry away is destined for urban markets. Many women were reported to be engaged in collecting firewood for sale in nearby markets. This trade involves much drudgery and carries great risk but brings little economic benefit. Unfortunately, dwindling forest resources and reduced availability of non-timber forest products have seriously undermined this strategy.

Other survival strategies include eating small quantities of broken rice and wild food (including mahua and chakora leaves and a yam called gethi), and spending less on non-food items. The FGD and KII respondents reported they had hardly any assured source of income to spend on non-food items.

Elderly people from Manatu block recalled a severe drought in 1966–1967 when not a single crop could survive in the area. But, they said, there was abundant forest produce. As a result, people had coped by eating tubers and roots. In recent years, forest resources have significantly declined, undermining a crucial cushion that supported people in times of distress.

With the introduction of paddy, especially its distribution through the PDS, cultivation of millets/coarse crops was observed to be declining. Millet crops native to these areas are climate resilient. Chainpur participants reported that people were tricked into adopting newer varieties of paddy for higher production. But paddy cultivation was declining due to increasing costs and gradual disinterest in agriculture, especially among youth.

3.2 Social protection coverage is low in both study areas

Social protection schemes are expected to provide a safety net to vulnerable families during crises, including climate stress. We found coverage of most social protection schemes among respondents to be low in both study areas (Figure 8). But coverage was high in both locations for documents that ensure access to entitlements under social protection schemes and access to institutions and services such as Aadhaar cards, ration cards and voter cards.

Aadhaar card: most respondents in both locations had an Aadhaar card (83% in Kendrapara; 94% in Palamu). But more people in Palamu (56%) used the card during COVID-19 than in Kendrapara (22%). This may be due to the fact that migrants from Palamu had to walk all the way from their destinations back to their villages during the COVID-19 lockdown; identity checks at numerous points may have been made. Most migrants from Kendrapara stayed at the destination during the lockdown.

Ration card[10]**:** while most respondents in both locations had a ration card (76% in Kendrapara; 87% in Palamu), few respondents said they used it to buy food grains (17% in Kendrapara; 20% in Palamu). But PDS coverage was said to be high in Kendrapara at 68%, while it was negligible in Palamu (0.47%).

Bank/Jan Dhan account[11]**:** more than 70% of respondents in both locations said they had a bank account.

MGNREGS job card: considering the vulnerability of the households, coverage of the MGNREGS job card was low in both locations (33% in Kendrapara; 42% in Palamu). While all who had a job card could work prior to COVID-19 in Kendrapara, the coverage was less than 15% in Palamu. After COVID-19 and during the lockdown, under 9% of respondents in both locations could get work under MGNREGS.

BOCW card[12]**:** only around 6% of the respondents in Kendrapara had got a BOCW card, while the coverage was nil in Palamu.

eShram[13]**:** nearly 33% of Palamu respondents had registered under the eShram portal while none had done so in Kendrapara.

Figure 8. Coverage of social protection schemes in the study areas (see Table 12 of Annex 3)
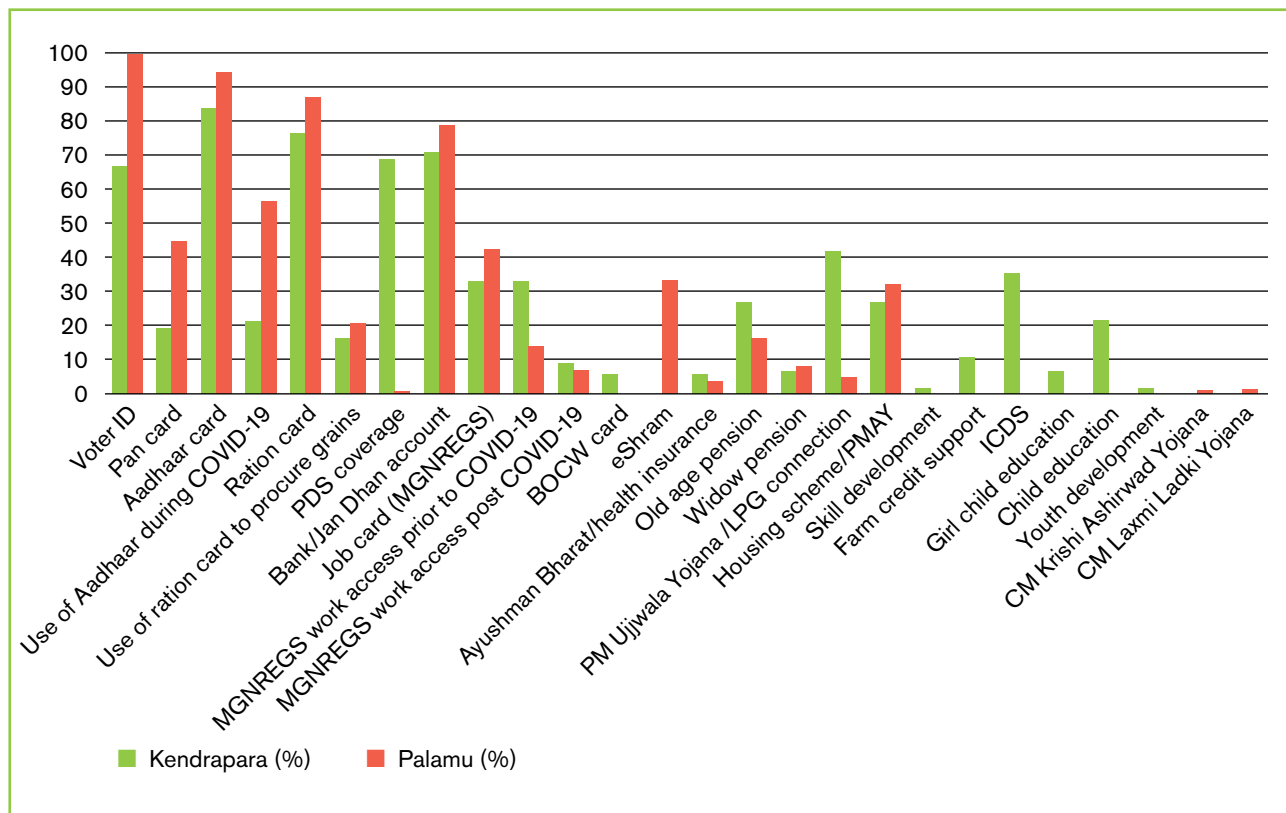
[10] A ration card is the official document issued by the respective state governments. The card enables eligible households to buy food grains at subsidised rates under the National Food Security Act. The document serves as a common form of identification for many individuals. These cards are issued after the state governments identify eligible households for purchasing food grains at subsidised rates from the PDS. https://www.bankbazaar.com/ration-card/types-of-ration-card.html
[11] Pradhan Mantri Jan-Dhan Yojana (PMJDY) is the National Mission for Financial Inclusion to ensure access to financial services — namely, a basic savings and deposit account, remittance, credit, insurance or pension — in an affordable manner. Under the scheme, a basic savings bank deposit account can be opened in any bank branch or Business Correspondent (Bank Mitra) outlet, by persons not having any other account. https://www.pmjdy.gov.in/scheme
[12] The Building and Other Constructions Workers (BOCW) Act is social welfare legislation that aims to benefit workers engaged in building and construction activities across the country. https://www.shrm.org/resourcesandtools/legal-and-compliance/employment-law/pages/india-construction.aspx
[13] Self registration for unorganised workers. https://eshram.gov.in/index

3.3 Migration trends in Odisha and Jharkhand

Odisha: in 2020, during the reverse migrant flow induced by the COVID-19 lockdown, around 600,000 (six lakh) migrant workers registered with the state government portal to stay in institutional quarantine after their return (Rahman, 2020). Most migrant workers are from Odisha's coastal region. It accounts for half of total migrants working in the textile, cotton ginning, carpet, diamond polishing and construction sectors (Orissadiary.com, 2018; The Pioneer, 2018).

One study (Sharma et al., 2014) found the percentage of household migration is higher in the coastal region. This suggests a large number of households have one or more members migrating from the region (Rahman, 2020). The region is also well known for its skilled workers in the construction sector, namely plumbers and masons. Within the coastal region, the districts of Kendrapara and Khorda had a higher percentage of household migration.

A 2013 report (Shetty, 2019) found that climate change was disproportionately affecting households headed by women in the state: 80% were getting fewer work opportunities and 70% reported increased hardship and longer working hours during and after disasters, when jobs were scarce.

INDIA'S FIRST CLIMATE REFUGEES

Kendrapara in coastal Odisha witnessed one of India's first cases of planned relocation due to slow shoreline changes and coastal erosion. The disappearance of Satabhaya villages (locally known as seven villages) between the 1980s and 1990s due to cyclones and sea-level rise sparked involuntary displacement and migration. When the last village disappeared in 2011, the state government started to plan relocation. In 2016, 571 families from Satabhaya villages were moved 12 kilometres to the new Bagapatia resettlement colony. The families, described by some as India's first 'climate refugees', were compensated with agricultural plots, housing and other facilities. In 2021, people were migrating from Bagapatia as a livelihood coping strategy as farm lands in the village were being either sand cast or salinated, pushing several families to the brink of poverty. Of 4,000 in the villages, 1,700 — both men and women — have migrated to Kerala and Tamil Nadu to work in the plywood (men) and textile (women) industries (Panda, 2020; Barik 2021; Yashwant and Faleiro, 2021).

Jharkhand: the Economic Survey of India 2016–2017 showed Jharkhand as a major source of out-migrating workers to different parts of the country (both for rural and urban areas). The survey revealed that Jharkhand lost about 5 million working-age people to migration between 2001 and 2011 (about 5% annually). Several studies show that people of Jharkhand migrate to both rural and urban areas of different states.

With growing new urban agglomerations and resulting growth in infrastructure like housing, roads and bridges, migrants from Jharkhand are filling the demand for construction labour. On the other hand, migrants are also attracted to rural farm sectors of states like Punjab, Haryana and Maharashtra where rural wages are much higher than those in Jharkhand. Jharkhand has also witnessed the migration of people outside the state to work in brick kilns. It has also been seen as a dominant source of domestic maids and servants, especially to Delhi and the adjoining national capital region (Kumar and Deogharia, 2017).

Jharkhand also figures among the list of states where short-term seasonal and temporary migration is rampant, typically from rural to urban areas. The STs and SC, who are among the most deprived of society, still migrate on a large scale from this region. A large number are seasonal migrants, leaving home in the agriculturally lean season and coming back to the village during the peak agriculture season. These communities, over the years, have been the target of land and forest alienations. This trend, coupled with their socially disadvantaged status, has resulted in their large-scale displacement since independence.

Palamu ranks third in migration in Jharkhand. According to the primary data collected by the State Migrant Control Room managed by PHIA Foundation, 216 women and girls migrating from Palamu district were either stranded or had sought help for rescue. Low rainfall and extreme drought have been compelling people to migrate to other states. Their destinations are mostly Punjab, Haryana, Delhi, Mumbai, Kerala, Raipur and Bangalore. Women migrate to work in garment factories in Tamil Nadu and Chennai. Human trafficking occurs at a local level, within a state or transnationally.

FGD respondents reported that inter-state migrant workers largely came to host states through agents, contractors, recruitment agents, social networks and friends. Recruitment agents who operate at the village are a catalyst for migration of workers to these states. They use several promotional strategies such as advance payment, facilitation of migration process, free travel to states and free accommodation in host states. In many cases, the money is paid to the family of the migrant long before they depart from their homes. Agents also pay travel costs and other incidental expenses. Once they arrive in the host state, migrants are allocated to the construction site or workplace. Many labourers are helped by their friends and relatives from the same region to find jobs. When employers tell an established migrant worker about the need for a

certain number of workers, the latter finds them among newly arrived migrants from their native place.

Migration from the study areas

Migrants in study sample: overall, 76% of households covered under the study were migrants. The migrant respondents comprised 140 households (67%) in Kendrapara and 149 (71%) in Palamu.

Education and age profile of migrants: in Kendrapara, males with primary and secondary education migrate more than those with no education and higher education. Female migrants mostly move with their families. FGDs and KIIs revealed that young boys and girls from poor and vulnerable households migrate to other states after completing their education (matriculation, Grade 12 and graduation). Sometimes underaged children also migrate and send remittances to their families. In Palamu, where 80% of respondents were illiterate, education did not play a role in migration.

Age profile of migrants: in both study locations, around 81% of the migrants were younger than 45 years of age. In Palamu, nearly 2% of migrants were younger than 14 and 5% younger than 18. In Kendrapara, the youngest migrant was 15 years old, while in Palamu, the youngest was 8 years old.

Nature and duration of migration: in both study areas, the dominant form of migration was seasonal.[14] Around 85% of migrants in both Kendrapara and Palamu migrated once or twice a year for less than six months (Figure 9).

In Kendrapara, community discussions indicated the duration of migration depends on household-level factors. These include availability of agricultural land, alternative source of income, economic conditions, availability of young people, ease of communication to the migration destination and presence of intermediaries. Some migrate after harvesting; others migrate after planting paddy crops.

In Palamu, the community interactions said that people migrate to Daltonganj town, the district headquarters, to work in brick kilns. They stay five to six months at a stretch every year.

Destination: inter-state migration was common in both study locations (Figure 10). Nearly 45% from Kendrapara and 74% from Palamu migrated to other state capitals or major cities. While migration from Palamu was largely within North India, people in Kendrapara preferred cities in South India.

In Kendrapara, there was also sizeable migration to the district headquarters (37%) and to nearby villages (16%).

- Among the non-trafficked migrants, Tamil Nadu is a major destination (26%), followed by Kerala (21%), Mumbai (12%) and Bangalore (10%). The rest of the destinations are Hyderabad (6%), Pune (4%), Maharashtra (3%) and Andhra Pradesh (9%). Three per cent of non-trafficked migrants also go to other cities in the state like Baleshwar, Bhubaneshwar, Cuttack and Paradip.

- The trafficked migrants travel to Kerala (32%), Hyderabad (16%), Andhra Pradesh (16%) and Bangalore (11%), while 5% travel to each of Qatar, Dubai, Karnataka and Mumbai.

Figure 9. Duration and nature of migration (see Table 13 of Annex 3)

Odisha (%) Jharkhand (%)

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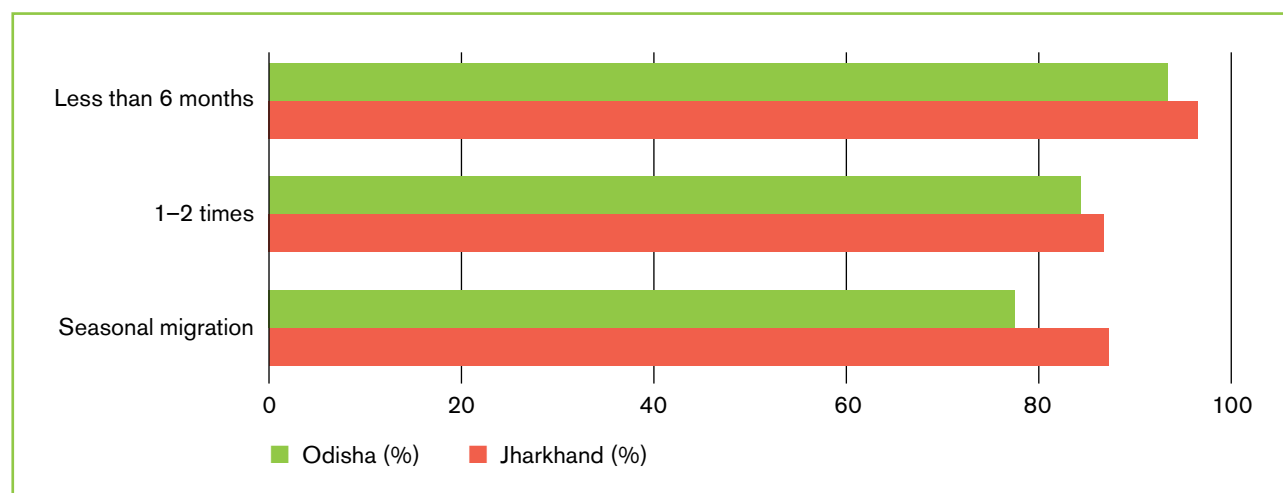
[14] Seasonal migration is defined as "the movement of the household members who stay away from the village or town for employment or in search of employment for a period of 30 days to six months during last 365 days" (Padhan, 2021).

Figure 10. Migration destination (see Table 13 of Annex 3)
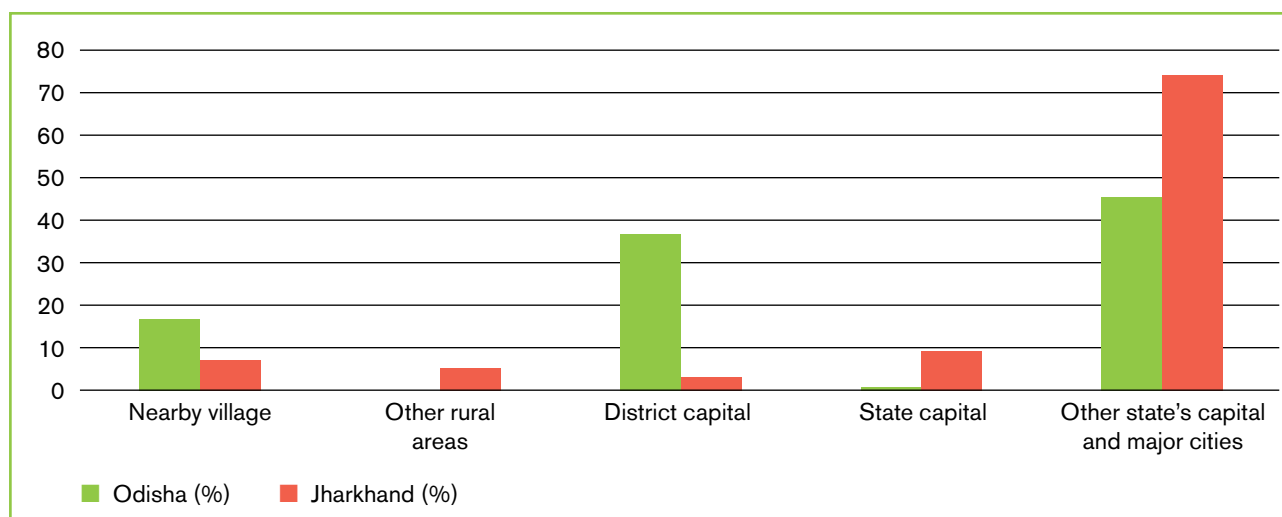
In Palamu, Haryana (32%), Bihar (24%), Rajasthan (12%) and Punjab (11%) were the most preferred destinations.

- Non-trafficked migrants were found to migrate predominantly to Haryana (36%), Punjab (20%), Rajasthan (13%) and Jharkhand (10%).

- Trafficked migrants reported Bihar (40%), Haryana (29%) and New Delhi and Rajasthan (13%) as major work destinations.

- Migration to southern states was reported to be much less frequent than to northern states. FGD and KII respondents also said Kerala, Tamil Nadu and Andhra Pradesh were migration destinations.

- People from Manatu area were mostly found to migrate to Uttar Pradesh and Punjab. FGD respondents from Chainpur reported to migrate to places near Palamu district.

Reasons for migration: in both study locations, most people migrated for employment (80% in Kendrapara; 51% in Palamu). Either they could not find work at home or they had lost their livelihoods, which respondents attributed to climate impacts. The two next major reasons for migration differed between the two locations. In Palamu, the community cited healthcare needs in the household (25%) and household-level debt (11%) as reasons for migration. Meanwhile, Kendrapara respondents cited housing (which could be due to destruction of houses from impacts of cyclones and floods) and education (Figure 11).

Figure 11. Reasons for migration (see Table 13 of Annex 3)
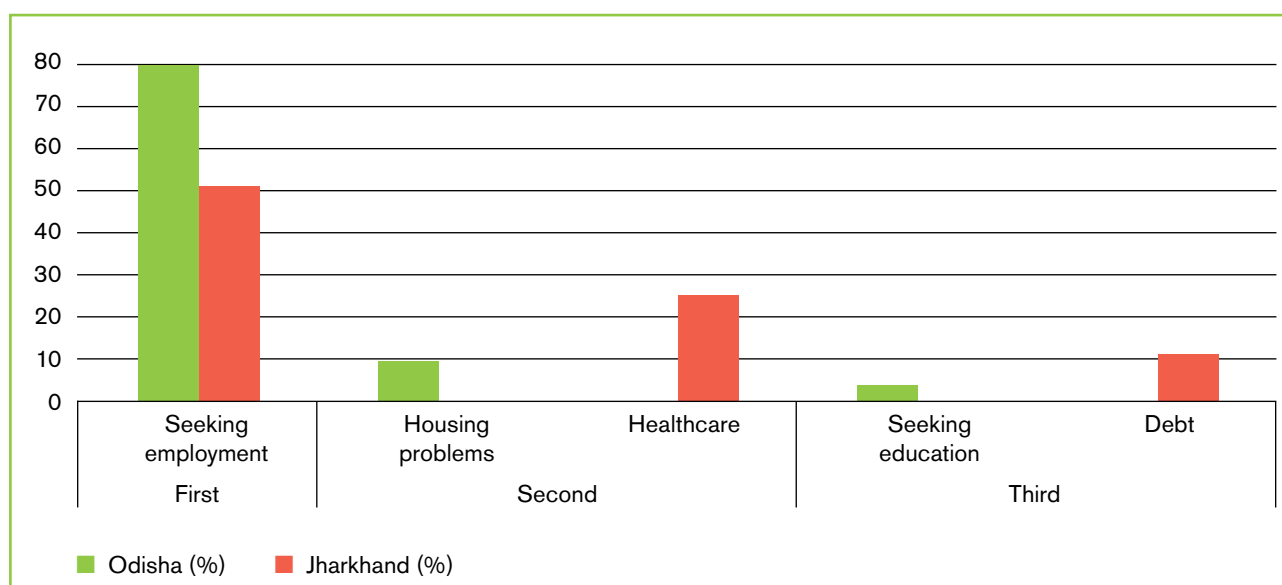
Nature of work: most migrants from both study locations are engaged as wage labourers in construction (25% in Kendrapara; 32% in Palamu). Those from Kendrapara also work in factories (24%) and in the climate-sensitive sectors of fishing, livestock and crop farming (25%); 65% of migrants from Palamu work as wage labourers in road laying, brick kilns, restaurants, hotels, supermarkets, farms and factories.

In Kendrapara, community-level discussions revealed that male migrants from the state generally work in brick kilns, construction sites, cotton fields, garment factories and water pipelines. Conversely, females are mainly engaged in stitching and as domestic helpers. Children also sometimes accompany migrating households to the workplace. They become an additional source of income for families who migrate to the cotton fields. People who migrate for work other than agriculture leave their children with other household members.

In Kendrapara, most non-trafficking migrant households worked in construction (25.4%), in factories (18%) or in the climate-sensitive sectors of fishing, livestock and crop farming (26%). Most trafficked migrants worked in factories (61%) and construction (22%).

Prior to COVID-19, the employment pattern was slightly different; previously, most had worked in construction (45% of non-trafficked migrants; 39% for trafficked migrants).

Job training: in both locations, migrant respondents reported they did not receive any on-job training at their work destinations (95% in Kendrapara; 88% in Palamu).

Choice of migration destination: recommendations from intermediaries for the place of migration was a key consideration for migrants in both Kendrapara (23%) and Palamu (38%). But in Kendrapara it was not among the top reasons (see Figure 12 for the choice of migration destination). Respondents preferred destinations where family members were already present (34%) and social networks were already strong. In Kendrapara, employment opportunity (21%) and presence of friends (22%) were the other two top reasons for preferred migration destination. In Palamu, respondents cited choosing destinations where friends (27%) and family members (15.81%) were already working as the other prominent reasons (see Figure 13 for the choice of migration destination).

Figure 12. Migration destinations from Kendrapara

Trafficked migrant   Non-trafficked migrant
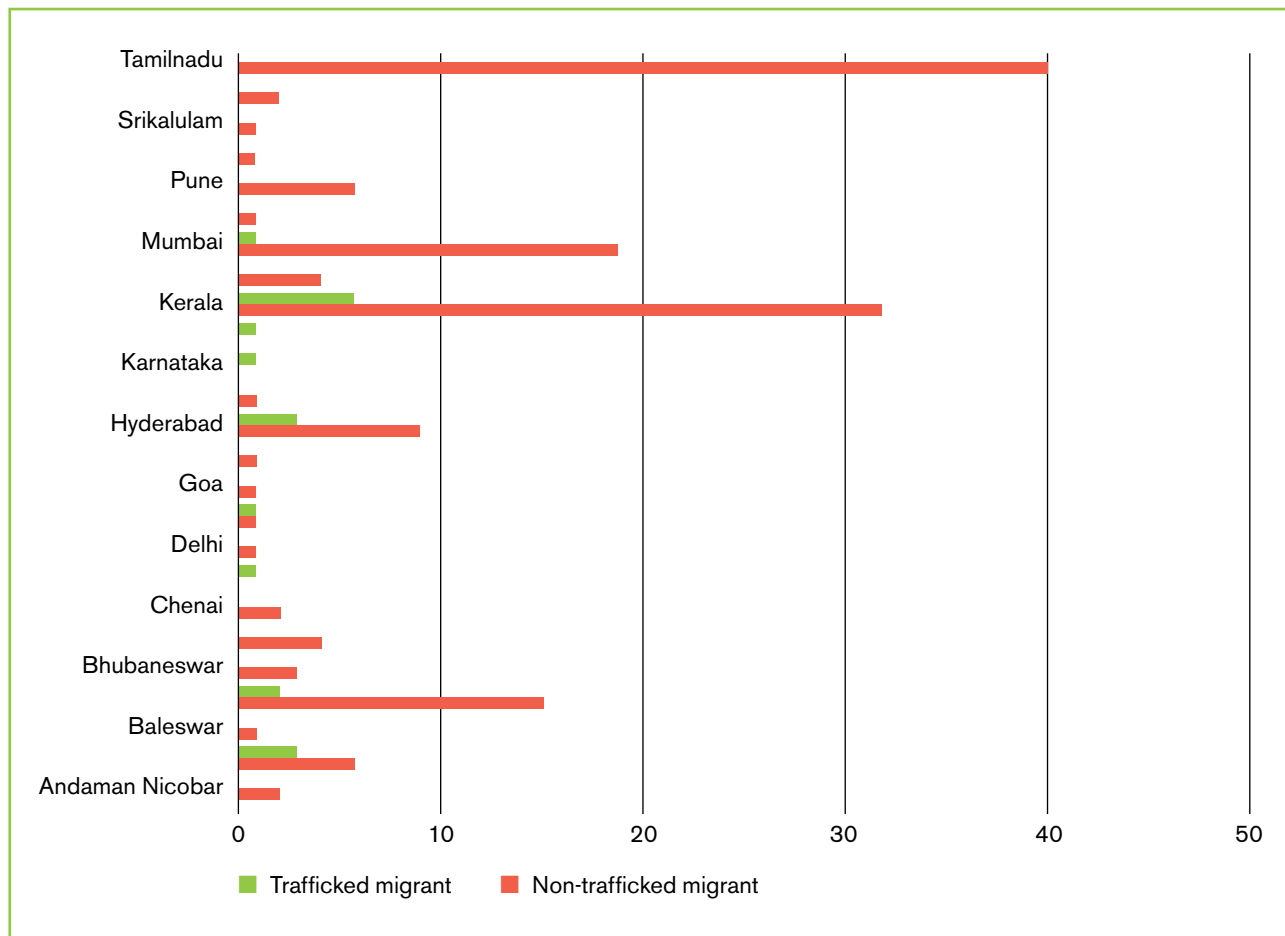
Figure 13. Work destinations for migrants from the study area in Palamu

Legal counselling: legal counselling by migrants was found to be higher among trafficked respondents. Nearly 97% of the trafficked household respondents in Palamu and 39% in Kendrapara had sought legal counselling. The higher percentage in this category suggests that trafficked migrants were aware of the serious challenges they would face at their workplace.

Registration with Labour Department: more respondents in Palamu registered with the Labour Department than in Kendrapara. Around 47% of respondents (and 97% of trafficked households) in Palamu had registered with the Labour Department compared to only 17% in Kendrapara.

Shram Pehchaan card[15]**:** the Indian government has created a portal — eShram — a centralised database of all unorganised workers, including migrant workers, nested within the Aadhaar card. This programme intends to improve the efficiency of social security schemes for unorganised workers.

- In Palamu, 46% of respondents and 96% of trafficked households had registered with the eShram portal and received a card from the government.

- In Kendrapara, registration among respondents was lower; only 13% of total migrants and 39% of trafficked migrants had an eShram Pehchaan card.

Registration with welfare board or association: only one person was found registered with a welfare board or association in Kendrapara. Meanwhile, nearly half of respondents said they registered with other welfare departments.

Remittances: in both locations, a high percentage of respondents sent remittances home every month, mostly through banks. Less than 15% sent remittances through fellow migrants who were visiting their home villages.

Remittance incomes: value of monthly remittances sent by Kendrapara migrants (₹11,032) is more than double that sent by Palamu migrants (₹5,160).

- In Kendrapara, the average remittance sent home by a trafficked migrant at ₹10,639 is 57% higher than that sent home by non-trafficked migrants at ₹6,787. While the remittance for the non-trafficked migrant is 62% of monthly earnings, it is 95% of the monthly earning for a trafficked migrant.

- The average monthly remittance sent home by a trafficked migrant from Palamu at ₹5,551 is 17% higher than that sent by a non-trafficked migrant at ₹4,740. Trafficked migrants send back 73% of their earnings compared to 50% from non-trafficked migrants.

Use of remittances: in both locations, remittances meet consumption needs and day to day household expenses and healthcare. There is no evidence of investment in promoting economic activities or assets.

- In Kendrapara, all respondents said they spent remittances on consumption needs. Over half (55%) of non-trafficked migrant households and 39% of trafficked migrant households said they used the money for household items (furniture, clothes, etc.). Nearly 31% of migrants and 28% of trafficked households used remittances for education.

  Healthcare is a major expense from the remittance share: 78% of trafficked migrant respondents and 48% of non-trafficked migrant respondents said they spent money on healthcare. As healthcare needs are immediate, healthcare spending can be one of the key reasons for indebtedness and bondedness of trafficked households.

- In Palamu, remittances from migrated household members were spent on household needs (60%), healthcare (56%), family event organising (9%) and repaying loans (2%).

  Further analysis showed that most trafficked migrant families spent remittance money on healthcare (82%) compared to only 56% of non-trafficked migrants. Health emergencies make households highly vulnerable and may lead to a tough decision to accept being trafficked.

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[15] Workers registering with the eShram portal will get an insurance benefit of up to ₹2 lakh. If the worker dies in an accident or becomes completely physically disabled, a sum of ₹2 lakh is paid out and in case of partial disability ₹1 lakh is paid out.

3.4 Human trafficking: empty promises and shattered dreams

Human trafficking involves the use of force, fraud or compulsion to obtain some type of labour or commercial sex act. Trafficking may occur for a variety of reasons, including psychological or emotional vulnerability, economic hardship, lack of a social safety net, natural disasters or political instability.

Odisha: the National Crime Records Bureau data for 2019 and 2020 show Odisha had 876 and 741 trafficked victims, respectively, which is the second highest in the country after Assam. The trafficking cases were from as many as 26 districts in the state and included the 4 coastal districts of Balasore, Kendrapara, Ganjam and Puri (Patro, 2021).

Media reports suggest that child trafficking has risen in Odisha, especially in the tribal-dominated districts, following resumption of train services after the COVID-19 lockdown (Mohanty, 2021).

Findings from a study on women trafficking in the Ganjam district of Odisha found that job opportunities and personal and economic circumstances were reasons for being trafficked. The study also found that most women and girls get into trafficking without their consent and are compelled to continue due to poverty and lack of education. These women and girls undergo hardships to meet the basic needs of their family.

In some cases, women were cheated through false promises of love/marriage and job opportunities. However, in most cases, the study found that women and girls entered the business with their own consent because of high aspirations to live a better and comfortable life in big cities and to earn a name and fame. The victims were abused physically, psychologically, sexually and verbally. Some of them were exploited and cheated as they were not paid in full or even not paid at all. In some cases, work conditions were found to be pitiable.

The victims were rescued by the police, non-governmental organisations (NGOs) and community-based organisations (CBOs). In some cases, women rescued themselves by accepting help from others. The study also found that government, NGOs and, in some cases, CBOs provided the main source of aid and assistance.

- **Kendrapara:** the study identified trafficking cases through FGDs, KIIs and the household survey. Migrants were reluctant to express their own harassment at the destination. After several rounds of discussions, they identified the following reasons for becoming victims of human trafficking:

  – No one from the area gets registered for migration, which boosts trafficking cases.

  – There is no written agreement or contract by the employer/contractor with migrants. Respondents shared stories of false promises of well-paying jobs, low wages and unpaid wages by the intermediaries/agent.

Jharkhand: due to extreme poverty and high levels of vulnerability, large numbers of young girls and women are migrating from Jharkhand. The girls are mostly taken for domestic help, forced labour, bearing children, begging or for inducing early sexual maturity. In cities like Delhi, a number of illegal placement agencies have cropped up. These agencies take advantage of legal loopholes and traffic innocent girls in the name of providing employment.

Palamu is highly prone to trafficking for child labour in the carpet industry in Uttar Pradesh. Jharkhand is also a transit area for trafficking girls from Chhattisgarh. The traffickers or the placement agents of the tribal states like Chhattisgarh, Jharkhand, Odisha and West Bengal work in a close network.

Trafficking of children from Jharkhand mostly takes place through well-organised placement agency rackets in Delhi. These placement agencies supply tribal children to homes in the national capital region consisting of Delhi, Faridabad, Gurgaon and Noida. These agencies mostly target children aged 11–16 as they remain tight-lipped even after exploitation. The trafficked victims are kept in congested rooms, barely fed enough for survival until they are placed somewhere. The luckier ones land in a 'kothi' as domestic help. The others are sold in marriage or to a brothel where they suffer never-ending abuse of all forms.

Abuse: during the FGDs, researchers came across at least two instances of adolescent girls being trafficked under the pretext of work. These girls were kept as household maids in Delhi for more than five years until they escaped and returned to their village. Over the years, the girls were not paid anything and their pleas for getting their dues fell on deaf ears. At least one girl was sexually molested by a trafficker. In Ulwar village, at least two persons who migrated have not returned in

15 years and their family members did not know their whereabouts. Other migrants from Ulwar who worked in a rubber processing factory resorted to beating up the contractor to get their wages.

INCIDENCE OF SEXUAL ABUSE

Suman (name changed), 22, from Manatu, was working as a domestic maid with a household in Noida. When she understood from her family that her young sister Nisha (name changed) was missing, Suman contacted the placement agency that had provided Nisha with work. But Suman was raped by the placement agents and told to keep quiet or face violence. She too was kept in confinement.

She managed to escape from the house and contact the police by dialling the emergency number 100 for the police. However, one Prabha Muni appeared before the police claiming to be a social worker and asked for her custody. The local police station, without any verification, handed her over to the lady. Prabha Muni, too, was a trafficking agent who started torturing Suman. One day, Suman managed to call her brother and narrated her ordeal. Her brother then contacted a local NGO, which later rescued her. After rescue, she was kept in a shelter home in Delhi. It's still not clear what happened to Nisha.

Child trafficking: it was reported that child trafficking is rampant in remote pockets of Manatu. Traffickers target the most vulnerable and poorest families who are forced to leave their children. Through FGDs and KIIs, the researchers learnt children were recently rescued from the railway station and bus stand with the help of civil society initiatives. In both Manatu and Chainpur areas, owing to extreme deprivation, SC and families from Particularly Vulnerable Tribal Groups (PVTGs)[16] actively support trafficking of their daughters. Disappearances only come to light many years after girls have migrated. Often, their fate remains unknown. Family members choose to keep silent as long as they get their regular supply of money. They are also silent as they fear reprisal from intermediaries.

Discussion with a local childline official revealed they had limited resources to tackle the growing menace of trafficking. Also, PVTG communities who live in the most remote pockets and in extreme deprivation are prime targets for human trafficking. The official reported that family members of the trafficked children who receive advances from traffickers would not come forward to disclose their cases or file complaints with the police.

RESCUE OF ADOLESCENT GIRL CHILD LABOURERS

The State Migrant Control Room rescued seven adolescent girls from Palamu. This group is managed by PHIA Foundation in association with Department of Labour, Employment Training and Skill Development. A contractor to Tamil Nadu took the girls on 24 August 2021 for construction work. According to an anonymous source, the girls were forced to work long hours (6am to 11pm), never got paid and were not fed a proper diet. The team quickly coordinated with the district administration and asked for help. The labour superintendent, CWC officer and local police went to the place where these girls were kept. The contractor was arrested. The girls were brought back safely to Jharkhand and, after complete verification, were handed back to their parents.

Awareness about trafficking: in both Kendrapara and Palamu, almost all respondents in the trafficked and non-trafficked migrant categories were familiar with the concept of trafficking.

- In Kendrapara, forced domestic help is the largest response category (77% overall), followed by debt migrants (16%) and bonded labour (7%). Interestingly, a higher percentage of trafficked respondents (27%) understand bonded labour than other categories (less than 7.5%).

- In Palamu, debt-financed migration and bonded labour were the two predominant types of trafficking practised in the study area.

  – In debt-financed migration, migrants receive advances from the recruitment agent before leaving for the work destination. In addition, agents and/ or employers pay recruitment costs. The agents recover advances and recruitment costs through salary deductions during the workers' first few months of employment in the destination city (Goh et al., 2016).

  – Bonded labour in India is defined as a system of forced labour caused by a debt or by social custom or obligation. In this system, debtors can lose freedom of movement, and/or freedom to look for other work. They may also be subjected to a reduction in wages and/or receive wages under market rates (Premchander, Pramella and Chidambaranathan, 2014).

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[16] According to Vikaspedia, tribal communities are often identified by some specific signs such as 'primitive' traits, distinctive culture, geographical isolation, shyness to contact with the community at large and 'backwardness'. Along with these traits, some tribal groups have specific features such as dependency on hunting, gathering for food, pre-agriculture level of technology, zero or negative growth of population and extremely low level of literacy. These groups are called Particularly Vulnerable Tribal Groups. https://vikaspedia.in/social-welfare/scheduled-tribes-welfare/particularly-vulnerable-tribal-groups

3.5 Human trafficking trends: migration increases vulnerability

Migrants become vulnerable to trafficking and suffer human rights violations. We asked a series of questions to identify migrants who were in trafficking or a slavery-like situation. This related especially to forced labour, bonded labour, debt bondage, wage withholding and exploitative working conditions. A higher percentage of migrants from Palamu end up as trafficking victims than from Kendrapara (Figure 14; see also Annex 3).

TRAFFICKED MIGRANTS

The percentage of trafficked migrant households in Palamu (slow-onset event area) is much higher at 42% than in Kendrapara (rapid-onset event area), where it is 16%.

Palamu suffers from slow-onset events like drought, which may explain the different trends in the two locations. Areas with slow-onset events often do not get the same level of relief and support as rapid-onset event areas like Kendrapara, which is exposed to floods or cyclones. The government has better cyclone and flood early warning systems but none of the states have drought early warning systems. For moderate droughts, states have to use their own budget for relief operations. As a result, they may wait until the drought becomes severe so they can qualify for relief from the central government under MGNREGS. With many droughts either unreported or declared late, communities can be forced into distress migration to survive and feed their families.

Figure 14. Trafficking trends in study area (see Table 14 of Annex 3)

Odisha Yes(%) Odisha No (%) Jharkhand Yes (%) Jharkhand No (%)
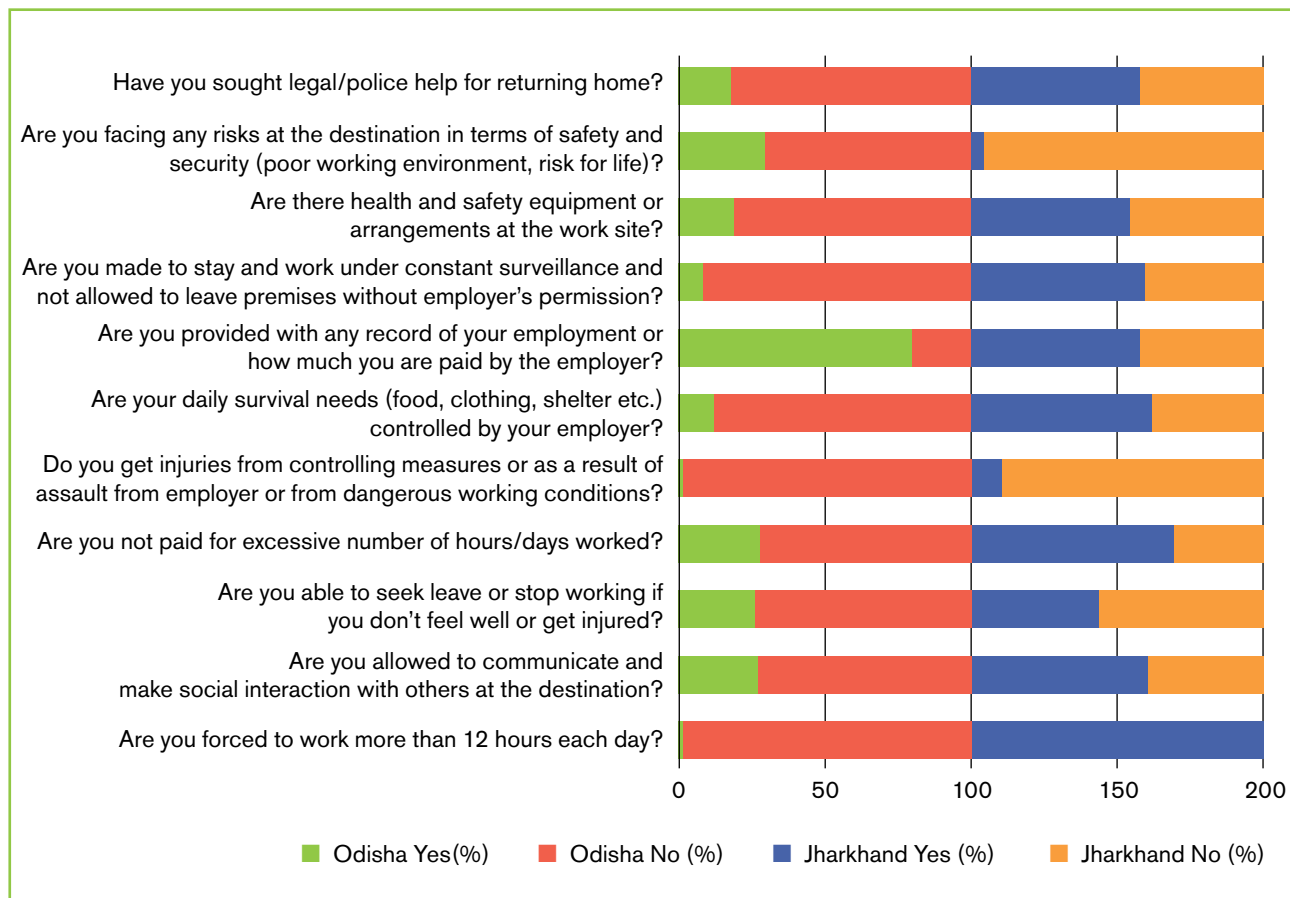
Working conditions for migrants

Number of working hours: this is an important indicator to determine the health conditions of workers. Working more hours in heat and difficult sites amplifies the severity of working conditions. There is every possibility of emerging health problems while working such long hours (John et al., 2020).

- Working more than 12 hours a day: less than 2% of migrants from Kendrapara said this was the case compared to more than 58% of migrants in Palamu.

- Working excessive hours (more than 8 hours a day): in Kendrapara, nearly 99% said they worked excessive hours compared to around 68% of migrants in Palamu.

- In Palamu, 95% of trafficked migrants reported working excess hours, indicating higher levels of oppression. Most FGD and KII respondents said migrants had to work for long hours. They had to report to factories at 8am. In the case of harvesting sugarcane on farms in states like Uttar Pradesh, workers had to report at 3am and work until 11pm.

Working without a break: close to 69% of migrants interviewed in Palamu reported they had to work for an excessive number of days in a week without a break. In Palamu, the problem was higher in the case of trafficked migrants (99%) than in non-trafficked migrants (33%).

Unable to stop working during illness or injuries: only 25% of Kendrapara migrants and 44% of Palamu migrants said they could stop working when not feeling well or injured.

Communication and social interaction at the destination: while 72% of migrants from Kendrapara said they could not communicate and interact with others at the destination, this percentage was moderate (40%) for migrants from Palamu.

Inter-state migrant workers face different forms of prejudice and discrimination (John et al., 2020). During FGDs and KIIs, migrant workers in Palamu reported various forms of prejudices and discrimination. Local people consider inter-state migrant workers as outsiders and believe they are polluting the environment. In most locations, migrants are not allowed to venture outside. Employers discriminate against inter-state migrant workers in the labour market with respect to wages and accommodation. Migrant workers usually have their own section and are kept from direct communication with native people. Most migrants speak only in their mother tongue, and hence interactions with locals are quite restricted. The insularity of migrant workers and absence of social integration with local people are areas of concern. The local community is also concerned about petty crimes by migrant workers.

Injuries: most respondents did not report injuries from measures to control them, from employer assaults or from dangerous working conditions. About 11% of migrants from Palamu and less than 1% of migrants from Kendrapara reported injuries that happened on the job.

Health and safety equipment at work site: most migrants from Kendrapara (80%) and about 54% of migrants from Palamu said work sites had no health and safety equipment.

Respondents in FGDs and KIIs from Palamu reported several violations of human rights in the work environment for migrant workers. They said workers were exposed to intense heat, smoke, toxic air, hazardous chemicals and risky machines in their workplace. Workers in factories in all four states reported limited safety information, small or poorly ventilated workspaces and long hours of exposure to toxic air. As a result of this exposure, many workers suffered from ailments like asthma and chronic lung diseases, skin diseases and noise-induced hearing loss. Risk of accidents in the workplace leading to major injuries were also reported. They also said that migrant workers often would not have access to proper health check-ups.

Daily survival needs (food, clothing, shelter, etc.) controlled by your employer: only 12% of the migrant households in Kendrapara were dependent on the employer compared to up to 62% among migrants from Palamu.

Record of wages and employment: around 79% of migrants from Kendrapara and 58% from Palamu said their employers or contractors did not provide records of wages or terms of employment.

- **Exploitation by intermediaries:**

  – In FGDs and KIs in Kendrapara, migrants said they received lower wages than agreed upon with the contractor. In some cases, payments were short by 70% of the total owed by the local contractor. During discussions, we noticed the mental stress of migrants who had returned to villages.

  – In Palamu, migrant workers said they were exploited by intermediaries/agents over wages. Respondents of FGDs and KIIs in Manatu block said a considerable number of migrant workers did not receive wages from the employer promised by intermediaries before they left the village. Employers deducted a substantial portion of wages to supply *Daru* (liquor) and *Murga* (chicken) to workers. FGD respondents said they spent most of their income on *Daru* and *Murga*. Some said their employer would claim they had deposited wages in the workers' bank account. But mostly this was a lie.

– Intermediaries/agents would pocket the difference between wages offered by the employer and what was paid to labourers. Migrants said they were unhappy with agents as they were given less salary than agreed, which caused severe financial distress. Respondents in almost all FGDs said that migration intermediaries would offer an advance when they recruited workers in the villages. Migrants would agree for this advance to be deducted at the workplace. However, intermediaries would deduct a substantially larger amount than the advance. Respondents from Chainpur said they would be more assertive and demand the correct amount. But the employer and intermediaries would mostly ignore them.

Constant surveillance and control: around 9% of migrants from Kendrapara and 59% from Palamu said they worked under constant surveillance and were not allowed to leave the premises without the employer's permission.

Safety and security risks: around 30% of migrants from Kendrapara and around 5% from Palamu said they faced safety and security risks at the destination site.

One of the return migrants from Palamu said that, "When we go out to work, sometimes we come back (but) sometimes (only) our bodies (do). We are always under surveillance and fear and survive at the mercy of the contractors. Our wages are not paid until the entire duration of their work is over. So even if we don't like the work, we have to do it otherwise we will not be paid our due wages."

• **Life risk and missing people:** some respondents of FGDs in Manatu block, Palamu, said their family members did not return for several years after migrating. Many migrants who worked in construction industries, as reported by the FGD and KII respondents, met with accidental death in their workplace. Some contractors also forced migrants into life-threatening work without safety equipment, resulting in deaths. In most cases, contractors don't even inform migrant families of accidental deaths to avoid paying compensation. Many individuals have been missing for several months. Sometimes, others working from the same village inform families about such deaths but even then the bodies are not brought back.

• **Stay conditions:** respondents from FGDs, KIIs and the household survey in Palamu said most migrant workers did not have access to 'adequate housing'. Several migrant workers were reportedly given accommodation in informal settlements and rented rooms. Some respondents said they had to work and

sleep in the factory or construction site premises itself. Safety measures, especially for fire, were reportedly absent in their stay places. Most living arrangements were not adequate and did not provide any tenurial security to residents.

Seeking legal/police help to return home: around 18% of all migrant households in Kendrapara and 58% of migrant households in Palamu had sought legal/police help for returning home. This percentage is higher among trafficked households (nearly 39% in Kendrapara and 98% in Palamu).

3.6 COVID-19 sparks unprecedented reverse migration

The nationwide lockdown announced on 24 March 2020 due to the COVID-19 pandemic brought about an unprecedented migrant workers' crisis. It saw millions of migrant workers across India lose their jobs at their destinations. The country witnessed an unprecedented reverse migration of nearly 40 million migrant workers. Loss of job, fear of COVID-19 and lack of access to general services were important reasons for the reverse migration (Behera, Mishra and Behera, 2021).

In Kendrapara, respondents said many migrant workers remained stuck at their respective workplaces for months because of the lockdown and movement restrictions; they had almost no support from their employers. On their return to the village, they found it difficult to manage the households as there was no work, no income and people had already exhausted their savings.

In Palamu, during the FGDs and KIIs, many respondents reported that most migrant workers walked from far-off places back to their villages. They described feeling miserable, overwhelmed and helpless. On the way home, they faced harassment from police. Upon entering Jharkhand, many migrants were put in shelters for more than two weeks and provided with poor quality food. Several respondents from Manatu and Chainpur area said that many families of migrants (who had returned after the first wave of COVID-19) faced near hunger for many days. It was difficult for them to secure two meals a day during that period.

MGNREGS and other social protection schemes: this reverse migration significantly altered the labour market's demand and supply dynamics in rural areas as the working population suddenly increased. The Indian government announced US$308 billion (₹20 crore) for MGNREGS to ensure employment to migrants who returned from their work destinations (Vasudevan et al.,

2020). MGNREGS became the only programme that could provide wage labour to workers amidst the crisis. The returned migrants who did not have a job card were instructed to register so they could participate in MGNREGS.

Few migrants could get work under MGNREGS in Kendrapara. Of the migrants, around 40% did not have a job card and only 10% had applied for one. MGNREGS was not found to have offered work to most migrants in the study area; only 8% of returning migrants post-COVID-19 could get work under MGNREGS. But some migrants got government entitlements such as free rations and monetary assistance of up to ₹1,500 under Jan Dhan Yojana.

In Palamu, of the migrant respondents, 40% had a job card and only 6% got work under MGNREGS prior to the lockdown. After returning home post-COVID-19, 28% of migrants had applied for a job card and around 7% had got work under MGNREGS.

3.7 Migration generates good and bad impacts for households

The research shows both positive and negative effects of migration on households. Positive outcomes include improved health and nutrition status, increased purchasing power and diversified income and consumption patterns. Negative impacts include high dependency on remittances by household members, accidents, illness, difficulties of women managing household chores in the absence of men in the family, difficulties in child rearing and education, and the psychological impact on women left behind.

In both locations, most respondents felt that migration was helpful (86% in Kendrapara; 70% in Palamu) in managing their expenses and households during and after a crisis. But nearly 66% in Kendrapara did not intend to migrate in the future (compared to 74% in Palamu). Nearly 86% of respondents in Palamu said lack of livelihoods was the reason for future migration. This high percentage could be due to recurring droughts that mean agriculture is no longer viable. In Kendrapara, most (78%) identified housing as the reason for future migration, followed by seeking employment (44%). These priorities could be related to damage to houses during frequent cyclones and flooding, and destruction of livelihoods based on natural resources.

In Kendrapara, during FGDs and KIIs, migrant households said that migration allowed them to address their vulnerability from climate stress and move out of the cycle of debt and poverty. Money received by migrant households has reduced poverty, improved health and educational outcomes, and contributed to economic development of the village. It has brought a hike in both spending and saving capacity. Many households built better houses and bought various household assets with remittances. The primary survey found that remittances have improved migrant households' standard of living. They are enabling migrant households to pay for daily consumption (89%), healthcare (3%) and education (3%).

Most respondents in Kendrapara reported that migration improves economic security, education and work opportunities. FGDs and KIIs confirmed that irrespective of gender, migration was considered a viable opportunity. It allowed them to accumulate income and buy assets to secure longer-term livelihoods and move out of intergenerational poverty.

During discussions, a woman said her husband would not send money regularly but rather bring a lump sum whenever he returned. This money was not even enough for his own demand of liquor and good food. She reported there was little financial gain for the family from migration, even though the family had to live without the male for a major part of a year. She was forced to work in the village to make a living as well as shouldering the household responsibilities. The daily routine was hectic, ranging from collecting firewood, daily wage work, childcare and performing odd jobs in agriculture. But women in the village are not allowed to plough the agriculture fields. This custom largely relieves them of these hardships.

In Palamu, migration improves cash flow but does not help build assets or increase financial reserves. Remittances have only helped meet basic consumption needs and health emergencies. This could be because a larger share of migrant workers was found to be trafficked in Palamu. Migration was also considered to have a harmful impact on women left behind due to the additional burden of managing their homes and earning livelihoods. Further, although women's workload had increased, they had no greater role in decisions.

In major areas like agriculture, women in Palamu had to follow the decision of the male who migrated or the elderly or second-generation male who would be staying with them. Many FGD participants said they had to call up their husband to take important decisions on several

fronts. Women opined that, in the absence of men, it was increasingly difficult to protect their crops from cattle — people from upper caste communities would remove their fences. If they tried to protect their crops, the women would sometimes be threatened. But they were able to cultivate paddy with the help of older men left in the village.

Drawing on Avis (2017), Table 2 analyses the household-level outcomes of migration in the study area.

Table 2. Impact of migration on household level

KEY FEATURES OF DISTRESS MIGRATION (AVIS, 2017)	HOUSEHOLD-LEVEL IMPACT ON MIGRATION BASED ON OUR RESEARCH
Distress migration occurs in areas with low food security and limited state government capacity.	Food insecurity (both Kendrapara and Palamu); hunger (Palamu).
The distressed condition denotes a sharp impact, increased vulnerability associated with an environmental shock and the need for assistance to avoid further suffering and conflict.	There is clear evidence of change in climatic conditions and climate-induced floods and cyclones in Kendrapara (rapid onset) and droughts in Palamu (slow onset), resulting in livelihood loss and inducing distress migration.
Destinations are based on community relations, social capital networks and the availability of emergency provisions.	Most respondents in both locations reported that recruitment agents, friends and relatives were major sources that influenced the choice of destinations.
Moves are frequently temporary until people can return to rebuild their livelihoods.	Migration was seasonal (based on crop loss) and circular as most respondents, in both study locations, migrated two to three times in a year.
The primary reasons for temporary moves include structural damage, loss of utilities, danger and the availability of emergency provisions.	Most respondents in both locations reported inadequate and dysfunctional infrastructure and inefficient services from social protection programmes.
Distress migrants experience subnational socioeconomic impoverishment and marginalisation because of their involuntary migration.	In both locations, remittances from migration were used predominantly for household consumption and health.
Most distress migrants endure accumulative and increasing impoverishment, and limited opportunities to relieve debt and build up savings that may ease the hardships associated with displacement.	Remittances from migration could help address poverty in Kendrapara but did not redeem debt or build up household savings in Palamu.
In extreme severe cases, large-scale distress migration may be accompanied by "abject misery, large scale beggary and greatly increased mortality."	This was not reported in the study area, but trafficking and slavery-like work conditions meant that migrants reportedly died due to dangerous work environments.

4

Climate change drives migration and trafficking

Migration has always been part of human behaviour and the result of multiple drivers. But climate change is increasingly becoming a critical factor in the decision to migrate. As one major indicator, there is a growing number of internally displaced people due to climate-induced events. The impact of climate change on migration and resulting trafficking can also be assessed through its effects on five recognised drivers of migration: economic, political, demographic, social and environmental. Together these drivers comprise a framework for deciphering the range of factors that might affect the volume, direction and frequency of migratory movements (Risi and Burkett, 2020).

Below, we present a framework for migration and trafficking drivers in coastal Odisha and Jharkhand adapted from Risi and Burkett (2020).

Migration in Kendrapara is a recent phenomenon (Figure 15). As part of Mahanadi delta, the region has fertile lands and was prosperous. In fact, it once attracted migrants from other parts of the state, particularly during peak agricultural seasons. Livelihoods have weakened in the last few decades primarily due to climate change, resulting in migration (Prati, Cazcarro and Hazra, 2022). For their part, people from Palamu have been migrating for the last three centuries. The combination of push and pull factors drive circular migration among the STs and SC (Figure 16). Thus, seasonal migration, or rural–urban migration, is emerging as a dominant form of migration among these people (Bhagat, 2016).

Figure 15. Drivers of migration and trafficking — Kendrapara of coastal Odisha

Social drivers
Majority of the migrants are from among the upper castes.

Infrastructure
Better infrastructure facilities.

Vulnerable

Climate drivers
Increased cyclone, flooding and sea water intrusion. Agriculture is unviable. Loss and damage to livelihood assets.

Political drivers
Local government institutions are not empowered to manage climate change impacts.

THE INFLUENCE OF CLIMATE CHANGE ON DRIVERS (RAPID ONSET)

MIGRATE

DECISION

Economic drivers
≈50% of the households are landless, are marginal landholders, are indebted, or have declining income.

Demographic drivers
Better literacy, better awareness about entitlements. Hunger among the most vulnerable households.

Social protection
Social protection support is insufficient and inefficient.

TRAFFICKED (16%)*

Most vulnerable

Note: drivers in red contribute negatively to migration and trafficking, while those in green are positive.
*The figure inside the parenthesis indicates the percentage of sample respondents trafficked.

Figure 16. Drivers of migration and trafficking — Palamu of Jharkhand

Social drivers
SC and ST communities oppressed by high caste families, lands grabbed by high caste families.

Infrastructure
Poor infrastructure unsupportive of local livelihoods.

Vulnerable

Climate drivers
Increased drought and frost. Agriculture is unviable. Forest resources are declining.

Political drivers
Lack of say for SC and ST people in local government. Effect of militant operations.

THE INFLUENCE OF CLIMATE CHANGE ON DRIVERS (SLOW ONSET)

MIGRATE

DECISION

Economic drivers
Lack of landholding, indebtedness, declining income.

Demographic drivers
Lack of education. Poor awareness about entitlements. Hunger.

Social protection
Social protection support is insufficient and inefficient.

TRAFFICKED (42%)**

Most vulnerable

Note: drivers presented in red indicate factors that contribute negatively towards migration and trafficking.
**The figure inside the parenthesis indicates the percentage of sample respondents trafficked.

4.1 Demographic drivers: food insecurity undermines resilience

Food insecurity from climate impacts and demographics are prime influencers in the decision to migrate and, depending on the context, may be the main factor (United Nations, 2017).

A considerable number of respondents from both study areas reported food insecurity. The issue was more predominant in Palamu (Jharkhand) than in Kendrapara (Odisha).

In Kendrapara, over half of non-migrant and non-trafficked migrant households and two-thirds of trafficked migrant households reported eating more than once a day. Behera and Penthoi (2017) estimated the Food Security Index on factors such as availability, access and absorption of food among the districts of Odisha. Based on this index, Kendrapara is moderately food secure.

In Palamu, 43% of total respondents said they often have only one meal per day. The percentage was higher among trafficked households (81%). In addition, 72% of non-trafficked households and 66% of non-migrant respondents sometimes eat only one meal per day. FGD and KII participants from Manatu and Chainpur blocks said that variations in precipitation, increased drought and extended frost conditions led to food scarcity. Palamu is known for food security issues. In June 2002, the villages of Kusumatand and Majhauli in Manatu block reported some deaths from hunger (Bhatia and Drèze, 2002).

Palamu respondents had limited awareness of different development schemes. This also limits their capacity to create assets and structures to support in-situ climate resilience compared to counterparts in Kendrapara.

Low levels of literacy severely affects human resource development in the area. Lack of education hinders employment opportunities for youth in sectors other than natural resources, particularly in formal sectors. As a result, most men and women from the study area can only find work in the agriculture or allied sectors as unskilled labourers (Sharma, 2019).

Kendrapara is better than Palamu in terms of literacy. According to the 2011 Census of India, the literacy rate in Kendrapara district was 85.15%. In the study villages, nearly 34% of household survey respondents were illiterate. In Palamu district, the average literacy rate was 63.63% (2011). While the literacy rate for men is 74.30%, it is only 52.09% for women (Palamu). The literacy rate was as low as 30% among some tribal communities, particularly among women. In Manatu,

the literacy rate among men was 46.19%, while it was only 30.50% among women. Only 56.42% of men and 37.27% of women are literate in Chainpur block (Census of India, 2011).

4.2 Economic drivers: debt, job loss and livelihood damage are key

Lack of job opportunities, wage differentials and aspirations, along with loss and damage to livelihoods due to climate impacts, drive young people from home in search of employment and income opportunities (United Nations, 2017).

People in the study areas faced different contexts for economic activities and issues. While Kendrapara is a delta region with abundantly fertile lands, Palamu suffers from chronic drought. Sea-based activities are the second largest livelihood options for people in Kendrapara, while forest-based livelihoods are the secondary occupation for most people in Palamu. Kendrapara was once a prosperous region, while Palamu has historically been underdeveloped.

In our study, households in both contexts owned marginal landholdings. While average landholding in India is 1.08 hectares, only 22% of sample households of Kendrapara owned more than 1 hectare. Close to half of Kendrapara households were landless. In the case of Palamu, although the vast majority of households had some land, their landholdings were insignificant. The average size of agricultural landholding among surveyed households was only 0.04 hectares. Among the three categories of households surveyed (non-migrant, migrant and trafficked), non-trafficked migrant households had larger landholdings. But it was still far below the Indian average. Following the Forest Rights Act, forest department officials evicted many tribal households that had traditionally cultivated forest lands.

Both study areas reported indebtedness as a major issue among the community. Testimonies from FGDs and KIIs showed that households were indebted with loans valued between ₹30,000–100,000. Most loans were for agriculture, healthcare, household consumption, marriage, etc. Local moneylenders were the primary source of credit. Recurring crop loss puts them in debt bondage; their Brahmin landlords repossess their land. With decreasing viability of agriculture due to climate impacts, landlords sell their land to brick kiln owners, which renders it permanently unfit for agriculture. FGD and KII respondents reported high indebtedness, which was a constant source of stress.

4.3 Social drivers: lower castes and Scheduled Tribes in Palamu are more vulnerable

In Kendrapara, respondent households were predominantly from either the Forward Castes (General Category) or from OBC. Only 9.52% of sample households were from SC. Respondents from Kendrapara did not report on social issues such as discrimination on the basis of caste, class and religion, bonded labour, oppression and other injustices.

In Palamu, the community in the study area was divided into two groups. The better-off households (including Brahmins and Yadavas) have land and education and could take up formal employment. Agricultural lands in the area predominantly belong to this group. There is also a large group of poorer, asset-less households who mostly depend on subsistence farming and forest resources for their livelihoods. These people belong predominantly to SC and STs. Among the survey respondents of Palamu, more than 98% belonged to SC and STs.

This drought-prone district also has a long history of feudal exploitation and bonded labour. Respondents of FGDs and KIIs in Palamu said upper caste families gradually grabbed their land. Elderly people shared stories about working as bonded labourers for the upper caste; youth today prefer to migrate. For youth, working as a slave at an upper caste's home is demeaning, while migrating to earn wages is seen as respectable. But even in destination sites they are exploited. They are desperate to find work during climate stress, which means men migrate with low bargaining power and low self-respect. This, in turn, results in trafficking.

4.4 Political drivers: elite capture heightens climate risks

Early information on various climatic challenges and threats plays an important role in safeguarding people's livelihood, lives and assets. Such information is more effective if delivered through local institutions where communities have a say in decisions like Gram Sabha, Village Panchayats, Village Watershed Committees and SHGs. But findings from Odisha and Jharkhand show these institutions have not met the needs of the community.

In Kendrapara, Village Disaster Management Committees at the Panchayat level are intended to enhance community-level resilience. But almost all people interviewed were unaware of their existence. Even those who were aware were largely ignorant of the committee's objectives and functions.

Respondents of FGDs in Palamu said that upper caste people hindered participation of SC and STs in democratic institutions like Village Panchayats and Gram Sabhas. Other development initiatives like Watershed, MGNREGS and SHGs were largely absent in their area because of the strong presence of Naxalite-Maoist Insurgency or left wing extremism (LWE). The LWE activists have systematically destroyed infrastructure and other public institutions, damaging local economies. Their armed attacks have caused loss of human resources, affected trade and business, including tourism and mining activities, and led to escalating costs of various projects in the affected areas.

4.5 Climate drivers: climate events surpass impact of all other factors

Climate change is a driver that affects all other factors of human migration. Migration has been a way of life, especially for households in Kendrapara and Palamu. But patterns have changed dramatically over the last two to three decades due to climate impacts.

Extreme climatic events like cyclones, floods, droughts and heatwaves have become more frequent in coastal Odisha over the last two decades (De et al., 2005). This has increased the vulnerability of communities in these areas. All Kendrapara respondents reported a change in precipitation and higher temperatures over the last five years. More than half reported that environmental stressors (floods, cyclones, erosion, etc.) have become more hazardous and frequent in the last decade. Many noted that the direction of the sea waves is also changing. Community members believed the sea coast had become nearer to their village due to erosion. These changes are being attributed to climate change. The households lost more money due to crop, livestock and equipment damages. They also lost more lives due to the extreme events. These impacts suggest households were bio-physically more vulnerable.

In Palamu, community members in the FGDs and KIIs reported that people migrated primarily for economic reasons. This stems from the increasing unsustainability of agriculture and forest resources — a tell-tale impact of changing weather patterns and extreme weather events. The failure of agriculture and decline of yield from forest resources are directly responsible for unemployment or underemployment. Further, droughts induced by climate change also cause financial loss for the farmers.

4.6 Infrastructure: communities call for better facilities

The availability of community-level infrastructure in villages is important for anticipatory and swift response to climatic events. Of the two study areas, Kendrapara has better community-level physical infrastructure. But both communities reported that facilities were inadequate for development and disaster risk reduction.

In Kendrapara, four of the seven study villages had a cyclone centre. Most structures had been constructed a long time ago. A spacious and large centre was required to save livestock during a cyclone. The sample villages had all-weather roads connecting to the revenue village. But some hamlets were yet to be covered.

In some study villages of Kendrapara, people were unhappy with the lack of climate-resilient assets. In almost all the villages, FGD participants believed that more assets should be provided to cope with extreme climate events. These included cyclone and flood shelters, irrigation facilities, community halls and multiple drinking water sources.

As these villages are adjacent to the sea, there are no irrigation facilities. Canals, dams and bore wells were largely unavailable in the study area. No village had a proper system to drain stagnant water after floods and heavy rain.

In Palamu, the study area did not have proper road connections, and children reported the school was often closed. Out of five villages studied in Manatu, three did not have a road facility from the block headquarters. In four of the villages, there were streams near the farmlands. But most farmers could not use the water as they could not afford to build an irrigation facility.

Water towers were constructed recently in almost all the study villages of Manatu to provide piped water to households through solar energy. In three villages studied in Manatu, these towers were found defunct because lightning had charred the solar panels and pumps. There was no plan to repair the damage. People said it was hard to get access to a mechanic in remote locations. They suggested that if someone from the village or nearby had been trained in doing petty/sundry repairs, it would have been easier to maintain these structures.

Palamu has a hilly topography and undulating terrain. The area has lower density of population than the plains. Lack of infrastructure and services as per national norms is one of the many failures of governance that discriminate against people here. These disparities result in non-available/poor services.

4.7 Social protection: safety nets fail to absorb shocks

Social protection programmes can help vulnerable households absorb the effects of climate risks, adapt to climate impacts and transform their capacities and strategies to address growing climate stresses. Such programmes can act as a safety net and help diversify livelihood options for poor and vulnerable populations. In addition, these can allow them to practise less resource-intensive livelihood options. Finally, they can invest in the capacity of poor and vulnerable households to prepare, cope and recover from shocks; build their resilience; and ensure they do not get trapped in poverty as a result of recurring climate crises (Bharadwaj et al., 2021c).

Kaur et al. (2019) show that social assistance programmes, like MGNREGS, have helped poor households and communities cope with poverty and marginalisation.

Our study's findings, from both rapid-onset and slow-onset contexts, show that social protection mechanisms could not absorb the climate shocks or efficiently cover all eligible households.

Kendrapara had poor coverage for most social security schemes. Surprisingly, none of the trafficked households had coverage for girl child education, skill development, youth development, farm credit or even a BOCW card (the labour registration card for construction workers). This may be due to lower levels of awareness or an inability to engage with local bodies/government systems to benefit from different government schemes.

Nearly 83% of Kendrapara respondents said they could not procure food grains using the ration card. The coverage of MGNREGS in the study villages was poor. Two-thirds of respondents had also not applied for a job card. Only 34% had received work under the programme, while nearly 27% had received support for housing.

Across the Kendrapara study area, practically no one from the villages had enrolled in any vocational training programmes provided by the government. Coverage of insurance under any state or central government scheme was poor at 6% of total respondent households.

In Palamu, FGD and KII respondents expressed dissatisfaction over the social protection programmes. Many said they did not receive benefits other than PDS and MGNREGS. Some respondents said that ration cards issued by PDS miss names of some family members. They also said they were not aware of how to fix this problem.

The Jharkhand government is implementing PVTGs' Dakia Yojana, which delivers free grain to PVTG households. Community members reported that people initially had to go to nearby villages connected through a road to avail the service. However, rice is now delivered to these villages via tractor.

A significant number of households reported not having a MGNREGS job card. Among the 210 survey respondents, only 41.90% had a MGNREGS job card. A substantially higher percentage of the trafficked migrant category of respondents did not have the job card. Thus, this category of households would not be able to receive employment from the programme. This could be a crucial factor increasing the vulnerability of these households and a driver of trafficked migration.

Respondents said they have never benefitted from any kind of crop insurance. Only 11.43% of total survey respondents said at least one person from their family received a family pension. Only 6.25% of respondents said their household received benefits from the Pradhan Mantri Ujjwala Yojana — a central government programme to distribute cooking gas connections to women in households below the poverty line. Nearly 41% of survey respondents reported their households received benefits from government housing schemes.

Only 32.86% of sample households reported they took advantage of public health facilities in the last five years. Testimonies of FGD and KII respondents showed that private medical practitioners and quacks were predominant in the villages. Nearly all survey respondents (99.05%) reported they had not enrolled in any form of insurance scheme offered by the government or private providers.

4.8 Decision to move: multiple pressures lead to tipping point

In the present study, climate extremes in coastal Odisha are predominantly rapid-onset events like cyclones, floods and storm surges. Jharkhand primarily experiences drought, which is typically a slow-onset event.

The analysis of migration and trafficking drivers in two contrasting contexts has offered some interesting insights. Kendrapara had been one of the most fertile and prosperous regions of Odisha. But climate extremes, in the form of rapid-onset events, have proven that even stable ecosystems and prosperous economies can collapse.

People in Kendrapara have better literacy and awareness levels than in Palamu. Average landholding in Kendrapara, though less than the national average, is better than Palamu. Average household income in Kendrapara is also higher than in Palamu. Most non-trafficked and trafficked migrants from Palamu belonged to SC and STs. In Kendrapara, migrants were predominantly from forward caste and OBC communities. They were not observed to face social discrimination in their villages. The area, unlike Palamu, is free of LWE issues. The villages of Kendrapara have better infrastructure facilities than those in Palamu.

Despite these assets, the vulnerability of people in Kendrapara has increased tremendously, primarily due to climate change. More frequent cyclones and floods coupled with sea-level rise and sea water intrusion have caused loss and damage of livelihood assets, soil erosion and land degradation. Consequently, socioeconomic problems such as decline in income, unemployment and indebtedness have cropped up in the last few decades. Efficient social protection coverage might potentially enhance people's absorptive and adaptive capacity. But social protection programmes are inadequate and undercovered. As a result, the vulnerable sections of the area are forced to migrate. The most vulnerable households are prone to trafficking.

In contrast, Palamu is chronically underdeveloped in terms of socioeconomic-political factors. Palamu district is one of the most exposed and vulnerable regions to climate change impacts. Over time, the climate of Palamu has shifted from sub-humid to semi-arid, causing frequent and prolonged drought and frost.

Our analysis showed that households engaged in trafficked migration are more vulnerable than those with non-trafficked migrants and non-migrants.

5

Recommendations

The following recommendations support formulation of policies and actions at state, national and international level to address climate-induced migration and human trafficking.

5.1 State level

Focus on adaptation programmes that strengthen in-situ support and prevent distress migration: vulnerable households, when exposed to disasters like floods, cyclones and drought, often resort to adverse coping strategies. These include eating less, borrowing from informal credit sources, undertaking distress migration and accepting human trafficking. Adaptive capacity of households could be enhanced by coordinated and mutually complementary social protection programmes to offer access to food, water, credit, health, education, skill development and insurance. In addition to addressing the vulnerability of the households, this will also enhance the resilience of communities to climate change and address migration and human trafficking.

- Integrate climate risk management strategies into programmes like MGNREGS in India. MGNREGS is already playing a significant role in building resilience to climate risks among the poorest households. By providing guaranteed wages and creating public natural resource management infrastructure, MGNREGS helps households accumulate the natural and financial capital needed to maintain consumption when exposed to infrequent and low-to medium-intensity climate hazards (Bharadwaj et al., 2021a). For households to adapt and transform their livelihoods in response to high-intensity climate shocks, programmes like MGNREGS will need to integrate climate risk management strategies into their

design. For example, MGNREGS has an additional risk management instrument to provide another 50 days of work in times of severe drought (Bharadwaj et al., 2021a). The state government needs to ensure that additional benefits are reaching beneficiaries in the event of climate-induced events like floods and droughts.

Improve outreach of social protection programmes in climate-induced migration and human trafficking hotspots: migration and human trafficking, although induced by climate change, are direct consequences of lack of work in the local area. Employment generation programmes such as MGNREGS, National Rural Livelihoods Mission and Pradhan Mantri Kaushal Vikas Yojana are providing limited employment. The coverage of social protection programmes needs to be enhanced to reach the maximum possible vulnerable households and individuals in an area prone to migration and human trafficking. This can be achieved through specific clauses in the guidelines of social protection schemes and programmes for reaching these vulnerable communities, greater awareness building among communities and local officials, and close monitoring of programme outreach through specific coverage indicators.

Promote registration of migrants using digital interfaces: given high demand in urban areas for wage labour, migration will continue to be a major livelihood strategy for poor and vulnerable households in rural areas. While migration helps improve household incomes, migrants need safeguards to prevent them from falling into the trap of human trafficking.

- Ensure all migrant workers are registered with labour welfare boards or schemes.

- Use a digital interface to register and track the status of migrant workers. A typical example is the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 (the BOCW Act). The Act aims at resolving issues of unskilled labourers who work in intensive, pitiful conditions. It intends to regulate employment and conditions of service of building and other construction workers and provide for their safety, health and welfare, and related matters. In practice, the initiative covers only a meagre proportion of migrant workers. An Inter-state Government Migration Coordination cell between the host and source state should monitor, regulate and facilitate safe and protected migration.

Ensure proper registration of workers at destination site: the Inter-State Migrant Workmen (regulation of employment and conditions of service) Act (ISMWA), 1979, mandates registration of inter-state migrant workers and provides for issuance of licences to labour contractors. But only a small number of people are registered under the Act. Migrant workers should be registered at the Panchayat level and the Panchayat empowered to issue licences under the ISMWA. State governments could consider appointing more labour inspectors at the block level to monitor and enforce implementation of the Act. A District Migration Facilitation Centre could be operationalised to take up a wide range of issues pertaining to migrants' education and welfare.

Improve coverage of food and nutritional security programmes by identifying 'food insecurity hotspots' and providing doorstep delivery of services: food insecurity is common among households of Palamu, Jharkhand, especially in remote and far-flung areas. Women and children were reported to be facing starvation-like conditions. To prioritise food security for the most affected, the state must map food insecurity hotspots. It also needs to improve coverage of food- and nutrition-related social assistance programmes like PDS, integrated child development schemes, Dakia Yojana and Annapurna by providing door-to-door services to affected households. While designing such programmes, it can draw lessons and best practices from the Dakia Yojana in Jharkhand. The latter successfully improved access of food grains to remote villages in the state.

Promote gender-specific skill employment at migration sources: most migrants were male with females left behind to care for the household. The women left behind are also vulnerable to social, economic and climate-induced risks. Gender-specific skill development and vocational training can promote self-reliance and self-employment in areas of large migration. This, in turn, can reduce the economic vulnerability of households and enhance their incomes. Further, female-oriented small-scale industries could be encouraged for interested individuals.

5.2 National level

Mainstream climate-induced migration and human trafficking into climate and development planning: climate and development policymakers and planners urgently need to recognise that millions of people displaced by climate change are being, and will be, exposed to human trafficking in the coming decades. Development interventions normally consist of policies and programmes that reduce poverty and vulnerability by enhancing capacity to manage economic and social crises, improving wellbeing and diminishing exposure to risks that can push people further into destitution. But development and climate policy discourse needs to consider climate-induced migration and human trafficking by:

- Developing policy responses to address climate-induced migration and human trafficking, for example supporting vulnerable households by providing livelihood protection, access to basic services and maintaining basic consumption levels during crises and facilitating mobility that is safe and dignified, without the risk of abuse, exploitation and trafficking as a coping or adaptation strategy.

- Integrating these adaptive actions into urban and rural climate resilience plans, migration response plans, and state and national development plans.

Promote climate-smart solutions among farmers: most migrants were engaged in agriculture, which is a climate-sensitive sector. They migrated after incurring crop losses. The vulnerability of farming communities can be addressed through adoption of climate-smart solutions in the agriculture sector developed through scientific research. Extension outreach can be improved by designing programmes in collaboration with extension departments of agricultural research agencies and universities.

- Promote drought- and flood-resistant crops and cultivars and climate-responsive agronomical and farm management practices among farmers in the two states.

- Introduce alternative agriculture practices (salt resistance, less water consumption, indigenous varieties).

- Support intensive capacity building in agriculture and allied sectors for selected young farmers, especially women in every village. Krishi Vigyan Kendras should act as nodal agencies for quality training and dissemination of knowledge and skills.

Base policy on local-level research and evidence: human trafficking is governed by complex multidimensional factors that determine the vulnerability of individuals, households, communities and regions. The national government must be more open to local forms of resilience and adaptation. If systematic collapse of livelihood systems reaches the tipping point, then climate-induced migration could affect the already vulnerable communities and expose them to human trafficking risks. But it's unclear which approach can best prevent individuals and communities from pursuing risky coping strategies. Policymakers also need to understand how localised climate change impacts exacerbate the same factors that shape vulnerability to human trafficking. Further research is also needed to understand the differential impact of climate change on men, women, boys and girls and how this relates to human trafficking. This, in turn, can help develop policy on how to strengthen existing or create new social protection schemes. These schemes should provide adequate preventive and coping mechanisms for vulnerable individuals and households, particularly women and girls.

Integrate slavery issues into Nationally Determined Contributions (NDCs) and ensure climate finance commitments: national-level policy frameworks such as the NDCs should integrate the issue of climate-driven human trafficking into adaptation strategies. The NDCs need to identify policies and actions for providing safe migration pathways and addressing human trafficking in the context of climate change. This can help create demand for climate finance for adaptation, resilience and loss and damage in the context of tackling vulnerability to human trafficking. Climate finance can help countries build and scale up responses within climate resilience initiatives to manage human trafficking risks. Convergence between development and climate finance can also be explored to address the nexus between climate-induced migration and human trafficking risks. International climate funds like the Green Climate Fund and Adaptation Fund could consider strengthening social protection programmes to address human trafficking risks. India has been actively

engaged in Santiago Network-related interventions and has contributed towards a global financial framework to support compensation against loss and damage. On similar lines, a national-level fund to support climate displacements and climate refugees can be promoted. Policies may also be framed to cover funding for climate displacements and climate refugees under the corporate social responsibility policy.

Strengthen social safety nets for climate risk management: human trafficking tends to occur when society reaches its coping capacity and adaptation limits, or where development, social protection or adaptation actions are not optimal. This could happen due to the political context in conflict-affected countries or when communities and government cannot afford to act. Actions could also be physically or technically impossible, or socially difficult to implement. Thus, the biggest shortcoming of anti-human trafficking initiatives is a lack of effort to address the root cause (Mende, 2019). Policymakers recognise how factors such as poverty, uneven development and gender inequality shape vulnerability to human trafficking. But social protection mechanisms that can help address these issues in the face of climate or environmental crisis are inadequate. When access and protection are not available — especially for women and children — people get exposed to exploitation and trafficking. Policymakers need to consider vulnerability to human trafficking in social protection and climate risk management frameworks. They should prioritise prevention of human trafficking by creating a rights-based framework. This would provide access to basic services and social safety nets to all vulnerable households. This, in turn, would ensure they have sufficient coping capacity in the face of climate and other crises. Such capacity could take the form of appropriate shelter, food grain, decent work/jobs, livelihood opportunities, skills, healthcare, justice system, and so on. Lack of adequate support exposes vulnerable people to exploitation.

Extend portability of entitlements to migrant workers: both inter-state and intra-state migrant workers face a variety of hardships to avail basic services and government entitlements at the destination. In India, the PDS only recently introduced portability in government schemes through the One Nation One Ration Card scheme. 'Aadhaar'-based portability needs to extend to other social protection schemes and programmes like PDS, healthcare and integrated child development services. This would make basic services and entitlements available to migrants at the destination.

5.3 International level

Take firm climate action on displacement and risks of human trafficking: international climate policy urgently needs to recognise the scale of climate impacts leading to displacements and distress migration. Firm targets and action need to be considered within the United Nations Framework Convention on Climate Change (UNFCCC) mechanisms in line with SDG Target 8.7. The latter calls for effective measures to end forced labour, modern slavery and human trafficking, as well as child labour in all its forms. The UNFCCC should consider commitments and targets from all negotiating parties to address climate-induced distress migration and associated risks of human trafficking.

A Task Force on Displacement (TFD) was created in line with the Paris Agreement to develop recommendations for integrated approaches to avert, minimise and address displacement related to the adverse impacts of climate change. The Executive Committee of the Warsaw International Mechanism for Loss and Damage (WIM Excom) is entrusted by the Conference of the Parties to operationalise the TFD. WIM Excom has sought inputs from a range of humanitarian, development, human mobility and climate change institutions and experts like the International Labour Organization, International Organization of Migration, United Nations Development Programme and the United Nations Human Rights Council. But the WIM workplan does not consider the need to address climate-induced risks of human trafficking. The WIM TFD must recognise the issue in its action plan so it can be considered within the framework of the UNFCCC.

Coordinate international effort rooted in existing initiatives: several untapped opportunities can help accelerate action and support for anti-human trafficking efforts. Many ongoing efforts include the WIM TFD, SDGs, the Sendai Framework, the Nansen Initiative on Displacement, the Platform on Disaster Displacement and the High-Level Panel on Internal Displacement. But these approaches and action areas are scattered across several sectors and actors. There is a need for a coordinated, inclusive approach that complements and draws upon the work of existing bodies and expert groups. This can facilitate continuous and well-structured dialogue, coordination and engagement among a range of relevant organisations, bodies and networks to foster the sharing of expertise and learnings across regions and countries. It could also pool the

knowledge, data and information on both internal and cross-border migration, displacement and other forms of human mobility owing to factors related to climate change impacts, including in combination with other factors. Finally, it would help work out a long-term systematic action plan, approach and strategy for tackling human trafficking. These efforts can help develop a firm action plan and a political roadmap for ending slavery by 2030. The Glasgow Dialogue set up at the 26th UN Climate Change Conference of the Parties (COP26) presents an opportunity to establish a funding mechanism within the next two years to address human trafficking.

Take preventive measures and embrace advance planning to relocate and resettle displaced communities: climate-induced displacements are increasingly becoming unavoidable in many regions and areas of the world. Sea-level rise, salination and flooding are already forcing entire coastal communities in countries such as the Solomon Islands, Vanuatu and Sierra Leone to relocate. And as climate shocks and stresses are set to worsen, climate change will displace many more millions in the coming decades. For example, under 2.5°C of global warming, cyclones and storms are predicted to occur twice as frequently. The World Bank estimates that, by 2050, climate change will force over 143 million people in sub-Saharan Africa, South Asia and Latin America from their homes.

Anticipatory action to move people to safety before disasters strike, including plans to relocate and resettle displaced communities, can help reduce exposure to human trafficking. In Uganda, the government carried out disaster preparedness and preventive measures in the eastern part of the country, which had been experiencing two to five landslide disasters every year. It initiated a ten-year voluntary resettlement programme to relocate households from high-risk areas to safer areas in Bulambuli district. The migrant community is provided with housing, infrastructure, services, income generating activities and land. The project has a whole-of-government approach, involving all relevant ministries. All contracts for construction and service provision also stay within the government (GP20, 2019). This example offers a model that provides a safer option for a community to relocate and rehabilitate their livelihood. Without livelihoods, they would have been exposed to conditions that could have forced them into exploitative labour and slavery conditions.

Annexes

Annex 1. Policy provisions for addressing human trafficking and vulnerability in India constitutional and legislative provisions related to trafficking in India

The following legal instruments are present in India for addressing human trafficking:

- Under the Indian Constitution, Article 23 (1) prohibits human trafficking in India.

- Under the Directive Principle of State Policy, Articles 42 and 43 ensure fair and humane working conditions and living wages.

- The Immoral Traffic (Prevention) Act, 1956 (ITPA) is the leading legislation to prevent human trafficking for commercial sexual exploitation.

- In 2012, the Protection of Children from Sexual Offences (POCSO) Act, 2012, came into effect from 14 October. The POCSO Act provides for protecting children from sexual abuse and exploitation. This is a special law, which gives the exact definitions for different forms of sexual abuse. This law also includes the definition of penetrative and non-penetrative sexual assault and sexual harassment.

- In 2013, the Criminal Law (Amendment) Act 2013 came into force, which substituted Section 370 of the IPC (Indian Penal Code) with Section 370 and 370A. This law provides comprehensive measures to counter the issue of human trafficking. This includes child trafficking in terms of any form of exploitation, which may be physical exploitation or sexual exploitation, slavery, servitude or forced removal of organs.

- Other specific legislation addresses trafficking in women and children.

  – Prohibition of Child Marriage Act, 2006

  – Bonded Labour System (Abolition) Act, 1976

  – Child Labour (Prohibition and Regulation) Act, 1986

  – Transplantation of Human Organs Act, 1994

  – Specific sections in the IPC, eg Sections 372 and 373 deal with selling and buying of girls for the purpose of prostitution.

- The Bonded Labour System (Abolition) Act was passed in 1976 to replace the Bonded Labour System (Abolition) Ordinance, 1975.

- In 1978, the Ministry of Labour and Employment launched a Centrally Sponsored Scheme for Rehabilitation of Bonded Labourers. From 1978 to 2014–2015, the government of India and the state governments have given equal shares of rehabilitation assistance for the 280,213 released bonded labourers in the entire country. According to government of Odisha records, 2,895 labourers have been rescued, of which 708 labourers have received rehabilitation (NCABL, 2016).

- Some state governments have also enacted specific legislation to deal with this particular issue (eg the government of Punjab has the Punjab Prevention of Human Smuggling Act, 2012).

Measures by the Ministry of Home Affairs

- **Creation of a Central Anti-Trafficking Cell:** in 2006, the government of India created an Anti-Trafficking Cell under the Ministry of Home Affairs (MHA). This nodal cell works as a point of contact to communicate several decisions and follow-up actions by the state governments to prevent human trafficking. MHA also conducts periodic coordination meetings with the nominated state/union territory nodal officers of Anti-Human Trafficking Units.

- **Advisories:** the MHA has issued comprehensive advisories to all states/union territories for improving effectiveness of tackling human trafficking and increasing responsiveness of the law enforcement machinery. Table 3 presents a list of the comprehensive advisories to all states/union territories.

Table 3. Advisories related to human trafficking

DATE	ADVISORY RELATED TO HUMAN TRAFFICKING
09/09/2009	Prevent human trafficking
14/07/2010	Crime against children
31/01/2012	Missing children
04/01/2012	Preventing and combating cyber-crime against children
30/04/2012	Human trafficking as organised crime
01/05/2012	Preventing and combating human trafficking in India — dealing with foreign nationals
12/08/2013	SOP to handle trafficking of children for child labour
05/05/2014	MHA web portal on anti-human trafficking
23/07/2015	Associating Sashastra Seema Bal (SSB) and Border Security Force (BSF) in crime meetings

Source: https://www.mea.gov.in/human-trafficking.htm

- To strengthen the law enforcement response through training and capacity building activities, the MHA has released funds to establish district-wise Anti-Trafficking Units for 270 districts of the country.

- Various training of trainers' workshops for police officers and prosecutors at different levels (like regional, state and district) increased general awareness and capacity of law enforcement agencies.

- The Trial Court Judicial Colloquium at the High Court level was trained on various issues concerning human trafficking. The training aimed to speed up the court process involving cases of human trafficking. As per the MHA website, 11 judicial colloquiums have been held in various states, including Jharkhand and Odisha.

Laws for protection of migrants in India

Important legislation for protecting migrant workers inside the country are listed below:

- **Inter-state Migrant Workmen (Regulation of Employment and Conditions of Service) Act (1979) India:** the Act outlines requirements for contractors to be licensed, to record payments to workers and to pay workers a displacement allowance. It also requires timely payment of wages according to minimum wage regulations, as well as provision of suitable residential accommodation, medical facilities and clothing to migrants. The Act covers only inter-state migrants recruited through contractors and intermediaries and those establishments that employ five or more such workers on a given day. Furthermore, migrants have to be registered to access the statutory rights under the Act.

- **The Minimum Wages Act 1948**
- **The Contract Labour (Regulation and Abolition) Act 1970**
- **The Equal Remuneration Act 1976**
- **The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996**
- **The Workmen's Compensation Act 1923**
- **The Payment of Wages Act 1936**
- **The Child Labour (Prohibition and Regulation) Act 1986**
- **The Bonded Labour Act 1976**
- **The Employees State Insurance Act 1952**
- **The Employees Provident Fund Act 1952**
- **The Maternity Benefit Act 1961**

Social protection programmes providing cover to communities, groups and individuals vulnerable to climate displacement/migration and trafficking

Most migrants from rural India fall under the informal workers category. About 88% of the labour force (around 400 million people) are working as daily wage labourers — landless labour, small traders, etc. A large number of these informal workers cannot access the social security schemes of the government (GIZ, n.d.).

In India, the social security programmes for the unorganised sector can be divided into five categories: i) centrally funded social assistance programmes; ii) social insurance schemes; iii) social assistance through welfare funds of central and state governments; iv) labour market programmes; and v) public initiatives.

- **Centrally funded social assistance programmes:** different ministries of the Indian government fund a large basket of programmes and schemes, the prominent among them being:

  – **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)**: MGNREGS is the largest social assistance programme in the world that guarantees wage employment for a household in rural India for a maximum of 100 days.

  – **National Social Assistance Programme (NSAP):** the NSAP provides financial assistance to the elderly, widows and persons with disabilities in the form of social pensions. The programme is implemented in both rural and urban areas and has the following five schemes under it:

    • **Indira Gandhi National Old Age Pension Scheme (IGNOAPS):** under the scheme, persons from below poverty line (BPL) households, aged 60 years or above, are entitled to a monthly pension of ₹200 up to 79 years of age and ₹500 thereafter.

    • **Indira Gandhi National Widow Pension Scheme (IGNWPS):** BPL widows aged 40–59 years are entitled to a monthly pension of ₹200.

    • **National Family Benefit Scheme (NFBS):** under the scheme, a BPL household is entitled to a lump sum assistance of ₹10,000 on the death of the primary breadwinner aged between 18 and 64 years.

    • **Indira Gandhi National Disability Pension Scheme (IGNDPS):** BPL persons aged 18–59 years with severe and multiple disabilities are entitled to a monthly pension of ₹200.

    • **Annapurna:** Under this scheme, 10 kilograms of food grains per month are provided free to senior citizens who, though eligible, have remained uncovered under IGNOAPS.

  – **Pradhan Mantri Matru Vandana Yojana (PMMVY):** This maternity benefit programme provides a cash incentive of ₹5,000 in the account of pregnant women and lactating mothers for the first living child of the family, subject to their fulfilling specific conditions relating to maternal and child health.

  – **Janani Suraksha Yojana (JSY):** JSY promotes institutional delivery among pregnant women. Women from BPL families receive cash incentives after institutional delivery up to ₹6,000.

  – **Pradhan Mantri Awas Yojana Gramin (PMAYG):** a major flagship programme of the Ministry of Rural Development, PMAYG provides housing to the rural poor.

  – **Public Distribution System (PDS):** the PDS is an important part of the government's management of food economy. Subsidised rice and other food items are provided to the poor through the PDS. The PDS is supplemental in nature and not intended to make available the entire requirement of any of the commodities distributed under it to a household.

  – **Integrated Watershed Management Programme (IWMP):** the IWMP promotes soil and moisture conservation measures following a ridge to valley approach for a given watershed. Implemented in convergence with MGNREGS, the programme also provides wage employment.

  – **Jal Jeevan Mission (JJM):** JJM is envisioned to provide safe and adequate drinking water through individual household tap connections by 2024 to all rural households.

  – **National Rural Livelihoods Mission (NRLM):** NRLM is a poverty alleviation project implemented by the Ministry of Rural Development, which focuses on promoting self-employment through SHGs.

  In addition to the above non-contributory schemes, the central government has contributory schemes for workers in the unorganised sector.

  • Life and disability cover is provided through **Pradhan Mantri Jeevan Jyoti Yojana (PMJJBY)** and **Pradhan Mantri Surksha Bima Yojana (PMSBY)**.

  • **Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (AB-PMJAY):** this universal scheme administrated by the National Health Authority addresses health and maternity benefits.

  • **Pradhan Mantri Shram Yogi Maan-Dhan Yojana (PM-SYM)** and **National Pension Scheme for Traders, Shopkeepers and Self-Employed Persons (NPS-Traders)** provide old age protection to unorganised sector workers including traders, shopkeepers and self-employed persons. Under the schemes, beneficiaries are entitled to receive minimum monthly assured pension of ₹3,000 at the age of 60 years.

- **Rashtriya Swasthya Bima Yojana (RSBY)** is a health insurance programme, where registration fees can enable access to medical treatment for up to ₹30,000/household/year. This programme is also a cashless system where the beneficiaries can access 'empanelled hospitals' for healthcare facilities.

- **Social insurance schemes:** the available social insurance schemes for the unorganised sector are operated through the Life Insurance Corporation like the Social Security Group Insurance Scheme. Those between 18–60 years and associated with 24 approved occupation groups can avail this scheme. Other schemes include Janshree Bima Yojana and Krishi Shramik Samajik Suraksha Yojana–2001.

- **Welfare funds:**

  - The central government started five welfare funds through the Ministry of Labour, for Beedi workers and mine workers. The funding for these schemes comes from the cess on respective mines export. Other social security schemes are the Group Insurance Scheme for Beedi Workers, the Integrated Housing Scheme for Beedi and Mine Workers, and the Welfare Fund for Building and Other Construction Workers.

  - Apart from the central government, several state governments have also set up welfare funds. The government of Kerala has set up about 35 welfare funds for different categories of occupations and sectors. Punjab, Uttar Pradesh, Assam, Andhra Pradesh and Karnataka also have welfare funds for their population. The government of West Bengal also introduced the State Assisted Scheme of Provident Fund for Unorganised Workers (SASPFUW).

- **Labour market programmes:** the government of India also has certain skill development programmes that train youth for jobs in the labour market.

  - **National Skills Development Corporation (NSDC):** NSDC develops skills of urban and rural youth for wage employment through public–private partnerships.

  - **Skills Development Initiative Scheme (SDIS):** this scheme develops skills of urban and rural youth for wage employment. It entails testing and certification of people with informally acquired skills.

  - **Rural Self Employment Training Statute (RSETI):** RSETI conducts training of poor rural youth for self-employment and also provides them a package of grants and loans for setting up business.

  - **Aajeevika Skills Development Programme (ASDP):** under this programme, poor rural youth are trained for wage employment.

  - **Skill Training for Employment Protection amongst Urban Poor (STEP UP):** under this programme, poor urban youth are trained for wage/self-employment.

- **Public initiatives:** in addition to state and central governmental efforts, several public institutions and agencies also provide different kinds of social security benefits to specific groups of workers. Two outstanding examples are Self-Employed Women's Association (SEWA) and the Mathadi Workers Boards in Maharashtra.

Challenges in accessing social protection schemes by migrants: poor households can reduce their vulnerability if they avail benefits from the different social protection schemes of the government. But they face challenges in accessing these schemes and programmes:

- Almost all social protection programmes are designed with settled populations in mind. Most need registration with documentary proofs of identity and local residence. But due to lack of documents, the migrants cannot register for the schemes. Consequently, they are unable to claim basic entitlements of social protection programmes. However, the One Nation One Ration Card scheme addresses the challenge of portability for the PDS scheme. It ensures access to subsidised food grains to all those registering under the scheme.

- Most migrants are forced to work in the informal sector because they lack documentary evidence of their skill. As a consequence, they have no employment security or legal standing.

- Low awareness about social protection programmes among targeted households is a major reason for poor uptake.

- Delayed payments under MGNREGS and irregular remittances under old age pension schemes are impediments to addressing vulnerability of poor households.

- In the case of direct benefit transfer schemes like Pradhan Mantri Kisan Samman Nidhi (PM-KISAN), Jan Dhan Yojana or pension schemes, rural households — especially the poor — are not aware of how to get entitled amounts credited to their bank accounts.

- Local governance institutions called Gram Panchayats implement most schemes. But they do not have enough staff to do this properly. As a result, migrant populations are left out of many schemes and programmes.

- Technology interfaces are bringing in transparency and accountability. But challenges related to seamless connectivity in remote rural areas hamper effectiveness of implementation.

- Old age pension is an important social protection programme, but the payout is insufficient to meet basic needs.

Migration and human trafficking in climate policy

India has articulated its climate change policy through two important documents. First, the National Action Plan on Climate Change (NAPCC) was adopted on 30 June 2008. Second, India's Intended Nationally Determined Contribution (INDC) was submitted to the UNFCCC on 2 October 2015.

Subsequent to the NAPCC, all the states and union territories formulated and implemented their respective State Action Plans on Climate Change (SAPCC).

Vulnerability assessment is a key chapter in both the NAPCC and the SAPCC. Indeed, almost all SAPCCs mention displacement of people due to frequent climate-induced extreme events. But most policymakers, both at the state and centre, still hesitate to act on climate-induced migration. The SAPCCs do not link climate change and human trafficking explicitly in any policy document.

Addressing migration and human trafficking is not part of any SAPCC or even the NAPCC. But their adaptation actions help build the adaptive capacity of the poor and vulnerable. These actions indirectly address migration and human trafficking.

Researchers argue that climate migration can also be embedded with the SDGs. The SDGs can create connections between climate migration and rural development, disaster management, community resilience, forced displacement and preventive adaptation. Specific state governmental programmes in India support increasing action on climate migration. For example, Gujarat developed a reconstruction and rehabilitation policy in response to a 2001 earthquake. This policy dealt with the "provision of housing, social amenities, infrastructure, and livelihood support" (GSDMA, 2001). The MGNREGS also addresses climate displacement by providing an additional 50 days of work for the households of climate-impacted regions. The government of Odisha provided 200 days of work under MGNREGS to prevent possible migration of people from drought-hit areas in the state. If the government of India wants to reduce climate-induced migration, it can do this through the lenses of disaster response, livelihood resilience, development or urbanisation.

India's INDC estimated that US$2.5 trillion is needed from 2015 to 2030 to reduce India's carbon intensity by 33–35% by 2030 from its 2005 levels (Sahini, 2020). Climate finance can be an effective tool to take various climate change measures alongside expected economic growth (Sahini, 2020).

Annex 2. Profile of the study areas

The study covered two contrasting geographies. Kendrapara district in Odisha covered communities impacted by rapid-onset events (cyclones, floods, sea water intrusion and salinity). Meanwhile, Palamu district in Jharkhand covered slow-onset events (recurring droughts and crop failures). The percentage of multidimensional poor in Kendrapara is 21.67% and 45.45% in Palamu (NITI Aayog, 2021).

Kendrapara, Odisha

Kendrapara covers an area of 2,644 square kilometres with 1,592 villages (Figure 17). It is home to a population of 1,440,361 (2011 census). The climate is moderate. But temperatures can go up to 40°C in summers and dip to 10°C in the winter. The average normal rainfall measured in the district is about 1,510 millimetres. There are three major river systems in the district — the Mahanadi, Bramhani and Baitarani. Cultivable alluvial plains are formed mainly from these river systems and contribute to the agricultural prosperity of the district. In addition to these major river systems, the area has natural streams and river distributaries. Most of these are charged with tidal ingression during monsoon season and give rise to floods.

Figure 17. Location of Kendrapara district and study area

Source: https://commons.wikimedia.org/wiki/File:India_Odisha_Kendrapara_district.svg

The district economy is predominantly rural and based on agriculture and allied activities. On average, out of 100 workers in the district, 68 are engaged in the agricultural sector. More than 75% earn a livelihood from the primary sector (agriculture, fisheries, forestry, dairy and mining). Rice, groundnut, green gram, black gram and jute are the main crops grown in the district. Coconut is also an important horticulture crop. Summer paddy is usually grown in irrigated areas.

Climate vulnerability: numerous studies on climate vulnerability found Kendrapara among the most vulnerable districts to cyclones and floods. Murali, Ankita and Vethamony (2018) used analytical hierarchical process to assess coastal vulnerability of the Odisha coast. They found the districts of Kendrapara and Jagatsinghpur to be the most vulnerable areas. Bahinipati (2014) conducted a district-level assessment of vulnerability to cyclones and floods in Odisha. Of the six coastal districts, Balasore, Kendrapara and Bhadrak were found to have high exposure to both cyclones and floods and also high vulnerability. Cyclones batter the coastal region of Odisha every two years, resulting in loss and damage to human life, livestock, biodiversity and infrastructure. Flooding, sea water rise and erosion all contribute to enhancing the vulnerability of communities in the district. There is distress migration to different parts of the country and reports of human trafficking in the district. The following extreme events have affected the district:

- **Cyclones:** in 1999, a super cyclone halved forest cover in Kendrapara. The micro-climate of the region has changed after this loss in vegetation.

- **Floods:** coastal Odisha, including Kendrapara, is exposed to frequent floods and waterlogging. Between 2001 and 2011, for nine consecutive years, an outbreak of floods was reported in the coastal region of Odisha. In addition to heavy rainfall, cyclonic winds and tidal flows also cause flooding in Odisha. While floods are regular events, the last few affected areas with no previous history of flooding. Flooding lasts between 5 and 15 days in the area and causes loss of life and damage to property and crops, affecting food security and livelihoods.

- **Droughts:** Odisha suffered one of its worst droughts in 2001. It affected the lives of 11 million people, including those from areas that were earlier drought-free like Kendrapara.

Profile of the sample blocks: the study was undertaken in two blocks of Rajnagar and Mahakalapada (Table 4). The two blocks comprise nearly 20% of the district population (Census 2011). The SC population in both blocks (at 12% and 15%) is less than the district average (21.51%) and the ST population is marginally higher (1.31% and 1.85%). But the ST population itself is low in the district (0.66%).

The literacy rate in the district is around 78% for females and 91% for males. The study blocks of Rajnagar and Mahakalapada have literacy rates marginally lower than the district average for both males and females.

The percentage of cultivators in Mahakalapada (42%) is higher than the district average. It is lower than the district average in Rajnagar (nearly 32%). But the percentage of agricultural labourers is higher than the district average in Rajnagar at 40% and lower in Mahakalapada at 25% (Table 5).

As the villages in these blocks are adjacent to sea, there has been no irrigation to date. Facilities such as canals, dams and bore wells were largely unavailable in the study area. Also, none of the study villages had a proper system to drain stagnant water due to flood, sea water intrusion and heavy rain.

COMMUNITY VOICE

We used to live in Satabhaya (a group of seven villages), which was submerged due to sea-level rise. We moved to Bagapatia, but there is no employment opportunity here or nearby places. We don't own land here, so we engage in share cropping as that is the only livelihood option for us. However, we suffer massive crop losses due to climatic impacts. With no livelihood option, we migrate to Kerala. There are so many migrants that a bus service has started from our village to Kerala. With direct transport facility available, youth, including women, have started migrating.

Village: Bagapatia of Rajnagar Block

Households in the two blocks have been affected by climate hazards like cyclones, floods, land salinity and uneven rainfall. Such climatic events are becoming more frequent. They have affected lives and livelihoods of the residents in the villages. Damages to agriculture, fishery, housing structures, livestock and other assets, compel households to migrate for better economic opportunities.

Table 4. Demographics by social category

BLOCK/ DISTRICT	TOTAL POPULATION 2011	SCHEDULED CASTE POPULATION	SCHEDULED TRIBE POPULATION	PERCENTAGE OF SCHEDULED CASTE POPULATION TO TOTAL POPULATION	PERCENTAGE OF SCHEDULED TRIBE POPULATION TO TOTAL POPULATION
Rajnagar	163,450	20,654	2,209	12.64	1.35
Mahakalapada	124,417	19,077	2,264	15.33	1.81
District total	1,440,361	309,780	9,484	21.51	0.66

Source: Census 2011.

Table 5. Work force of economic categories of sample blocks of Kendrapara district

BLOCK/ DISTRICT	TOTAL WORKERS (MAIN + MARGINAL)	CULTIVATORS		AGRICULTURAL LABOURERS		HOUSEHOLD INDUSTRY		OTHER WORKERS	
		NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	%
Mahakalapada	74,188	31,182	42.03	18,885	25.46	2,380	3.21	21,741	29.31
Rajnagar	58,522	18,640	31.85	23,380	39.95	1,626	2.78	14,876	25.42
District total	439,698	146,753	33.38	140,982	32.06	15,722	3.58	136,241	30.99

Source: Census 2011.

Palamu, Jharkhand

According to the 2011 census, Palamu is the sixth most populous and fifth largest district in the state of Jharkhand with a population of 1,939,869 (Figures 18 and 19). Nearly 12% is urban and 88% reside in rural areas. Palamu has a population density of 442 per square kilometre, which is higher than the state average of 414. The district fares poorly on most development indicators.

The sex ratio in Palamu (928 females per 1,000 males) is lower than the state average (948 females per 1,000 males) (Census, 2011). The literacy rate in Palamu is 63.63%. Literacy rates in Palamu are 74.30% for men and 52.09% for women (Census, 2011). Palamu is one of four districts with the lowest per capita income in the state (Table 6).

Table 6. Per capita district domestic product, Jharkhand 2005–2006 (1990–2000 prices)

DISTRICT	PER CAPITA INCOME (₹)	RANK
Garhwa	7,090	22
Godda	8,334	21
Chatra	8,477	20
Palamu	8,712	19

Source: Hanagodimath (2019).

Among the category of workers in the district, most are agricultural labourers (53%) and cultivators (19%) (Table 7).

As per the district agricultural plan of Palamu, 83% of land holdings are owned by small and marginal farmers (Table 7) (Nabard Consultancy Services, 2008).

In a baseline survey report on livelihood by Aajeevika in 2015, the practice of leasing-in and leasing-out of land is most common in Palamu of all districts in Jharkhand (JSLPS, 2015). The main source of livelihood in the district is agriculture. Major crops are paddy, maize, pulses, pigeon pea and oilseeds. The district follows mono-cropping practices.

Palamu is one of the richest districts of Jharkhand in terms of forest resources. Sal, dharua, mahua, kendu, bamboo and asan are found in the district. Major forest products include timber, palas, firewood, sal seed,

mahua seed and biripatta (Department of Disaster Management, 2016–2017, p. 11).

Climate vulnerability: as per the Vulnerability Index in the SAPCC (2014), Palamu district has a value of −0.03. It is thus the fifth most climate-vulnerable district of the state. The report, based on the index, has classified Palamu in the extremely vulnerable category (Figure 19).

Figure 18. Location of Jharkhand district and study area

Source: https://commons.wikimedia.org/wiki/File:Palamu_in_ Jharkhand_(India).svg

Figure 19. Districts of Jharkhand categorised based on the Vulnerability Index

Source: Government of Jharkhand, 2014.

Table 7. Category of marginal workers

PARTICULARS	CULTIVATORS	AGRICULTURAL LABOURERS	WORKERS IN HOUSEHOLD INDUSTRY	OTHER WORKERS
Number	133,585	380,976	19,911	178,703
Percentage	18.73	53.42	2.79	25.06
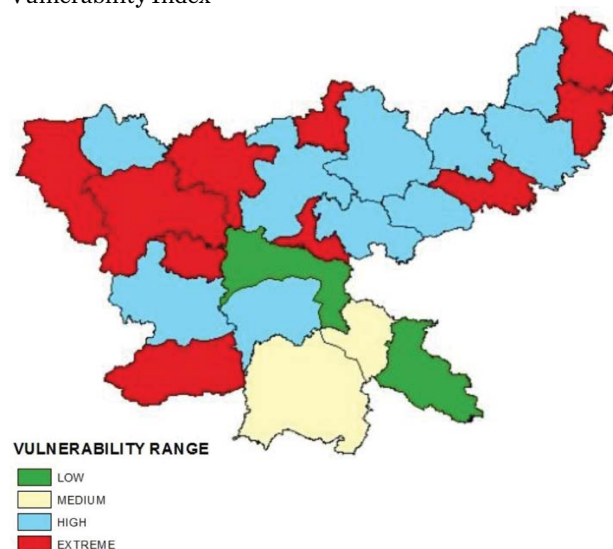
The district lies in a rain shadow region and is drought-prone. The last decade has shown increasing severity of drought in the entire state of Jharkhand, including Palamu district. Total agricultural production has also decreased significantly.

Shift in climate: the climate of Palamu region has shifted from sub-humid to semi-arid due to impact of climate change. During 1976–1985, PE index[17] for the district was 41.4. It dropped to 26.5 during 1986–2003 (Sah and Ali, 2017).

Rise in temperature: a rise in mean annual maximum temperature by 2.9°C during 1981–2003 has been observed in the district. Similarly, the mean annual minimum temperature has also declined by 3.6°C. Thus, the gap between mean annual maximum and minimum temperatures has widened. The mean maximum temperature for all months has gone up whereas the mean minimum temperature has declined. This is a typical example of impending impacts of climate change (Sha and Ali, 2017; Tirkey et al., 2018).

Droughts: in 2015–2016, India suffered one of the worst droughts in its history. Palamu was particularly hard hit. Average rainfall was 14% lower during the monsoon and 23% lower during the post-monsoon period (IMD, 2015). Palamu reported the highest loss in the country for pulses (89%) and cereals (76.9%).

Declined agricultural productivity: according to the district-level Agricultural Vulnerability Index reported in the Jharkhand SAPCC, Palamu has an index value of −0.27. This makes it an extremely vulnerable district. New strains of diseases/pests have started appearing. These include bristle beetle in pigeon pea, sheeth blight and rust in kharif maize, powdery mildew in lentil, Alternaria blight in rapeseed-mustard, swarming caterpillar in rice, root knot nematode in rice (Government of Jharkhand, 2014).

Profile of the blocks

Manatu block: Manatu block is mostly inhabited by Kharwar, Chero and Oraon tribes and PVTGs like Parahiya. The block has seven Gram Panchayats covering around 85 villages. Many villages under the block are remotely located in dense forests with few or no communicable access roads. Most households do not have land or else their land is small. They depend on seasonal labour migration, some settled cultivation and forest produce for subsistence.

The block had a long history of feudal exploitation and bonded labour. Bonded labour was used in agriculture, forest produce collection, firewood collection and tendu leaf collection. Deforestation, land grabbing and inadequate water harvesting systems are common in this part of Palamu district. Large-scale seasonal migration of agricultural labourers occurs each year from Palamu to destinations ranging from eastern Uttar Pradesh to Punjab. The media and social activists have reported hunger deaths in the past. But government officials have denied these claims. Drought-like situations are common in the area affecting agricultural production and forest productivity. For a significant period, this block has remained a hotbed of left wing extremist (LWE) activities.

Chainpur block: Chainpur block has 35 Gram Panchayats with a population of around 225,000. The block is predominantly inhabited by SC communities along with other tribal communities like Korwas (PVTGs). The block has witnessed an intense spell of drought and large-scale destruction of forests in the last few decades. These have had significant impact on local livelihood options, especially those of smallholders, the landless and forest-dependent communities. This, in turn, has triggered widespread seasonal migration.

In earlier times, Chainpur block had a high incidence of exploitative bonded labour under feudal systems. It became one of the first areas where Prime Minister Indira Gandhi emancipated bonded labour in the 1980s. One of the Panchayat under study, Semra, was the first to officially free around 43 labour families. They were provided with land, bullocks, agricultural support and some money to help secure their livelihood.

Non-timber forest products (NTFPs) harvested from forests have been one of the major sources of livelihoods for PVTG households of Manatu and Chainpur blocks. These communities depend largely on minor forest products for subsistence and cash income. The degree of dependence on forests for subsistence or cash income varies locally. It depends on the state of the local forest, access to it and availability of other income generation opportunities. This is particularly true for respondents with low or no land ownership. For these vulnerable groups, NTFPs can play an important role in protecting from destitution and hunger.

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[17] Precipitation Effectiveness: (P/E, where P is the total monthly precipitation and E is the total monthly evaporation). https://lotusarise.com/thornthwaite-climatic-classification-upsc/

Annex 3. Data tables

Table 8. Respondent profile

VARIABLES	INDICATORS	KENDRAPARA (%)	PALAMU (%)
		N=210 (except for age and destination income where N=140)	N=210 (except for age and destination income where N=149)
Household size	1–3	27.14	71.29
	4–6	58.1	25.84
	≥ 7	14.76	2.87
	Mean household size	4.64	2.64
Age (years)	<14		2.01
	14–45	84.28	84.56
	41–60	12.86	12.09
	> 60	2.86	1.34
	Mean age	34.77	32.02
Marital status	Never married	0.48	6.67
	Currently married	92.34	81.42
	Co-habiting/living together	0.48	2.38
	Widowed	6.7	8.67
	Divorced/abandoned/separated	0.48	0.95
Caste	General	58.57	0.48
	Scheduled Caste (SC)	9.52	25.71
	Scheduled Tribes (STs)		72.38
	Other Backward Class (OBC)	31.9	1.43
Formal education	No schooling	33.81	84.76
	1–3 years of primary school	24.29	8.09
	4–6 years of primary school	25.71	0.95
	1–3 years of secondary school	11.43	2.86
	4–6 years of secondary school	4.76	3.33
Main livelihood	Farmers and fisherfolk	50.31	86.67
	Forest produce collection		1.42
	Regular salaried employees	6.21	
	Small business owners	6.21	
	Construction and factory workers	22.36	3.81
	Others (daily labour/home makers)	14.91	8.10

VARIABLES	INDICATORS	KENDRAPARA (%)	PALAMU (%)
Monthly income at source (₹)	≤ 3,000	21.85	83.7
	3,001−6,000	21.19	12.4
	> 6,000	56.95	3.9
	Mean monthly income	7,793	1,953
Mean monthly income at destination (₹)		11,183	8,460

Table 9. Climate change stressors in the two study areas

CLIMATE CHANGE IMPACTS	KENDRAPARA	PALAMU
Major stressors (as reported by community)		
Flood	60%	29%
Drought	40%	87%
Cyclones	24%	
Soil erosion		28%
Storm surges		28%
Loss and damage due to extreme events (as reported by community)		
Crop loss due to extreme events per annum (in ₹)	13,590	1,753
Cattle loss due to extreme events per annum (in ₹)	6,375	1,619
Material loss due to extreme events per annum (in ₹)	8,400	1,869

Table 10. Indicators for a household under stress

SIGNS OF HOUSEHOLD STRESS	KENDRAPARA (%)	PALAMU (%)
Cannot buy food	62.38	71.9
Cannot buy non-food essential items	24.28	44.28
Cannot send children to school	17.14	44.28
Cannot afford health services	15.23	45.71

Table 11. Coping strategies adopted by households in the study areas

COPING STRATEGIES	KENDRAPARA	PALAMU
Borrow money	15.24%	7.14%
Eat less costly food	32.86%	18.10%
Eat fewer meals	22.86%	10.95%
Reduce non-food household spending	12.86%	
Spend savings	2.38%	
Take children out of school	0.95%	2.86%

Table 12. Coverage of social protection for identification in the study areas

SOCIAL PROTECTION SCHEMES AND DOCUMENTS FOR IDENTIFICATION	KENDRAPARA (%)	PALAMU (%)
Voter ID	66.67	99.04
Pan card	19.04	44.28
Aadhaar card	83.33	93.81
Use of Aadhaar during COVID-19	21.9	55.71
Ration card	75.71	86.67
Use of ration card to procure grains	16.67	20.48
PDS coverage	68.57	0.47
Bank/Jan Dhan account	70.95	78.57
Job card (MGNREGS)	33.33	41.90
MGNREGS work access prior to COVID-19	33.33	14.28
MGNREGS work access post-COVID-19	8.57	7
BOCW card	5.73	
eShram		32.86
Ayushman Bharat/health insurance	6.19	3.33
Old age pension	26.67	15.71
Widow pension	6.67	8.09
Pradhan Mantri Ujjwala Yojana/liquefied petroleum gas (LPG) connection	40.95	4.76
Housing scheme/Pradhan Mantri Awas Yojana (PMAY)	27.14	31.43
Skill development	0.95	
Farm credit support	10.48	
Integrated Child Development Services (ICDS)	34.76	
Girl child education	7.14	
Child education	21.43	
Youth development	1.9	
Chief Minister Krishi Ashirwad Yojana		0.48
Chief Minister Laxmi Ladki Yojana		1.43

Table 13. Migration patterns in the study areas

PARAMETERS			ODISHA (%)	JHARKHAND (%)
			N=140	N=149
Type		Seasonal migration	77.61	87.25
Frequency		1–2 times	84.33	86.81
Duration		Less than 6 months	93.3	96.53
Destinations		Nearby village	16.81	7.38
		Other rural areas		5.37
		District capital	36.97	3.36
		State capital	0.84	9.4
		Other state capitals and major cities	45.37	74.5
Reasons	First	Seeking employment	79.77	51.26
	Second	Housing problems	9.34	
		Healthcare		25.21
	Third	Seeking education	4.28	
		Debt		11.34
Remittances	Type	Money	53.88	87.9
	Amount	₹5000 and under	50.71	65.1
Uses of remittances	Rank–1	Daily consumption (food, bills)	89.38	
		Household items (furniture, TV, clothes, etc.)		59.86
	Rank–2	Healthcare	2.96	55.63
	Rank–3	House construction or repair		35.92
		Household items (furniture, TV, clothes, etc.)	2.72	

Table 14. Response to checklist

CRITERIA	ODISHA N=140		JHARKHAND N=149	
	YES (%)	NO (%)	YES (%)	NO (%)
Are you forced to work more than 12 hours each day?	1.43	98.67	58.39	41.61
Are you allowed to communicate and interact with others at the destination?	27.86	72.14	60.42	39.58
Are you able to seek leave or stop working if you don't feel well or get injured?	25.71	74.29	43.62	56.38
Are you not paid for excessive number of hours/days worked?	98.57	1.43	68.46	31.54
Do you get injuries from controlling measures or because of assault from employer or from dangerous working conditions?	0.7	99.3	10.73	89.27
Are your daily survival needs (food, clothing, shelter, etc.) controlled by your employer?	11.41	88.57	61.74	38.26
Are you provided with any record of your employment or how much you are paid by the employer?	79.29	20.71	57.72	42.28
Are you made to stay and work under constant surveillance and not allowed to leave premises without employer's permission?	8.57	91.43	59.06	40.94
Are there health and safety equipment or arrangements at the work site?	19.29	80.71	54.36	45.64
Are there health and safety equipment or arrangements at the work site?	29.29	70.71	4.7	95.3
Have you sought legal/police help for returning home?	17.86	82.14	57.72	42.28

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This paper presents empirical evidence on the links between climate change, migration and trafficking. It then unpacks the underlying drivers that policymakers should target to deal with this nexus. The paper explores the extent and impact of climate change on distress migration and human trafficking in two diverse areas affected by slow-onset and rapid-onset climatic events.

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