

INTERNATIONAL LABOUR MIGRATION IN A CHANGING CLIMATE

Insights from Malaysia and Thailand



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This study was commissioned by the International Organization for Migration (IOM) under its Corporate Responsibility in Eliminating Slavery and Trafficking (CREST) initiative and made possible through the financial support provided by the Government of Sweden. The study was conducted under the close supervision of Evie van Uden and Aleksandra Lasota from IOM Thailand, who collaborated closely with the authors and provided direct inputs.

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FOREWORD

Climate change presents an unprecedented crisis for humanity. This crisis is particularly acute in Asia, which is the most disaster-prone and climate-vulnerable region in the world. Here, the regular occurrence of cyclones, floods and landslides causes large-scale destruction and displacement, and slow-onset environmental processes such as variable rainfall and more frequent droughts threaten agrarian livelihoods. It is estimated that over the past 50 years, climate and environmental hazards across the region have affected some 6.9 billion inhabitants.

In this context, many people will be faced with the challenge of sustaining their livelihoods in the face of increasingly harsh working conditions, degraded and unproductive land and water resources, and uninhabitable home environments. Consequently, they may have little choice but to seek employment elsewhere.

With climate change impacts intensifying, the consequences on human mobility are likely to become ever more apparent. The Intergovernmental Panel on Climate Change (IPCC) has reported that increased climate variability and extreme events are already driving migration across Asia, and the number of migrants is expected to rise considerably in the region over the next decade, as laid out in IOM's report "The Future of Labour Migration in Asia".

While governments are responsible for mitigating the impacts of climate change and environmental degradation, and for developing and effectively implementing adaptation strategies, affected populations may choose labour migration as a household strategy to adapt to adverse climate change impacts on their livelihoods and lives in general.

Consistent with its Institutional Strategy on Migration, Environment and Climate Change, 2021–2030, IOM promotes a comprehensive, evidence and rights-based approach to migration in the context of environmental degradation, climate change and disasters, for the benefit of migrants and societies. The goal is to increase the scope of options available to the individuals, households and communities affected by climate change, including the most vulnerable. Doing so supports migration as a household adaptation strategy to climate change.

This approach also includes ensuring that those who choose to move can do so in a safe, orderly and regular manner whilst promoting the positive impacts of their mobility for themselves, their families and communities of origin and destination. The policies of countries of origin, destination and transit are crucial to achieve this objective, and the business community has a key role to play, in line with their obligations under the United Nations Guiding Principles on Business and Human Rights.

This report, "International Labour Migration in a Changing Climate", provides insights on how, and in what contexts, international labour migration can be a viable adaptation strategy to climate change. The report provides experiences and perspectives of migrant workers, employers and government representatives on the topic. This report is unique, as it draws the linkage between these two complex and interrelated topics and highlights that urgent action is required by government and private sector actors to enhance protection and respect of the rights and well-being of people on the move.

In particular, the report emphasizes the need for a human-rights centered approach in the design and implementation of policies and practices on climate change and labour migration. To achieve this goal and make the world a more equitable place for all, it is essential that all stakeholders, including government, the private sector and civil society actors work closely together.

I would like to express my sincere gratitude to IOM and the authors of this report, from the Stockholm Environment Institute, for their dedication and commitment to this important and complex issue. The insights and recommendations provided in this report will be invaluable in shaping the future of international labour migration in a changing climate while upholding the rights and well-being of migrant workers. In this era of intensifying climate change impacts and increasing number of migrants, we hope that this report will become an important resource for you, and that it can inform your work, research and analysis, policymaking, communication or migration practice.

Sarah Lou Ysmael Arriola

Regional Director IOM for Asia and the Pacific

FOREWORD

Climate change is shaping our societies in unprecedented ways, placing the livelihoods of millions at increasing and unacceptable risk. With the likelihood of surpassing the Paris agreements target of maintaining a 1.5° C rise within the next five years, the profound impacts of climate change are transforming critical ecosystems, depleting access to resources and deteriorating living conditions across the world. This situation results in enormous stresses on the productivity of farmlands and fisheries, affecting food and water security and, ultimately, threatening our livelihoods. Amidst these challenges, and in conjunction with other social factors, people are being compelled to leave their homes to sustain a living or even to find some measure of safety, sometimes embarking on arduous and perilous journeys across seas and borders.

Migration related to climate change is not some hypothetical future scenario but a present reality, and often a grim one for those with few other choices. People's ability to choose where to live is conditioned not only by economic, social, and political factors but also by the devastating impacts of floods, droughts, pollution and unsustainable business and development practices today. Regrettably, this situation will be made far worse by inadequate climate mitigation and adaptation policies that fail to place human rights front and centre and exacerbate the vulnerabilities of those who have least contributed to the problem.

While Asia remains one of the regions most severely impacted by climate change, with the highest numbers of people on the move, the connections between climate and migration have yet to receive critical attention in research and policy circles. We urgently need more scientific evidence to support appropriate and inclusive policy interventions.

This study, "International Labour Migration in a Changing Climate," undertaken in partnership with the International Organization for Migration, shows the complexities that underpin international labour migration in the context of climate change and highlights the key roles that businesses, including those operating in biofuel markets, have in shaping sustainability while placing the rights and needs of their workers first.

The Stockholm Environment Institute (SEI) reiterates its prime commitment to bridging science policy and best practices to achieve sustainable development for all. Through this study, the voices of migrants have provided us with deep insights into the precariousness and fragilities many face daily. Migration can be a formidable adaptation strategy, but only when those most vulnerable are protected. We hope this study will contribute to the much-needed evidence base critical to informing decision makers and reshaping narratives and policies, ensuring migration is an opportunity for all involved.

Niall O'Connor
Centre Director, SEI Asia

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CONTENTS

Forewords	iii
Acknowledgments	vi
List of Maps, Tables and Figures	ix
Abbreviations	x
Executive Summary	xii
1. Introduction	1
1.1 Global vision versus on-the-ground realities	4
1.2 Study approach and analytical framework	5
1.3 Methods	6
2. Why Leave? Conditions in Migrants' Countries of Origin	9
2.1 Migrant worker demographics and socioeconomic status	11
2.2 Climate change and environmental degradation	12
2.3 The impact of government and business practices	16
2.4 The multiple, overlapping drivers of migration	17
3. Migration Destinations, Patterns and Journeys	21
3.1 Thailand and Malaysia as key destination countries for migrant workers	22
3.2 Biofuel crop production in Thailand and Malaysia	24
3.3 Key policies regulating recruitment of migrant workers in biofuel sectors	28
3.4 Migration journeys towards biofuel-producing sectors in Thailand and Malaysia	31
4. Working Conditions at Destination	35
4.1 Wages, working hours and tasks	38
4.2 Environmental and health hazards	41
4.3 Living conditions	42

4.4 Imposed immobility	42
4.5 Discrimination and violence	43
4.6 Impacts of climate change on earning and well-being	45
4.7 Can certification schemes fill key gaps in sectors producing biofuels?	46
5. Is Labour Migration Helping to Reduce Climate Vulnerability?	47
5.1 Economic impacts	48
5.2 Social impacts of migration	52
5.3 Will mechanization change everything?	53
6. Towards a More Sustainable and Climate-Resilient Future	55
6.1 Climate change is only one of several drivers of labour migration	56
6.2 Migration laws and worker recruitment systems exacerbate vulnerability	58
6.3 Migrants face exploitative labour conditions	59
6.4 Migration is falling short of its potential as an adaptation strategy	60
6.5 Concluding reflections and next steps	61
Annex I: Semi-Structured Interview Guide for Migrant Workers	63
Annex II: Ethics, Coding and Data Collection	67
References	69

LIST OF MAPS, TABLES AND FIGURES

List of Maps

Map 1. Selected migration corridors	3
Map 2. Selected research sites	7
Map 3. Interviewees' origins in Cambodia and Myanmar and destinations in Thailand	13
Map 4. Respondents' origins in Bangladesh and Indonesia and destinations in Malaysia	14

List of Tables

Table 1. Overview of study methodology	7
Table 2. Income, economic diversification, climate vulnerability and adaptation readiness in origin and destination countries	11

List of Figures

Figure 1. Sugar cane in Thailand: Production and Area Harvested	25
Figure 2. Top crops in Malaysia (area harvested, ha)	27
Figure 3. Areas of Thailand, Cambodia and Myanmar covered by Thailand's border employment scheme	29

ABBREVIATIONS

CREST	Corporate Responsibility in Eliminating Slavery and Trafficking
COVID-19	Coronavirus disease 2019
G2G	Government-to-Government
GDP	Gross domestic product
IDR	Indonesian rupiah
IOM	International Organization for Migration
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
MYR	Malaysian ringgit
PM10	Particulate matter 10 micrometres or less in diameter
PM25	Particulate matter 25 micrometres or less in diameter
PPE	Personal protective equipment
SEI	Stockholm Environment Institute
SDG	Sustainable Development Goal
SEZs	Special Economic Zones
THB	Thai baht
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNGPs	United Nations Guiding Principles on Business and Human Rights
USD	United States dollar

“It is sometimes time to plant crops and rice, but it is still not raining. The area becomes a drought-prone area. Flooding occurs from time to time, destroying our farm. I had a few situations where I was unable to earn an income. I migrated to Thailand due to political, environmental, and economic issues.”

– Migrant from Kayin State, Myanmar, working in Tak province, Thailand¹

“Earlier, we used a pesticide that was very bad. It had a very bad smell. Many people got sick, many were hospitalized. Some were sent back to Bangladesh. ... Some people from Nepal and Indonesia who used to do this work (spraying chemicals) died. ... I used to have a lot of breathing problems. Earlier, I applied fertilizer, felt itchy and had body aches.”

– Migrant from Bangladesh, working in Johor state, Malaysia²

“The baseline responsibility of all business enterprises is to respect all internationally recognized human rights, including in the context of climate change. This means that they should avoid infringing on human rights by taking proactive steps to identify, prevent, mitigate and address adverse impacts with which they are involved, including impacts resulting from climate change.

– Office of the United Nations High Commissioner for Human Rights³

1 Interview code TTM4M.

2 Interview code MBJM5M.

3 United Nations (n.d.), p. 4.



EXECUTIVE SUMMARY

Asia is the most disaster-prone area in the world – and highly vulnerable to climate change. Year after year, shocks such as cyclones, floods and landslides cause large-scale destruction and displacement, while slow-onset impacts such as reduced rainfall and more frequent droughts threaten agrarian livelihoods. Environmental degradation, often linked to development and business activities, deepens vulnerability.

In these situations, job opportunities abroad can offer a lifeline. Most migration around the world occurs within countries, but in South-East Asia, where there is a long history of cross-border labour migration, people struggling with the impacts of climate change are increasingly using established corridors to migrate for work in countries where wages are typically higher than in their own.

As climate change impacts intensify, the number of migrants is expected to rise considerably – though the dynamics are highly complex. The most vulnerable people may be unable to migrate even if they need to, and those who do migrate may face exploitation and abuse. Countries' policy choices will be crucial, both to ensure that people are not forced to migrate in distress, and to enable those who migrate to do so in a safe, orderly and regular manner and find decent work abroad. The business community also has a key role to play, by complying with labour laws and respecting human rights across all their activities, in line with the United Nations Guiding Principles on Business and Human Rights.

Many migrant workers in South and South-East Asia are vulnerable farmers who find jobs in South-East Asia, including in sectors that contribute to biofuel production. This report focuses on migrants from Cambodia and Myanmar employed by sugar cane plantations in Thailand, and migrants from Bangladesh and Indonesia employed by palm oil estates in Malaysia. Drawing on interviews with 88 migrants (29 women, 59 men), as well as insights from employers, local authorities and a broad range of stakeholders and experts, the report aims to shed light on how actors in both the public and private sectors can help improve conditions and, by doing so, contribute to building climate resilience.

The report begins with a brief overview of the global policy context and the research literature ([Section 1](#)), then examines conditions in the countries of origin and how they shape migration, including who migrates, how they migrate, and how vulnerable they are ([Section 2](#)). Next, it focuses on the destination countries, including the structure of the sugar cane and palm oil sectors, migration policies and typical migration journeys ([Section 3](#)). Then it examines migrants' working and living conditions ([Section 4](#)), as well as the impacts of migration both on migrants themselves and on their communities of origin ([Section 5](#)). The report ends with recommendations for governments and businesses ([Section 6](#)), with a focus on protecting human rights and ensuring that, going forward, these migration flows will reduce the vulnerability of people affected by impacts of climate change, not exacerbate it.

WHY LEAVE? CONDITIONS IN MIGRANTS' HOME COUNTRIES

The reasons why people migrate from Cambodia and Myanmar to Thailand and from Bangladesh and Indonesia to Malaysia in search of work are complex. Socioeconomic factors play an important role – and in Myanmar, so does the political situation – but climate change is clearly adding to people's economic struggles, particularly as crop yields decline and disasters destroy homes and farmland. Government actions and business activities also sometimes limit people's access to key natural resources and cause environmental degradation.

All this means that economic and environmental drivers of migration are inextricably linked. This was particularly evident among migrant workers who reported having incurred debt after a shock such as a drought or flood. Sometimes households sell off crucial assets, such as land, to pay back debts or to be able to cover the cost of international labour migration, which they may see as a matter of survival.

Some migrants who described themselves as relatively well off, on the other hand, said they had gone abroad because they aspired to a better life, and they hoped to earn enough money to start a business when they returned home, or be able to pursue a less precarious livelihood instead of farming. Conversely, it is clear that intersecting social inequities linked to poverty, ethnicity, gender, age and other factors prevent many people from leaving. Women, for example, can face both social and legal barriers.

MIGRATION DESTINATIONS, PATTERNS AND JOURNEYS

Malaysia and Thailand are key destination countries for migrant workers, as they have more advanced economies than their neighbours and offer better-paid job opportunities, including on plantations. The ability to migrate by land also makes Thailand more accessible to workers from Cambodia and Myanmar than other destinations.

Sugar and palm oil production have grown dramatically in these two countries as a result of national bioeconomy policies linked to climate and development goals. Sugar cane is the main cash crop in Thailand, grown on more than 1.6 million hectares of land. Malaysia is the world's second-largest palm oil producer, after Indonesia, with over 5 million hectares cultivated, most on large commercial estates. In both countries, these sectors have considerable local environmental impacts, including pollution and deforestation, and they rely heavily on low-wage migrant workers.

The conditions under which workers interviewed for this study had migrated varied significantly. Migrants from Bangladesh and Indonesia who worked on large-scale palm oil estates in Peninsular Malaysia had migrated alone, without their family, following a highly regulated process. They had work permits tied to a specific employer, the only option for migrants to work legally in Malaysia. In contrast, a large share of the migrants from Cambodia and Myanmar working on small-scale sugar plantations in Thailand had migrated irregularly, often with their families, and worked short stints on each plantation before moving on to another.

The laws and regulations governing labour migration – and the international recruitment systems used – can make regular migration expensive and bureaucratically cumbersome. The costs associated with labour migration, through both regular and irregular channels, can force migrants to incur large debts. This, in turn, makes them vulnerable to exploitation in destination countries and limits their capacity to earn enough money and improve their well-being and adaptive capacity.

WORKING CONDITIONS AT DESTINATION

Both Malaysia and Thailand have laws and policies in place designed to protect the rights and safety of workers, including migrants. The two countries are also signatories to several core international labour conventions. However, working conditions on plantations in those countries often fall short of international standards – and sometimes even violate national laws. Legal labour protections, on the other hand, are weaker for migrant workers than for citizens, and enforcement can be inadequate. This can leave migrant workers particularly vulnerable to abuse. Those employed informally are at even greater risk.

Irregular migrants working on smaller sugar cane plantations in Thailand described exploitative and abusive conditions, including excessive hours, pay below the provincial minimum wage, lack of written employment contracts, and withholding of personal documents. In contrast, in the Malaysian palm oil estates where this research was conducted, working hours were regulated, and although many migrants said they were paid based on the amount of palm fruit they harvested, the incomes they reported earning appeared to be at least minimum wage. The level of regularization and legal compliance observed on the research site is likely linked to the commercial estates' large and highly structured systems, though this is not necessarily representative of the palm oil sector in Malaysia.

Gendered norms continue to determine the tasks and wages to which workers have access, with men enjoying a broader range of opportunities than women and, sometimes, higher pay. In both Malaysia and Thailand, women reported experiencing harassment. At the same time, sexual activity and pregnancy can result in dismissal and deportation –by law in Malaysia, and in practice sometimes in Thailand, even though Thai laws forbid such discrimination and abortion has recently become legal.

Workers in both countries reported being exposed to health hazards associated with extreme heat as well as the usage of pesticides. Sugar cane workers in Thailand said they were not provided personal protective equipment. Workers on palm oil estates in Malaysia said they did get protective gear, but they found it difficult to use on extremely hot days.

The migrants interviewed in Thailand also lived in precarious conditions, housed in open-air structures within or near the farms. Housing on large palm oil estates is of much higher quality, in concrete structures, and workers have access to various facilities, but workers are socially isolated, as they live within the estates. Migrant workers in both countries also described restrictions to their mobility, different types of discrimination, and fear of encounters with police.

Although certification schemes in the bioeconomy can help improve labour conditions by applying consistent standards across jurisdictions, they have several limitations and gaps. Participation is costly and burdensome, and subcontractors can be excluded, so only part of a certified business's production may actually comply with standards. Large-scale holdings have greater capacity to earn certification than small-scale producers, who already have tight profit margins and may lack the resources to get certified.

Mechanization, meanwhile, may reduce the need for migrant workers to perform tasks that expose them to health and safety hazards, but it, too, may only be a viable option for large holdings. Moreover, mechanization could affect overall demand for migrant workers. In order to protect the most vulnerable workers from negative impacts, it is important to provide them with access to decent new jobs that enhance their capabilities.

IS LABOUR MIGRATION HELPING TO REDUCE CLIMATE VULNERABILITY?

Migration may support adaptation to climate change if it enhances the well-being of migrants and their origin communities. For the migrants interviewed for this study, the actual impacts vary significantly and depend on the working and social conditions in the country of destination. Overall, most migrants appeared to benefit economically. However, due at least in part to the higher wages on large palm oil estates in Malaysia than on small sugar farms in Thailand, the remittances sent home by migrants from Bangladesh and Indonesia are significantly larger than those sent by migrants from Cambodia and Myanmar.

Although the migrants reported that most of their remittances were used to cover basic household needs and to repay debts, those who were relatively better off were able to improve their living conditions (such as building better housing, buying land and paying to educate their children). Such investments can reduce communities' vulnerability to climate shocks. Indeed, even covering basic needs and debts can help in this regard, by freeing up scarce resources.

Labour migration can have significant social impacts, particularly when workers are separated from their families for extended periods. Migrants also experience isolation, harassment and sometimes violence in the country of destination. If they bring their families, the children may suffer from discrimination as well – and in Thailand, the research team saw some evidence of child labour.

TOWARDS A MORE SUSTAINABLE AND CLIMATE-RESILIENT FUTURE

Recognizing that **climate change is only one of several drivers of labour migration**, the study makes several recommendations to **address people's vulnerabilities in their places of origin and minimize forced migration**. They include enhancing investments in inclusive, human rights-based climate response measures to build local resilience; strengthening social protection systems and expanding them in response to climate shocks; and holding businesses to higher standards in terms of their social and environmental impacts and their treatment of workers.

Recognizing that **existing migration laws and worker recruitment systems can exacerbate vulnerability**, the report encourages governments to **adopt policies that support human well-being and facilitate safe, regular labour migration that is accessible to the most vulnerable, including those facing severe climate change impacts**. In particular, it encourages States to ensure that their national policies reflect their commitments under both the Paris Agreement and the Global Compact for Safe, Orderly and Regular Migration. Recruiters and employers, in turn, should adopt fair and ethical recruitment practices, such as those recommended in guidelines from the Migrants in Countries in Crisis Initiative.

Recognizing that **many migrant workers in sectors contributing to biofuel production now face exploitation**, the report encourages destination countries and businesses operating within them to **ensure that migrants – and all plantation workers – enjoy decent work conditions**. A first step is for States and businesses alike to fulfil their responsibilities under the United Nations' Guiding Principles on Business and Human Rights and the “protect, respect, remedy” framework that underpins them. Special attention and support to small- and medium-sized enterprises will be vital, to ensure they have the capacity and financial means required to ensure labour and environmental rights protections.



Finally, **recognizing that migration is falling short of its potential as an adaptation strategy**, the report encourages States to **rethink the role of migration in adaptation, putting human rights front and centre**. This means taking an integrated approach to adaptation, sustainable development and migration, prioritizing human well-being and the needs of poor, vulnerable and marginalized people. Migration can clearly contribute to adaptation, but the conditions under which people migrate – in distress or as a strategic choice, debt-burdened or not, as regular or irregular migrants – significantly affect the outcomes.

INTRODUCTION



Asia is highly vulnerable to the impacts of climate change (Shaw et al., 2022) – and the most disaster-prone area in the world (IDMC, 2022). Over the past 11 years, nearly 80 per cent of all disaster-related internal displacement worldwide occurred in this region. This is due not only to its geography and high population density, but also to social, political and economic factors that turn hazards, such as floods and droughts, into disasters (Ribot, 2014). Poverty makes it harder for people to cope with climate shocks or to adapt to changing conditions. Within communities, inequality and various forms of discrimination and marginalization can further deepen vulnerability.

People with natural resource-based livelihoods, such as agriculture and fishing, are disproportionately affected by climate change (Shaw et al., 2022; Eckstein et al., 2021). Slow-onset impacts, such as changes in rainfall, more frequent and severe droughts and groundwater salinization, make farming increasingly difficult. Some communities in low-lying coastal areas are becoming uninhabitable. And year after year, sudden-onset events, such as cyclones, major floods and landslides, cause massive losses. Environmental degradation linked to deforestation, pollution and large-scale construction projects – often linked to business activities – can exacerbate those impacts (Austin et al., 2017; Aboda et al., 2019).

In these situations, migration can offer a lifeline. Though often seen as a last resort, when other approaches fail or are infeasible, it can be an effective adaptation strategy, enabling people to find new livelihoods and benefiting their families and communities through the remittances they send and the new skills and knowledge they bring back (Cissé et al., 2022; Clement et al., 2021; Gemenne and Blocher, 2017; McLeman and Smit, 2006). However, many of the same factors that make people vulnerable can also prevent them from leaving, reduce their chances of success and subject them to exploitation. Women may not be allowed to leave their families, for instance, or may not have access to well-paid jobs. People who are forced to migrate after a disaster may struggle more than those who can plan ahead. The most vulnerable people often face the greatest barriers to safe migration (Vigil, 2022a).

The role of climate change in driving both migration and displacement has been widely acknowledged in recent years (Wrathall et al., 2022; Clement et al., 2021). As climate change impacts intensify, the number of migrants is expected to rise considerably – though the dynamics are highly complex, and the most vulnerable people may not be able to move even if they need to (Blacket al., 2011). The choices made by governments and businesses will be crucial. They can invest in local infrastructure and services and create decent jobs, or they can cause pollution, destruction and displacement and mistreat workers. They can make it easier for migrants to find safe and well-paid work and decent housing at their destination, or they can create obstacles and take advantage of them. From a policy perspective, it is essential to ensure that people are not forced to migrate in distress – and that those who do migrate can do so in a safe, orderly and regular manner.

Globally, most migration related to climate impacts occurs within countries (Wrathall et al., 2022; Clement et al., 2021). In some regions, however, such as South-East Asia, there is a long history of international labour migration, with millions of people crossing borders to work (Gemenne et al., 2016; Testaverde et al., 2017). That is particularly true where there are close cultural ties and in border areas where people have moved back and forth for generations. Most climate-related migration in the region uses pre-existing corridors. Labour migration in Asia is typically temporary, for low-paid work. Forced labour conditions are common, and migrants are often assigned the most dangerous tasks, resulting in high rates of injury, illness and death (ILO, Walk Free and IOM, 2022; Pocock et al., 2016).

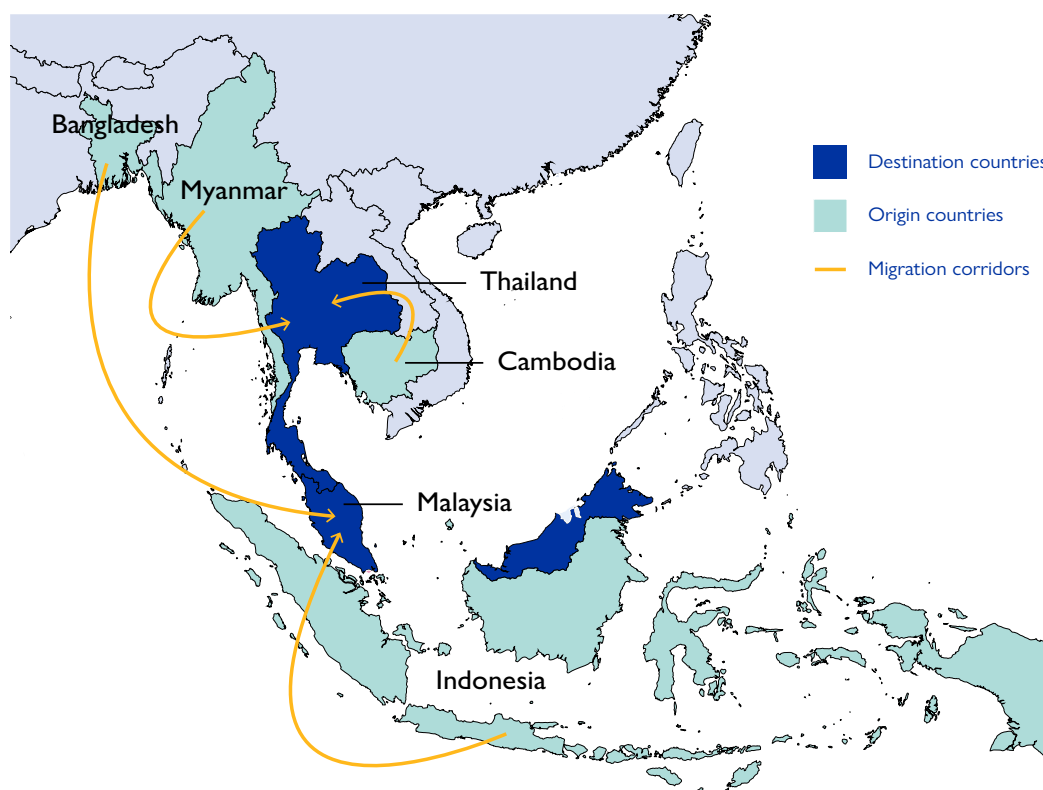
Many migrant workers in Asia come from rural communities where livelihoods have been imperilled by climate change and environmental degradation (Resurrección et al., 2019), and many seek jobs in South-East Asia's bustling bioenergy sector. As climate policies in Europe, Asia and elsewhere

have promoted the use of liquid biofuels to replace petroleum products in the transport sector; several South-East Asian governments have actively promoted the production and processing of biofuel crops – in particular, sugar cane and palm oil. Asia employs an estimated 36 per cent of the liquid biofuels industry workforce, mainly as seasonal and informal workers on plantations (IRENA, 2022). The largest numbers are in Indonesia (555,900), Thailand (133,900), Malaysia (61,400) and the Philippines (34,300).

This report examines the dynamics of international labour migration in Asia in the context of climate change, with a focus on migrants from Cambodia and Myanmar seeking sugar cane jobs in Thailand, and migrants from Bangladesh and Indonesia seeking palm oil jobs in Malaysia (Map 1). The goal is to deepen governments and business leaders' understanding of the experiences of migrants and show them concrete ways in which they can help improve conditions, in line with their commitments to protect human rights and build climate resilience.

After a brief overview of the global policy context and the study approach (Section 1), the report examines conditions in the countries of origin and how they shape migration, including who migrates, how they migrate, and how vulnerable they are (Section 2). It then focuses on the destination countries, including the structure of the sugar cane and palm oil sectors, migration policies and typical migration journeys (Section 3). Next, it examines migrants' working and living conditions (Section 4), as well as the impacts of migration, both on migrants themselves and on their communities of origin (Section 5). The report ends with recommendations for governments and businesses (Section 6), with a focus on protecting human rights and ensuring that, going forward, these migration flows will reduce the vulnerability of people affected by climate change, not exacerbate it.

Map 1. Selected migration corridors



Source: Authors' own work, made with MapChart, 2022.

Note: This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.

1.1 GLOBAL VISION VERSUS ON-THE-GROUND REALITIES

The Cancún Adaptation Framework, adopted in 2010, marked a turning point in international climate policy, including, for the first time, explicit recognition of the links between climate change, displacement and migration (UNFCCC, 2011).⁴ The Paris Agreement, in turn, called for the Parties, in responding to climate change, to “promote and consider their respective obligations on human rights,” as well as the rights of different vulnerable groups, including migrants (UNFCCC, 2015, 2).

The Sustainable Development Goals (SDGs) also explicitly address the rights and needs of migrant workers, including through SDG target 10.7, to “facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies,” and target 8.8, to “protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment” (United Nations, 2015).

Several international frameworks provide detailed guidance for how to protect human rights in the context of both migration and business activities:

- *The **United Nations Office of the High Commissioner for Human Rights** provides guidance on upholding the rights of all people, including migrant workers, such as through the International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families (United Nations, 1990).*
- *The **International Labour Organization (ILO)** has provided detailed guidance on labour standards and workers’ rights, including the ILO Declaration on Fundamental Principles and Rights at Work (ILO, 1998, last amended in 2022). ILO has also emphasized that these standards apply to all human beings in all countries, irrespective of nationality or migrant status.⁵*
- *The **United Nations Guiding Principles on Business and Human Rights** (United Nations, 2011) provide guidance for States and businesses to prevent, address and remedy human rights abuses committed in business operations, including on migrant workers and through environmental destruction. **Key messages from a climate perspective** are also available (United Nations, n.d.).*
- *The **Global Compact for Safe, Orderly and Regular Migration** (United Nations, 2018) provides a non-binding framework for cooperation to respond to the challenges and opportunities of contemporary international migration, built on a common set of principles. Objective 2 is to minimize “the adverse drivers and structural factors that compel people to leave their country of origin,” with a cluster of actions on disasters, climate change and environmental degradation in particular.*

The vision and practical guidance provided by these documents, if fully implemented, could transform the experience of migrant workers, improve working conditions overall, and likely reduce the number of people forced to migrate by climate change and environmental degradation. However, implementation to date has been weak and fragmented, advancing in some areas (environmental standards, for example) while neglecting others (such as migrants’ human and labour rights). In South-East Asia in particular, much remains to be done at both the national and regional levels to protect human rights in the context of labour migration and reduce vulnerability in both origin and destination communities.

⁴ In particular, paragraph 14(f) of the Cancún decision document calls for “measures to enhance understanding, coordination and cooperation with regard to climate change induced displacement, migration and planned relocation, where appropriate, at the national, regional and international levels” (UNFCCC, 2011, p.5).

⁵ See also the ILO’s [web page on international labour standards and migrant workers](#).

1.2 STUDY APPROACH AND ANALYTICAL FRAMEWORK

Significant research has been done on the links between climate change and migration, as well as on labour migration and forced labour. A key missing piece, however, is research examining how environmental change at origin affects people’s vulnerability to forced labour at destination, particularly in the context of international migration. How specific industries, such as those involved in the bioeconomy, could contribute to reducing migrant workers’ vulnerabilities also remains unclear.

These are critical and timely issues for policymakers in Asia and beyond. This report examines them through four main research questions:

1	How do climate change and environmental degradation in origin countries exacerbate socioeconomic vulnerabilities and drive international labour migration?	The focus here is on how environmental stressors affect people’s livelihoods and their ability to stay in their places of origin, and the extent to which development and business practices may deepen vulnerability.
2	What challenges do people face if they choose to pursue international labour migration as an adaptation strategy?	This question explores how pre-existing vulnerabilities and intersecting forms of discrimination affect who can migrate under what conditions, including how migration policies and regulations facilitate or hinder safe, regular and orderly migration.
3	How do working conditions in selected sectors contributing to the bioeconomy affect the capacity of labour migration to enhance human well-being and support adaptation to climate change?	The focus here is on the extent to which migrants can access decent work in destination countries, and how labour policies and practices affect work conditions. The focus includes the role of social inequities in exacerbating the vulnerabilities of migrant workers, in the living conditions they encounter, and in the extent to which they are exposed to new environmental hazards.
4	How is international labour migration affecting the climate vulnerability and adaptive capacities of migrants and their origin communities?	This research question focuses on the broader impacts of climate-driven labour migration, including how remittances can contribute to adaptation in origin communities. Again, a key aspect of the analysis is how intersecting social inequities shape the outcomes and impacts of migration.

The study recognizes from the outset that, as emphasized in the existing literature, the mechanisms that drive human mobility (and immobility) in the context of climate change are complex (Cissé et al., 2022; Wrathall et al., 2022). Indeed, it is often difficult – if not impossible – to isolate environmental and climatic factors from other social, political and economic factors that together drive migration (Black et al., 2011; Black et al., 2013). To engage with this complexity, including the interaction of economics, human agency and systemic structures, the analysis draws on key insights from Hein de Haas (2021), including his aspirations–capabilities framework.

At the centre of de Haas' framework is **mobility**: the freedom to choose where to live, including the option to stay. Mobility is a function of people's **aspirations** for their lives (and their perception of where they can best achieve them), and their **capabilities**, which are defined by various factors that de Haas calls **positive** and **negative liberties**. Positive liberties ("freedom to") are factors that facilitate people's pursuit of the life they want: get an education, start a business, leave or stay in their home community. Negative liberties ("freedom from") are protections from discrimination, violence, exploitation and other abuses and constraints – not just by law, but in practice, in their lived experience.

The extent to which people enjoy these liberties is often constrained by social inequities, on the basis of gender, ethnicity, socioeconomic status, age, (dis)ability and other intersecting factors. This study pays particular attention to gender dynamics and barriers – including norms, division of labour, power relations, and access to and control over resources. All these factors can impact people's aspirations and capabilities, their ability to migrate, their migration journeys and their job prospects (Vigil, 2021).

This framework fits well with the current understanding of climate vulnerability and adaptive capacity. Analysing the liberties that people enjoy or lack, and how climate change and environmental degradation affect them, can shed light on both why people may want or need to migrate, and their ability to do so. Looking for the presence or absence of those same liberties during the migration journey and at the destination to understand the adaptive potential of migration.

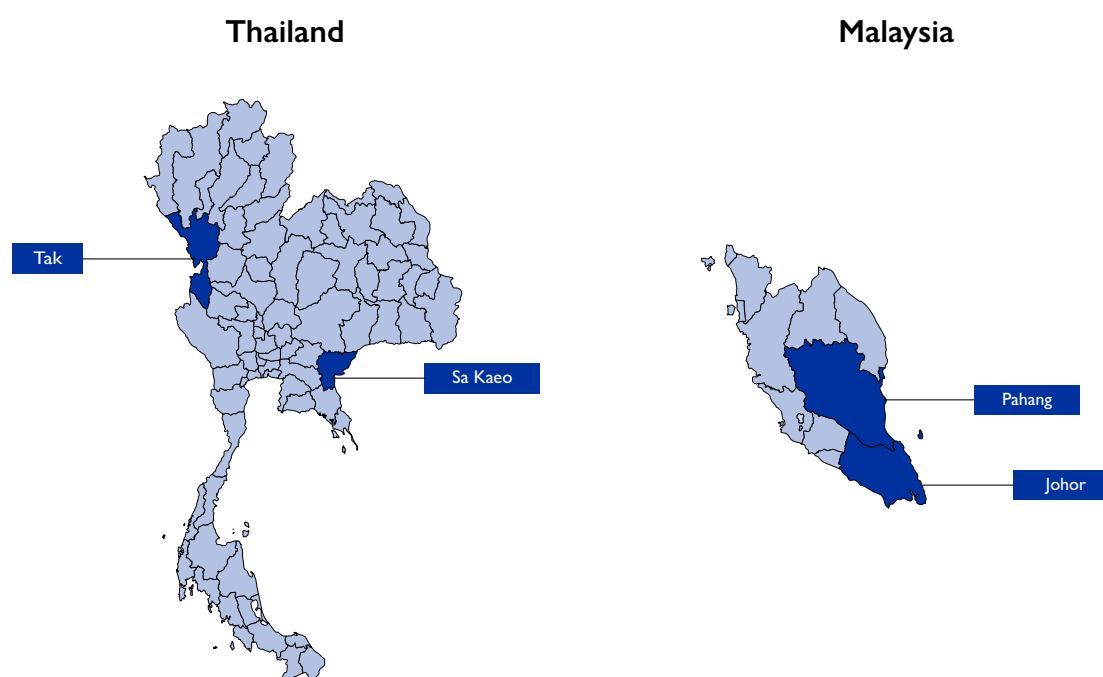
While this study does not strictly apply the full spectrum of the aspirations – capabilities framework, many of the ideas echo through the analysis, especially the distinction between precarious and improvement migration,⁶ and the attention to liberties. In line with de Haas (2021) and with Sen's (1999) conceptualization of development as freedom, this study envisions migration as successful adaptation when it constitutes an integrated development process that expands substantive freedoms, such as social and economic opportunities, political freedoms, transparency guarantees and protective security.

1.3 METHODS

This research relied on desk research, multi-stakeholder consultations, remote interviews, and fieldwork in Malaysia and Thailand, including interviews with employers, local authorities and a total of 88 migrants (Table 1). Malaysia and Thailand were chosen as study sites following a scoping study conducted for this research in 2020. The sites for the fieldwork were selected through an assessment of the national context and migration corridors, drawing on both academic and grey literature. The interviews and multi-stakeholder consultations included representatives from civil society organizations, United Nations agencies and academia, who provided feedback on the study's scope and on the initial findings of desk-based research. The sites chosen, shown on Map 2, have significant sugar cane or palm oil production, as well as a large presence of migrants from the origin countries of interest working in these sectors. Several provinces in Thailand and Peninsular Malaysia fit these criteria; the ultimate choice was contingent on the researchers' access to the selected sites.

⁶ Based on the liberties that people enjoy (or lack), and drawing on a wide range of migration theories, de Haas (2021) identifies four broad categories of migrants: **precarious** migrants (the poorest and most vulnerable), **improvement** migrants (with limited resources, but few constraints), **distress** migrants (fleeing dangerous situations, but with some resources) and **free** migrants (who have the freedom and resources to pursue their aspirations where they wish).

Map 2. Selected research sites



Source: Authors' own work, made with MapChart, 2022.

Note: This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.

At the selected sites, semi-structured interviews were conducted to examine in depth how environmental and climate impacts are affecting traditional economic and political drivers of migration, as well as the experiences of migrant workers. Table 1 provides an overview of the research, broken down by country. The research followed a thorough ethics protocol devised by SEI in adherence with IOM's data protection principles (see [Annex 2](#) for more details).

Table 1. Overview of study methodology

Research step	Review of national policies, academic studies and grey literature		
Desk research	Malaysia	Thailand	Total
Key informant interviews (remote)	10 (4 women, 6 men)	14 (7 women, 7 men)	24 (11 women, 13 men)
Multi-stakeholder consultations	21 (13 women, 7 men, 1 non-binary)	24 (13 women, 11 men)	45 (26 women, 18 men, 1 non-binary)
Migrant workers	22 from Bangladesh (all men); 21 from Indonesia (5 women, 16 men)	20 from Cambodia (13 women, 7 men); 25 from Myanmar (11 women, 14 men)	88 (29 women, 59 men)
Key informants including employers and local authorities (fieldwork)	5 in Johor (all men); 4 in Pahang (all men)	5 in Tak (3 women, 2 men); 5 in Sa Kaeo (4 women, 1 man)	19 (7 women, 12 men)



Migrant worker residing in villages alongside the Thai-Myanmar border in Ranong, Thailand. © IOM 2020/Visarut SANKHAM

Limitations

Given the complexity of this research, and the variety of topics, nationalities and crops studied, it is important to acknowledge key limitations of this study upfront, particularly with regard to comparisons between migrants in Malaysia and Thailand and transferability of findings to other countries in the region.

All the migrant workers interviewed in Thailand worked on smallholder farms near border areas, where irregularity tends to prevail (Bylander, 2019; Musikawong et al., 2022), while those interviewed in Malaysia worked on large-scale holdings and had regular migration status. This occurrence is not necessarily representative of most migrant workers on plantations in either country, however. The manner in which interviewees were selected (described below), the coronavirus disease 2019 (COVID-19) pandemic and the political crisis in Myanmar may all have affected the share of irregular versus regular migrants in both samples.⁷

These differences make it difficult to compare working conditions in the sugar cane and palm oil sectors overall, but they provide opportunities to compare working conditions between smallholdings and large holdings, and between migrants with irregular and regular status. The research also applied a qualitative, not quantitative approach. Doing so allows for an in-depth exploration of the phenomena of interest, but has limitations when it comes to extrapolating findings to the wider population.

As noted above, there were several sites in both countries that met the study criteria, and the final selection was made on the basis of whether the research team could access migrant workers, which was particularly difficult in Malaysia. In Thailand, a snowball sampling strategy (in which each respondent is asked to recommend others) was used to find interviewees. This could introduce biases, as people might recommend others with similar experiences. In Malaysia, the interviews took place within palm oil estates, with interviewees selected by the employers. Although the interviews were conducted in rooms where employers could not listen in or interfere, to protect workers' confidentiality, the sample selection and the location may have affected which workers participated and how they answered questions. Therefore, in both countries, the samples are not statistically representative. The irregular status of most migrant workers interviewed in Thailand may also have affected their answers to questions about their working and living conditions, as they might have feared arrest or deportation.

⁷ Out of all migrants from Myanmar, there were no Rohingya migrants. However, given the specific vulnerabilities that the Rohingya migrants face, further research and policy attention on this group are urgently needed (Vigil et al., 2022).

WHY LEAVE? CONDITIONS IN MIGRANTS' COUNTRIES OF ORIGIN



KEY MESSAGES

- *The reasons why people from Cambodia, Myanmar, Bangladesh and Indonesia migrate to Thailand and Malaysia in search of work are complex. Socioeconomic factors continue to play a central role, but they are increasingly intertwined with environmental stressors, which exacerbate pre-existing vulnerabilities.*
- *It is not only climate change that is creating adverse environmental conditions in migrants' communities of origin, but also, in some cases, the impact of government actions and business activities, which can limit access to key natural resources and cause environmental degradation.*
- *While some migrate to survive, aspirations for a better life and perceptions of relative poverty or wealth within countries of origin also motivate migration. Intersecting social inequities – linked to poverty, ethnicity, gender, age and other factors – affect people's ability to migrate and the conditions in which they do so.*
- *People who were already vulnerable due to poverty or other factors are particularly likely to experience severe economic impacts from climate change and environmental degradation. Some migrate as a result, while the most vulnerable may lack the resources to do so. One of the clearest links between the economic and environmental drivers of migration is debt incurred after a shock, such as a drought or flood. Sometimes households sell off crucial assets, such as land, to repay debts or to cover the cost of international labour migration.*

Bangladesh, Cambodia, Indonesia and Myanmar are all highly exposed to climate hazards and have large numbers of people who are deeply vulnerable – due to poverty, livelihoods that depend on natural resources, widespread environmental degradation, and the broader social, economic and political contexts (Eckstein et al., 2021; Bündnis Entwicklung Hilft and IFHV, 2021). Disasters linked to cyclones, torrential rains and floods occur often in both rural and urban areas, while slow-onset climate change impacts, such as sea-level rise and changes in precipitation – including more frequent and severe droughts – are severely affecting livelihoods and displacing some people, especially in dry zones and coastal communities (Sreynith, 2019; World Bank and Asian Development Bank, 2021).

Malaysia and Thailand face many of the same physical hazards, but, as shown in Table 2, with higher income levels and more diversified economies than their neighbours', they are less vulnerable to climate change impacts and have much greater capacity to adapt.



An aerial view of the palm oil plantation farms. © AdobeStock/MUAZ JAFFAR

Table 2. Income, economic diversification, climate vulnerability and adaptation readiness in origin and destination countries

	GDP per capita (2021, current USD)	Agriculture share of GDP (% , 2021)	ND-GAIN rankings (2022)	
			Vulnerability	Readiness
Bangladesh	2 503	11.6	29 th	167 th
Cambodia	1 591	22.8	50 th	164 th
Indonesia	4 292	13.3	76 th	103 rd
Myanmar	1 187	23.5	35 th	164 th
Malaysia	11 371	9.6	135 th	53 rd
Thailand	7 233	8.5	85 th	62 nd

Notes: All these indicators are imperfect proxies, but they provide valuable context. Gross domestic product (GDP) per capita indicates the level of wealth and economic development in a country, while the share of GDP from agriculture (as well as forestry and fishing, which are included in these figures) provides an indication of how much a country has diversified its economy, and also highlights the extent to which people depend on highly climate-sensitive activities for their livelihoods. The Notre Dame Global Adaptation Initiative (ND-GAIN) Index measures a total of 181 countries. For vulnerability, higher rank means the country is more vulnerable to the effects of climate change. For readiness, higher rank means the country is more able to leverage investments and convert them to adaptation actions.

Sources: World Bank and ND-GAIN.⁸

Business activities and government policies and investments can exacerbate social and environmental vulnerabilities, particularly when they are implemented without appropriate measures to protect and support communities (Belal et al., 2015; Gellert, 2015; Schneider, 2011; Borrás Jr. and Franco, 2010). The negative impacts disproportionately affect people who were already poor and/or marginalized for one or multiple intersecting reasons, such as women and girls, ethnic and religious minorities and Indigenous peoples, among others (Baird, 2008; Kaijser and Kronsell, 2014; Djoudi et al., 2016).

2.1 MIGRANT WORKER DEMOGRAPHICS AND SOCIOECONOMIC STATUS

As noted in the introduction, this study considers human mobility as a function of people’s aspirations and their capabilities, in line with de Haas’ (2021) conceptualization. The choice to migrate is made on the basis of how conditions at home are perceived, and whether migrants believe they can do better by leaving. These judgements often reflect not absolute deprivation, but rather how people perceive their situation relative to their communities or countries (Stark and Taylor, 1989). Indeed, the most vulnerable of all may lack the capacity to migrate. Migrants’ socioeconomic backgrounds shape their migration journeys and help explain why, and under which conditions, migration can be beneficial or detrimental as a climate change adaptation strategy.

Like most migrant workers, a majority of interviewees in both countries were young adults (18–34 years old) or middle-aged (35–54). In Malaysia, almost all were men, while in Thailand, there was a balance of men and women. As discussed further below, the profiles of the migrants reflect labour market demands

8 See World Bank data for GDP per capita (current USD): <https://data.worldbank.org/indicator/NY.GDPPCAP.CD?locations=BD-KH-ID-MM-MY-TH>, and for agriculture, forestry and fishing, value added (% of GDP): <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=BD-KH-ID-MM-MY-TH>. The ND-GAIN Country Index, last updated in July 2022, is available at <https://gain.nd.edu/our-work/country-index/>.

and the impacts of migration and labour policies. In addition, it is important to underline that in all four countries of origin, mobility decisions are typically made by the man who heads the household (Rashid, 2022; Alam and Khalil, 2022). When men decide to migrate, women are often expected to stay behind and care for the family, while also engaging in productive labour (such as tending to the family farm). The numbers of women migrant workers in South-East Asia have been growing, but there are still far more male migrant workers – and women are concentrated in lower-paid industrial and service sector jobs, including domestic work (ILO and UN-Women, 2020).

2.2 CLIMATE CHANGE AND ENVIRONMENTAL DEGRADATION

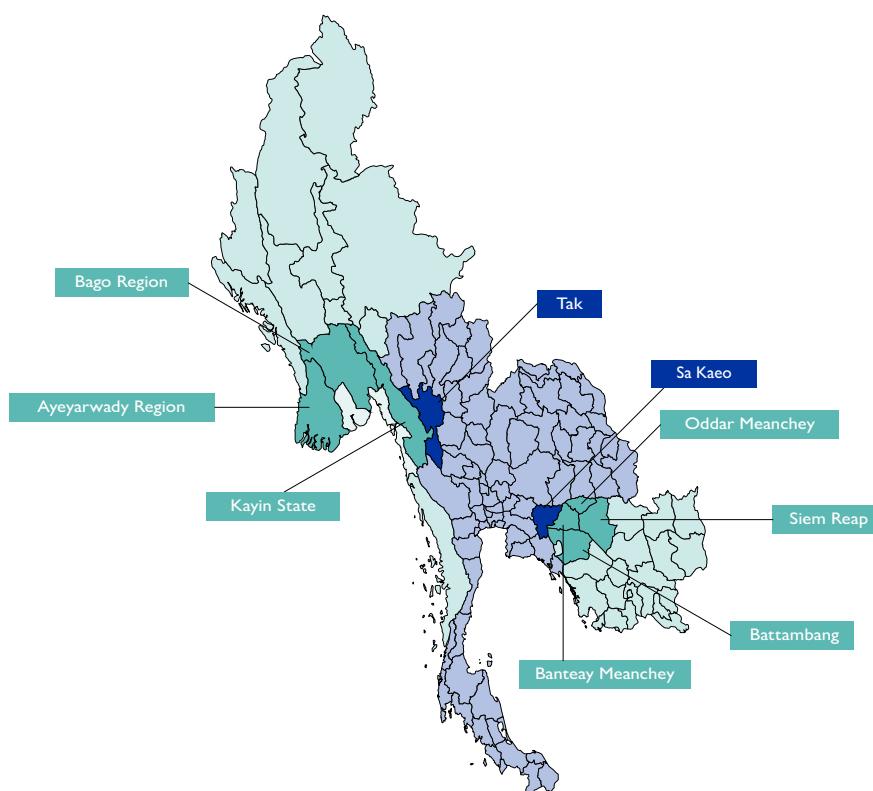
Many of the migrant workers interviewed in Thailand came from parts of Cambodia and Myanmar that lie near the Thai border and have been affected heavily by environmental hazards (Map 3). These are also areas with long-standing connections across the border. Most migrants from Myanmar came from the Bago region, followed by Kayin state and the Ayeyarwady region. The Bago region is heavily affected by climate impacts, and the Bago River basin has been experiencing several floods and droughts (Shrestha and Htut, 2016). In addition, farmers in the region rely on rain-fed rice cultivation in deep-water rice paddies in the floodplain, which is highly susceptible to climate change impacts (Win et al., 2020). Kayin state and the Ayeyarwady region have also faced severe environmental and climate conditions, which in Kayin state exacerbate the stress created by ongoing conflict (Simpson and South, 2021).

The majority of Cambodian migrants interviewed came from provinces along the Thai border, mainly from Banteay Meanchey, followed by Siem Reap, Battambang and Oddar Meanchey. These provinces, where most of the population relies on traditional rice farming, have seen some of the greatest reductions in rainfall in Cambodia (Sigelmann, 2020). In addition, Battambang and Banteay Meanchey were hard-hit by the 2013 floods, recorded as the country's worst in 70 years, which damaged farmland, infrastructure and homes (Chanrith et al., 2015).



Migrant workers on their way to farm factory in Mae Sot, Thailand. © IOM 2022/Javier VIDAL

Map 3. Interviewees' origins in Cambodia and Myanmar and destinations in Thailand



Source: Authors' own work, made with MapChart, 2022.

Note: This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.

The Bangladeshi migrants interviewed in Malaysia came mainly from Dhaka, Rangpur and Khulna, and some from provinces such as Chittagong, Mymensingh, Rajshahi and Barisal (Map 4). Among those who came from Dhaka, some had first migrated from elsewhere in the country. The northern, western and central areas of Bangladesh, including Rangpur, Rajshahi, Khulna, Dhaka and Mymensingh, are drought-prone (Rahman and Lateh, 2016). Rangpur and Rajshahi are also highly susceptible to floods (Rahaman et al., 2021). In addition, coastal regions of Bangladesh such as Khulna, Barisal and Chittagong are at the front line of the impacts of coastal flooding, tropical cyclones and sea-level rise (Hassani-Mahmooei and Parris, 2012; Awal and Khan, 2020; Ahmed and Eklund, 2021).

Of the Indonesian migrants interviewed, the majority came from West Nusa Tenggara, and a few came from West Sumatra, East Java, Central Java, North Sumatra and Riau. West Nusa Tenggara consists of two main islands, Lombok and Sumbawa, and is about 80 per cent drylands (Yasa et al., 2019). It is one of the major rice-producing provinces in Indonesia (Kirono et al., 2016), but climate change is expected to reduce rice yields (Khairulbahri, 2021). Lombok experienced a devastating earthquake in 2018 that displaced about 417,000 people and damaged 32,000 houses (AHA Centre, 2018). The poverty rate in West Nusa Tenggara was of 13.83 per cent as of September 2021, significantly higher than the national average of 9.71 per cent (BPS, 2022). The other provinces where interviewed migrants came from had lower poverty rates, but all (including West Nusa Tenggara) are highly exposed to major disaster risks – such as floods, landslides and, for some, cyclones, volcanic eruptions, earthquakes and tsunamis – as well as to slow-onset climate change impacts, such as droughts.⁹

⁹ See the [ThinkHazard! Profile for Indonesia](#), as well as the [World Bank's Climate Change Knowledge Portal](#).

Map 4. Respondents' origins in Bangladesh and Indonesia and destinations in Malaysia



Source: Authors' own work, made with MapChart, 2022.

Note: This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.

People who depend on natural resources for their livelihoods, such as farmers, are highly vulnerable to climate change impacts, particularly if they already lived in poverty. Many of the migrants interviewed in both Thailand and Malaysia had worked in agriculture prior to migrating, but the share of farmers was much larger among those from Cambodia and Myanmar, almost all of whom had depended on agriculture for their livelihoods. Several migrants from Bangladesh and Indonesia had worked in construction, selling and trading goods, and other occupations. However, some of them mentioned having been farmers in the past or having relatives who still farmed – so they still had connections to agriculture.

Environmental hazards reported by migrants

Floods were the most widely cited environmental hazards reported by migrants from Cambodia and Myanmar, followed by droughts. Bangladeshi migrants reported floods, storms and droughts as the main threats. The top hazards cited by migrants from Indonesia were earthquakes and droughts. After experiencing these events, some of which came year after year, migrants and their families reported having to sell their produce below the market price, having to restart their agricultural tasks (for example replanting crops), or not having enough food for consumption.¹⁰

¹⁰ Interview codes TTM6M, TTM9M, TTM21M.

Frequent and severe **floods** have major impacts on agricultural livelihoods and incomes. As a migrant from the Bago region in Myanmar explained: *“After the flood, the rice and beans were sprouted. We could not sell them for the normal price. For example, if we [normally] got 10,000 kyat [USD 5–6], we could only sell them at 4,000 or 5,000 kyat.”*¹¹ Another migrant from Bago, who had lived near a river, recounted: *“Floods occurred every year. During the flood, the rice we had planted died. Some of the houses were damaged and submerged. We lived near the river, so there was always heavy flooding. ... Every time there was a flood, it lasted for a month. Half of my house was covered by water.”*¹²

Storms, which often cause floods as well, are another growing threat, with devastating impacts on agrarian communities. A migrant from Mymensingh in Bangladesh explained: *“[The storms] occur during the months of Baisakh and Jaistha [mid-April to mid-June] every year. In some years there are fewer disasters than other years. Disasters and storms also occur during the months of Ashwin [mid-September to mid-October] and Kartik [mid-October to mid-November]. ... My house got destroyed by a storm [last year]. I haven’t been able to rebuild it till now.”*¹³

Droughts were also identified as key stressors impacting water security, crop yields and quality, and livelihoods in origin communities.¹⁴ A migrant from West Nusa Tenggara in Indonesia described how droughts affect his crops: *“Sometimes they’re only one month old when the drought comes, and immediately all of them die. ... In my experience at home, there is only one problem: the water problem.”*¹⁵

In some cases, floods and droughts occur in succession. As a migrant worker from Cambodia noted: *“There were big floods in [September] last year for more than a month; [...] however, a year before, there was not enough rain, and all the rice died. I have no idea why the weather [became] like this.”*¹⁶

Farmers in these four countries and across Asia already employ various adaptation practices to try to reduce the impacts of climate change (Shaw et al., 2022), such as irrigation and water management, switching crops and diversifying their own livelihoods. However, farmers also face many barriers to adaptation, including poverty, lack of access to assets and technology, limited government support, knowledge gaps and the absence of alternative livelihoods in many places.

The migrant interviews for this study reflect those patterns. A migrant from Mymensingh in Bangladesh explained that even after a flood devastates crops, impoverished farmers cannot quit: *“What would they do? They are not educated enough to get any job. How can they leave their land?”*¹⁷ Another migrant from Mymensingh, however, who described himself as relatively well off, cited multiple adaptation strategies: *“As we were facing problems in rice cultivation, we switched to fish farming. Rain or hailstorm does not have any particular adverse effect on fish farming. Now we cultivate a variety of rice which grows in the month of Agrahayana [mid-November to mid-December]. I have told my family not to grow rice in Baisakh [mid-April to mid-May], as natural calamities are more likely occur during this time. As a result, the cost of production is high.”*¹⁸

11 Interview code TTM9M. Note: Myanmar’s currency has lost significant value in the past two years. USD 5 roughly corresponds to the exchange rates in mid-2022; USD 6 roughly corresponds to the exchange rates in mid-2021.

12 Interview code TTM16F.

13 Interview code MBJM10M.

14 Interview codes TTM4M, TTM6M, TTM21M, TTM25M.

15 Interview code MIPM1M.

16 Interview code TSM5M.

17 Interview code MBJM3M.

18 Interview code MBPM1M.

Another Bangladeshi migrant, from Rangpur, who also identified himself as relatively well off, said his family was less affected by climate impacts due to their existing assets: *“We have motors and machines. We irrigate by using them [when droughts occur].”*¹⁹

It is important to note that income is only one of several factors that affect farmers’ adaptive capacities; multiple social inequities and intersecting forms of discrimination also limit people’s options (Ibrahim et al., 2019; Leya et al., 2021). Marginalized groups such as women, youth, elders, people with disabilities, ethnic and religious minorities, sexual and gender minorities, and Indigenous peoples may have fewer assets than their neighbours, lack access to finance, be excluded from decision-making in their households and/or communities, and even be unable to move around freely (or safely). As a result, they may be unable to implement adaptation strategies that are available to others.

2.3 THE IMPACT OF GOVERNMENT AND BUSINESS PRACTICES

Development – including public sector investments in energy, water, transport and other infrastructure; the promotion of private investment; and economic diversification – can bring many benefits, including new job opportunities, higher incomes and improved living standards. As people rise out of poverty and can choose among multiple livelihood options, and infrastructure and public services improve, climate resilience and adaptive capacity can significantly increase (IPCC, 2022). However, without appropriate social and environmental safeguards, such as meaningful and inclusive environmental, social and human rights impact assessments, the actions of governments and businesses can actually make people more vulnerable. They can exacerbate environmental problems, create new ones, disrupt local livelihoods and sometimes drive displacement.²⁰

A prime example is **agribusiness development and land concessions** (Kelley et al., 2020). In Cambodia, for instance, concessions granted by the government have limited vulnerable populations’ access to land and other key natural resources and resulted in forced displacement. As previous research has shown, the loss of access to land has contributed significantly to labour migration towards Thailand (Vigil, 2022b). Similarly, in Indonesia, the establishment of large-scale plantations for palm oil production has led to forced displacement (Li, 2017), as well as the clearing of peatlands and forests.

Infrastructure development can also adversely affect local populations, even when it is meant to drive economic growth and progress (Aboda et al., 2019; Salim and Negara, 2019). A migrant from Kayin state in Myanmar explained that due to tree removal for road construction, *“the area where we lived had become a drought area, [leading to] water shortages. It was difficult for us to carry out our agricultural occupations when water was scarce.”*²¹ A migrant from Cambodia noted: *“If there is water, it goes to the Chinese channel. So, there is no water. ... If we want to use the water, we need to buy it from them.”*²²

Another Cambodian described struggling without a job, and *“then the government took my mother’s rice field to build the road,”* leaving no option but to migrate.²³ Similarly, a migrant from Chittagong in Bangladesh noted how road construction, often motivated by the government’s push for large-scale infrastructure

19 Interview code MBJM4M.

20 Recognizing the crucial role of sustainable development in adaptation, the latest report by the Intergovernmental Panel on Climate Change (IPCC, 2022, p.30) lays out a detailed vision for “climate resilient development”, explaining: “Climate resilient development involves questions of equity and system transitions in land, ocean and ecosystems; urban and infrastructure; energy; industry; and society and includes adaptations for human, ecosystem and planetary health. Pursuing climate resilient development focuses on both where people and ecosystems are co-located as well as the protection and maintenance of ecosystem function at the planetary scale.”

21 Interview code TTM6M.

22 Interview code TSM3M.

23 Interview code TSM20F.

projects, damages local ecosystems and leaves communities unprotected from natural hazards: *“They cut down trees to widen roads. These roadside trees and big trees protected us from storms. These trees also maintained the balance of our ecosystem. Now these trees are gone. The absence of trees has harmed the environment. ... During storms, big trees protect houses to a great extent from the onslaught of strong winds. If a house doesn’t have trees around it, the full force of the wind strikes the house. Trees are very important for the environment.”*²⁴

Development and business activities not only have environmental and economic impacts, but also create **health hazards** for vulnerable communities. In Indonesia, for example, land-clearing for palm oil production has been associated with widespread forest fires and water and air pollution, all of which are felt acutely by the local populations (Biswas and Tortajada, 2016). A migrant from Bangladesh described the combined impact of climate change and economic activities in his community: *“Environmental pollution has increased diseases and sickness among people. Many people are contracting new ailments. ... All of these things happened because of changes in climate and environment. The poisonous smokes from brick kilns, cutting down of roadside trees, people building houses indiscriminately and unsystematically without following any rule or regulation.”*²⁵

Several migrants interviewed spoke about the impacts of **hydropower dams** on water access in their home communities, particularly amid increased water scarcity due to climate change. A Cambodian migrant from Siem Reap said water releases from a hydropower dam had flooded a rice field and destroyed crops: *“They built this reservoir for 10 years. Three years in a row they released the water, and it damaged the rice field.”*²⁶

A migrant from Bangladesh described negative impacts from the canal and barrage system in the upper portion of the Teesta river that runs through India and Bangladesh: *“This year, there was heavy rainfall in Bangladesh, and floods started early in our area. Due to the Teesta River water that came from India, most of the crops of north Bengal got destroyed. [But then] we don’t get water during times of need.”*²⁷

Gender differences in local livelihoods, including men’s and women’s respective roles in agrarian production systems, can lead to different experiences with development activities (Behrman et al., 2012). Sometimes men directly benefit from development projects, as they can take jobs in construction, mining or commercial agriculture, while women’s small-scale agrarian livelihood activities are disrupted (Tsikata and Yaro, 2014). Gender disparities also have implications for households in which the man migrates and the woman stays behind. A migrant from Indonesia described challenges during a road expansion in his origin community, because the government would only pay compensation to the husbands, even if the wives were caring for the land: *“It must be the head of the household. ... It is the husband who owns the land, so the wife can’t take it.”*²⁸

2.4 THE MULTIPLE, OVERLAPPING DRIVERS OF MIGRATION

Asked why they migrated, most interviewees cited **socioeconomic factors and pressures** as the primary reasons: seeking better jobs to earn more money for their families and pay off debts. As a migrant from Myanmar put it: *“We are poor. Actually, I just want to live in my country. We have to migrate to another county because we are poor. The other factor is to get a good job, and I want my family to have a peaceful life.”*²⁹

24 Interview code MBJM10M.

25 Interview code MBJM10M.

26 Interview code TSM16M.

27 Interview code MBPM6M.

28 Interview code MIPM2M.

29 Interview code TTM5M.

As noted in [Section 2.1](#), however, while the most vulnerable people may migrate as a survival strategy, people who are not in dire situations may still choose to leave because they aspire to a better quality of life – what de Haas (2021) calls “improvement” migration. As a migrant from Indonesia noted: “[*The income is enough to just eat, but for us, for example, to buy a car – that is something we can’t afford. So, we want to be like other people who have a stone house. So we tried to migrate. So it’s not that we are really poor, but we want to live better.*”³⁰

Higher wages in the destination countries are central factors driving migration. As a migrant from Bangladesh explained: “[*I needed money, so that I could go back to Bangladesh with this money and do some business or have any other means of income. ... If I work abroad, I can send money home every month even after maintaining my own expenses. I can save most of my income, but in Bangladesh, it’s not possible to make any savings. Whatever I earn is spent.*”³¹

Similarly, a migrant from Central Java explained that a plantation worker in Malaysia earns about as much as an office worker in Indonesia, while lower-level workers earn too little to meet their needs. “[*That’s what makes people like me, with no higher education, want to work here. Now I work with a salary of 1,500 ringgit [USD 340]. ... That’s what makes us kind of appreciative [of the opportunity to work in Malaysia]*”.³²

However, this may change. As a male Indonesian migrant from West Nusa Tenggara noted, rising pay on Indonesian oil palm plantations is changing the economic calculus for workers: “[*There has always been palm oil in Indonesia, but now the difference [in pay] between Indonesia and Malaysia is smaller. Before, it was large,*” he said. Converting his pay into Indonesian rupiah (IDR), he added: “[*In Malaysia we get a salary of 5 million [about USD 340]; in Indonesia, 2 million [about USD 135]. The salary difference used to be big, but now it is thinning a bit. So now many are returning from Malaysia. Go to Indonesia, work there.*”³³

Gender differences are evident both in migrants’ vulnerabilities in their origin communities, and in their employment options abroad. The majority of interviewees on the palm oil estates in Malaysia were men with regular migration status. This is consistent with 2018 national data showing only 29 per cent of documented migrant workers in Malaysia were women (ILO and UN-Women, 2020); in Thailand, it is 41 per cent. As discussed further in [Section 3.3](#), like many countries around the world, Malaysia and Thailand bar most migrant workers from bringing their spouse or children, and this contributes to the gender imbalance among regular migrants.

On smallholder sugar farms in Thailand, where most migrants had irregular status, there was more gender balance, with many women working alongside their husbands, along with some single women. Still, some women who had migrated without a man described experiencing marginalization at home. For example, a widow from Cambodia explained: “[*My living condition is the poorest in the community, as I don’t have income from my husband. He died two years ago after committing suicide.*”³⁴

30 Interview code MIJM6F.

31 Interview code MBJM4M.

32 Interview code MIJM6F.
All currency conversion estimates from Malaysian ringgit to United States dollars reflect the average exchange rate in 2022, as posted at www.exchangerates.org.uk/USD-MYR-spot-exchange-rates-history-2022.html. All numbers have been rounded to the nearest multiple of 5.

33 Interview code MIPM3M.
All currency conversion estimates from Indonesian rupiah to USD reflect the average exchange rate in 2022, as posted at www.exchangerates.org.uk/USD-IDR-spot-exchange-rates-history-2022.html. All numbers have been rounded to the nearest multiple of 5.

34 Interview code TSM15F.

In addition to environmental and socioeconomic factors, several other stressors have accentuated the need to migrate – but also made migration more precarious in some cases (Narim, 2021; IOM, 2020b). Two are particularly prominent: the **political situation** in Myanmar and the **COVID-19 pandemic** (Borras et al., 2021). As a migrant from Myanmar explained: *“The first time I came to Thailand was in 2015. I chose to work in Thailand because there are fewer job opportunities in Myanmar. In 2020, both COVID-19 and the political situation made me want to migrate to Thailand again. The daily wages that we can currently get in Myanmar are not enough for us, and everything is very expensive right now.”*³⁵

A key finding of this study is that **economic and environmental drivers of migration are intrinsically intertwined**. Although all interviewed migrants had experienced climate change impacts and other environmental hazards in their countries, the ones who reported the clearest links between those hazards and migration were particularly low-income migrants from Cambodia and Myanmar, mainly farmers.

As a migrant from Kayin state in Myanmar explained: *“It is sometimes time to plant crops and rice, but it is still not raining. The area becomes a drought-prone area. Flooding occurs from time to time, destroying our farm. I had a few situations where I was unable to earn an income. I migrated to Thailand due to political, environmental and economic issues.”*³⁶

Several migrants from Myanmar highlighted economic precarity linked to environmental shocks as their primary reason for migrating to Thailand.³⁷ As an interviewee from the Bago region noted: *“I had to deal with environmental issues like storms, droughts, forest fires and flooding in the last 10 years. In my village, it had a significant impact on most people’s livelihoods. These are also factors that have an impact on my financial situation. When a natural disaster happens, I have to restart my work over and over. We sometimes don’t have food to eat or money to buy food because of environmental issues.”*³⁸

Similarly, a migrant from Kampong Speu in Cambodia said many people from his village have gone to Thailand because they had no money and they faced droughts and water shortages. *“Only old people in the village stay, because they cannot walk,”* he said.³⁹ The migrant workers interviewed in Malaysia were generally less motivated by environmental factors, but some cited disasters in their origin communities. A migrant from Khulna, Bangladesh, said: *“When our paddy field got flooded, I was worried about what we would eat. Those who worked abroad had money, but we had no money. However, Allah blessed us, and I won the [work visa] lottery, so I came here.”*⁴⁰

Another Bangladeshi migrant, from Khulna, noted: *“When the hailstorm caused damage to the crops, the weather made people want to go overseas.”*⁴¹ Several migrants cited the 2018 earthquake as a key motivator for migration. A worker from West Nusa Tenggara noted, for example, that both his brothers’ houses had been destroyed by the earthquake, and since then, one had been living in Kalimantan, while the other had migrated to Malaysia, just as he did.⁴²

35 Interview code TTM5M.

36 Interview code TTM4M.

37 Interview code TTM3F, TTM7M, TTM10M, TTM17M, TTM20M, TTM21M, TTM22F, TTM23F, TTM24F.

38 Interview code TTM21

39 Interview code TSM3M.

40 Interview code MBJM2M.

41 Interview code MBJM7M.

42 Interview code MIJM7M.

Climate change impacts, debt and migration

One of the clearest links between the economic and environmental drivers of migration is debt. Climate change impacts and other environmental stressors cause farmers to lose income and assets, leading them to incur debt. If they cannot find good jobs to supplement their income in their countries of origin, they may consider international migration.

A woman from Cambodia recounted: *“The drought affected my farm a lot, and that put me in a heavy debt with the loan shark, THB 50,000 [USD 1,425]. You ask me the main factor for me to migrate to Thailand? The main reason is because I have debt.”*⁴³ Another migrant from Cambodia described falling into debt after a flood.⁴⁴ A migrant from Myanmar described yearly floods that destroyed the crops: *“We [had] to replant them every year after they were destroyed by the flood. That was the main problem that affected my livelihood when I lived in my village. Also, I still have to pay back some debts to the people in the village where I lived before. I am working in Thailand with the aim of earning money and repaying my debts.”*⁴⁵

Migrant workers in Malaysia who were in debt mostly cited earthquakes and floods as the causes. It is possible that after sustaining losses from disasters, borrowing to cover the cost of migration may have seemed more manageable than borrowing to rebuild, as explained by a man from West Nusa Tenggara: *“Indeed, since the disaster, [people in my community] all want to migrate. Sometimes there is little difficulty [to migrate]; sometimes it costs nothing. [Other times] people are forced to borrow to migrate.”*⁴⁶

Coping mechanisms also vary greatly depending on socioeconomic status. Those who are relatively better off, own land and/or have stronger community support systems in their countries of origin may be able to avoid high debt. For example, a migrant from Bangladesh explained that community support systems help affected households deal with flood damages: *“Floods occur every year in our area. Banana plants are damaged. Vegetables get damaged. It’s because of storms. Storms destroy everything in their path. ... We worked hard and recovered the loss by selling the crops again.”* With little cash available, they had to purchase farm inputs on credit: *“We borrowed seeds, fertilizers and other things for our land from the market. After selling our crops, we repaid those from whom we borrowed. ... I witnessed such crises three to four times.”*⁴⁷

Economically insecure households without such support systems may migrate because they need to earn money to repay debts. Some may sell off crucial assets to be able to pay off debts and finance international migration. In Asia, women farmers often bear the direct impacts of debt, as they often manage the finances of the farm and the household (Tatlonghari and Paris, 2013). When there are scarce resources and livelihood opportunities, younger family members, often men, are encouraged to migrate to support the family, while the women and girls stay behind to care for children and elders (Ashfaq et al., 2016). A migrant from Mymensingh in Bangladesh noted that as agricultural production has suffered in his community, *“[people] are looking for other livelihoods. Some people are selling their land to send their sons abroad.”*⁴⁸ While international labour migration may provide near-term economic benefits, selling off land is also likely to make these families more vulnerable in the future.

43 Interview code TSM19F.

All currency conversion estimates from Thai baht to United States dollars reflect the average exchange rate in 2022, as posted at www.exchangerates.org.uk/USD-THB-spot-exchange-rates-history-2022.html. All numbers have been rounded to the nearest multiple of 5.

44 Interview code TSM16F.

45 Interview code TTM15F.

46 Interview code MIPM2M.

47 Interview code MBJM9M.

48 Interview code MBJM3M.

MIGRATION DESTINATIONS, PATTERNS AND JOURNEYS



KEY MESSAGES

- *Thailand and Malaysia are key destination countries for migrant workers, as they have more advanced economies than their neighbours and offer better-paid job opportunities, including in sectors producing biofuels. The relative ease of migrating by land also makes Thailand more accessible to workers from Cambodia and Myanmar than other destinations.*
- *Sugar and palm oil production have grown dramatically as a result of national bioeconomy policies linked to climate and development goals. However, these sectors depend on low-wage migrant labour, are vulnerable to climate change, and have considerable local environmental impacts.*
- *The conditions under which workers interviewed for this study had migrated varied significantly: Migrants from Bangladesh and Indonesia who worked on large-scale palm oil estates in Peninsular Malaysia had migrated alone, without their family, and with work permits tied to a specific employer – in line with government requirements. In contrast, the migrants from Cambodia and Myanmar interviewed on small-scale sugar plantations in Thailand had migrated irregularly, often with their families, and worked short stints on each farm before moving to another.*
- *The laws and regulations governing labour migration, and the recruitment systems used, can make regular migration expensive and bureaucratically cumbersome. The costs associated with labour migration, through both regular and irregular channels, can force migrants to incur large debts, which may subject them to exploitation in destination countries and limit their capacity to earn enough money and to improve their well-being and adaptive capacity.*
- *Both Thailand and Malaysia have strict laws to protect workers, but their design and enforcement can be inadequate, and migrant workers are particularly vulnerable to abuse and exploitation.*

As noted in the introduction, most migration, including in the context of climate change, occurs within countries (Clement et al., 2021; Cissé et al., 2022). People may prefer to stay close to home, and cross-border migration can be difficult and costly. However, in border areas and in regions with a tradition of international labour migration, such as South-East Asia, people affected by environmental degradation and climate change may be likelier to seek work in another country. Both Thailand and Malaysia attract large numbers of international labour migrants. This section focuses on the context in those two countries, including sectors of the bioeconomy that are the focus of this report, migration policies and the structures that support them, and typical migration journeys for sugar cane and palm oil workers.

3.1 THAILAND AND MALAYSIA AS KEY DESTINATION COUNTRIES FOR MIGRANT WORKERS

Thailand

Thailand is the wealthiest and most developed country in the Greater Mekong Subregion,⁴⁹ and a primary destination and regional hub for migrants from Cambodia, Lao People's Democratic Republic, Myanmar and Vietnam (IOM, 2022). Thailand's rapid industrialization created demand for low-wage workers to produce manufacturing and agricultural commodities for export, especially since the late 1990s (Kaur, 2010). As of December 2022, there were about 2.4 million registered foreign workers in Thailand, including 1.7 million from Myanmar and 460,000 from Cambodia (Department of Employment, 2022).

⁴⁹ See Table 1, as well as [World Bank data on GDP per capita](#) (purchasing power parity) across the region. Thailand also ranked 66th on the 2021 Human Development Index, qualifying as a country with "very high" human development, while Cambodia was 146th and Myanmar, 149th, both rated as having "medium" human development (UNDP, 2022).

A survey of 10,156 Myanmar migrants in Thailand in 2019 found that the largest numbers were employed in manufacturing, construction and hospitality (IOM, 2019a), with smaller shares in domestic work and agriculture/forestry (7%). In contrast, a survey of 5,630 Cambodian migrant workers in Thailand in 2019–2020 found 46 per cent worked in agriculture/forestry, far more than in any other sector (IOM, 2020a).

Along with higher wages and economic opportunities, key drivers of migration from Cambodia and Myanmar to Thailand include shared history and culture, geographical proximity and a porous border (IOM, 2019b). Cambodia's history of political instability, resulting in severe poverty and widespread landlessness, has driven many Cambodians to seek work in Thailand (Walsh and Ty, 2011; TNAI1). Similarly, the drivers of labour migration from Myanmar to Thailand are traditionally political and economic: from ethnic conflicts and civil war since Myanmar's independence, to the existence of formal and informal networks and support systems for Myanmar migrants to Thailand (IOM, 2019a).

Thailand's agricultural sector has long relied on migrant workers from Cambodia and Myanmar, and significant rural-to-urban migration has increased demand for migrant workers in rural areas (Thetkathuek and Daniell, 2016). In general, there are more men than women employed in the sector (IOM, 2019b), due to the precarious conditions during the migration journey, as discussed below, as well as patriarchal customs in countries of origin that discourage women from leaving to find work abroad (see [Section 2.1](#)). As discussed further below, many migrants cross the border on foot around the sugar cane harvest season and work short stints at different farms.

Malaysia

Malaysia is even wealthier and more urbanized than Thailand,⁵⁰ bolstered by sustained high economic growth in the 1970s and large-scale infrastructure and urban development. Migrant workers help the country cope with labour shortages in agriculture, construction and domestic services (Nguyen, 2021; Kaur, 2010). The Government estimates that there were about 2.18 million foreign workers as of 2018, or 14.8 per cent of the workforce (DOSM, 2020), making Malaysia the second migrant-receiving country in the region, after Thailand. Indonesians and Bangladeshis make up the largest groups by far, with about 704,000 and 569,000, respectively, registered as of June 2019.⁵¹ Several unofficial estimates have suggested higher numbers of irregular migrants, which would put Malaysia's total migrant workforce at 3 million or more (Yi et al., 2020).⁵²

The palm oil sector is one of the top employers of migrants in Malaysia. Prior to the COVID-19 pandemic, migrants – mainly Indonesians – made up 80 per cent of the sector's roughly 437,000 workers (Chu, 2022). As discussed further below, by law, estates can only hire migrants if they cannot find Malaysians to fill jobs (Mahendran et al., 2022), but they also perceive migrants as willing to work harder for lower pay (Shahiri et al., 2021). Migrants are so essential to the palm oil sector that the COVID-19 travel ban, which lasted until October 2021, and subsequent delays in resuming regular migration flows severely disrupted production. As of June 2022, the Malaysian Estate Owners' Association (MEOA) said the sector was short by about 120,000 workers and losing revenue as it struggled to harvest the fruit (Chu, 2022).

50 Malaysia's GDP per capita in 2021 (again in purchasing parity terms) was USD 29,617, compared with USD 12,904 in Indonesia and USD 6,613 in Bangladesh. Malaysia ranked 62nd on the 2021 Human Development Index, while Indonesia was 114th and Bangladesh, 129th (UNDP, 2022).

51 The country-by-country data in the DOSM report are attributed to the Malaysian Immigration Department.

52 For example, the World Bank (Yi et al., 2020) estimates the total at 2.96–3.26 million in 2017 (when the official estimate is 2.27 million foreign workers); it also notes that some higher estimates may not account for recent regularization efforts.

Migrants, meanwhile, are eager to work in Malaysia. Despite persistent concerns about exploitation, they are drawn by job opportunities with higher wages than in their countries of origin (Llewellyn, 2021; Theng and Romadan, 2020; Gottwald, 2018). For Bangladeshis and especially Indonesians, Malaysia is also relatively close and majority-Muslim, like their own countries (Dannecker, 2013). Bangladeshis have been coming since about the 1980s, while labour migration by Indonesians to Malaysia dates back to cooperation between the British and Dutch colonial empires (Kaur, 2010).

Bangladeshis are mainly employed in construction, manufacturing and services, but about 5 per cent work on plantations (mainly growing palm oil), and 4 per cent in other forms of agriculture (Wickramasekara, 2020). In contrast, 29 per cent of Indonesian workers are on plantations, and another 11 per cent in other forms of agriculture. Indonesians are the biggest and most established group of international migrants in Malaysia overall, and their social networks play a significant role in migration patterns and arrangements (Nguyen, 2021). On plantations, there are far more men than women workers, regardless of country of origin (Earthworm, 2019), due to gender and social norms that prevent women from migrating, laws that prevent family migration and employer preferences, as discussed further below.

3.2 BIOFUEL CROP PRODUCTION IN THAILAND AND MALAYSIA

Both sugar cane and oil palm production in South-East Asia have been spurred to a great extent by demand for liquid biofuels, which several countries have favoured in their climate policies. As noted in the introduction, Thailand and Malaysia are both among the world's top producers of biofuel feedstock, and among the top employers of biofuel sector workers (IRENA, 2022). Part of the appeal of sugar cane and palm oil is that they are “flex crops” – meaning they have multiple uses, including for food production, animal feed, industrial materials and fuel. Flex crops are particularly attractive to investors, as they can be sold in several profitable markets (Borras et al., 2016).

Sugar cane in Thailand

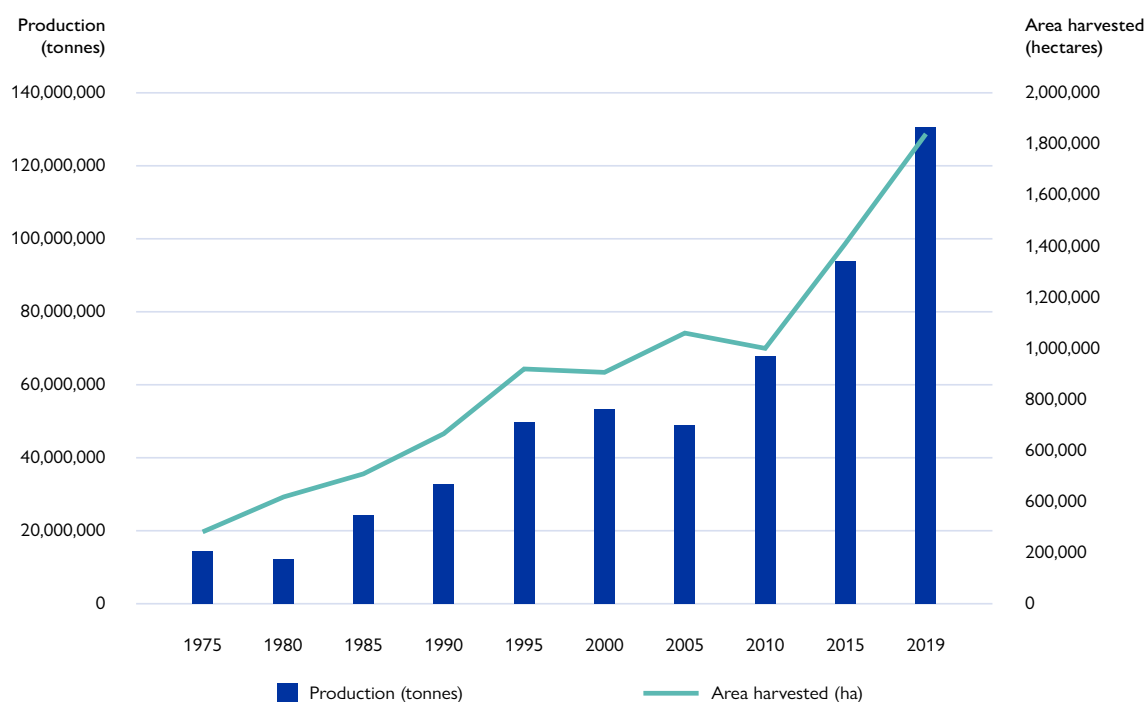
Sugar cane is the main cash crop in Thailand, grown on more than 1.8 million hectares of land as of 2020,⁵³ with sugar cane exports estimated at USD 1.83 billion in 2020; only Brazil exports more.⁵⁴ The sugar supply chain, including growers, millers and associated personnel, employs more than 1.5 million people and generates about USD 6 billion per year (Manivong and Bourgois, 2017). Smallholders are crucial to the sector, with more than 300,000 small farms across Thailand; 70 per cent of the country's sugar is produced on farms of less than 10 hectares (Viart et al., 2020).

The Royal Thai Government has strongly encouraged sugar cane production to replace low-productivity rice fields. In addition, the national bioeconomy strategy calls for the production of ethanol from sugar cane (Sawaengsak et al., 2019). As shown in [Figure 1](#), both the land area devoted to sugar cane and annual harvests have grown significantly in the past decade. In 2012, Thailand initiated a crop zoning system designating different areas for different crops based on land suitability, crop requirements and market demand. The policy encouraged farmers to switch from growing rice for their own consumption, to growing cash crops such as sugar cane, palm oil and cassava (Manivong and Bourgois, 2017). Along with biofuels, the national bioeconomy strategy envisions producing biopharmaceuticals and biochemicals, with a focus on sugar cane (Thailand Board of Investment, 2019).

⁵³ Data from [FAOSTAT](#), based on official data.

⁵⁴ See [Observatory for Economic Complexity data for Thailand](#) and for [sugar cane](#) (note that these data are for 2018). In 2018, Thailand accounted for 14.7 per cent of sugar cane exports by value.

Figure 1. Sugar cane in Thailand: Production and Area Harvested



Data source: FAOSTAT database, Food and Agriculture Organization of the United Nations (FAO), accessed 3 October 2022.

The production of sugar cane is highly vulnerable to climate change, including increased droughts (Manivong and Bourgois, 2017). Although the season of sugar production in Thailand (November to April) reduces competition in export markets (as other countries' harvests occur at different times of the year), output fluctuates significantly, especially in a changing climate (Pipitpukdee et al., 2020). Thai sugar cane production is mostly rain-fed, with only 10 per cent of the crop area under irrigation, and droughts damage the cane. For example, in 2016, production dropped by 11 per cent from the previous year due to severe droughts (Manivong and Bourgois, 2017). The 2019–2020 harvest cycle was also 14 per cent smaller than in the previous year, due to the worst drought in four decades (Apisitniran, 2020). These environmental factors affect demand for migrant workers. The varying cost of sugar cane outputs also means that seasonal incomes are more difficult to predict, putting strain on the livelihoods of both migrant workers and the farmers who employ them.

Sa Kaeo and Tak provinces

Sugar cane is grown in more than 48 provinces of Thailand (Department of Labour Protection and Welfare, 2015), but four stand out: Chonburi, Kanchanaburi, Sa Kaeo and Tak. Not only are they major producers, but they are also key destinations for migrant workers from Cambodia and Myanmar (IOM, 2019b).⁵⁵ Sa Kaeo and Tak, the two provinces selected for this study, have large areas that were designated as Special Economic Zones (SEZs) in 2015, with tax breaks and other incentives provided to businesses. SEZs are designed to increase the global competitiveness of Thailand's products, including by lowering production costs – which creates demand for low-wage workers.⁵⁶

55 Interview code TNAI2.

56 For an overview of SEZs, see NESDC (2022). Further details on the Tak and Sa Kaeo SEZs are available in Table 1 of ICJ (2020).



Agriculture is a key economic sector in both Sa Kaeo and Tak provinces (Royal Thai Government, 2022), and sugar cane is one of the main commercial crops grown. The expansion of sugar cane in Tak was strengthened by the introduction of national bioeconomy strategy (OCSB, 2019). Sugar cane production in Sa Kaeo has also grown since 2017, covering an estimated 69,000 hectares as of 2019, almost one tenth of the province's total land area (Montanero, 2019; OCSB, 2019). The Royal Thai Government provides subsidies to sugar cane producers (Manivong and Bourgois, 2017). However, production in both provinces is significantly affected by climate change and environmental degradation, such as rising temperature, droughts and floods (Lambrechts et al., 2011; Chuenhooklin et al., 2015; Noichaisin et al., 2020).

The environmental degradation caused by sugar cane plantations is considerable. For example, the conversion of land for sugar cane production in Thailand has led to the destruction of traditional irrigation systems and subsequent water scarcity (Barnaud et al., 2006). In Tak, a key reason for shifting from rice to sugar cane cultivation was cadmium pollution and poisoning in local waterways and rice from a zinc deposit mine (Songprasert et al., 2015). The majority of Thailand's sugar cane producers engage in pre-harvest open-burning, which emits air pollutants (such as aerosol and trace gases), adversely impacting the environment and human health, and leads to a deterioration of the soil (Sawaengsak et al., 2021; see also [Section 4.2](#)).

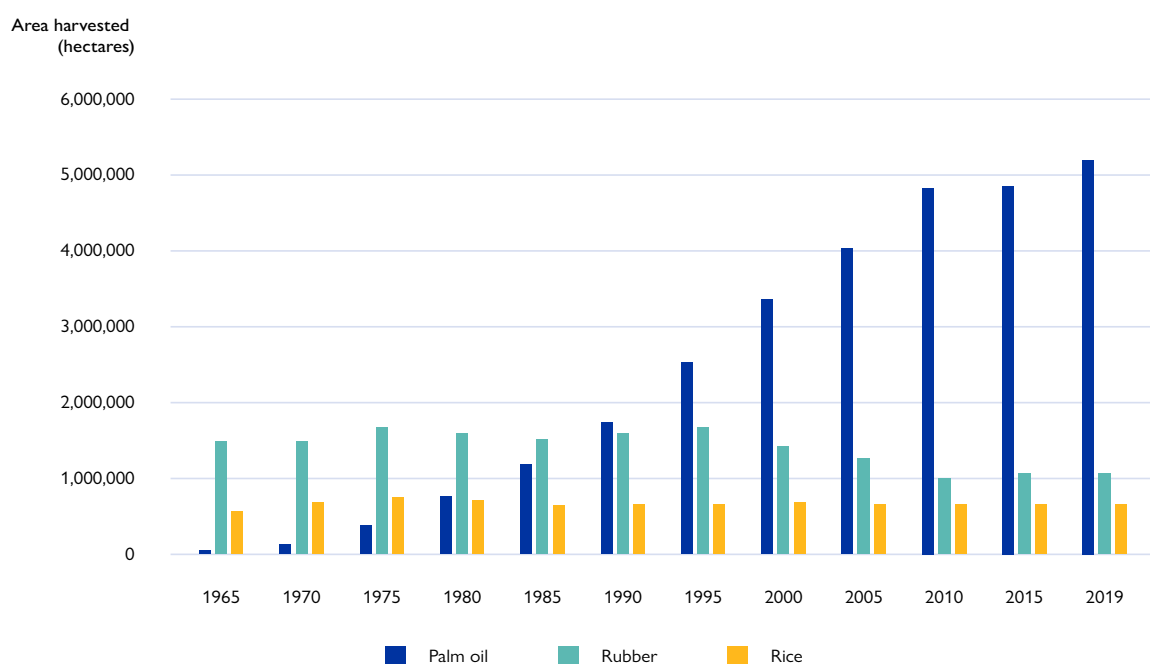
Palm oil in Malaysia

Oil palms were first introduced in Malaysia in the 1870s and have been grown commercially since 1917. Palm oil is now Malaysia's top plantation crop, with over 5 million hectares cultivated, or more than 15 per cent of the total arable land (Applanaidu et al., 2020; Phuang et al., 2022). Malaysia is the second-largest palm oil producer in the world, after Indonesia, contributing 31.1 per cent of total global exports in 2020 (Gaulier and Zignago, 2020). About three fifths of Malaysia's palm oil fruits comes from plantations owned by conglomerates or large businesses, and the rest from independent and organized smallholders⁵⁷ and, to a lesser extent, state schemes or government-owned plantations (Rahman, 2020).

⁵⁷ Organized smallholders receive technical, manpower and market support by government agencies such as Federal Land Development Authority (FELDA) and a corporate organization under the Ministry of Finance (FELCRA) (Rahman, 2020).

Malaysia started a comprehensive palm biofuel programme in 1982 and adopted its National Biofuel Policy in 2006, followed by the National Biofuel Industry Act in 2007, which regulates the sector and established the mandatory blending of 5 per cent palm biodiesel in diesel fuel for transport. In 2014, a 7 per cent biodiesel blending programme was introduced. These policies, which are still in place, are considered key parts of Malaysia’s contribution to fighting climate change (Government of Malaysia, 2015). Malaysia also sought to capitalize on global biofuel markets while reducing its own dependency on fossil fuels. The Government set out to mobilize local resources for biofuels, exploit local technology for biofuel production, and create new demand for palm oil. The Government provides incentives such as tax exemptions on the export of crude palm oil for biofuel and subsidies for the construction of biodiesel refineries (Rahyla et al., 2017).⁵⁸ As shown in Figure 2 palm oil has been the country’s top crop for three decades, and the area harvested has grown steadily.

Figure 2. Top crops in Malaysia (area harvested, ha)



Data source: FAOSTAT database, Food and Agriculture Organization of the United Nations (FAO), accessed November 9, 2022.

Large-scale palm oil plantations contribute to environmental degradation in Malaysia and, through deforestation, land conversion, and peatland and forest fires, also drive up greenhouse gas emissions (see, for example, Schmidt and De Rosa, 2020). The expansion of palm oil has been associated with biodiversity loss and soil erosion as well, and plantations in Malaysia have profoundly altered freshwater ecosystems in the last decades, mostly because of the use of fertilizers, gasoline for weed cutters, and empty fruit bunch disposals (Ayompe et al., 2021; Saswattecha et al., 2015; Carlson et al., 2014; Chin, 2011).

58 Interview code MNAI4.

Johor and Pahang states

Peninsular Malaysia accounted for 55 per cent of Malaysian crude palm oil production in 2022 and hosted a majority of the country's 24 biodiesel plants, including nine in Johor alone (Parveez et al., 2023). In Peninsular Malaysia, Johor, Negeri Sembilan and Pahang states are key destinations for migrants from Bangladesh and Indonesia working in the palm oil sector (Yu-Leng, 2018). Palm oil plantations in Johor and Pahang were selected as the study fieldwork sites in Malaysia. In both states, plantation-based production is the top economic sector (Zamri et al., 2022).

Johor is the top palm oil-producing state in Peninsular Malaysia, followed by Pahang (ibid.). It is also a key destination for international labour migration, with about 340,000 regular migrants as of 2019 (Wahab, 2020b). In Pahang, there were about 48,000 regular migrants as of 2019. Like Sa Kaeo and Tak provinces in Thailand, both Johor and Pahang are experiencing climate change impacts and other environmental challenges that affect crop production and rural livelihoods. These include droughts, floods, rising temperatures, and water and soil contamination from palm oil industrial activities (Tang, 2019; Tukimat et al., 2021; Tan et al., 2015).

3.3 KEY POLICIES REGULATING RECRUITMENT OF MIGRANT WORKERS IN BIOFUEL SECTORS

Thailand

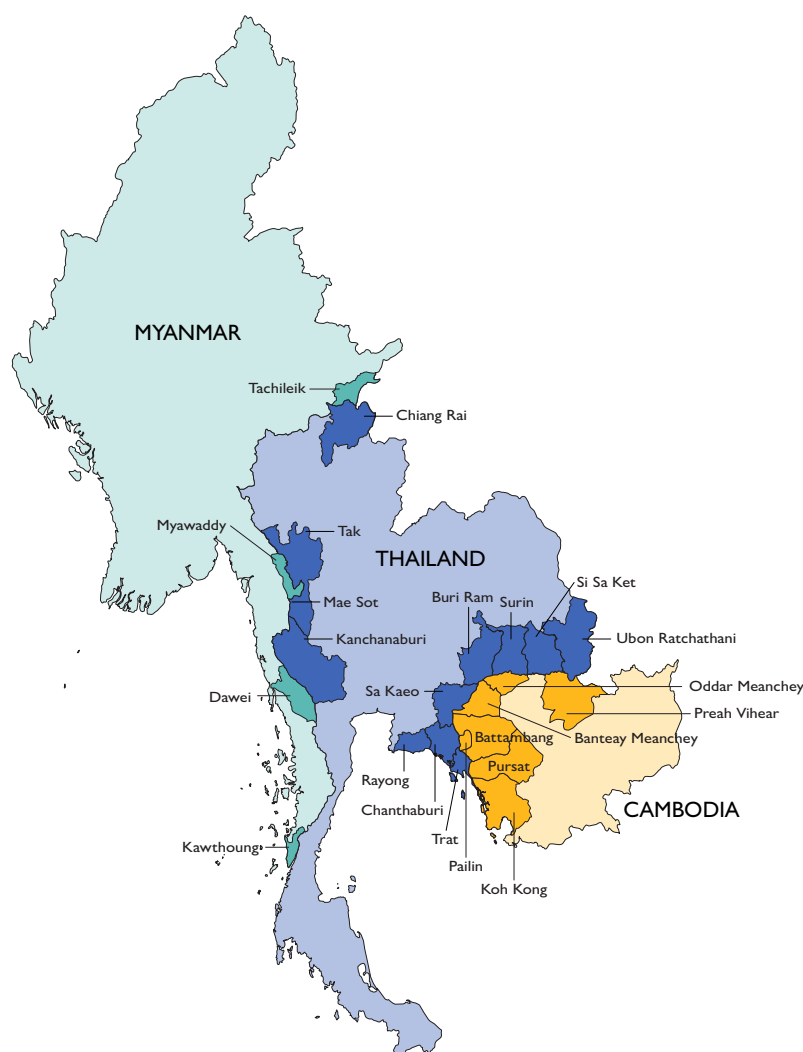
Growing sugar cane production has increased demand for migrant workers, especially in smallholder farms along the borders with Cambodia and Myanmar.⁵⁹ In the early 2000s, Thailand adopted memoranda of understanding (MoUs) with Cambodia, Lao People's Democratic Republic and Myanmar to regulate migration, which have been revised since. Thailand's 2017 Royal Ordinance Concerning the Management of Employment of Foreign Workers B.E. 2560 and its amendment in 2018 establish that the MoU process is the only official channel to enter Thailand for migrant workers for longer-term employment in lower-skilled occupations.

Through the MoU process, employers, including those in agriculture, can recruit migrant workers directly in their countries of origin or through recruitment agencies certified by the Thai Ministry of Labour. The migrants are issued a work permit that is valid for two years. Prior to the permit's expiry date, workers can apply to renew it for another two years. However, their total length of uninterrupted employment in Thailand cannot exceed four years, unless otherwise prescribed by the Council of Ministers, as was done during the COVID-19 pandemic. Under the MoU scheme, migrants can only work for one employer at a time, and they are not allowed to bring their dependents to Thailand. Both workers and smallholder farmers have described the MoU process as complex and expensive, which creates a barrier to using it (Musikawong et al., 2022).

While the MoU process focuses on relatively long-term employment, Section 64 of the Royal Ordinance facilitates the temporary employment of migrants in designated border provinces. The border employment regulation allows Thai employers in designated provinces bordering Cambodia and Myanmar to hire migrant workers from designated border areas in their respective countries, on a short-term basis. This regulation enables workers from Cambodia and Myanmar to take seasonal or daily jobs. Figure 3 shows the provinces covered in each country.

⁵⁹ This section draws heavily on IOM (2021), informed by a recent review by the International Council of Jurists (ICJ, 2020) as well as official information from the Royal Thai Government, as provided in the [Work Permit Manual on Foreign Workers for Employers/Business Establishments](#) (in Thai).

Figure 3. Areas of Thailand, Cambodia and Myanmar covered by Thailand’s border employment scheme



Source: Reproduced from Figure 1 in IOM (2021).

Notes: Only people living in the areas marked in darker colours in Myanmar and Cambodia may use the border employment scheme, and they may only legally work in the Thai provinces marked in dark green. This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.

Workers who wish to use this short-term system must obtain a border pass with a visa, which is stamped upon entry to Thailand, and a work permit valid for up to 90 days. The total cost is THB 1,375 (about USD 40), which includes the application fee, the work permit fee, a medical certificate and health insurance for three months. The border employment scheme enables migrants to enter Thailand lawfully and stay for up to 30 days, but then they must return to their country of origin and re-enter Thailand if they wish to keep working. This means incurring additional travel costs – and if they wish to work for longer than 90 days, repeating the entire process. Border pass holders are not allowed to go outside of the province they entered to work, and some provinces restrict their movement to the district level (IOM, 2021). If border pass holders are found to have relocated outside the designated area, they may face imprisonment up to two years or a fine up to THB 20,000, about USD 570 (ICJ, 2020).⁶⁰

⁶⁰ As noted earlier, all currency conversions reflect the average exchange rate in 2022. The value of the Thai baht dipped to particularly low levels in 2022, but has since recovered; at the 20 January 2023, exchange rate, THB 20,000 would be USD 611.

Employment opportunities in Thailand's sugar sector actually extend for five to six months, when workers, including border pass holders from Cambodian and Myanmar, can support the cane harvest (Manivong and Bourgois, 2017). About 20 per cent of these migrant workers stay after the harvest to clean the fields, or rotate between farms and crops, while the rest return to their countries of origin (Jackson et al., 2017). This is one of several reasons why the border employment scheme does not fully meet the needs of farmers or the migrants they employ. Other key limitations are that it is restricted to workers from specific areas, and employers need to travel frequently to the district offices involved (Musikawong et al., 2022). The MoU process, on the other hand, is costly and complex, not suitable for seasonal workers, especially when they work for short stints on different farms, and thus change their employer frequently.⁶¹ As a result, many migrant workers enter Thailand irregularly.

Recognizing the realities on the ground, the Royal Thai Government has undertaken periodic and ad hoc regularizations to enable irregular migrants to formalize their work and stay in Thailand, and to obtain official documentation known as pink cards. Migrant workers who have regularized their status through the nationality verification process – one of several regularization windows opened by the Royal Thai Government – are allowed to stay in Thailand for up to two years with a yearly visa renewal. Migrant workers who have regularized their status through a nationality verification process have the same rights as MoU workers. Most recently, during the COVID-19 pandemic, Thailand offered a two-year amnesty (until February 2023) to irregular migrant workers from Cambodia, Lao People's Democratic Republic and Myanmar, and their children (Charoensuthipan, 2021). As discussed further in [Section 4](#), migrants' legal status and the sector in which they work both affect the benefits and protections afforded to them under Thai law.

Malaysia

Employers in Malaysia who wish to hire migrant workers must first post vacancies on MyFutureJobs,⁶² a Government-run website. If they cannot fill the jobs with Malaysians, they can apply for a quota of migrant workers and begin to recruit (Mahendran et al., 2022).⁶³ To qualify for a visa, migrants must be aged 18–45 years. Only the workers themselves may come, not spouses or children. Indonesian men are barred from manufacturing jobs (Wickramasekara, 2020), which may help explain why such a large share of Indonesian migrants work on plantations.

Employer preferences also shape the makeup of the migrant workforce. A survey of palm oil estates in Malaysia for the ILO found employers were generally less concerned about the workers' technical skills, work experience, ethnicity or language abilities, but they did prefer Indonesians, men (whom they viewed as stronger) and people under 40 (Mahendran et al., 2022).

Labour migration from Bangladesh to Malaysia has been governed by a series of agreements between the two countries, with significant changes made over the years to address inefficiencies as well as significant evidence of exploitation (Mubde et al., 2022). In 2012, Bangladesh and Malaysia created the Government-to-Government (G2G) programme, in which Bangladeshi officials directly mediated recruitments. However, although migrants who participated found it beneficial, far too few workers were delivered to employers, so a new programme was established in 2015: G2G Plus, mediated by 10 recruitment firms (Mobarak et al., 2020).

61 The study reported that the fees and costs associated with the MoU process were about USD 278, or about one and a half months of the minimum wage for Cambodian migrants and around four months of the minimum wage for Myanmar migrants.

62 See <https://myfuturejobs.gov.my>.

63 The quotas are calculated on the [Integrated Foreign Worker Management System \(ePPAx\)](#). See also the [official foreign worker portal](#).

In September 2018, for multiple reasons – including excessive recruitments and fees averaging almost USD 4,000 (Mubde et al., 2022), well above those allowed under the programme – Malaysia suspended G2G Plus. Recruitments only resumed in 2022, after the two governments signed a new MoU in December 2021, creating a new system run by 25 private agencies (Jaya, 2022). However, implementation was delayed due to disagreements over worker protections (Lee et al., 2022), and progress has been slow. In September 2022, a new G2G programme was launched to directly recruit 10,000 Bangladeshis, as a one-off labour intake (Palma, 2022).

Labour migration from Indonesia to Malaysia (except for domestic workers) is governed by a 2004 MoU between the two governments. Migration for plantation jobs has gone relatively smoothly, in sharp contrast to the widespread exploitation and abuse found among domestic workers, which has been the subject of some tensions between the countries (Reuters, 2022). Still, plantation workers may be exploited on a smaller scale. An ILO survey in 2018–2019 found that 98 per cent of Indonesians working on plantations had paid an agent or broker to facilitate the process – as little as USD 52, but as much as USD 1,627; the average was USD 464 (ILO, 2020b).

Notably, Indonesia's Perka BP2MI 9/2020 regulation forbids recruiters from charging migrants headed for plantations for many travel and migration costs. Within Malaysia, the Private Employment Agencies Act 1981 caps recruitment fees for non-Malaysian jobseekers at the equivalent of the first month's wages. However, as employers have faced additional expenses due to the COVID-19 pandemic, including for quarantines, they have sought to have migrant workers cover recruitment fees and related costs (Ratha et al., 2022).

The system used by migrant workers is called Visit Pass (Temporary Employment). Visit Pass stipulates that migrant workers with the pass are allowed to stay in Malaysia for maximum of 10 years, with annual renewals required; are not allowed to change their employer even within the same industry or sector, with very limited exceptions; are not allowed to bring dependents to Malaysia; and have no pathway to becoming permanent residents (for an overview, see Yi et al., 2020).

A final issue that must be highlighted is that Malaysia's immigration policies not only bar migrant workers from bringing their spouses and children with them, but also prohibit migrant workers from marrying or having children (Reed, 2019). This limitation is a key reason why so few migrant workers are women, as cultural norms strongly discourage women from migrating alone. For those who do, there is further peril if they are sexually active (or are raped): the work permit law stipulates that women migrant workers who become pregnant are considered to have violated the conditions of their work permit and are subject to deportation (Freeman et al., 2021).

3.4 MIGRATION JOURNEYS TOWARDS BIOFUEL-PRODUCING SECTORS IN THAILAND AND MALAYSIA

Irregular migration towards Thai smallholder sugar plantations

As noted above, the legal pathways for labour migration to Thailand are costly and complex, with significant restrictions, so many workers enter and work in the country without authorization. IOM has estimated that prior to the pandemic, as of 2020, there were about 2.3 million irregular migrant workers in Thailand (IOM, 2021),⁶⁴ mainly from neighbouring countries: Cambodia, Lao People's Democratic Republic and Myanmar.

⁶⁴ This is close to the same number as regular migrant workers, estimated at 2.5 million as of 2018. Note that pandemic-related restrictions and the regularization processes mentioned in Section 3.3 are likely to have affected the total number of irregular migrant workers, but no new estimates have been published since.

Despite numerous regularization processes, many migrants still lack work permits and are thus unable to engage in formal employment. Among migrants, those who lack regular status have the least protection, receiving little support and being vulnerable to the risks of exploitation, extortion, abuse, arrest and deportation. Due to the remote work locations in border areas, agriculture is particularly attractive for irregular migrant workers.

In interviews, migrants said social networks, including among family members, other villagers and friends, played a key role in getting them to Thailand. Some of them also had existing contacts with Thai employers. None of the interviewed migrants had gone through a recruitment agency. This finding is consistent with ILO survey results (Musikawong et al., 2022).

The porosity of the Thai border and the ability to cross on foot irregularly make Thailand an easier choice than other destinations. As a migrant from Myanmar said: *“I want to go to another country such as Malaysia, but I am not an educated person and have no money at all.”*⁶⁵ For vulnerable people in Cambodia, Thailand may be the only international option. As a Cambodian migrant noted: *“Many people migrated to Phnom Penh to work in construction and also many came to Thailand. [These are the] only two places where I see people go to a lot. If I keep working in my village, I cannot have money to eat.”*⁶⁶

In Tak province, located near Myanmar borders, anecdotal evidence points to migrant workers being issued “informal documentation”, often in the form of a so-called “village card”, which provides them with protection against arrest and deportation, but only within the village stated on the card (Musikawong et al., 2022). However, while common, this is not an official document recognized by Thai authorities.

Among the Cambodians interviewed for this study, few had obtained border passes or pink cards⁶⁷ or had migrated through the MoU channel.⁶⁸ Among migrants from Myanmar, none had formal documentation prior to travel, and only one had obtained a pink card in Thailand. Almost all were thus irregular migrants. Notably, as shown in Figure 3 in Section 3.3, their regions of origin are not covered by the border employment scheme. When people migrate irregularly, their journeys are often dangerous and difficult. A migrant from Myanmar recalled leaving from Myawaddy around 7 p.m. and walking all the way to avoid police at the checkpoints: *“So, I arrived Nong Phay in the morning, 9 a.m. I did not even sleep or drink water and had to walk the whole night.”*⁶⁹

Migrants walking from Cambodia and Myanmar can also encounter climate hazards during their journeys. A Cambodian migrant recalled: *“I walked across the forest and there was too much flooding, [so I had to swim] to find work in Thailand.”*⁷⁰ In addition, there are still land mines from the period of the Khmer Rouge regime, which add danger to these border crossings.⁷¹

65 Interview code TTM5M.

66 Interview code TSM13F.

67 “Pink card” or Tor Ror 38/1 offer temporary legal status while migrants complete the national verification process in Thailand. However, many migrants who got their pink card are unable to meet the requirements of the national verification process, leading the Royal Thai Government to regularly allow migrants to re-register for temporary documentation (IOM, 2019b). This system places migrant workers in a state of “temporary legality” rather than offering the full protection and rights of a regular status (Gruß, 2017).

68 One migrant (interview code TSM2M) had both MoU documentation and a border pass.

69 Interview code TTM14F.

70 Interview code TSM11M.

71 Interview code TSM10M.

The seasonal nature of sugar cane production also affects migrant workers' access to protection, as employers use a common practice of sharing workers to reduce recruitment costs and time.⁷² This falls outside the scope of the Thai regulations for labour migration and can present barriers for workers to hold their employers accountable for labour rights violations (IOM, 2019a; 2021).

Recruitment fees and related costs

Although the majority of interviewees did not indicate whether they had paid recruitment fees or related costs, some mentioned having borrowed money from family, relatives, neighbours and employers to support their migration. Some Cambodian migrants who had migrated through the MoU system mentioned that they had yet to be able to repay their debts,⁷³ including those accrued during the migration journey.⁷⁴ Previous research has found that regular migrants from Cambodia and Myanmar in the agricultural sector paid about USD 50–100 more in recruitment fees and costs than irregular migrants (ILO, 2020a). The cost of regular migration can thus put migrants and their families into even deeper debt than they already were and can lead to debt bondage with employers at the destination. In interviews, men from Cambodia and Myanmar reported higher travel costs, on average, than women. This may be because men also pay to bring their dependents, as noted by a Cambodian interviewee: *“My wife and daughter work with me here ... We came together. I use [my] savings [so] that my wife, my daughter, and I can work.”*

Regularized journeys towards large palm oil estates in Malaysia

Although irregularity prevails on small-scale palm oil plantations in Malaysia (Puder, 2019), all migrants on large-scale palm oil estates interviewed for this study were in regular situations, having migrated through G2G (Bangladesh–Malaysia) and MoU (Indonesia–Malaysia) channels. This does not mean that the people most impacted by climate change in Bangladesh and Indonesia are able to do the same; the vulnerable population tends to migrate shorter distances (Bryne, 2018).

As noted earlier, although women are legally permitted to migrate to work on plantations in Malaysia, social and gender norms prevent many women from making the journey; as discussed in Section 3.3, the legal environment is also unfavourable, as women cannot migrate with their husbands, and marrying or becoming pregnant while in Malaysia would subject them to deportation. One previous study reported that in Peninsular Malaysia, “all foreign workers across the plantations, mills and refineries are male” (Embode, 2020, p.1).

Many interviewed migrants from Bangladesh said that people from their communities had migrated to Dhaka or other parts of the country when they faced environmental problems, instead of going abroad. A Bangladeshi migrant from Rangpur said “very few” people migrated internationally, *“because many of them don’t have money, while others think, ‘We can’t stay away from our family.’ Different people have different types of problem. Also, many people get deceived”* when they migrate internationally.⁷⁵

In certain instances, however, governmental programmes can facilitate international labour migration, particularly for those with limited financial resources. As explained by a Bangladeshi migrant: *“[My family’s financial condition] was really much worse than others. I too wanted to go to Dhaka. It was not profitable to grow rice. Then I got an opportunity through G2G.”*⁷⁶

72 Interview code TSL2F.

73 Note that the debts they mention also include household debts they had before migrating.

74 Interview code TSM4F and TSM20F.

75 Interview code MBJM4M.

76 Interview code MBJM1M.



Recruitment fees and related costs

Having to pay recruitment fees leads some migrants to work excessive hours to repay debts more quickly (Yi, 2018). Although debt bondage was not widely cited by migrants interviewed for this study, it has been extensively documented among migrants in Malaysia, including in the palm oil sector (Gottwald, 2018; Wahab, 2020a). Most Bangladeshis interviewed for this study said they had entered Malaysia around 2014–2015, when the G2G or the G2G Plus programmes were in place.

The average cost they reported was about 40,000 Bangladeshi Taka (USD 430).⁷⁷ Some who did not migrate through G2G said that they had borne significant costs, needing two years or longer to pay off their debt.⁷⁸ A few borrowed money from non-governmental organizations that offered low interest rates.⁷⁹

On average, Indonesian migrants interviewed for this study paid about IDR 2.6 million (USD 175) to migrate to Malaysia, linked to applying for passports and other documents. Many said they had not needed to borrow money to cover migration costs, but some said they had borrowed money from relatives and neighbours, in the range of IDR 2–5 million (USD 135–340).

77 All currency conversion estimates from Bangladeshi taka to USD reflect the average exchange rate in 2022, as posted at www.exchangerates.org.uk/USD-BDT-spot-exchange-rates-history-2022.html. All numbers have been rounded to the nearest multiple of 5.

78 Interview code MBJM8M, MBJM9M, MBJM6M, MBPM2M.

79 Interview code MBJM4M, MBJM5M, MBJM8M.

WORKING CONDITIONS AT DESTINATION



KEY MESSAGES

- *Both Malaysia and Thailand have policies in place to regulate labour conditions for all workers, including migrants. In addition, these countries are signatories to international labour conventions. However, working conditions in sectors producing biofuels in those countries often fall short of international standards – and sometimes even violate national laws.*
- *Irregular migrants working on smaller sugar cane plantations in Thailand described exploitative and abusive conditions, including excessive hours, pay below the provincial minimum wage, and lack of written employment contracts. In contrast, on large palm oil estates in Malaysia, working hours and the wages appeared to meet legal requirements.*
- *The higher number of regular migrants and compliance with labour laws on the palm oil estates in Malaysia match a known pattern of large-scale holdings having more resources and more structured systems than smaller ones. Larger plantations also seem to have greater oversight from the government and certification bodies to comply with labour policies and are pressured by international markets to meet minimum standards, including minimum wages.*
- *Health hazards associated with the use of pesticides were found in both countries, and some workers in sugar farms in Thailand said they were not provided personal protective equipment (PPE). Although PPE is provided in large-scale palm oil estates in Malaysia, extreme heat can dissuade workers from using it.*
- *Migrants working in irregular situations in Thailand lived in precarious conditions, housed in open-air structures within or near the farms. Housing on large palm oil estates is of much higher quality, in concrete structures, and workers have access to various facilities, but workers are socially isolated, as they live within the estates.*
- *Migrant workers also described restrictions to their mobility, closely linked to the lack of formal documentation among irregular migrants in Thailand, as well as to some employers in Malaysia withholding documents from workers. In both countries, fear of encounters with police also effectively restricted migrants' movements.*
- *Migrant workers commonly experienced different types of discrimination based on nationality, gender and migration status. Gender norms continue to determine the tasks and wages that women and men can access. In both Thailand and Malaysia, women in agriculture experience additional levels of discrimination around sexual activity and pregnancy.*
- *Climate change, particularly floods and droughts, directly impacts workers' well-being. In Thailand, where most workers were paid piece rate, floods disrupted the harvest and directly affected their income. Extreme heat in both countries made working conditions difficult.*
- *Although certification schemes in the bioeconomy can help improve labour conditions by applying consistent standards across jurisdictions, in practice they have several limitations and gaps, including barriers to participation by smallholders.*

Both Thailand and Malaysia have ratified several, but far from all, ILO conventions and protocols, which lay out fundamental principles and standards for protecting workers' rights.⁸⁰ Thailand and Malaysia have also made efforts to promote responsible business conduct by promoting the localization of the United Nations Guiding Principles on Business and Human Rights (United Nations, 2011). Thailand is in the process of drafting its second National Action Plan on Business and Human Rights, aiming to put the principles into practice. Malaysia launched its third National Action Plan on Trafficking in Person and first National Action Plan on Forced Labour in 2021 (Malay Mail, 2021; ILO, 2021) and is drafting its first National Action Plan on Business and Human Rights.⁸¹

In addition, both countries signed the Global Compact for Safe, Orderly and Regular Migration (United Nations, 2018), and Thailand is a “Champion country” for the compact's implementation.⁸² As noted in [Section 1.1](#), if well implemented, the principles laid out in these documents would go a long way towards protecting the human and labour rights of migrants and all workers, ensuring safe and decent working and living conditions, and preventing exploitation.

Both countries also have significant labour protection laws. In **Thailand**, the most important legislation outlining workers' rights is the Labour Protection Act B.E. 2541 (1998, last amended in 2019),⁸³ which sets minimum wage requirements and a maximum work week of 48 hours; forbids most mandatory overtime and requires overtime pay; forbids withholding of wages (or partial docking of pay); requires that male and female employees be treated equally; forbids sexual harassment; bars the firing of pregnant workers; and guarantees maternity leave, among other provisions. Thailand's laws also set workplace safety standards and prohibit child labour and forced labour, among other abuses.⁸⁴

However, in the agricultural sector, Thailand's Labour Protection Act only applies in full to workers who are employed full-time for at least one year (Musikawong et al., 2022), while seasonal workers in the sector are covered by reduced protections, as laid out in the Ministerial Regulation concerning Labour Protection in Agricultural Work B.E. 2557 (2014). The regulation provides several key protections for workers (including border pass holders), such as paid sick leave, equal pay for equal work, maternity leave, prohibition of child labour, and safe and hygienic living conditions (IOM, 2019a; 2021). However, several barriers continue to affect the protection of migrant workers in the sector, including poor compliance and ineffectual labour inspections.⁸⁵

In **Malaysia**, the main law covering labour rights and working conditions is the Employment Act 1955,⁸⁶ which has been amended several times, with the latest updates entering into force on 1 January 2023 (Khindria, 2022). Other key laws that provide protections for workers (including migrants) are the Passport Act 1966; the Employees' Minimum Standards of Housing; Accommodations and Amenities Act 1990 (amended in 2019); the Employees' Social Securities Act 1969; the Trade Unions Act 1959; the Workmen's Compensation Act 1952; and the Occupational Safety and Health Act 1994. For example, retention of passports is strictly prohibited by the Passport Act 1966.

80 See policy briefs for [Malaysia](#), [Thailand](#) and [Businesses](#).

81 See <https://globalnaps.org/country/malaysia/>.

82 See <https://migrationnetwork.un.org/champion-countries>.

83 For English-language translations of the text of the bill, as well as amendments approved in 2008, 2017 and 2019, see the [ILO NATLEX database](#).

84 See full list on the [ILO NATLEX database](#).

85 Interview code TNAI6.

86 For the text of the law and various amendments over the decades, see the [ILO NATLEX database](#).

These and other laws forbid forced labour, excessive overtime, withholding wages, sexual violence, and abusive working and living conditions (Segaran, 2022).⁸⁷ However, the enforcement and implementation of these laws and policies, as well as assessments of workers' health, have been found to be weak in practice, especially on plantations (Fair Labor Association, 2020).

4.1 WAGES, WORKING HOURS AND TASKS

The migrant workers interviewed on smallholder sugar plantations in Thailand and large-scale palm oil estates in Malaysia described very different working conditions. As noted in Section 1.3, the findings here cannot be generalized to apply to all sugar cane or palm oil production, or to all plantations in Thailand or Malaysia. However, they do provide important insights on the implications for labour conditions of workers' migration status, plantation size, government oversight and social inequities based on nationality and gender.

Small-scale sugar cane in Thailand

The migrants interviewed in border areas in Thailand described exploitative and abusive working conditions, such as 10–14 hour workdays and wages below the legal minimum. As noted earlier, these migrants tend to be employed only for short periods, during which they work intensively to cut the sugar cane and burn and clean the fields. Interviewed workers said they started at 6 a.m. or 7 a.m. and finished between 5 p.m. and 10 p.m. Some deliberately worked into the night to maximize their earnings.⁸⁸ A woman from Cambodia said: *“My regular working time is 7 a.m. to 5:30 p.m. There [is] no break, because the more sugar cane I cut, the more money I will get. That’s why, after having lunch, I immediately continue working.”*⁸⁹

Another study that surveyed 195 migrant workers on sugar cane plantations across Thailand found that 95 per cent of them worked 9–12 hours per day, and only four worked eight hours or less, suggesting that long working hours are common in this sector (IOM, 2019b). None of the migrant workers reported having a written contract, and employers actually mentioned withholding the personal documents of workers who had them: *“We do not sign any contracts. ... We store their working permits with us to keep [the workers] from escaping, so they will stay with us,”* one employer said.⁹⁰ A migrant from Cambodia said she had THB 1,000 (about USD 29) deducted from her wages, and the employer had never given the workers their pink cards. *“Because we live with [the employer], if she gives [the pink card] to us and we do bad things, it creates a problem for her,”* the worker said.⁹¹

In Tak province, migrants from Myanmar who were interviewed said they were paid a piece rate, THB 10.50–17 (USD 0.30–0.50) per bundle of 10–12 canes. While piece rates are a common business practice, they can be exploitative and push migrants to work excessive hours. Indeed, in order to earn the provincial minimum wage (THB 315, or about USD 9, at the time of the interviews),⁹² a worker would have to cut 200 to 330 canes per day. It is thus crucial to combine the piece rate with an appropriate safety net, such as a guaranteed minimum wage, to cover any gap, as palm oil estates in Malaysia reported doing.

87 See also the ILO NATLEX database, which lists relevant provisions by category of protection: www.ilo.org/dyn/natlex/natlex4.countrySubjects?p_lang=en&p_country=MYS.

88 Interview code TTM13M, TTM14F.

89 Interview code TTM14F.

90 Interview code TSC1F.

91 Interview code TSM12F.

92 The provincial minimum wages cited here and below were in place in February 2022, when the interviews were conducted.

Notably, the smallholder farmers interviewed in Tak province had slim profit margins themselves under their arrangements with buyers. This shows that unequal power dynamics along the supply chain – and the low prices they enable those near the top of the chain to pay – effectively incentivize exploitation, with small-scale producers and their workers affected the most.

In contrast, in Sa Kaeo, where half the Cambodian migrants interviewed had official documents authorizing them to live and work in Thailand, most workers were paid biweekly. They reported earning wages equivalent to THB 250–300 (USD 7–8.50) per day – generally more than the wages reported by migrants in Tak, but still below the Sa Kaeo minimum wage of THB 320. Some reported being paid a piece rate of THB 130–230 (USD 3.70–6.60) per bundle of 100 canes. These differences are roughly consistent with a previous study that found the wages reported by migrants from Myanmar were about 40 per cent lower than those reported by Cambodians (IOM, 2019b). Migrant workers interviewed in Sa Kaeo who sprayed chemicals or drove trucks reported receiving additional wages of THB 50 (USD 1.40) per day.

The interviews in Thailand did not reveal a gender gap in wages, but this may be due to the widespread use of piece-work systems. While the pay per bundle may be the same, actual incomes may reflect both differences in physical strength (which disadvantage workers who are smaller and those who are older), and gendered divisions of responsibilities. Previous research has found that among seasonal agricultural migrant workers in Thailand who were paid regular wages, women earned about a third less than men: THB 5,300 (USD 162) versus THB 8,000 (USD 244) (ibid.). Gender gaps are often linked to women being assigned only to cut and clean sugar cane, while more lucrative activities, such as selling canes to mills, are usually assigned to men. Moreover, within families, women are usually tasked with caregiving, which also reduces the hours they are able to work and their earnings (Gammage and Stevanovic, 2019).

Large palm oil estates in Malaysia

The migrants interviewed on Malaysia's large palm oil estates all had written employment contracts, and they reported earning at least the minimum wage. Plantation workers' schedules varied, with some workers starting at 8 a.m. and finishing at 4 p.m. or 5 p.m.⁹³ Workers who were not directly engaged in cutting or harvesting palm fruit had different working hours. For example, an Indonesian migrant who worked as a guard said he worked 12-hour shifts, from 7 a.m. to 7 p.m. or vice versa.⁹⁴ By law, workers in Malaysia must have at least one day off per week, but most interviewed migrants said that although their employers do not require it, they work overtime and on Sundays to increase their income. A Bangladeshi migrant said that depending on when they finished cutting the fruits, they might be done as late as 5 p.m. or as early as 1 p.m.⁹⁵

Most migrant workers interviewed were paid once per month, 1,500 to 3,000 Malaysian ringgit (MYR), or about USD 340–670. The minimum wage is MYR 1,500 (USD 340) per month as of May 2022⁹⁶ (Medina, 2022). Notably, the workers interviewed said their pay depended on the specific tasks they undertook; those who worked as palm fruit harvesters said the wages were based on the weight of the fruits cut. Each estate sets a rate linked to the tons of fruit that workers can typically collect. However, one employer explained that once a worker reaches a certain payment level, additional fruits collected are compensated at a lower rate.

93 Interview code MIJM4M, MBJM3M.

94 Interview code MIJM3M.

95 Interview code MBJM3M.

96 The minimum wage ranged from MYR 1,100 to 1,200, depending on the state, before the minimum wage revision in May 2022.

As noted above, piece-work systems create a risk that some workers may not receive the minimum wage. Employers are still legally required to pay at least the minimum wage; however, an employer in Pahang said the company trains workers to improve on their tasks and tops up their wages as needed to match the minimum wage.⁹⁷

All these complexities are not always clear to workers. A Bangladeshi migrant said payments “vary from block to block”. He added: “In some blocks the trees were planted early, and in others they were planted late, and they decided block rates accordingly. If the fruits were small, the rate was higher, but where the fruit was bigger, the rate was lower. ... I don’t understand this calculation properly.”⁹⁸

Migrant workers also described sharp differences in pay depending on the season: MYR 1,500–2,000 (USD 340–455) per month during low season, and MYR 3,000–5,000 (USD 680–1,135) during peak season. This is linked to the seasonal workload and the time it takes to complete, one migrant explained: “We work from eight up to 10 hours in the peak seasons, and it’s less than that in the dull seasons ... six hours, seven hours, or even five hours.”⁹⁹

In general, men are in a better position than women in this industry. Not only are there significantly more men than women among the migrant workers, but there is a gendered division of labour that assigns the most lucrative work to men, including harvesting and tasks that provide additional compensation, such as driving trucks. Women migrants, meanwhile, are relegated to tasks that are lower-profile and less well paid. A female Indonesian migrant who worked as a gardener said she earned MYR 1,200–1,500 (USD 275–340) per month, depending on whether she worked overtime, which would have been just around minimum wage at the time of the interview.

Women work mostly on maintenance tasks or collect loose fruit (Gottwald, 2018). They are also assigned to spray agrochemicals such as pesticides, with the associated health risks that come with such tasks (OHCHR and UN-Women, 2020; Pye, 2017). An employer’s remarks illustrate the underlying biases: “[Gender roles] are different, and some jobs are not suitable for women. We give [women] only suitable ones.” These include, in his view, gardening, applying pesticide, setting bait for rats, conducting censuses and working in the nursery, planting and caring for seedlings. “But harvesting or other heavy-duty jobs, we won’t give [to women].” He added that the company requests some women migrant workers when possible, but it also hires local women.¹⁰⁰

It is important to note that wages for different jobs vary across palm oil plantations, based on several factors, including the tasks performed, perceived gender roles, seniority and the effort required, among others (Pye, 2017). This study can only provide a snapshot of wage practices in the sector. However, it is notable that overall, migrant workers on the large palm oil estates in Malaysia were paid better than workers on the smallholder sugar cane plantations in Thailand, and almost all appeared to earn at least the minimum wage. Several also noted that their wages were significantly higher than what they could earn in their origin countries, echoing findings in prior studies (Reed, 2019; Pye et al., 2012).

97 Interview code MPE1M.

98 Interview code MBJM1M.

99 Interview code MBJM4M.

100 Interview code MPE2M.

4.2 ENVIRONMENTAL AND HEALTH HAZARDS

In both Thailand and Malaysia, the use of pesticides and fertilizers can seriously affect migrant workers' health, especially as some report that they are not provided with personal protective equipment (PPE), or use it regularly (ILO, 2017). A male migrant from Myanmar recounted: *"I used chemicals and fertilizer for both sugar cane and corn. I get dizzy from time to time as well. The odour is too strong. Migrant workers in the field, as we all know, work without masks or other forms of protection."*¹⁰¹

Even when PPE was available, migrant workers interviewed in Thailand said they had not been trained to use it, which left them vulnerable to health risks (and the associated economic burdens of receiving treatment). A worker from Cambodia said: *"I used to get very sick, I almost died from herbicide. At the time, I did not know how to protect [myself] and wear the mask, so I got poisoned, vomited, and was brought to Sa Kaeo hospital. I stayed for three nights, and it cost more than THB 9,000 [about USD 255]."*¹⁰²

Although workers on Malaysia's palm oil estates are provided PPE, high temperatures and associated discomfort often discourage them from using it. A Bangladeshi migrant explained: *"[The employers] provide the safety equipment, but we cannot use it on all occasions. It feels too hot. Some people use it, and others don't. ... Besides, the goggles they provide cannot be used while cutting because we sweat and the goggles get hazy."*¹⁰³

Another migrant from Bangladesh recalled: *"Earlier, we used a pesticide that was very bad. It had a very bad smell. Many people got sick, many were hospitalized. Some were sent back to Bangladesh. The current [pesticide we are using] has less smell. ... Some people from Nepal and Indonesia who used to do this work [spraying chemicals] died.... I used to have a lot of breathing problems. Earlier, I applied fertilizer, felt itchy and had body aches."*¹⁰⁴

On sugar cane plantations, the long-standing practice of burning the fields before the harvest – to remove the leaves and tops – poses particular threats to workers' health. About 60 per cent of Thailand's sugar cane production area is still burned in that manner (Sawaengsak et al., 2021). The Royal Thai Government has imposed measures to minimize sugar cane burning, including incentives for those who do not burn their fields. For example, as part of the broader governmental programme to "reach zero burning" by 2023–2024, a subsidy of THB 6 billion (USD 171 million) was approved for distribution in 2020–2021 to discourage burning and thus reduce air pollution on the plantations and in surrounding areas (VNA, 2021).¹⁰⁵ One employer explained in an interview that burning sugar cane leaves after or before harvesting creates particulate matter (PM₁₀ and PM_{2.5}). *"The government does not encourage farmers to burn their fields. Any farmers who burn sugar cane leaves or burn sugar cane before harvesting, the factory [buyer] will deduct at least THB 50 [about USD 1.43] per ton from their payments."*¹⁰⁶

While such policies could help to improve health conditions of migrant workers employed in sugar farms, small-scale farmers interviewed said they had few alternatives to open burning. In Sa Kaeo, an agricultural officer said in an interview that there are insufficient measures to identify the violators of the sugar cane burning regulation,¹⁰⁷ which makes it challenging to stop the practice and protect workers and the environment.

101 Interview code TTM18M.

102 Interview code TSM11M.

103 Interview code MBJM11M.

104 Interview code MBJM5M.

105 At the time of the announcement, the currency exchange rate was higher, and the value of the subsidy was estimated at USD 192 million by the news media.

106 Interview code TTL2M.

107 Interview code TSL3F.

Although in Malaysia, employers on palm oil estates claimed that deforestation and pollution of the environment, such as nearby rivers, were not an issue for neighbouring communities, small-scale farmers interviewed near the estates shared that environmental harms do take place: *“They use pesticide to remove plants around the plantations. Due to the pesticide, the animals and plants die. ... Palm oil poisons everything. There are no more fishers here due to water contamination. Villagers’ voices are not being heard, nothing can be done from our end to resolve the issue. We filed complaints to various government agencies ... but no action was taken.”*¹⁰⁸

4.3 LIVING CONDITIONS

It is common for employers to provide free accommodation (excluding electricity fees) for migrants employed on small-scale sugar cane farms. Most interviewees in Thailand reported living on their employers’ property near the plantations. This had also been noted in the key informant interviews – that migrants often worked and lived in remote areas, on the private properties of sugar farmers, often in isolated locations.¹⁰⁹ The physical isolation can create safety risks,¹¹⁰ and it makes migrants dependent on their employers. The researchers observed the migrants’ precarious living conditions, which, as observed in prior studies, are often open-air structures in close proximity to, or within, crop areas (Musikawong et al., 2022). This leaves them highly exposed to natural hazards such as torrential rains, floods or heatwaves. Previous studies also highlighted how seasonal workers often live in temporary encampments with limited access to clean water and sanitation facilities, which disproportionately burdens women, who are typically responsible for procuring water (Perera, 2008; Kusakabe and Myae, 2019).

In Malaysia, migrant workers employed on large palm oil estates are also provided with accommodations within the estates. Often they are also provided with basic facilities such as health clinics, prayer rooms, grocery stores and transportation systems, all within the estates and thus separated from surrounding communities (Puder, 2019). An employer at Pahang described the living conditions of migrant workers: *“All live in one section of the plantation with 60 houses in total; 30 houses have two rooms, and the other 30 have three rooms. Each house has a bathroom and a kitchen.”*¹¹¹

The employers cover the cost of electricity in migrants’ housing up to a point, but if electricity usage exceeds the covered amount, they deduct the difference from the migrants’ wage.¹¹² Living within palm oil estates, often in remote areas, combined with the fact that labour migration policies bar workers from bringing their families with them, creates social isolation and can make migrants’ lives more difficult overall (see Section 5.2).

4.4 IMPOSED IMMOBILITY

A key point made in the introduction – and echoed repeatedly in the migrants’ stories – is that poverty, marginalization and other capacity constraints can prevent people from moving even if they wish to. This forced immobility deepens their vulnerability to the impacts of climate change and environmental degradation, and those impacts, in turn, can deplete their resources even more. An important finding of this study is that the irregular status of many migrant workers and the strict limitations imposed on regular migrants can also result in forced immobility, making migrants more vulnerable.

108 Interview code MJL4M and MJL5M.

109 Interview code TNAI2, TNAI3, TNAI4, TNAI5, TNAI9.

110 Interview code MPE2M.

111 Interview code MPE2M.

112 Ibid.

In Thailand's Tak province, the movements of migrants with irregular status are often constrained. They may have informal documentation, such as a village chief card, which offers them protection in a particular village. However, risking arrest and deportation, they cannot safely leave the village. One interviewee explained: *“Sometimes we have to be afraid of the police. We cannot move freely as we want. The prices [of goods] in Mae Sot district are cheaper than in the area where I live. My friends and I went to Mae Sot to shop and got caught by the police and had to pay THB 1,000 [about USD 29] fine each.”*¹¹³

At the same time, the lack of a work permit, which would tie them to a single employer, also provides a certain freedom of movement. Irregular migrants in the sugar cane sector frequently move from one plantation to another (after the harvest is done), and they often return to their countries of origin between seasons (Sakulsri, 2020; Chairattana and Khanawiwat, 2020).

Migrant workers employed on Malaysia's large-scale palm oil plantations, on the other hand, are unable to change employers without losing their legal status, as their work permits are tied to a specific employer. Any exception requires approval from the Ministry of Home Affairs. Workers also said their employers had held on to their documents. Moreover, some said that claiming annual leave to visit family back home – particularly in the context of the pandemic – had become challenging. A Bangladeshi migrant said: *“If I want to return to Bangladesh, [my employer] may not grant any leave. I have to return to Bangladesh for good. Especially after the outbreak of coronavirus, they told us that they are suffering from a shortage of workers, and they didn't want to grant leave to anyone, fearing that the worker may not be able to return to the plantation on time.”*¹¹⁴

Despite the risk of deportation as a result of losing their work permits, some migrant workers do leave large palm oil estates to seek employment on smallholder estates. A smallholder farmer interviewed in Malaysia said that this happens mainly with migrants who were initially hired by large estates, but whose contracts are coming to an end. Instead of returning to their country of origin, they seek jobs on smallholder farms, which often pay slightly higher daily wages to attract workers from the larger plantations. However, working informally, they lack the legal protection and social security provided by regular jobs.¹¹⁵

4.5 DISCRIMINATION AND VIOLENCE

Migrant workers commonly experience different types of discrimination. A 2019 study found that large shares of the public in Thailand and Malaysia had negative views of migrant workers, belying the migrants' economic and social contributions (ILO and UN-Women, 2019). Anti-migrant prejudices often led people to condone discrimination, exploitation and even violence. Perceptions of migrants were found to vary based on their multiple, intersecting identities, shaped by biases based on nationality, ethnicity, race, language, gender, marital status, age, education and other factors. Women migrants are particularly vulnerable to discrimination, abuse and violence, and the study found the strongest public support was for measures to protect these women from harm.

As noted earlier, in Malaysia's palm oil sector, migrant workers from Indonesia are seen as most desirable, and this can be explained by cultural proximity and their country's reputation as a leader in palm oil production (Shahiri et al., 2021). The interviews highlighted other advantages that Indonesians may enjoy: they generally have a wider migrant network than those from other countries and can speak and understand the local language (Bahasa Melayu), which is similar to their own. This makes them more aware of information shared by the employers or the government and communicate their concerns to them.¹¹⁶

113 Interview code TTM25M.

114 Interview code MBJM9M.

115 Interview code MJL4M and MJL5M.

116 Interview code MNAI4; MNAI5.

Bangladeshi migrant workers often face more discrimination and violence by their employers based on their nationality and are treated differently than Indonesians (Noor and Shaker, 2017). A Bangladeshi migrant said in an interview: *“[In previous years] if they found any fault, they used to scold us and used abusive language. As they found Bangladeshis submissive, they used to swear towards the Bangladeshis. Once a Malaysian person told me. ‘I can buy you with money. If I beat you, or kill you, there will be no problem.’ ... Even if [Indonesians] have faults, no one says anything to them. [The employers] find faults with the Bangla people.”*¹¹⁷

Several migrants said they have also faced police harassment, even if their documents were all in order. A Bangladeshi worker said: *“When we go to town for sending money, we face police harassment. The police demand money from us. Our boss told us not to give money. [They said,] ‘If they arrest you, we will get your bail.’ But we are in constant fear.”*¹¹⁸

A male Indonesian worker said he has had *“a lot of problems”* with the police: *“I know this from before. If it is an honest policeman, [they will say what is] wrong, but if it is a police officer who wants money, even if we bring the complete identification [document] with us, there is still a problem.”*¹¹⁹ Interviewed migrants in Thailand said they have experienced discrimination due to their nationality and migration status. As a migrant from Myanmar recounted: *“During the COVID-19 outbreak, the way that [Thai people] treated me is like I have COVID-19. ... I have encountered a lot of discrimination. A child from Myanmar who can speak Thai from my [hometown] went to buy a medicine from a Thai shop. The child asked the shopkeeper about the use of the medicine, but the shopkeeper said that ‘Don’t come close to me.’ The child felt upset because of the way that [he was] treated.”*¹²⁰

Notably, although the Royal Thai Government has explicitly included all migrants in its COVID-19 vaccination efforts, regardless of their legal status, difficulties in accessing health care, stigma, discrimination and misinformation have resulted in much lower vaccination rates among migrants than among Thai citizens (Shrestha, 2022).

In both Thailand and Malaysia, women experience additional levels of discrimination around sexual activity and pregnancy – even though, as noted above and in [Section 3.3](#), the laws in Thailand in particular forbid such discrimination. In practice, in Thailand, women migrant workers are often dismissed (or threatened with dismissal) if they get pregnant, which has led many to obtain illegal and unsafe abortions (Phanwichatkul et al., 2019; Hounaklang et al., 2021).¹²¹

In Malaysia, meanwhile, as noted in [Section 3.3](#), the work permit law stipulates that women migrant workers who become pregnant are subject to deportation (Freeman et al., 2021). In an interview, an employer described the rules thus: *“Migrants are not allowed to marry [or get pregnant]. It is a breach of contract – the contract will become void. Women are not allowed to give birth – also a breach of contract.”*

If a woman does become pregnant, he added, the company advises her to return to her country to have the baby, or else terminates her contract.¹²² Previous studies have found that many migrant women do become pregnant and have children, and are forced then to conceal their situation to avoid deportation or detention (Reed, 2019).

117 Interview code MBJM5M.

118 Interview code MBPM1M.

119 Interview code MIPM3M.

120 Interview code TTM14F.

121 Abortion has only recently been legalized in Thailand (Associated Press, 2022), though this might not necessarily make it readily accessible to migrant women in rural areas.

122 Interview code MPE2M.

These policies not only infringe on women's sexual and reproductive rights, but are particularly cruel and unjust given the gender-based violence and discrimination that migrants are known to face. A study in Mae Sot district in Tak province in Thailand found that employers had harassed Myanmar women workers on their farms and called both men and women migrants derogatory terms (MMN, 2020). Discrimination based on nationality can underpin pervasive exploitation in Thailand's agricultural sector, the study found. Similarly, in Malaysia, women migrants, who are relegated to less-visible and lower-paid work and are not well protected by the law or their contracts, may be at heightened risk of gender-based violence on the palm oil estates (Mason and McDowell, 2020; Pye et al., 2016).

4.6 IMPACTS OF CLIMATE CHANGE ON EARNING AND WELL-BEING

Increasingly, climate change impacts are affecting migrant workers' productivity and earnings in the destination countries. This was particularly the case in Thailand, where floods have disrupted work on the sugar cane fields. As a migrant from Myanmar explained: *“Well, if it rains, then we can't work, and the [tractor] would need to press the soil and make it more solid. It damages sugar cane stumps because the wheels of the tractor run over the stumps. [If there is] no rain, [there are] no problems. The tractors can work fine, like last year, we harvested perfectly. As for this year, it rained earlier than usual. We can't do much as [the land] is waterlogged.”*¹²³

If the harvesting cannot be done, migrants cannot earn wages. On palm oil estates in Malaysia, environmental conditions appear to have less of an impact on the interviewed migrant workers' incomes and ability to work, as they are assured a minimum wage and provided with alternative tasks. As an employer explained: *“If workers cannot go out to work due to rain, they still get paid the minimum wage. Maybe they can do weeding or other jobs. When it rains, we offer them alternative work, so they can earn money. It has never happened that no alternative work is available, because the size of the estate is so big. There are always things to do.”*¹²⁴

Many interviewed migrants said extreme weather, including high heat and heavy precipitation, affected their ability to work. As a migrant from Cambodia explained: *“Sometimes it was extremely hot, or it was raining heavily. It causes delay in work or sometimes when weather is too harsh, we have to end the work early.”*¹²⁵

Such statements show how climate impacts can influence both the sugar cane sector and workers' capabilities to earn a sufficient income. Working outdoors on extremely hot days also poses serious health risks; recent research has found that conditions on some Thai sugar cane plantations could lead to heatstroke and even death (Kiatkitroj et al., 2022). As noted above, hot weather can also make it more difficult to wear PPE to avoid other environmental hazards on the job.

123 Interview code TSC2F.

124 Interview code MJE1M.

125 Interview code TTM12F.

4.7 CAN CERTIFICATION SCHEMES FILL KEY GAPS IN SECTORS PRODUCING BIOFUELS?

Amid growing global concern about the environmental impacts of agricultural commodity production, as well as workers' rights, private certification schemes have emerged, including several relevant to sectors producing crops for biofuels. The idea is to set uniform (labour) standards across jurisdictions, enabling buyers to choose socially and environmentally sustainable suppliers. While these schemes often do not call specifically for the protection of migrant workers, they do encompass general labour protections. The schemes often include various actors, such as large corporations, alongside farmers, end users and civil society (see, for example, Seixas et al., 2019).

However, several limitations and gaps can reduce these schemes' effectiveness. First of all, they may only require certification of a certain volume of a company's supplied goods, thus allowing certified companies to buy goods from uncertified smallholder farmers who do not meet the standards. Certification schemes also tend to be less accessible to small businesses, which may face financial and administrative barriers to registering, abiding by the labour and environmental clauses, and demonstrating compliance. Research has shown that certification schemes can exacerbate disparities among different classes of smallholders, as some are better positioned than others to participate and reap the benefits. They may also favour large-scale producers over smallholders. Other criticisms include that they impose a Global North perspective, that they may lack of rigour, and that they may create conflicts of interest, as certification bodies have a vested economic interest in certifying as many producers as possible (see, for example, Higgins and Richards, 2019; de Man and German, 2017; Blaber-Wegg et al., 2015).



Migrant workers in palm oil industry pruning leaves and harvesting palm fruits. © AdobeStock/T4NKYONG

IS LABOUR MIGRATION HELPING TO REDUCE CLIMATE VULNERABILITY?



KEY MESSAGES

- *Migration can support adaptation to climate change if it enhances the well-being of migrants and their origin communities. For the migrants interviewed for this study, the actual impacts vary significantly and depend on the working and social conditions found at destination. In general, however, labour migration towards biofuel-producing sectors in Thailand and Malaysia appears to have been economically beneficial.*
- *Due in part to the higher wages paid by large palm oil estates in Malaysia than by sugar farms in Thailand, the remittances sent home by migrants from Bangladesh and Indonesia are significantly larger than the amounts sent by migrants from Cambodia and Myanmar.*
- *Although most remittances are used to cover basic household needs and to repay debts, those households who are better off invest in improving their living conditions (such as building better housing, buying land and paying to educate their children). Such investments can reduce individual families' and communities' vulnerability to climate shocks.*
- *Labour migration can have significant social impacts, particularly when workers are separated from their families for extended periods. While working in another country, migrants may also experience isolation, harassment and sometimes violence. If they migrate with their families, the children may suffer from discrimination as well, and some may be engaged in child labour (as seen in Thailand).*
- *Mechanization may reduce the need for migrant workers to perform tasks that expose them to health and safety hazards, but it may only be a viable option for large holdings. Moreover, mechanization could affect overall demand for migrant labour. It is important to ensure that the most vulnerable workers have access to decent work that enhances their capabilities.*
- *A fundamental challenge in embracing labour migration as an adaptation strategy is that it can place the burden of adaptation on vulnerable migrants, who did not cause climate change and have very little capacity to address the impacts. It is thus crucial to address the issue from a broader perspective of promoting human well-being and sustainable development.*

The migrant workers' descriptions of conditions in their communities of origin make it clear that climate change and environmental degradation have taken a significant toll on their assets and livelihoods. Migration offers a way to earn more money than is possible at home, provide for their families, pay off debts and perhaps achieve their aspirations for different livelihoods, nicer homes and greater security. To the extent that they succeed, migration could be seen as an effective adaptation strategy. However, migration also carries significant costs and risks. This section examines how migration is affecting the vulnerability of the workers interviewed in Thailand and Malaysia, their families and communities, as well as their efforts to build climate resilience.

5.1 ECONOMIC IMPACTS

The most direct way in which migration affects development and climate resilience in migrants' communities of origin is through economic remittances. As Warner et al. (2010) have noted, migration is often a social process, with families pooling resources to cover the costs, and migrants reciprocating by sending remittances. Globally, personal remittances have been the largest source of external flows to lower- and middle-income countries (except China) since 2016, triple the size of official development assistance (Ratha et al., 2022). The World Bank estimates that in 2021, remittances to Bangladesh totalled USD 22 billion, the seventh-largest amount for any country; Indonesia received an estimated USD 9.4 billion; Myanmar, USD 2 billion; and Cambodia, USD 1.2 billion.¹²⁶

¹²⁶ Notably, both Thailand and Malaysia are also major recipients of remittances, totalling USD 9 billion and 1.6 billion, respectively, in 2021 (Ratha et al., 2022).

Across all four migration corridors studied, migrants all reported sending substantial remittances, though the amounts they are able to send back vary significantly. The palm oil workers in the study sample earned much higher wages than the sugar cane workers (see [Section 4.1](#)), and they also reported sending far larger remittances. On average, Indonesians reported sending USD 270 per month and Bangladeshis, USD 413, while migrants from Myanmar sent an average of USD 25 and Cambodians, USD 67. Migrant workers in Malaysia were also able to send back a larger share of their wages: 53 and 81 per cent, respectively, for the Indonesians and Bangladeshis. The migrants from Myanmar sent about 21 per cent of their earnings, and Cambodians about 32 per cent.¹²⁷

An important difference to note here, however, is that because migrants from Myanmar and Cambodia often bring their immediate families, they may not need to send as much to their origin countries (though parents, siblings and other relatives may still need help). The smaller amounts sent by Indonesians versus Bangladeshis may also reflect their typically shorter stays in Malaysia; many are younger and single as well, so they have fewer obligations. Previous research has also found that Bangladeshi migrants' remittances were larger than Indonesians' (Endo and De Smet, 2017).

Asked how the money they send back is used, interviewed migrants said largely to fulfil immediate household needs, such as buying food, and to pay off debts. This is consistent with previous research findings; one study found that almost 40 per cent of the remittances received by rural households in Cambodia in 2014 were spent on debt payments (OECD and CDRI, 2017). In Bangladesh, household surveys and studies have found that large shares of remittances went to food costs, with smaller portions going to clothing, medical expenses, education and housing expenses, among others (Murata, 2018). For households struggling to get by, remittances can be a safety net, enabling them to cope with shocks (Sikder et al., 2017). Research has found that rural households (and ones that depend more on natural resources) received more remittances than urban ones, and the money helped them mitigate losses from socio-environmental shocks, including crop failures (Ali et al., 2019).

Migrants interviewed for this study spoke about how their remittances helped family members in their origin countries to avoid incurring new debts after environmental shocks. As a migrant from Battambang province in Cambodia noted: *“When there is a flood, they just dig [channels in] the land for the water to flow out of the fields and plantation. ... So it helps some of the people in the village to deal with these things with the money sent back from migrants who work in Thailand,”* avoiding the need to borrow money.¹²⁸ As another migrant from Dhaka, Bangladesh, mentioned, *“Yes. I am now confident that even if we suffer any damage caused by disasters, we have saved enough money recover from it.”*¹²⁹

Meeting basic needs and avoiding new debts is certainly a good use of remittances – though a study in Cambodia suggested that the extra money for food might not even offset the impact of losing farm labour for some rural households (Jacobson et al., 2019). However, if the goal is to improve living conditions and make households and communities more resilient to climate change, remittances need to help migrants and their families achieve their aspirations and enhance their capacities.

The interviews for this study suggest that migrants who were better off from the start were also more able to use remittances to improve living conditions, by buying land and better housing, purchasing a car and paying to educate their children, for instance.

127 For migrants from Cambodian and Myanmar, the monthly wage used to calculate these percentages is based on secondary data by ILO (2021) in the sugar cane sector. The average monthly income of Cambodian migrants was of THB 7688.4 (USD 207) and the average for Myanmar migrants was THB 4378.5 (USD 118), according to the report.

128 Interview code TSM13F.

129 Interview code MBJM9M.

A migrant from Rangpur, Bangladesh, said he sends money to his mother and brother, and they have bought land and plan to buy more, improving their economic security.¹³⁰ Investing in land and in farm equipment (such as tractors), and building sturdier housing and infrastructure can all improve the resilience of households – and, at scale, of entire communities – to climate and environmental shocks by preventing the damages caused by them. A migrant from Indonesia described using his earnings to upgrade his home in his country: *“It used to be a wooden house, but now it’s a stone house.”*¹³¹

Some relatively well-off migrants also spoke about investing in community development. An Indonesian male migrant from West Nusa Tenggara, for example, noted that not only could he now help meet family expenses, but he also contributed to the community: *“I sent the money for groceries for my parents: IDR 1 million [about USD 67] ... 2 million, depending on what they need. Every month, I also send money to build a mosque and boarding school [in my community]. Most of mosques and schools are built from the community money.”*¹³²

Previous research has found that the impact of remittances on households’ social vulnerability and resilience is related not only to wealth levels and class, but also to generational dynamics and gender, among other factors (Porst and Sakdapolrak, 2020). A study of migrant women from Myanmar in Thailand found that they had to juggle the responsibility of care work at origin and the economic activities at the destination, which often translated into higher remittance amounts compared with male migrants (Pearson and Kusakabe, 2021). In line with this, women migrants from Cambodia, Indonesia and Myanmar interviewed for this study more frequently reported sending money for the education of children and siblings and health expenses (which are both linked to caregiving tasks) than their male counterparts (note that all Bangladeshi migrants interviewed were men). A female migrant worker from Indonesia noted: *“We came here to make more money. To send our children to higher education.”*¹³³

New livelihood options upon return

In addition to economic remittances, so-called “social remittances” – that is, the knowledge, ideas and skills that migrants acquire abroad and bring back home – can also highly contribute to development and adaptation. For example, as a migrant from Myanmar’s Bago region noted: *“If I go back to my hometown one day, I would like to do a plantation in my yard/land. ... I will do it until it becomes successful. I will do the things that can benefit myself and my family.”*¹³⁴ Similarly, a migrant from West Nusa Tenggara in Indonesia said: *“There is Sumatra, Riau, Kalimantan. [These provinces] have palm oil, so what I learned is good; we are learning here [which could be used there].”* If he seeks a job in the palm oil sector in Indonesia when he returns, he added, he’ll now be an experienced worker.¹³⁵

However, the specific agricultural skills learned by the migrants may not be applicable in their home countries, either because people do not own land where they could grow the crops, or because the sector they work in does not exist back home. As a migrant from Bangladesh explained: *“As there is no palm oil plantation in our country, it will not be useful. A few plantations were initiated, but there is no oil extraction factory in Bangladesh. That’s why it will not be feasible.”*¹³⁶

130 Interview code MBJM1M.

131 Interview code MIJM6F.

132 Interview code MIJM3M.

133 A focus group discussion with MIPM4F, MIPM5F, and MIPM10F.

134 Interview code TTM7M.

135 Interview code MIJM10M.

136 Interview code MBJM4M.

Lack of agricultural land to invest in was pointed out as a key impediment by Cambodian farmers. A female migrant from Siam Reap noted: *“I have skills for cutting sugar cane, but I think I don’t have land to do it.”*¹³⁷ A Bangladeshi migrant from Chittagong suggested that by providing economic opportunities for returning migrants and using the skills they gained abroad, his country’s government could achieve broad benefits: *“In Bangladesh, this type of plantation is not available. If the government takes such an initiative, there are many migrants that would work there. ... If such initiatives are taken in the hill tracts, Bangladesh will become much richer. We are experienced. If the government gives us an opportunity, Bangladesh will become much richer.”*¹³⁸

However, given the wage differentials between Bangladesh and Malaysia, expanding palm oil plantations without the possibility of higher wages is unlikely to dissuade migration. Interestingly, although Indonesia is the world’s top palm oil producer, and Indonesians’ experience in the sector is widely cited as a reason for giving them preference over other migrants on palm oil estates, none of the Indonesian migrants interviewed for this study had worked in palm oil back home. The closest to an exception was a woman from North Sumatra whose husband worked on an estate in Indonesia, but moved to Malaysia for a higher income.¹³⁹ A migrant from Padang said palm oil opportunities in Malaysia were closer to his home community than those in Indonesia: *“If you go to Kalimantan, you will need to fly three times. To get here, [we only need to] take a ferry to Malaysia.”*¹⁴⁰

Several migrants interviewed said they hope the money they earn can enable them to leave agriculture, or at least diversify their livelihoods, as farming is too precarious and vulnerable to environmental impacts. A migrant from Indonesia said that most of the people in his origin community are farmers. *“The economy [there] is growing, so they can open a business and open a shop. ... Now that we are here, sending money to the village, we can increase our income or open a business [back home].”*¹⁴¹

Another migrant from Indonesia said when he returned, he would look for work. *“We [hope to] open a business, such as a furniture shop, Insha’Allah, if I have more money for wood and tools.”*¹⁴² Bangladeshi migrants who had previously worked in agriculture also spoke about finding new livelihoods. *“I will not do this work [in palm oil or agriculture],”* one man said. *“My plan is to go to [Bangladesh] and start a business.”*¹⁴³ Another Bangladeshi worker said: *“I couldn’t live in the same conditions as I used to. Since I have earned some money here by the grace of Allah, I will do some business in my country, depending on the money [I earn here].”*¹⁴⁴

Migrants from Cambodia and Myanmar expressed similar intentions. One Cambodian migrant said: *“I could go back and open a small shop to sell things. I will build a small shop and sell things like fish or meat.”*¹⁴⁵ A female migrant from Myanmar, prevented by travel restrictions from returning home to her ailing parents, had a similar plan, income allowing: *“In the next five years, I will be back to my village and stay with my family. ... And when I go back, I would work on the farm, or if I have some money, I would open a small shop of my own.”*¹⁴⁶

137 Interview code TSM15F.

138 Interview code MBJM5M.

139 Interview code MIPM9F.

140 Interview code MIPM5F.

141 Interview code MIPM1M.

142 Interview code MIJM7M.

143 Interview code MBPM3M.

144 Interview code MBPM2M.

145 Interview code TSM13F.

146 Interview code TTM12F.

5.2 SOCIAL IMPACTS OF MIGRATION

As described in Section 4, migrant workers interviewed in the studied sectors in Thailand and Malaysia alike are very isolated, typically living in housing provided by their employers on their own property, separated from surrounding communities. In Thailand, the housing can be of poor quality, exposed to harsh weather. When migrants do go out – and even on the job – they encounter significant prejudice, discrimination and outright abuse. Even regular migrants with all the necessary documentation spoke of living in fear of encounters with the police, and irregular migrants have even more reasons to be afraid. Moreover, due to the COVID-19 pandemic, as well as employer tactics such as retaining workers' personal documents, including passports, many migrants cannot return to their own countries even if they wish to do so.

Living in such conditions is inherently stressful and can be traumatic. Extensive research in South-East Asia and globally has shown that migrants often experience anxiety and depression, especially if they do not have support networks in the destination country (Reza et al., 2019; Pye et al., 2012). Family separation also takes an emotional toll – both for migrants and those left behind – and affects people's overall well-being (Yagura, 2018; Baltazar and Cheong, 2021), undermining the potential benefits of migration for adaptation.

In South-East Asia and globally, migration also exacerbates the risk of gender-based violence, including sexual assault and harassment (see, for example von Hase et al., 2021). Knowledge of these risks can dissuade many women from trying to migrate.¹⁴⁷ Some countries adopt official bans to prevent women from migrating¹⁴⁸ in order to “protect” them from these risks, but the result is often the opposite: Women who still want to migrate (or have to, out of necessity) are forced to use irregular channels, which makes them more vulnerable to exploitation and trafficking.¹⁴⁹ In the destination countries, it is also common for women to be harassed and subjected to other forms of gender-based violence. And, as noted above, they also have to worry that if they get pregnant, they will be fired and deported.

In interviews for this study, separation from family was the most cited negative impact of migration, particularly among palm oil workers in Malaysia, who have travelled farther and typically stay away for longer periods than migrants from Cambodia and Myanmar working in Thailand. An Indonesian man in West Nusa Tenggara was wistful: *“Once my dream is achieved [here in Malaysia], I want to go home to just be with my family.”*¹⁵⁰

When men migrate and women stay behind – a common occurrence – migration can also increase the burdens on women, who must juggle increased responsibilities and workloads (Tiwari and Joshi, 2016). The resulting shortage of farm labour can increase the vulnerability of these women and their families to environmental changes.

Legal restrictions now prevent family reunification, but employers may also prefer the status quo. One employer explained: *“If workers would come with families, maybe there would be a social issue. The wife went to work and something happened, such as harassment, then there may be an issue. Also, if they come with family, then what about the children? They cannot come as per government regulation. If policy changes, then families could come together. However, I think it is not a good idea to come together, because of the social issue. Maybe the wife gets disturbed by someone else, and will need to be sent to the police. It will cause more problems in the operations. For example, if the husband goes to work and the wife cannot*

147 Interview code TNAI5.

148 For instance, in 2014 Myanmar barred women from migrating to any country for domestic work (Napier-Moore, 2017).

149 Interview code TNAI5.

150 Interview code MIJM1M.

go to work, then if someone goes to the house, then how to control it? Maybe if families come, we have to give them separate housing as husband and wife – they cannot stay together with other workers in one house.”¹⁵¹

In Peninsular Malaysia, where this study was conducted, most migrants come alone, and no children were observed on the palm oil estates.¹⁵² However, in Thailand’s border areas, where sugar cane workers do often have their families with them, the research team witnessed child labour. This was particularly the case in Sa Kaeo and is in line with previous studies that have shown that child labour is also a common occurrence in sugar plantations, where children often help family members (Jackson et al., 2017). A migrant from Cambodia said her daughter works with her *“because we are poor; she has followed me since she was small.”¹⁵³* Another migrant said his family could not send their children to school in Thailand for lack of transport and due to the lack of vaccine access for migrant families: *“My children are not yet vaccinated, and the school will not allow unvaccinated children.”¹⁵⁴* Although the migrant did not explicitly mention that his children were helping him at work, they are vulnerable to child labour, as they cannot access education systems in Thailand.

Despite several indicators of forced or bonded labour and child labour, inspections of Thailand’s sugar cane plantations appear to miss them. This is also due to lack of labour inspectors, especially in sectors where migrants are employed, and the common practice of (local authorities, for example) alerting employers prior to an inspection (Buckley et al., 2016; IOM, 2019b). The labour department officer in Sa Kaeo said the challenge is that sugar cane workers’ housing is considered a private place. *“We can’t just go in and conduct an inspection or search. This can cause a problem. [It is] unlike factories, where we have full authority to inspect. With houses [in plantation areas], it is not the same case. So that’s the main problem, accessibility. We have to work with local authorities like community leaders to make sure the house owner understands our task.”¹⁵⁵*

5.3 WILL MECHANIZATION CHANGE EVERYTHING?

Both Malaysia and Thailand have labour shortages, which became particularly acute during border closures related to the COVID-19 pandemic (Ratha et al., 2022). At the same time, hiring migrant workers through lawful channels is costly and burdensome for employers. Farmers and agribusinesses have thus sought ways to increase mechanization and reduce labour needs. In addition, employers in Malaysia’s palm oil sector mentioned that mechanization may attract local workers, reducing the need for migrant labour (see also Mohiddin and Pebrian, 2021). They also said mechanization is required to cope with the impacts of climate change, as workers may not be as productive as temperatures rise and extreme heat becomes more common; this echoes the findings of previous research (Murphy et al., 2021). However, the Thai agricultural sector is dominated by smallholders who may not be able to afford the costs associated with machinery, so they are likely to still need lower-wage migrant workers (Win, 2017).

Even in Malaysia, as an employer in Johor highlighted, smallholders cannot afford mechanization and would still heavily rely on migrant workers for various tasks: *“The land in Malaysia is expensive – MYR 40,000 [about USD 9,100] per hectare. [This company] has a lot of land, and with the profit they make, they can expand more. It’s difficult for smallholders to compete with big estates. Smallholders have around 28–30 hectares.*

151 Interview code MJE1M.

152 However, Indonesian migrants in East Malaysia are likelier to have come with their families, due to sociocultural ties and geographical proximity (Mahadi, 2014). Migration patterns there may more closely resemble those found in Thailand’s border areas, with high rates of irregularity. A 2019 study in Sabah state, in northern Borneo, found large numbers of undocumented migrants on palm oil estates, including many women and 50,000–200,000 children, and widespread exploitation and abuse (Solidar Suisse, 2019).

153 Interview code TSM4F.

154 Interview code TSM2M.

155 Interview code TSL2F.



Why would they spend a lot of money on technology? They will lose a lot of money. They are willing to get manpower instead. But large businesses, they are able to rotate and mechanize and come up with own systems so that things don't break down. Smallholders cannot come down to plantations every day to see if their machines work, but large businesses have a system for this.”¹⁵⁶

For large-scale agribusinesses, mechanization is also cost-effective, as noted by an employer in Sa Kaeo: *“In my opinion, using machines costs less than hiring workers. That’s because when we hire workers to harvest sugar cane, we still need to hire a truck to transport the crops to the warehouse anyway. There are many steps, and it takes a long time [to harvest]. The advantage of using machines is it works much faster than workers.”¹⁵⁷*

Similarly, large-scale palm oil estates in Malaysia have been aiming to reduce their reliance on migrant workers by 30 to 40 per cent, by investing in practices that rely more on mechanization and require less labour (Veza et al., 2021; Kuen, 2020). As an employer in Johor explained: *“The company is looking into mechanization, but harvesting, for instance, also needs manpower. Who picks the fruit? We can reduce manpower by around 50 per cent through mechanization.”* Tasks such as spraying could be mechanized, he added, but not harvesting. Still, on balance, he said mechanization makes sense for the company.¹⁵⁸

As noted in [Section 4.2](#), some of the tasks that migrant workers now perform on sugar cane and oil palm plantations are hazardous to their health, so mechanizing pesticide application, for example, might reduce harm. However, widespread mechanization would also reduce the employment opportunities available to migrants, especially on large estates. In some cases, migrants may then seek jobs with smallholders instead, which could drive the growth of irregular forms of employment in the sector.

If opportunities to work abroad dwindle, origin countries may not have the capacity to absorb labour in other sectors of their economies, which could result in increased unemployment and poverty in those countries (Christiaensen et al., 2020; Rajkhowa and Kubik, 2021). Despite growing urbanization across the region, many cities have not been able to create jobs at the rate necessary to absorb the workforce that is being driven out of rural areas by poverty and environmental impacts (Vigil et al., 2019). This highlights how closely environmental and social sustainability are intertwined.

156 Interview code MJE1M.

157 Interview code TSE2F.

158 Interview code MJE1M.

TOWARDS A MORE SUSTAINABLE AND CLIMATE-RESILIENT FUTURE



As the impacts of climate change intensify across Asia, it is crucial to ensure that all people – particularly those who are now deeply vulnerable due to poverty, marginalization and a lack of livelihood options that do not depend on natural resources – are able to adapt and become more resilient. Sustainable development that protects human rights and enhances human well-being is key to achieving this.

As this study has shown, migration can contribute to adaptation by enabling people to pursue new livelihoods, earn more money, gain new skills, and make investments that make their households and communities more resilient: from land and farm equipment to education, sturdier houses and new businesses. However, migration can also place significant strains on both migrants and their families, and the conditions under which people migrate – in distress or as a strategic choice, debt-burdened or not, through regular or irregular channels – can significantly affect the outcomes.

Adaptation interventions should enable people to stay if they wish or to migrate safely and with dignity. In order to support adaptation, migration must expand substantive freedoms, including social and economic opportunities, political freedoms, transparency and security (Sen, 1999). Although migration is now widely recognized as a potential adaptation measure (Melde et al., 2017; Gemenne and Blocher, 2017; Black et al., 2011), policymakers' common focus on economic remittances can obscure the fact that migration is not always a true choice, nor does it always benefit migrants or the communities they leave behind. Without appropriate support in both origin and destination countries, vulnerable people may not be able to use migration to increase their resilience. Indeed, expecting them to do so unfairly burdens vulnerable migrants, who are the least responsible for climate change to begin with (Vigil, 2022a).

This final section draws the main conclusions from the study and presents recommendations, with a focus on the broader international community. Country-focused policy briefs published as a complement to this report provide more detailed recommendations for policymakers in Thailand and Malaysia; a third brief provides insights for the business community.¹⁵⁹

6.1 CLIMATE CHANGE IS ONLY ONE OF SEVERAL DRIVERS OF LABOUR MIGRATION

Both the origin and destination countries examined in this study are highly exposed to climate hazards and have experienced environmental degradation. However, incomes and human development levels in the origin countries are significantly lower, so people facing intensifying climate change impacts, such as floods and droughts, have limited capacities to cope with shocks and to adapt. Vulnerable communities are also under pressure from government practices such as road and hydropower dam development, which can limit access to key resources and drive displacement, and from business activities.

Because they lack viable options to diversify their livelihoods in their own communities and countries and know that wages in destination countries are much higher, many people migrate in search of jobs. By the time they leave, many are in debt due to failed crops and damage from floods and other disasters. Sometimes, in order to cover the cost of migration, workers and their families have to sell off crucial assets, such as land, or else borrow more, falling into debt traps. Environmental and economic drivers of migration are thus inextricably linked, particularly for people whose livelihoods depend on natural resources.

¹⁵⁹ See policy briefs for [Malaysia](#), [Thailand](#) and [Businesses](#).

Pre-existing vulnerabilities, which are also influenced by intersecting social inequities and climate impacts, largely determine whether migration is truly voluntary or a survival strategy (forced). The migrants whom de Haas (2021) classifies as “precarious” are at high risk of abuse and exploitation and may reap limited benefits from migrating. The most vulnerable may not be able to leave at all, for lack of resources.

Addressing people’s vulnerabilities in their places of origin and minimize forced migration is crucial. To that end, this study recommends:

- *States and businesses should acknowledge that even if climate change is playing a growing role as a driver of migration, climate vulnerability is inextricably linked to broader social, economic and political factors, including development practices and business activities that can disrupt local livelihoods and reduce access to crucial natural resources.*
- *Businesses should recognize that their activities can have disproportionate impacts on local communities and their climate resilience, and engage meaningfully, inclusively, and in a sustained manner with those communities to protect their human rights and their livelihoods. When projects require free, prior and informed consent (from Indigenous groups), lack of opposition should not be mistaken for actual consent, given that marginalized people often have little say in decisions that impact their lives (Franco, 2014).*
- *States should enshrine internationally accepted principles, including the United Nations Guiding Principles on Business and Human Rights (UNGPs), in their national laws and regulations, and actively promote and enforce them. Similarly, financial institutions that back investments in developing countries should require businesses to abide by these principles.*
- *States should improve land tenure governance in accordance with internationally recognized principles, such as the Voluntary Guidelines on the Responsible Governance of Tenure (FAO, 2022, first adopted in 2012), to ensure that infrastructure development and business practices do not infringe on the land rights of vulnerable communities.*
- *States and their development partners should significantly increase finance and other forms of support for local climate adaptation measures, prioritizing socially and environmentally sustainable, gender-responsive investments that expand livelihood options and avert and minimize displacement.*
- *States should ensure that climate mitigation and adaptation measures are inclusive and participatory, based on human rights, gender-responsive, and child-sensitive; more broadly, they should align national policies with their international and regional commitments on climate change, human rights and gender equality, recognizing that intersecting social inequities exacerbate vulnerability.*
- *States should enhance social protection mechanisms so they can provide greater coverage to recipients after environmental shocks and cover a broader range of people, in order to reduce risks, help households cope, mitigate debt burdens and diversify livelihoods.*
- *Businesses should not only minimize the environmental footprint of their supply chains, but also help repair any past harm and, even better, support environmental remediation and landscape restoration more broadly. Restoring degraded landscapes can reduce rural residents’ vulnerability by contributing to restoring ecosystem functions, diversifying livelihoods, creating and improving employment opportunities, raising household incomes and reducing gender and social inequality (IPBES, 2018, p.353).*

6.2 MIGRATION LAWS AND WORKER RECRUITMENT SYSTEMS EXACERBATE VULNERABILITY

Most labour migration in the context of climate change occurs within countries, but in regions such as South-East Asia, there is also a long history of international labour migration, from which both origin and destination countries can benefit. If labour migration is to be a successful adaptation strategy, it is important for regular and safe migration channels to be available. The countries examined in this study have agreements and systems in place to enable labour migration, but they do not always meet the needs of workers or employers, nor can they always prevent the exploitation of migrants. Moreover, the people who are most vulnerable to socioeconomic and environmental shocks may be unable to access these channels, due to the costs or policy restrictions.

The contrast between the experience of workers on large-scale palm oil estates in Malaysia and those on smallholder sugar cane plantations in Thailand raises important questions. While the workers in Malaysia had migrated through a highly regulated process, and often travelled long distances, many of the workers interviewed in Thailand had made relatively short journeys within border regions and were employed informally. When regular migration channels, such as those used by the workers interviewed in Malaysia, are inaccessible, people are likelier to migrate irregularly or stay in their own countries (Mobarak et al., 2020). Irregular migrants may be able to cross the border on foot and bring their families with them, but they are at higher risk of experiencing human and labour rights violations.

Governments should adopt policies that support human well-being and facilitate safe, regular labour migration that is accessible to the most vulnerable, including those facing severe climate change impacts. To that end, this report recommends:

- *States should recognize their commitments under the Global Compact for Safe, Orderly and Regular migration and the Paris Agreement, translate these commitments into regional and national policies, and contribute to the implementation of measures related to migration in the context of climate change.*
- *Countries of origin and destination should ensure that regular migration channels and bilateral labour agreements are accessible and safe for those most vulnerable to climate and environmental impacts. That would include revising quotas/restrictions on the employment of migrants in different economic sectors based on factors such as gender and nationality.*
- *Countries of destination could use regularization programmes as a policy tool to provide undocumented migrant workers already in the country with a possibility to formalize their employment in sectors that experience acute labour shortages. As these programmes can be mutually beneficial to employer and migrant workers, governments should consider further enhancing the design, planning and implementation of these programmes.*
- *States in origin and destination countries should amend applicable laws and regulations to prohibit the charging of recruitment fees and related costs to migrant workers. Such regulations should be based on the ILO definition of recruitment fees and related costs. This definition and modalities for implementation should also be included in bilateral labour migration agreements adopted between countries of origin and destination.*
- *Countries of destination could examine the role of seasonal labour migration schemes to support migrant workers and their families' resilience to negative climate impacts in their communities of origin. While seasonal schemes could contribute to diversifying labour migration pathways, reducing irregular migration, and have positive outcomes for economic sectors facing labour shortages, such schemes should be flexible, eliminate worker-paid recruitment fees and related costs, and reduce administrative burdens on employers and workers. It is also important that governments ensure fundamental protections of migrant workers during recruitment, migration and employment.*

- *Recruiters and employers should adopt fair and ethical recruitment practices – for instance, by following IOM’s Migrant Worker Guidelines for Employers (Pottler et al., 2021), as well as the recommendations and good practices identified by ILO and the Earthworm Foundation (Mahendran et al., 2022). These include covering recruitment fees and other costs, carefully vetting recruitment agencies, providing accurate and complete information for recruiters to share with workers, and setting recruitment standards based on the skills required, not on assumptions about the desirability of workers of a specific gender, ethnicity, etc.*
- *Businesses should develop and implement gender-responsive human rights due diligence, inclusive of migrant worker-specific challenges, in order to prevent and mitigate risks that can happen at any stage of the migration process and also at times of climate shocks.*

6.3 MIGRANTS FACE EXPLOITATIVE LABOUR CONDITIONS

As Thailand and Malaysia undergo transitions towards a green economy, migrants are likely to continue to play a central role in the primary sector, including in the production of crops used in liquid biofuels. It is crucial that these transitions be just and sustainable, and this means States must respect the environmental and labour rights of migrant workers.¹⁶⁰ Both Malaysia and Thailand are signatories to multiple international agreements and specific ILO conventions that, if duly implemented and enforced, would provide important protections for migrants – and all workers. However, working and environmental conditions on the ground do not always meet those standards.

The conditions described in [Section 4](#) – which on Thailand’s sugar cane plantations include excessive working hours and piece-rate payments that fall short of minimum wage – are exploitative. In contrast, regular migrant workers interviewed on large-scale palm oil estates in Malaysia have written contracts and reasonable hours and are generally paid at least the minimum wage. However, in both Thailand and Malaysia, workers reported being exposed to serious health and environmental hazards. Climate change is creating hotter conditions that pose new risks to workers. Moreover, workers in both countries face mobility restrictions, and women face discrimination that limits their earning potential, as well as violations of their human rights, such as mandatory dismissal if they get pregnant.

The findings of this study suggest that large estates are more aligned with international environmental and labour standards than smallholders are, regardless of crop or location. This is due to several factors, such as (a) an economic system that incentivizes large-scale agriculture and disadvantages smallholders; (b) the complexity of supply chains, with smallholders having less exposure to international requirements; and (c) limited monitoring capacities of national governments, resulting in less oversight.

Although certification schemes can help to improve conditions, they have several shortcomings, such as limited coverage and cumbersome requirements that smallholders may lack the capacity to meet.

Destination countries and businesses operating within them must ensure decent work¹⁶¹ conditions for migrants and all workers in sectors that contribute to biofuel production. To that end, this report recommends:

- *States and businesses should recognize the extent to which migrant workers contribute to the success of the economy and ensure that their rights are protected, in line with the responsibilities outlined in the UNGPs. This means respecting the rights of all stakeholders affected by business operations, protecting*

¹⁶⁰ For a detailed overview from the ILO of the concept of just transitions.

¹⁶¹ The International Labour Organization (ILO) describes decent work as “work that is productive and delivers a fair income, security in the workplace and social protection for all, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men.” See the [ILO website](#).

human and labour rights, and ensuring that workers have access to appropriate grievance mechanisms. Increasing labour inspections, as well as collaborations with NGOs and international organizations to interview workers periodically can help to identify and address concerns.

- Increase the effectiveness of labour inspections, by implementing firewalls between labour inspectors and immigrations officials, which would allow for migrant workers to come forward with complaints of labour exploitation irrespective of their legal status.
- States should pay special attention to small and medium-sized enterprises and provide technical and financial support to adopt higher labour and environmental rights. States can also use their regulatory power to improve tenure security, increase the accountability of middlemen through a registration system that tracks actors along supply chains (as Malaysia has been doing), and cut transaction costs (Fauzi, 2022). In addition, States should ensure that reforms in trade policies and greater market liberalization do not favour large corporations at the expense of smaller producers who employ much of the migrant workforce.
- Businesses must ensure that the work they provide is decent and that “green jobs” improve human well-being. As noted above, human rights due diligence is crucial to ensure that human and labour rights violations are not occurring anywhere along their supply chains (Pottler et al., 2021; Mahendran et al., 2022). They must also compensate their suppliers adequately, so that they can pay their workers fairly and provide good working and living conditions.
- Certification schemes should ensure that environmental and labour standards are complied with throughout the entire supply chain of the businesses they certify.
- States and businesses should recognize gender equality as a priority and amend any policies or practices that limit women’s employment options or infringe on their sexual and reproductive freedoms. In Malaysia, this would entail revising current labour migration laws, so workers who become pregnant are no longer subject to deportation. Employers must also prevent harassment and gender-based violence.
- States must ensure that transitions towards a “green economy” increase workers’ social development and overall well-being and ensure that greater environmental sustainability is not reached at the expense of labour rights. States should also harness the potential of migrant workers to support green transition – for instance, by fostering green skill improvements not only for nationals, but also for migrants (Gençsü and Mason, 2022).

6.4 MIGRATION IS FALLING SHORT OF ITS POTENTIAL AS AN ADAPTATION STRATEGY

The migrants interviewed for this study described sending substantial shares of their earnings back to their families and origin communities every month – with the higher incomes of workers in Malaysia enabling them to make larger remittances than those sent from Thailand. Economic remittances have been highlighted by both researchers and policymakers as crucial contributions to development and, by extension, to climate change adaptation and resilience-building. While some migrants reported being able to invest in land, new equipment, sturdier houses and even new infrastructure for their communities, many said that large shares of the money they sent home were used for basic living expenses and/or to repaying debts. While the latter might protect people from falling even deeper into poverty, it does not improve their well-being or resilience to climate change.

Focusing too narrowly on economic remittances ignores the social costs that migrants and their families may bear for these economic benefits. In situations where migrants face challenges such as discrimination, social isolation, lack of freedom of movement, and exploitative working conditions, it is crucial to ensure that the debate on migration and climate change adaptation goes beyond the measurement of economic indicators and includes the improvement of human-well-being – among migrants and in their communities. Although migration can provide a much-needed escape from poverty and climate change impacts, it will never in itself shift the structural inequalities that create vulnerability.

Migration can be a part of the solution, but it is essential to rethink its role in adaptation to climate change, putting human rights front and centre. To that end, this report recommends:

- States should integrate migration scenarios in their climate policies, plans and actions, acknowledging the adaptive potential of international labour migration in the context of climate change – when people can migrate in a safe, regular and orderly manner, and decent work is available in destination countries (see, for example United Nations Network on Migration, 2021).
- Both origin and destination countries should adopt integrated approaches to adaptation, sustainable development and migration, recognizing adaptation as a transboundary challenge.¹⁶² States can maximize synergies across policy areas at both the global level and the national level by strengthening interministerial collaboration to ensure complementary approaches among ministries in charge of labour, migration, environment, agriculture and development.
- States should ensure that national adaptation policies, plans and strategies consider the links between climate change, disaster risk reduction and human mobility, in order to guarantee that migration is an option for people coping with environmental shocks and can be used to enhance their adaptive capacity.
- States should put human rights at the centre of any efforts to address the negative impacts of climate change and business practices on local communities and on workers, including migrants, recognizing that human well-being, safety and freedom are paramount, and any actions that undermine them are incompatible with international human rights and climate commitments.
- Bilateral donors, multilateral development banks and other development partners should significantly increase finance for human rights-based adaptation, prioritizing investments in climate resilience and livelihoods diversification in areas with high levels of socioeconomic vulnerability. People who are impoverished, in debt and facing repeated climate shocks should not have to rely on personal remittances as the main mechanism for financing adaptation.

6.5 CONCLUDING REFLECTIONS AND NEXT STEPS

International labour migration in the context of climate change is a complex and challenging issue. For all their commonalities, the migrants interviewed for this report had very different life stories and diverse perspectives, making it clear that no single narrative can capture their experiences – and no simple policy prescriptions can solve the problems they face. Indeed, this and other studies have shown that, even with policies in place to protect migrants and ensure decent work conditions, exploitation and abuse still occur.

Efforts to end them have been further complicated by the COVID-19 pandemic and other ongoing crises. This study is part of broader efforts by IOM and other international organizations to build knowledge on migrant workers' experiences, including in the context of climate change, and engage with businesses and

¹⁶² This is the focus of the Adaptation Without Borders partnership, co-led by the Stockholm Environment Institute. For an introduction to transboundary adaptation issues in Asia, see Hocquet (2020).



Migrant worker residing near an agricultural farm in Mae Sot, Thailand. © IOM 2022/Javier VIDAL

policymakers to advance the reforms needed to protect human rights. This report focuses on conditions in plantation agriculture in South-East Asia; future studies should explore other key sectors with large numbers of migrant workers, such as fisheries, construction, forestry and tourism. More research is also needed on how gender and social inequities shape the drivers and impacts of migration in the context of climate change, to ensure that policies are aligned with the specific needs of those most vulnerable. Lastly, more quantitative research is needed to understand the scale of the patterns described in this study.

In the coming year, IOM will use this report and the accompanying policy briefs focused on Malaysia, Thailand and the business community as tools for dialogue and engagement. As the impacts of climate change are increasingly felt in South-East Asia, sustained attention to these issues will be crucial to ensuring that migration can contribute to climate resilience across the region.

IOM is also carrying out research on climate change in the Greater Mekong Subregion, exploring the nexus between climate change, natural resource utilization and human mobility, with a focus on Cambodia and Thailand. The research findings will outline the impact of climate change and natural resource use on human mobility within countries, as well as across borders, and will help identify capacity gaps among local governments and stakeholders in terms of policy and operational issues.

ANNEX I: SEMI-STRUCTURED INTERVIEW GUIDE FOR MIGRANT WORKERS

Cover sheet for interviews with migrant workers

CREST climate change research

Screening questions for migrant workers (before starting):

What country are you from? Must be from Myanmar or Cambodia/Bangladesh or Indonesia

Do you work in the sugar cane sector? Answer must be YES

How old are you? Answer must be 18 or older

Interview location/setting:

Date and time:

Interview time duration:

Interviewer name:

Interview code:

Province:

Subdistrict:

Village:

Respondent's pseudonym: Interviewer asks the participant to provide a nickname.

Respondent's gender: (if unclear, ask for respondent's gender identity)

Respondent's age:

Respondent's education level (formal or informal) (school, high school, higher education or any trainings)

Respondent's ethnicity or group identification:

Marital status (single or married):

Background questions on migration history:

Place of birth (country, province and district):

Since then, have you moved to other places? If yes, where have you moved to? (probing questions should ensure we include first migration experience and other major movements in the past 10 years)

Where did you call home before arriving to this location (if different from place of birth)? (country, province and district)? And how long did you live there before moving to this location?

How long have you been in this location and how many times have you moved to Malaysia/Thailand in search of employment?

Note to interviewer: This sheet with potentially identifying information remains CONFIDENTIAL and should be kept separately.

Interview Questions

Interview code: xxx

Note to interviewer: 'Origin' refers to the last place they called 'home' before arriving to this location (should it be different from place of birth). Please repeat the name of this place as collected in the cover sheet each time the term 'origin' appears in the interview for clarity.

Theme 1: Conditions in origin

1.1 Could you please provide a brief overview of your community of origin (*interviewer to repeat the location that they called 'home' for clarity*)? What is the main source of livelihoods in your community and has it changed over the last ten years?

1.2 What was your employment and main source of income in origin (*interviewer to repeat the location that they called 'home' for clarity*)? What other sources of income did your household rely on?

Note to interviewer: If farming/agriculture is one of the livelihoods mentioned, ask the following:

- *Did you own the land, rent it, or have other user rights?*
- *Did you use only family labour on the farm or also hired other workers?*

1.3 How would you describe your wealth *in relation to others* in the community? Very poor, moderately poor, moderately wealthy, or very wealthy? Please explain.

1.4 Can you please describe any **environmental problems** or events in your home community in the last ten years (*if clarification is needed focus on floods, droughts, fires, typhoons*)?

- *Was your livelihood impacted by these environmental problems? If so, please explain how your livelihood was impacted, and how you responded to mitigate these impacts and secure your livelihoods.*

1.5 Did business and/or government activities such as the expansion of commercial agriculture, deforestation, or infrastructural projects like roads or dams impact your livelihood and natural resources? (For example, losing land, soil and water pollution) Please explain.

Theme 2: Factors driving migration (including the role of environmental factors)

2.1 When did you first migrate to Thailand? (*Note to interviewer: This includes both more permanent migration as well as daily, weekly and seasonal movements*) Why did you migrate to this country/location instead of somewhere else? Who did you come with and who did you leave behind? Please explain.

2.2 What are the main factors that led to this migration decision? Or (in case of daily, weekly or seasonal migration) the main reasons that keep making you migrate to Thailand/Malaysia)? (*Note to interviewer, only probe with the following if clarification is needed (i.e., economic, environmental, social, political, COVID, family and friends already in Thailand/Malaysia)*)

- *Could you please rank the factors listed in order of importance? (Most important to least important)*

2.3 Did environmental changes or conflicts over natural resources in your origin community influence your decision to migrate?

- *Do people migrate more after sudden disasters such as floods or after more slowly developing changes such as droughts or soil contamination, that impact their livelihoods?*
- *Have people migrated more as a result of the expansion of commercial agriculture or infrastructure projects that have led to a loss of land?*
- *If you migrate seasonally, is this linked to environmental conditions in origin (i.e, cropping calendars)? Please explain.*

Theme 3: Recruitment and travel conditions

3.1 Can you please tell me how you learned about this job and prepared for and organized the trip to come to Thailand/Malaysia?

- *Did anyone assist you, and what did they assist you with?*
- *At any stage, were you asked to pay any money, do you remember how much and to whom?*
- *Did they have to take out a loan, and if so, how are they repaying this and how long will it take to repay?*

3.2 Were you (or are you, if they migrate seasonally) exposed to any environmental problems during your travel to Thailand/Malaysia? For example, did/do floods, storms or other natural factors make the journey more difficult? Please explain.

Theme 4: Employment and socio-environmental conditions at destination

4.1 Can you please explain how a typical work-day and your conditions at the plantation are like?

- *How long have you been working here?*
- *What time do you start, finish, and do you have a break?*
- *What sort of tasks do you undertake?*
- *Have you faced any challenges while working here? (Examples could be violence, threats, intimidation, no access to documents, isolation, excessive working hours etc.)*

4.2 Are you paid hourly, daily, monthly, seasonally or in function of the collection of sugar bundles/palm oil fruits? How much are you paid?

- *Have you wages ever been withheld or do you face wage deductions? If yes, for what reason?*

4.3 What **documents do you possess?** (Passport, Pink card, work permit, border pass, identification document, Covid visa) Who currently holds your personal documents?

4.4 Do you feel **safe doing your job?** If not, which aspects are unsafe?

- *Do you work with any chemicals? If yes, how do these impact your health and work?*

4.5 Can you please describe any **environmental challenges** (such as heatwaves, floods, heavy rain) you face working and living in this location?

- *How did they impact your livelihoods and living and working conditions?*
- *Did you receive any assistance from the Thai/Malaysian government or your employer to mitigate these impacts? If yes, please explain what support you received.*

4.6. Note to interviewer: *This question is only relevant to workers who reported prior that they migrated with their children: Are your children going to school? If no, why are they not going? What documents do your children hold to remain in Thailand/Malaysia?*

4.7. Can you leave this job if you like? If not, why not?

- *Is it due to debt you owe to your employer or back home or to other reasons?*

4.8. Note to interviewer: Ask this question only in case the worker has not mentioned COVID-19 during the interview yet. How has COVID-19 impacted your work and livelihood?

Theme 5: Impacts of migration and links with origin communities

5.1 What are the positive impacts of migration, and what are negative impacts of your migration for you as a migrant, and for your household at place of origin?

- *Do you think you are better off, worse off or at the same socioeconomic level as you were prior to migrating (either seasonally or more permanently)? Please explain what has improved or worsened.*
- *Can you think of times when you have felt unwelcome here as a migrant? Have you suffered from discrimination based on your nationality, migration status, gender, age or other socioeconomic factors?*

5.2 Have you learnt any skills or good farming practices in this location and/or at your job that you think could be replicated in your origin community? Had you worked in sugar cane/palm oil before in your country of origin?

5.3 Do you keep in contact with family members or others who remain in your origin/home community? If so, how?

5.4 Do you send money home? If yes, approximately how much per month? How is this money used by your family members or by others?

5.5 Do you think that the money you sent home and/or the skills you have learned here have had an impact on the community's level of development? Do you think that your community is better prepared to deal with droughts, floods and other events as a result of your migration?

5.6 Where do you see yourself in five years? What is your "future" plan and how does migration to Thailand/Malaysia contribute to this?

Concluding questions:

Do you have any more questions regarding this research?

Do you know of any other migrant workers in the sugar cane sector who may be willing to speak with me?

Thank you very much for your time and availability to participate in this research.

Interview code: xxx

ANNEX II: ETHICS, CODING AND DATA COLLECTION

IOM CREST ENVIRONMENT AND CLIMATE CHANGE RESEARCH – JOINT SEI/IOM ETHICS GUIDELINES

Background information: This research undertaken by the Stockholm Environmental Institute (SEI) Asia in partnership with the International Organization for Migration (IOM), seeks to enhance the knowledge base on the capacity of international labour migration to serve as an adaptation strategy to climate change with a focus on the role of business. The **overall objective** of this research is to better understand how environmental and climate change impact international labour migration and vulnerabilities experienced by migrant workers in Asia with a specific focus on the role of the private sector in addressing and/or reinforcing socio-environmental vulnerabilities. To achieve this, the project focuses on migrant workers employed in the agricultural sector in two key destination countries (Malaysia and Thailand) and on four migration corridors, including Cambodia and Myanmar to Thailand, and Bangladesh and Indonesia to Malaysia. The overall **aim of this project** is to inform businesses and states on the measures needed to make international labour migration in selected corridors a successful adaptive strategy to climate change and environmental degradation.

Interview process: The interview takes place at an **open and safe space**, at a location that is most convenient to interviewees and where they feel comfortable to talk openly about the migration history and the impacts of migration, environment, and climate change on interviewees' everyday life. During the interview, the research team will ensure that **COVID-19 safety measures** are applied (masks will be worn and a distance of 2 metres kept between interviewers and participants). The interview will take approximately 1 hour in a language that interviewees can understand.

Voluntary participation and withdrawal: The participation to this study is voluntary. Interviewees participate in the assessment by providing the written or verbal consent. Interviewees are **free to withdraw consent and to discontinue participation** in the study at any time. There will be no negative consequences for refusing to participate or to withdraw from this study early. If interviewees participate in the interview, they are providing SEI and IOM permission to collect, receive, use, transfer or store their data provided during the interview. There are no costs to participate in the interview.

Risks and benefits: Interviewees may feel upset or uncomfortable answering some questions. Interviewees do not have to answer any question that they do not want to reply to, and they do not have to give a reason why they do not want to answer the question. While the knowledge and perspectives interviewees shared are expected to contribute to future programming and policies that affect them, there will be no immediate advantage or benefits to interviewees, their families and communities as a consequence of the participation.

Confidentiality and anonymization: All information interviewees provide during the interview will be held in strict confidence, and all of their answers will be **anonymous**. Interviewees can choose their own nickname before the interview, and the research team does not write down their real names. The interview will be audio recorded with interviewees' permission, but their anonymity will be guaranteed throughout the full data collection process (recording and storage on encrypted device or recorded

interview, transcription, storage of transcription text file on encrypted device). Interviewees' name will also not appear in any report or publication of the study. Interviewees' data will be safely stored and only staff from SEI and IOM will have access to the individual responses. Interviewees can ask that the data be deleted after completion. The research team do not share Interviewees' answers or any personal details with any government organization or employer.

For interviews, the data was **coded** accordingly to the location, country of origin (when relevant)¹⁶³, province (when relevant), category of informants, sequence, and gender of the informants (when relevant) as follows:

Coding system

Country	Thailand = T; Malaysia = M
Country of origin (migrants in Malaysia only)	Bangladesh = B; Indonesia = I
Province (Fieldwork key informants and focus group discussion participants only)	Tak = T; Sa Kaeo = S; Pahang = P; Johor = J
Category of Informants	Employer ¹⁶⁴ =E Local Authority/ villager=L Migrant workers=M National Assessment Informants ¹⁶⁵ = NAI
Interview number	(1,2,3,4,5...)
Gender of the interviewee	(M/F) (Fieldwork informants only)

Data collection

In Thailand, interviews were conducted with the support of World Vision in the Tak province and of Friends International in Sa Kaeo. In Malaysia, interviews were conducted with the support of IOM offices from Bangladesh, Indonesia and Malaysia. The interview guides were developed by SEI with inputs from IOM and the national research teams. The interview guide for migrant workers was designed to understand the key socioeconomic, demographic and environmental conditions in origin, the main factors that led to migration (and the influence of environmental and climatic factors in these decisions), the recruitment of migrant workers and their traveling conditions, their socioeconomic and environmental conditions at destination, and the impacts that their migration had had both on themselves and on left behind family members and communities. All interviews in both Malaysia and Thailand were recorded with the free, prior, informed consent of participants, coded and kept strictly anonymized and confidential (see Annex 2). The audio files of the semi-structured interviews with migrant workers were transcribed and translated for their analysis.

¹⁶³ While Bangladeshi and Indonesian migrants worked in both Pahang and Johor provinces in Malaysia, the migrants interviewed in Tak province in Thailand were all from Myanmar, and all the migrants in Sa Kaeo were from Cambodia. For this reason, the research team did not include the country of origin as a part of the coding system for the migrants in Thailand.

¹⁶⁴ Includes smallholders and sugar cane buyers.

¹⁶⁵ These informants were representatives of the international organizations, non-profit organizations, universities and certification boards.

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