

Climate change, migration and justice

SEI's research and pathways
for overcoming challenges

SEI report
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Migrants begin their journey through Europe in Kos © Win McNamee / Getty

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We empower partners to meet these challenges through cutting-edge research, knowledge, tools and capacity building. Through SEI's HQ and seven centres around the world, we engage with policy, practice and development action for a sustainable, prosperous future for all.

Contents

Executive summary	4
1. Introduction	6
1.1 Overview	6
1.2 Navigating a complex nexus	7
1.3 About this report	9
2. Identified challenges and SEI's experience and contributions	11
2.1 Relationships between conflict, environment and displacement	12
2.2 Challenges and opportunities for migration as adaptation	14
2.3 Power, intersectionality, gender and decoloniality in climate-related human mobility	15
2.4 Unpacking how natural resource management and climate impacts collide to compound risks shaping human mobility	17
2.5 Slow-onset events and their impacts on human mobility	18
2.6 Climate-resilient cities	20
2.7 Intergenerational migration impacts in the context of environmental and climate change	21
2.8 Modelling of climate mobility hotspots	23
3. SEI's thematic and methodological strengths	24
3.1 Transboundary climate impacts	25
3.2 Comparative, grounded research and shifting power	26
3.3 Strengthened global cooperation for safe, regular and orderly migration and sustainable livelihoods	28
4. Conclusions and next steps	30
Annexes	31
Annex 1. Regional actions and challenges	31
Annex 2. Review of policies	32
References	36

Executive summary

Climate change is reshaping global migration and mobility patterns, intensifying risks and deepening existing inequalities. Migration increasingly shapes global political landscapes, influencing elections and policy decisions that can profoundly impact climate and development goals. While migration serves as a critical adaptation strategy for many, others are left behind, constrained by systemic vulnerabilities that limit their capacity to move or adapt. These dynamics demand research and governance approaches that integrate justice, equity and sustainability to address the needs of the most affected populations.

Migration is rarely driven by climate change alone. Instead, environmental stressors interact with socio-economic, cultural and political factors to influence mobility decisions. However, current policies often oversimplify these complexities, focusing narrowly on securitization or economic outcomes. Such framings neglect the justice dimensions of mobility, perpetuating inequities and overlooking opportunities for sustainable, inclusive solutions.

The aim of this report is to identify key challenges in addressing climate-related mobility while showcasing SEI's thematic expertise and methodological strengths. By highlighting evidence-based approaches, the paper seeks to inform future research, policy and programming that centres justice, equity and sustainability.

Persistent challenges and SEI's contributions

This report identifies eight critical challenges in addressing climate-related mobility, along with SEI's contributions to advancing effective solutions:

- 1. Conflict, environment and displacement:** Simplistic narratives linking climate change to conflict can result in restrictive policies that harm vulnerable populations. Reframing these narratives, this report highlights the need for inclusive governance, peacebuilding and attention to structural vulnerabilities.
- 2. Migration as adaptation:** While migration can enhance resilience, it often risks being instrumentalized for economic gains without adequate protections. Addressing this requires rights-based frameworks that safeguard migrants and challenge systemic inequities.
- 3. Power, intersectionality and decoloniality:** Unequal power structures and intersecting social inequalities exacerbate mobility challenges. Advancing justice requires addressing inequities and recognizing the legacies of colonialism in shaping current patterns of mobility and immobility.
- 4. Natural resource management and mobility:** Inequitable governance of natural resources, compounded by land grabs and large-scale development projects, heightens displacement risks for marginalized communities. Safeguarding rights through inclusive governance is crucial.

5. **Slow-onset events:** Gradual environmental changes, like sea-level rise and desertification, profoundly reshape mobility patterns yet remain under-addressed in policy. These require targeted responses that consider immobility and long-term adaptation.
6. **Climate-resilient cities:** Rapid urbanization, combined with inadequate infrastructure, heightens risks for rural-to-urban migrants. Inclusive urban planning can integrate migration into strategies for building resilient cities.
7. **Intergenerational impacts:** Migration disrupts family dynamics, with particular burdens on children, youth and caregivers. Equitable policies must support both those who migrate and those left behind.
8. **Modelling mobility hotspots:** Current projections often oversimplify the drivers of mobility, failing to capture the nuanced decision-making processes that shape migration. Improved tools and data are needed for equitable and responsive policy development.

SEI's thematic and methodological strengths

Addressing these challenges requires bold, interdisciplinary approaches that bridge global research with local realities. This report identifies three interconnected priority areas where SEI's work can provide key research insights for climate mobility solutions:

1. **Transboundary climate impacts:** SEI examines cascading risks that cross borders and sectors, integrating human mobility into regional and global governance frameworks. SEI's participation in initiatives like Adaptation Without Borders demonstrates its leadership in addressing shared risks while promoting cooperation and sustainability.
2. **Comparative, grounded research and shifting power:** SEI's work bridges global narratives with local realities. Projects like HABITABLE help to amplify marginalized voices and foster justice principles, ensuring that research and policymaking are rooted in inclusivity, equity and actionable insights.
3. **Strengthened global cooperation for sustainable livelihoods:** SEI aligns migration with opportunities in green transitions, advocating for rights-based frameworks that prioritize decent work and sustainable development. Tools like AidAtlas and Trase can enhance transparency and inform equitable governance.

Advancing transformative solutions for climate mobility justice

Governance systems must move beyond reactive policies and simplistic narratives to confront the structural vulnerabilities that drive mobility and deepen inequalities. Building a just and resilient future requires solutions that centre justice, address intersecting inequalities, and promote sustainable livelihoods.

SEI's research is driving transformative change, bridging rigorous research with action to deliver equity-focused, context-sensitive solutions. By fostering global cooperation, empowering marginalized voices and advancing interdisciplinary partnerships, SEI's work shapes policies and practices that address the dual challenges of climate change and mobility.

We invite partners across disciplines, geographies and sectors to collaborate in advancing innovative, sustainable solutions for climate mobility – ensuring resilience and justice for all.

1. Introduction

1.1 Overview

Climate change is reshaping migration patterns worldwide, amplifying existing inequalities and leaving those least responsible for its impacts to face the greatest barriers to adaptation. As early as 1990, the Intergovernmental Panel on Climate Change (IPCC) identified human migration as one of the potentially gravest consequences of climate change. While it is impossible to isolate climatic and environmental factors from the complex web of socio-political, economic and demographic motives shaping human mobility, climate and environmental changes are increasingly interacting with and intensifying these pressures, influencing migration patterns and shaping capacities to stay.

Subsequent evidence has demonstrated that climate impacts – both direct and indirect – are contributing to instability and reshaping migration patterns worldwide. Yet the justice dimensions of mobility remain overlooked, in part because migration is often addressed through technocratic or securitized lenses that sideline deeper questions of equity and responsibility. This neglect leaves those already facing intersecting inequalities – related to gender, race, age, ability and indigeneity – to bear the greatest burdens (Vigil, 2024).

While migration has historically served as a strategy to adapt to environmental changes, the unprecedented scope of anthropogenic climate change introduces new dimensions of responsibility and justice that demand innovative policies addressing root vulnerabilities and enabling sustainable livelihoods. Certain places are already at risk of becoming uninhabitable while livelihoods are increasingly unstable or degraded from climate change (Sterly et al. 2025).

At the same time, security and geopolitical concerns overshadow environmental imperatives, with economic issues and securitization discourses often dominating political agendas. Migration increasingly shapes global political landscapes, influencing elections and policy decisions that can either advance or hinder climate and development goals. This underscores the importance of justice frameworks, which emphasize the equitable distribution of opportunities, resources and rights, to address the injustices shaping mobility in a climate-stressed world.

We view migration as a bridge and an entry point for connecting socio-economic and human security concerns with environmental and social sciences for the collective well-being of humanity and our planet.

1.2 Navigating a complex nexus

Despite a growing body of work, migration in the context of climate change remains fraught with political and scientific challenges. Politically, migration is often mischaracterized as a security threat, overshadowing its potential as a pathway to adaptation and resilience. Scientifically, gaps in conceptualization and data, uneven geographic focus, and reductive narratives complicate efforts to develop effective responses.

While we know that climate impacts are already influencing population movements in significant ways, climate rarely acts as the sole or main driver of migration. Instead, migration arises from a complex interplay of environmental, socio-economic, cultural and political factors that operate across scales. Rather than ‘forcing’ or ‘driving’ migration outright, climate change exacerbates existing pressures on traditional migration drivers in ways that must be understood in context. For instance, changes in resource availability due to climate impacts significantly shape the economic drivers of migration (Call & Gray, 2020; Vigil, 2017). Agricultural instability caused by climate variability interacts with demographic and cultural dynamics, shaping aspirations for alternative livelihoods (Rao et al., 2019). The efficacy of in-situ adaptation also plays a critical role, as the ability to sustain existing livelihoods in a variable climate shape whether migration becomes an adaptation pathway or a last resort.

In some cases, climate impacts more directly cause displacement, particularly during sudden-onset extreme weather events. However, the effects of natural hazards are distributed unequally, influenced by broader socio-economic and political contexts. Exposure and risk are shaped by governance processes, including pre- and post-disaster planning, which heavily influence human mobility outcomes. Crucially, not everyone at risk can or chooses to migrate. Immobility is a critical but overlooked dimension of climate-related mobility, with those unable to move often facing the greatest vulnerabilities due to systemic inequalities and being unable to move out of harm’s way (Zickgraf, 2018).

Migration and displacement occur amid “overlapping crises,” such as conflicts intertwined with food and livelihood insecurities (IDMC, 2023). However, public discourse often oversimplifies these dynamics. Terms such as ‘climate migrants’ or ‘environmental migrants’ can suggest that climate or environmental factors alone drive migration. While these terms are evocative, they risk shifting attention away from the structural issues that both drive migration and exacerbate climate vulnerabilities and can be used to evade political and economic responsibility. Instead, concepts such as ‘climate-related migration or mobility’ and ‘migration/mobility in the context of climate and environmental change’ offer more conceptual precision. This also allows investigation into the overlapping and complex connections between migration and climate, which are socio-economic and political rather than simply ‘environmental’.

Definitional challenges around climate-related migration are connected to significant data limitations which make it difficult to capture the full complexity of mobility patterns influenced by climate impacts. Figures from the Internal Displacement Monitoring Centre (IDMC) provide robust data on disaster-induced internal displacement but exclude cross-border movements, slower-onset environmental changes, and harder-to-track labour migration patterns.

Another challenge lies in the proliferation of so-called ‘climate migration’ projections. With widely cited estimates like “200 million displaced by 2050”, these problematic projections lack methodological rigour (Gemenne, 2011) and often fuel alarmist narratives of “migrant floods” or “human tsunamis” (Bettini, 2013). Unfounded claims, such as “1 billion climate refugees by 2050” (Porrirt et al., 2024), persist despite being factually incorrect. Such unfounded projections risk being instrumentalized to justify restrictive border controls rather than addressing the underlying need for equitable climate adaptation. While climate change does influence migration, it does not typically cause mass exoduses across continents. Instead, most climate-linked mobility is internal, involving short-distance, seasonal or circular migration as people adapt to changing conditions. Predicting future patterns remains inherently complex, as this will depend on a panoply of socio-economic factors and policy choices. Despite these challenges, efforts to improve migration forecasting methods are gaining traction, spurred by growing academic and institutional interest in refining how climate-related mobility is understood and addressed (Fuchs et al., 2021).

The uneven geographic focus of existing research further limits our understanding of climate-related migration. Much of the scholarship disproportionately centres on a handful of countries, such as Bangladesh, the United States, India and China, while vast regions with significant climate risk, such as Central Asia and parts of Central and South America, remain underexplored (Piguet et al., 2020). Even within well-studied regions, research often prioritizes certain hazards – desertification and rising temperatures dominate studies in sub-Saharan Africa, while flooding and sea-level rise feature prominently in Asia and the Pacific. Conversely, in the Americas, sudden-onset events like hurricanes receive more attention than slow-onset factors such as deforestation or soil degradation. This narrow scope leaves critical aspects of climate-related mobility unexamined (Piguet et al., 2018).¹ Regional action on climate and mobility varies widely, with differing levels of progress across Africa, Asia and Latin America (see Annex 1 for an overview of regional comparative actions and challenges).

Moreover, there is a stark Global North bias in how research is conducted and framed. Although most studies focus on the Global South, they are often led and funded by institutions in the Global North. This creates a disconnect between those who design and guide research agendas and the communities most affected by climate-related migration (Piccoli et al., 2023). Global South scholars are notably underrepresented in the most widely recognized scholarly journals addressing this subject, with Latin America representing the lowest level of authorship on case studies globally (Piguet et al., 2018). Migration scholarship frequently prioritizes South-North migration narratives, reflecting the policy interests of wealthier countries, while overlooking the majority of migration that occurs within the Global South (Crawley & Teye, 2023). Such biases not

¹ CliMig database: <https://climig.com/>

only skew research priorities but also perpetuate structural inequalities, injustices and political exclusions (Piccoli et al., 2023).

Even where knowledge is improving, persistent challenges remain in translating scientific evidence into actionable regional frameworks and policies. Regions such as Africa, Asia and the Pacific, Latin America, and the Caribbean face heightened vulnerability to recurring and compounding hazards, driven by structural inequalities and limited capacities to respond and recover. These regions are also rapidly urbanizing while remaining highly dependent on agricultural livelihoods, raising urgent questions about rural-urban mobility and precarity amid the interplay of trans local livelihoods and climate stress.

Examining these regions through a comparative lens highlights both shared vulnerabilities and distinct policy approaches. Such comparisons reveal opportunities for mutual learning, as well as region-specific challenges that demand tailored policy responses². A comparative perspective across these regions reveals differences in approaches rooted in their context alongside region-specific challenges for policy consideration. SEI's work addresses these complexities through inclusive research and by enabling evidence-based policymaking that unpacks the socio-political drivers of climate related migration and mobility.

1.3 About this report

Despite increasing research and policy advances regarding the interactions between climate, environmental change and human mobility, uncertainties and complexities remain. Future migration and displacement patterns in the context of climate change will depend not only on the biophysical impacts of climate change but also on adaptation and migration governance. However, the use of both migration and climate issues in populist and nationalist narratives can lead to interventions not informed by science. By prioritizing security concerns, these narratives frequently overlook the justice dimensions required to address root causes and deliver long-lasting solutions that support the most vulnerable.

The current state of knowledge and investment on climate change and human mobility also focuses on international migration from the Global South to the Global North, creating significant gaps for assessing the impacts of intra-regional and internal mobility and their implications for sustainable livelihoods (Boas et al., 2019; Piguet et al., 2018). Advancing scientific evidence and packaging findings for timely and well-positioned use is critical for supporting the development of policies that promote a sustainable, safe and just future.

This report aims to first identify emergent and persistent challenges in addressing human mobility in the context of climate change while highlighting SEI's experience and contributions as an environmental research institute. Then, the report covers SEI's thematic and methodological strengths, including existing innovative tools that could be applied to improve understandings of migration and mobility. The report ends with

² See Annex 1 for a list of identified global and regional policies governing the intersections of climate change, migration and mobility, and disaster risk reduction/management.

a reflection on SEI's capabilities for advancing research, policy and programming on migration and mobility and a call for future collaboration advancing progress.

BOX 1. THE SEI MIGRATION AND MOBILITY PROGRAMME'S POSITION ON CLIMATE CHANGE AND HUMAN MOBILITY

We recognize migration as a critical dimension of climate adaptation and resilience, shaped by deeply interconnected environmental, socio-economic, and political factors. As an international non-profit research institute informing policy, SEI addresses the complex challenges at the nexus of climate change, human mobility and sustainable development through rigorous interdisciplinary research and transformative partnerships.

Our approach emphasizes:

- Inclusive, participatory methods to ensure that the voices and leadership of communities most affected by climate-related migration – particularly those in the Global South – are central to decision-making.
- Addressing intersecting inequalities by analysing how gender, race, age, ability, and indigeneity shape vulnerabilities and outcomes in migration processes.
- Tackling structural drivers of vulnerability, including environmental degradation, debt distress, and governance challenges, while advancing pathways for sustainable livelihoods.

SEI bridges global research with local action:

- With centres across five continents, SEI integrates global expertise with context-specific insights to craft solutions that are scientifically rigorous and locally relevant.
- Our co-production approach collaborates with grassroots organizations, Indigenous leaders, governments and civil society to ensure equitable and actionable outcomes.

We are committed to creating real-world impact:

- By linking science to policy and practice, SEI ensures findings lead to timely and effective interventions that address the needs of the most vulnerable.
- SEI's interdisciplinary tools and methods empower decision-makers to align migration governance with climate resilience and sustainable development objectives.

SEI's work has viewed migration as an opportunity to build bridges between climate resilience, equity and global sustainability, ensuring that mobility outcomes advance collective well-being and long-term solutions.

2. Identified challenges and SEI's experience and contributions

Building on SEI's work in the field of migration and mobility, this section examines eight persistent challenges in translating scientific knowledge into actionable insights for policymakers. These challenges reflect the complex intersections between human mobility, migration and climate change at different geographical scales. Drawing from a review of the literature and ongoing work, the analysis highlights critical gaps in understanding while showcasing how SEI's research and collaborations contribute to addressing these challenges. Each challenge is contextualized within broader socio-environmental dynamics, emphasizing SEI's role in bridging science, policy and practice.

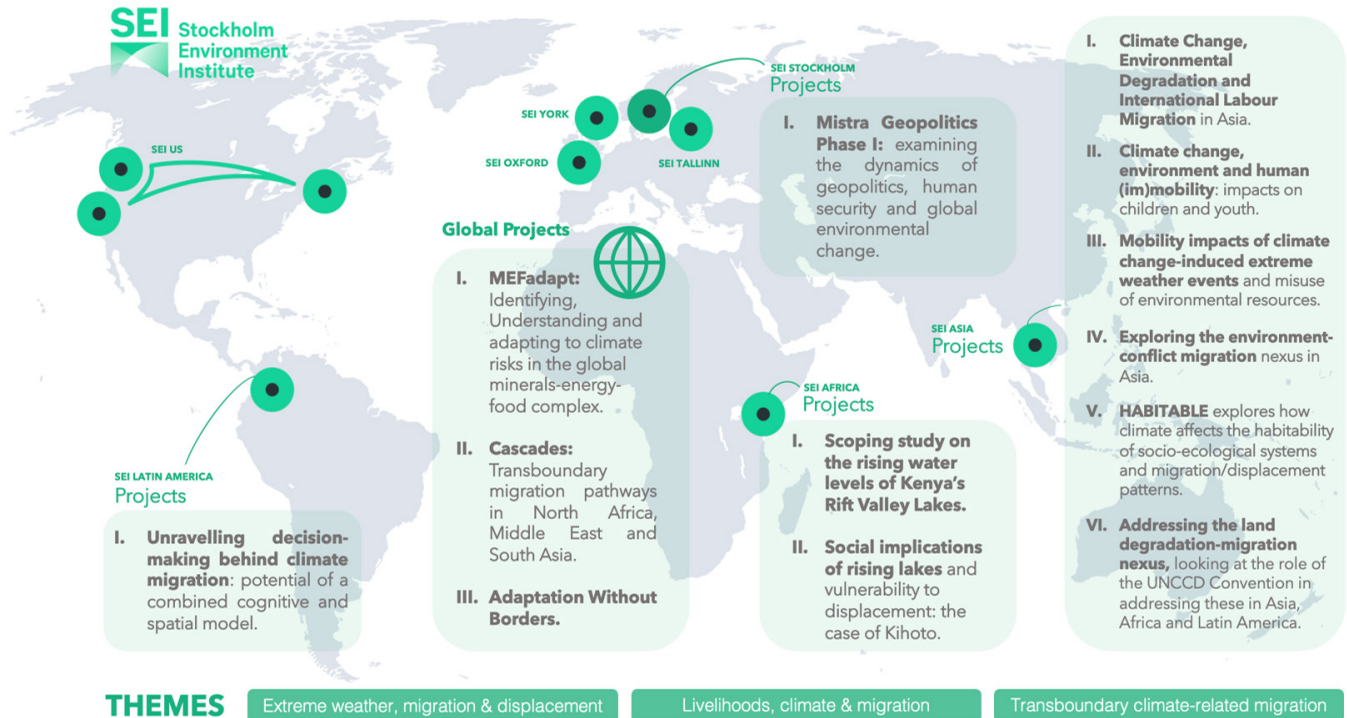
Understanding and addressing these challenges requires a nuanced appreciation of the regional variations in climate impacts and human mobility dynamics, as well as the policy and governance frameworks shaping responses. For example, in Africa, drought and desertification drive intra-regional migration, while rapid urbanization compounds climate risk in informal settlements. In Asia, displacement is driven by cyclones, hydropower projects and weak governance structures, limiting effective adaptation. Meanwhile, in Latin America and the Caribbean, the focus often remains on extreme weather events like hurricanes, despite the region's growing vulnerability to slow-onset events such as drought and sea-level rise.

In parallel, policy and governance responses also vary widely across regions. Africa has made significant progress with frameworks like the Kampala Ministerial Declaration on Migration, Climate Change & Environment (2022) and the IGAD Protocol on Free Movement of Persons, which address mobility in the context of environmental hazards. In contrast, Asia and the Pacific lack comparable frameworks, with regional bodies like ASEAN primarily focusing on forced displacement and human trafficking rather than creating integrated pathways for climate-related migration. In Latin America and the Caribbean, while some countries have recognized 'climate migrants' within national frameworks, challenges such as data disparities and an overemphasis on sudden-onset events hinder proactive policy responses.³

Together, these regional variations in climate impacts and policy responses underscore the importance of tailoring approaches to address the unique challenges and opportunities in each context. The map below provides a visual representation of SEI's projects and their geographical distribution across these themes, as will be outlined in this section (see Figure 1).

³ See Annex 2 for a detailed review of relevant international and regional policies.

Figure 1. Geographical distribution of SEI's migration and mobility projects



2.1 Relationships between conflict, environment and displacement

Climate change continues to be widely presented as a threat multiplier, with its impacts on livelihoods – such as water scarcity, food insecurity, and failed crops – linked to heightened risks of violent conflict and forced migration. This framing often emphasizes competition for scarce resources as a driver of socio-economic instability, potentially escalating inter- and intra-state conflicts (Kelley et al., 2015). Such narratives are frequently applied to regions like the Sahel, which is described as a hotspot where population growth, environmental degradation and climate change are expected to intensify conflict and displacement (Vigil, 2017, 2022). Media depictions – including alarmist claims of mass so-called ‘climate migration’ fuelling terrorism – further entrench this view, despite its contested validity (Tousignant, 2017).

Although these narratives remain prevalent, recent research has increasingly highlighted the complex and context-specific nature of the interactions between climate change, violent conflict and migration (Boas et al., 2019; Gemenne et al., 2014; Thalheimer et al., 2023). Studies show that marginalized populations, particularly those excluded from resource access and socio-economic opportunities, are disproportionately exposed to climate impacts, but direct causality between climate change and violent conflict remains elusive.

Presenting climate change and migration as a threat to national security has real consequences that can exacerbate human insecurity. These frames often justify border entrenchment, asylum criminalization and restrictions on “survival migration”

(Betts, 2013) rather than safe migration routes or inclusive adaptation. Therefore, a shift towards more holistic approaches to conflict-environment and displacement is necessary – approaches that seek to understand the underlying sociopolitical processes that shape people’s vulnerabilities in given contexts of contestations, environmental changes, and human mobility. Box 2 highlights SEI Asia’s collaboration with the Danish Refugee Council (DRC), which aimed to challenge these problematic framings and promote long-term peacebuilding and inclusive adaptation measures within the environment-conflict-migration nexus.

BOX 2. DRC ASIA REGIONAL CLIMATE FRAMEWORK 2021-2025: EXPLORING THE ENVIRONMENT-CONFLICT-MIGRATION NEXUS IN ASIA (2021-2022)

Commissioned by the Danish Refugee Council (DRC) Asia regional office, SEI Asia conducted an in-depth study exploring the intricate relationships between climate change, migration and conflict across Afghanistan, Myanmar and Bangladesh. This research also examined the experiences of displaced Afghans in Pakistan, Iran and Turkey, as well as Rohingyas in Malaysia, Indonesia and Thailand. In such contexts, climate change increases strains on the affected communities, which can, in the absence of protection and support, translate into heightened tensions over natural resources and/or increasing engagement in out-migration from the affected areas. Ethnic minorities are particularly marginalized as they are often excluded from social protections and targeted as subjects of violence.

In Afghanistan, slow-onset events such as drought contribute to land degradation and reduced agricultural productivity. In combination with existing conflicts, these events drive migration to neighbouring countries like Pakistan, Iran and Turkey in search of safety and livelihoods. Similarly, Rohingyas in Myanmar face compounded challenges from ethnic tensions, economic hardship and environmental impacts, living in areas highly susceptible to flash floods and landslides. Immobility remains a critical protection gap for internally displaced Rohingyas, many of whom face ongoing climate risks after fleeing violence and repression to neighbouring countries.

The research underscores the importance of recognizing the complex linkages between climate, conflict and mobility in climate policies, moving beyond simplistic causal narratives that have often shaped interventions. Instead, it advocates for addressing the socio-political structures that create and perpetuate vulnerabilities. Key recommendations include scaling up local adaptation strategies, integrating climate-migration linkages into policies, and prioritizing peacebuilding and long-term resilience investments in conflict-affected regions. By addressing immediate humanitarian needs and structural inequities, the study provides actionable recommendations for inclusive and context-sensitive interventions that support sustainable resilience and peacebuilding in affected regions (Vigil et al., 2022).

2.2 Challenges and opportunities for migration as adaptation

Migration is still often framed as a failure to adapt in situ, yet the evidence demonstrates its role as a key adaptation strategy to climate change. Under the right conditions, migration can diversify incomes, improve human security and foster resilience in both sending and receiving regions (Bardsley & Hugo, 2010; Gemenne & Blocher, 2017; McLeman et al., 2016). The notion of migration as adaptation has gained traction in academic and policy debates since the 2010s, showcasing its potential to mitigate climate risks and contribute to national development (Black et al., 2011; Hall, 2015; McAdam, 2012; Piguet, 2013). However, this framing is not without challenges.

Scholars warn that emphasizing ‘migration as adaptation’ can reinforce neoliberal narratives of self-reliance, deepening vulnerabilities by depoliticizing the drivers of migration in the context of climate change and failing to address issues of climate justice (Bell et al., 2020; Bettini & Gioli, 2016; Lama et al., 2021; Vinke et al., 2020). Migration does not always enhance adaptive capacity, especially when policies fail to address disparities in healthcare, education or labour protections for rural-to-urban and international migrants (Zickgraf 2022). Additionally, the capital-intensive nature of migration can erode household resources, particularly when repeated climate impacts diminish the required assets for mobility (Cattaneo & Foreman, 2023). For vulnerable populations unable to migrate safely, immobility becomes a pressing risk, leaving them exposed to harm without viable alternatives (Carling, 2002; Zickgraf, 2018).

Thus, it is essential not to instrumentalize migration within adaptation by focusing on its economic benefits without addressing protection gaps and underscoring the social risks that vulnerable migrants face in their journeys and destinations.

In addition, the interplay between climate adaptation and mitigation policies and population movements remains critically underexplored. Policies such as large-scale biofuel production or hydropower development, which displace vulnerable communities, can challenge the very definition of adaptation by exacerbating social and environmental vulnerabilities (Vigil, 2018). For migration to be adaptive it must benefit migrants, their communities of origin, and their destinations (Gemenne & Blocher, 2017), addressing structural inequities rather than perpetuating harm on those most vulnerable. This requires a shift from instrumentalizing migration as a source of financial remittances toward fostering human rights-based programming that protects and empowers migrants. Box 3 highlights SEI Asia’s work with the International Organization for Migration (IOM) in Malaysia and Thailand, examining how climate-related labour migration can serve as a viable adaptation strategy when supported by adequate protections and policies.

BOX 3. INTERNATIONAL LABOUR MIGRATION IN A CHANGING CLIMATE: INSIGHTS FROM MALAYSIA AND THAILAND (2021-2023)

SEI Asia partnered with the International Organization for Migration (IOM) under its Corporate Responsibility in Eliminating Slavery and Trafficking (CREST) program to investigate the intersections between climate change, international labour migration, and vulnerabilities in two key sectors of the bioeconomy sectors: sugar and palm oil. The study focused on migration to Thailand and Malaysia, examining how climate mitigation efforts, such as the expansion of biofuel production, intersect with labour migration processes and impact the rights and well-being of migrant workers (Vigil & Kim, 2023).

Migrants from climate-vulnerable countries such as Cambodia, Myanmar, Bangladesh and Indonesia move to Thailand and Malaysia, drawn by opportunities in sectors experiencing labour shortages linked to growing bioeconomy demands. However, the study revealed that household debt, often incurred to recover from climate shocks or support agricultural activities in origin countries, plays a significant role in driving international labour migration.

Despite the existence of migrant protection frameworks in Malaysia and Thailand, significant gaps persist. Migrants working in sugarcane plantations in Thailand, particularly those in irregular situations, faced exploitative practices such as lack of contracts, wages below the legal minimum, and excessive working hours. Migrants in both countries also reported restrictions on mobility, harassment, and discrimination. Gendered norms further influenced these experiences, with migrant men often accessing better opportunities and higher pay than women.

The project highlights the critical need to align climate mitigation policies, such as biofuel expansion, with human rights-based approaches to international labour migration. For migration to serve as an effective adaptation strategy, states and businesses must ensure that migration pathways are safe, orderly and regular, while addressing systemic vulnerabilities.

2.3 Power, intersectionality, gender and decoloniality in climate-related human mobility

Research on climate-related mobilities and migration has shifted from environmentally deterministic explanations to more intricate accounts of why people move or stay. While gender⁴ and social inequities have been recognized as significant factors that shape these connections (see Gioli and Milan 2018 for a review), the intricate multi-scalar power relations that shape human mobility in the context of climate change have been underestimated. When gender is considered, it is often analysed as an add-on for which more sex- and gender-disaggregated data must be collected. This has led to an overemphasis on the role of climate factors and a neglect of power inequalities, leading

⁴ Sex refers to biological and physiological indicators, while gender refers to socio-cultural constructs shaping characteristics, expectations, roles and norms around femininity and masculinity (Segnestam, 2018). Neither of these categories should be understood as binary or fixed.

in turn to a de-politization of this nexus that can occlude relations of causality and responsibility (Ribot, 2014).

To advance meaningful research and policy, there is a growing call for intersectional approaches that unpack the socioeconomic, cultural and political dynamics contributing to vulnerabilities across different groups, contexts and scales (Vigil, 2024). This implies moving beyond essentialist readings of women as victims or champions to instead examine how intersecting identities and people's position in societies shape not only the drivers, but also the outcomes of mobility and immobility. These approaches also explore how colonial, racial and gendered legacies of extraction and marginalization continue to influence contemporary mobility patterns and immobility risks (Chatterji 2017).

The concept of voluntary immobility, particularly among Indigenous communities in climate-impacted regions like the Pacific, exemplifies the importance of recognizing diverse mobility experiences. For some, remaining in place is a deliberate act of resilience and self-determination, tied to the protection of land, ecosystems and cultural heritage (Farbotko 2018; Farbotko and McMichael 2019). These are crucial (im)mobility dynamics that need to be considered in future research and policy, namely when working on topics of relocation for conservation purposes or the increasing need for land for mitigation and adaptation policies. This includes efforts in advancing the platforms where migration and human mobility research are led by Global South institutions and local and Indigenous researchers. These dynamics underscore the need for mobility justice, which centres the political nature of (im)mobility while advancing rights-based solutions that amplify Indigenous and Global South leadership in migration and climate research (Yumagulova et al., 2023).

Future research and policies must prioritize these intersectional and decolonial perspectives, particularly in contexts involving climate-induced or conservation related relocations. Recognizing the political, cultural and social implications of such movements is vital to achieving equitable and inclusive outcomes. Box 4 highlights how SEI researchers operationalized these approaches in the HABITABLE project, integrating feminist political ecology and justice principles to reshape research and policy frameworks.

BOX 4. LEADERSHIP ON GENDER AND SOCIAL EQUITY IN THE HABITABLE PROJECT (2020-2024)

The HABITABLE project – *Linking Climate Change, Habitability and Social Tipping Points: Scenarios for Climate Migration* – brought together 22 partners from 18 countries to explore the complex interconnections between climate change impacts and patterns of migration and displacement, aiming to better anticipate their future evolution. The consortium encompassed expertise from climate and environmental science, human mobility, sustainability studies, international human rights law, and public policy. SEI led the work package on gender and social equity across the project's activities, from framing to methods and analysis and policy recommendations.

A key conceptual contribution from SEI was articulated in the paper “Towards a Feminist Political Ecology of Migration in a Changing Climate” (Vigil, 2024), which applied a feminist political ecology lens to critique the depoliticized framing of the climate-migration nexus. This work emphasized the interplay of global ecological unequal exchange, gendered labour dynamics, and localized vulnerabilities in shaping migration decisions and outcomes. By addressing the structural drivers of mobility, the paper advocates for more nuanced, intersectional approaches that challenge essentialist gender narratives and incorporate the lived realities of affected populations.

Building on this foundation, SEI researchers developed a justice-oriented framework that extended the capabilities approach through feminist justice principles. This framework highlighted four key justice dimensions: recognition; redistribution; representation; and reparation. By focusing on the injustices that drive climate (im)mobilities, we can better unpack its drivers and address its outcomes.

2.4 Unpacking how natural resource management and climate impacts collide to compound risks shaping human mobility

Access to and control over resources, which has historically shaped population movements, remains a critical factor modulating human (im)mobility in the context of climate change (Ali et al., 2023). The degree to which individuals can choose whether to move or stay is deeply embedded in socioeconomic, cultural and political structures that govern access to key resources. Gender norms and social values frequently entrench systemic discrimination, limiting opportunities for certain groups. For example, women often face restricted access to land and other natural resources due to patriarchal land tenure systems, while customary land conflicts can further undermine opportunities for both individuals and communities (Chigbu, 2019; Kansanga et al., 2019).

Agricultural livelihoods are particularly vulnerable to the intersection of natural resource management, environmental degradation and climate impacts. Despite its pivotal role, the relationship between natural resource access and human mobility is often overlooked in climate change and migration research and policy, leaving a significant gap in understanding and intervention (Torre et al., 2023).

Large-scale development projects such as hydropower dams, industrial agriculture and biofuel plantations further exacerbate vulnerabilities. These projects often displace marginalized communities, stripping them of access to resources and degrading local ecosystems. Ethnic minorities and Indigenous peoples are disproportionately affected by land and resource grabbing with limited avenues for recognition or redress (Ahmed & Liquin, 2023; Aiken & Leigh, 2015; Borrás et al., 2020; Dao, 2016; Vigil, 2019). Despite a growing body of research emphasizing the importance of supporting equitable access to key resources, policy responses remain inadequate (Kaneti, 2020; Price, 2019). Without prioritizing inclusive resource management practices that address the needs and rights of vulnerable groups, development risks exacerbating displacement

and deepening systemic inequities. Box 5 highlights SEI's work in the Greater Mekong Subregion (GMS), providing critical insights into how resource management and mobility intersect in the face of extreme weather events and environmental changes.

BOX 5. REGIONAL STUDY ON THE MOBILITY IMPACTS OF EXTREME WEATHER EVENTS AND NATURAL RESOURCE MANAGEMENT IN THE GREATER MEKONG SUBREGION (2022-2023)

In partnership with International Organization for Migration (IOM), SEI Asia led a study examining the intersections between extreme weather events, natural resource management, and human (im)mobility in the Greater Mekong Subregion (GMS), focusing on Cambodia, Myanmar, Lao People's Democratic Republic (Lao PDR), Thailand and Viet Nam. The research aimed to address critical knowledge gaps by exploring how inequitable resource access, compounded by extreme weather events, shapes the mobility and immobility of marginalized communities.

The findings revealed that large-scale development projects – including hydropower dams and industrial agriculture – are major drivers of environmental degradation, such as deforestation and water scarcity. These issues are compounded by extreme weather events, which exacerbate irregular flooding and drought risks for communities living downstream. Households with limited access to resources or alternative livelihoods are disproportionately affected, often facing heightened risks of immobility and precarious living conditions (Torre et al., 2023).

The study underscored that vulnerability to extreme weather events is closely linked to natural resource mismanagement and governance practices that determine who can move and who is forced to remain in high-risk areas. It highlights the need for stronger regional coordination and collaboration through mechanisms such as ASEAN and the Mekong River Commission (MRC) to ensure inclusive resource management. Strengthening the capacities of civil society organizations, non-governmental organizations, and community networks is critical to advocating for equitable governance and access to remedy for marginalized populations. Integrating resource management with disaster risk reduction and human mobility policies offers pathways to reducing vulnerabilities and building resilience for affected communities in the GMS region and beyond.

2.5 Slow-onset events and their impacts on human mobility

Slow-onset events – gradual environmental changes such as desertification, sea-level rise, and prolonged drought – are increasingly significant in shaping human mobility. These events often lead to profound, long-term demographic shifts and disruptions to livelihoods, reducing community resilience and narrowing adaptation options over time. Desertification – driven by deforestation, overgrazing and climate change – has rendered vast areas of arable land infertile, forcing rural communities to seek alternative livelihoods elsewhere (Hoffmann et al., 2020). Similarly, sea-level rise and

coastal erosion are displacing coastal communities and disrupting ecosystems, further exacerbating livelihood pressures (Vousdoukas et al., 2022).

Although slow-onset events like drought have been found more likely to influence migration over time than sudden-onset disasters like floods (Kaczan & Orgill-Meyer, 2020), the relationship is not always straightforward. The slow degradation of natural resources can limit migration's adaptive potential, as households use remaining resources to meet immediate needs rather than embarking on longer-distance migration. Research has also shown that environmental changes in drier regions often lead to internal rather than international migration due to limited household resources, highlighting the need for more nuanced policy approaches that address localized vulnerabilities (Henry et al., 2004).

Despite their significant and cumulative effects, the impacts of slow-onset events on (im)mobility dynamics have received considerably less attention compared to sudden-onset disasters. Research has often overlooked the multi-dimensional ways slow-onset events intersect with migration decisions, focusing narrowly on permanent migration and displacement. However, everyday mobilities, such as seasonal or temporary migration, are key adaptive responses to slow-onset events and require further exploration (IOM & UNCCD, 2019). Box 6 highlights SEI Africa's scoping study in Kenya's Rift Valley, which investigates the socio-economic impacts of rising water levels and provides recommendations for inclusive policies to address displacement and migration.

BOX 6. SCOPING STUDY ON THE RISING WATER LEVELS IN KENYA'S RIFT VALLEY LAKES (2021)

SEI Africa collaborated with the Government of Kenya and UNDP to assess the socio-economic impacts of rising water levels in the Rift Valley lakes, a slow-onset phenomenon that has been ongoing since 2010. The study highlighted how rising waters have submerged riparian lands, displacing thousands of people and disrupting critical infrastructure, including roads, settlements, farmland, fish landing and processing facilities, and electricity and water supply systems. Biodiversity has also been severely impacted, with wildlife habitats lost and ecosystems disrupted.

This prolonged environmental change has exacerbated resource and livelihood stresses for affected communities, revealing significant gaps in state support for adaptation. The study emphasized the importance of addressing structural inequalities that shape responses to slow-onset events, particularly for vulnerable populations who are either displaced or unable to move.

Key recommendations included fostering stronger engagement between the government and affected communities, providing enhanced humanitarian assistance through subsidies and cash transfers, and improving monitoring systems to anticipate and mitigate future hazards. The study also called for further research to demarcate lake boundaries and define high water marks to inform long-term adaptation strategies. These findings underscore the need for inclusive and proactive policies that address both displacement and immobility in the face of slow-onset environmental changes (Nzuve, 2023).

2.6 Climate-resilient cities

The intersection of climate change, human mobility and urban development has gained increasing attention, particularly as rural-to-urban migration continues to rise and urban areas face escalating climate risks. Cities, particularly in developing countries, often lack the infrastructure and resources to withstand the impacts of more frequent and severe climate events such as floods and heatwaves. This exacerbates challenges in urban planning and service delivery, disproportionately affecting migrants who are often relegated to living in informal settlements and slums (Blekking et al., 2022; Conte, 2023).

In cities like Lagos in Nigeria and Nairobi in Kenya, rapid population growth coupled with limited urban capacity makes it challenging to support and protect incoming migrants fleeing poverty compounded by environmental stressors like desertification and drought in rural areas (Ekoh & Teron, 2023). Similarly, rural-to-urban migration toward Dhaka, Bangladesh, has led to the expansion of informal settlements that are highly vulnerable to climate impacts⁵ (Illius, 2023). In Latin America, recurrent droughts in Honduras and Guatemala have severely affected rural livelihoods and shaped migration of farmers to the capital cities of Tegucigalpa and Guatemala City, where they face continued precarious situations due to marginalization (Reichman, 2022).

Discussions on rural-urban linkages are critical to understanding mobility and migration, as these connections sustain both rural stability and urban adaptation through flows of remittances, labour and resources. The concept of translocality, which emphasizes the interconnectedness of localities through migration and globalization, provides a useful lens to explore how rural-urban networks shape adaptation strategies and resilience, highlighting the mutual dependence between these spaces (Lohnert & Steinbrink, 2005; Porst & Sakdapolrak, 2018; Sakdapolrak et al., 2024).

Urban informality, labour migration and policy intervention are central topics in the research agenda on climate mobilities to cities, particularly in sub-Saharan Africa and South Asia, where much of the focus has been on risks (Chung et al., 2022). Furthermore, there is limited research on the lived realities of migrants in informal settlements, including their relationships within communities and with local governments, which are key to shaping their resilience and adaptation pathways (Chung et al., 2022). Current studies have also largely overlooked medium and small cities, as well as underexplored large urban centres, despite their importance in understanding the diverse dynamics of urban climate resilience. Addressing these gaps requires co-produced knowledge that centres the experiences of migrants and informal settlements, fostering inclusive strategies for building climate-resilient cities. Box 7 highlights SEI Africa's work on urban disaster displacement in Kihoto settlement, Kenya, which provides valuable insights into improving city-level responses to displacement and climate-related vulnerabilities.

⁵ According to the study, approximately 70 percent of slum dwellers responded that they have been impacted by climate change and extreme weather events in their place of origin, which has affected their decision to migrate (Illius, 2023).

BOX 7. SOCIAL IMPLICATIONS OF RISING LAKES AND VULNERABILITY TO DISPLACEMENT: THE CASE OF KIHOTO SETTLEMENT (2022-2023)

SEI Africa researched the 2020 flooding of Kihoto informal settlement in Naivasha, Kenya, to investigate disaster displacement in urban settings and identify ways to improve city-level responses. The study examined the specific vulnerabilities influencing displacement and the broader socio-ecological dynamics at play.

Pre-existing vulnerabilities, including high unemployment exacerbated by COVID-19 and disproportionately affecting women aged 18 to 35, hindered residents' access to institutional support. Flooding and disaster management efforts were poorly coordinated, and inadequate planning in informal settlements created further mobility challenges. For example, flooded narrow roads limited access to essential services, particularly for vulnerable groups like older persons, people with disabilities and pregnant women.

Displacement also disrupted social networks and created risky micro-mobility patterns, compounding isolation and precariousness. By highlighting the cascading impacts of flooding on human mobility and socio-ecological systems, the study shed light on the slow-burning crisis unfolding across the East African Rift (Parviainen et al., 2024). To address these challenges, the research emphasized the need for co-created disaster reduction strategies that integrate human (im)mobility into urban planning. Strengthening local governance, improving disaster coordination, and involving affected communities are essential steps toward building resilience and supporting vulnerable urban populations.

2.7 Intergenerational migration impacts in the context of environmental and climate change

Intergenerational migration dynamics in the context of climate change reveal significant and underexplored challenges. Many households in climate-vulnerable areas engage in migration as an income diversification strategy, with family networks playing a crucial role in deciding who migrates and who remains behind (Porst & Sakdapolrak, 2020). This “migration-left-behind nexus” reflects the intersection of care responsibilities, generational roles and gendered norms, with profound implications for adaptation and resilience (Toyota et al., 2007).

Parental migration, while providing remittances that can improve household income and access to education, often places significant caregiving burdens on left-behind children and grandparents. Children frequently face disruptions to their education, well-being and development, while grandparents encounter challenges related to health, aging and limited resources (McLeman, 2018). However, parental absence can also create opportunities for children to develop agency and independence, depending on socio-economic and cultural contexts.

Climate change exacerbates these dynamics by undermining traditional rural livelihoods and increasing migration pressures. Recurring disasters, increasing debts, declining agricultural productivity, and housing impacts drive youth to seek wage labour in cities or abroad (Barney, 2012). While youth outmigration can be integral to rural transformations, it can also expose them to exploitation and precarious working conditions. Furthermore, the ageing of full-time farm workers and the feminization of labour migration, coupled with youth outmigration, raise concerns about the sustainability of agrarian systems (Angeles & Sunanta, 2009). These shifts highlight the fragility of rural communities and the limited capacity of existing systems to adapt to socio-economic and environmental changes.

Despite growing research, critical gaps remain. Differential impacts of migration on family members, shaped by factors such as age, gender and socio-economic status, remain poorly understood. The experiences of those left behind, particularly children and elderly caregivers, are understudied, despite their centrality to household resilience. Similarly, research often neglects the agency and adaptive capacities of migrant children themselves, whether migrating with families or independently. Addressing these gaps requires a nuanced, intersectional approach to migration dynamics, ensuring that all family members – migrants and non-migrants alike – can contribute to and benefit from adaptation strategies. Box 8 highlights SEI Asia's collaboration with World Vision, which addresses some of these gaps by examining the impacts of climate change, migration and environmental degradation on children and youth in Southeast Asia.

BOX 8. CLIMATE CHANGE, VULNERABILITY AND MIGRATION: IMPACTS ON CHILDREN AND YOUTH IN SOUTHEAST ASIA (2023-2024)

SEI Asia partnered with World Vision International to examine the impacts of climate change, environmental degradation and migration on children and youth in Cambodia, Lao PDR, and Viet Nam. Through 92 first-hand accounts from child migrants, left-behind children, parents and older caregivers, along with interviews with local leaders and experts, the study highlights how climate-related migration is reshaping family dynamics, caregiving roles, and resilience.

The findings revealed significant challenges for children remaining behind, including disruptions to education, increased caregiving responsibilities, and emotional stress due to family separation. Grandparents, often the primary caregivers, struggled with health challenges and resource constraints, exacerbating household vulnerabilities. At the same time, children who migrate – whether independently or with their families – faced precarious labour conditions, wage theft and exploitation, particularly in informal sectors. In particular, older girls were found to take on substantial caregiving and labour responsibilities, often at the expense of their education and well-being.

Economic pressures, deepened by climate impacts such as declining agricultural productivity, disasters and debt-related burdens, were central to migration decisions in these very precarious contexts. While remittances provided vital income, they were

often insufficient to address long-term vulnerabilities or compensate for the physical and emotional tolls of migration.

The study underscored a critical need for more inclusive protections for children, both those who stay behind and those who migrate, as well as better support systems for parents and caregivers. Recommendations included enhancing disaster preparedness, supporting sustainable livelihoods, ensuring safer migration pathways, and empowering children and youth to actively shape their futures in a changing climate (Vigil et al., 2024).

2.8 Modelling of climate mobility hotspots

While there is growing consensus that climate change does not have a linear impact on migration, the relationship between climate change and mobility remains poorly understood at the local level, limiting its translation into effective policy. Most quantitative research has focused on modelling the number of potential so-called “climate migrants,” which risks oversimplifying the complexities of migration dynamics and neglecting migrant agency (Chen & Mueller, 2019; Hermans & McLeman, 2021; Hoffmann et al., 2020). A failure to consider local contexts and the nuanced factors shaping migration decisions can lead to maladaptive policies at national and international levels (Cárdenas-Vélez et al., 2023; Konidari & Mavrakis, 2007).

Not everyone exposed to climate risks will migrate, as migration decisions are deeply influenced by socio-cultural factors such as place attachment, social bonds and inheritance systems, which often deter mobility (Cárdenas-Vélez et al., 2023; Denning, 2019; Jansuwan & Zander, 2021). Emerging research on women’s experiences has also highlighted their pivotal roles in community-based climate adaptation, which directly shapes their mobility patterns and decision-making processes.

Understanding the decision-making processes underlying climate-related migration is essential for developing responsive and inclusive policies. More research is needed on individual migration drivers, as well as the socio-economic, cultural and political factors influencing these decisions, to design interventions that support migrant agency and reduce stress-driven migration. Policymakers must ensure that migration-related strategies align with local aspirations and priorities while addressing structural inequalities that limit access to safer spaces for migrants. Box 9 presents an SEI project in Honduras that applied an innovative combination of cognitive and spatial models to analyse climate-related migration decisions in the Central American Dry Corridor.

BOX 9. UNRAVELLING DECISION-MAKING BEHIND CLIMATE-RELATED MIGRATION: EXPLORING THE POTENTIAL OF A COMBINED COGNITIVE AND SPATIAL MODEL (2020–2021)

SEI Latin America conducted a pioneering study in Honduras, within the Central American Dry Corridor – a region highly vulnerable to climate change, where cyclical droughts and erratic rainfall have caused widespread food insecurity. This project aimed to unravel the complex drivers of migration in this area by combining cognitive models, which examine how individuals weigh migration decisions, with spatial models that map migration potential.

The findings revealed that economic and social considerations were the primary drivers of migration, while environmental and climate-related factors played a secondary, contextual role. Striking gender disparities emerged in the decision-making process. For instance, women frequently factored in family connections at the destination, access to health care, marriage, and concerns about discrimination and corruption, whereas men were less likely to consider these aspects.

The study provided a spatially explicit representation of migration potential in the municipality of Nacaome, demonstrating how investments in economic development, service access and climate adaptation infrastructure could significantly reduce vulnerabilities. These findings underscore the need for deeper exploration of risks and protection gaps shaped by national and local contexts in Latin America and the Caribbean, with an emphasis on supporting gender-responsive and locally grounded adaptation strategies (Cárdenas-Vélez et al., 2023).

3. SEI's thematic and methodological strengths

As the previous section shows, SEI has endeavoured to expand the knowledge base and fill gaps on climate and mobility across different national and regional contexts. This section highlights SEI's key thematic strengths in bridging climate, environmental and migration research into actionable policy. Building on existing knowledge gaps and SEI's extensive portfolio, we have identified three interlinked priority areas where SEI's work is uniquely positioned to contribute: 1) transboundary climate impacts; 2) comparative, grounded research and shifting power; and 3) global cooperation for safe, regular and orderly migration. These areas were identified through a review of SEI's ongoing projects, strategic priorities, internal workshops, and a focus on addressing the most critical knowledge and policy needs in the field of climate-related migration and mobility.

SEI's approach is underpinned by the development and application of innovative tools and frameworks that support inclusive, multi-scalar governance and context-sensitive solutions. While initially developed for diverse purposes like resource management and

sustainability planning, these tools can be adapted to tackle migration and mobility challenges effectively. Each box in this section illustrates how SEI's tools can address the specific gaps and opportunities outlined under the thematic priorities.

3.1 Transboundary climate impacts

Climate change and its associated transboundary impacts – such as increased hazards, supply chain disruptions and the impacts of climate policies – highlight the limitations of isolated, nationalist approaches to risk governance and climate adaptation. These impacts, which cascade across borders and sectors, demand multi-scalar investigations and solutions that integrate human mobility into climate governance (Anisimov & Magnan, 2023).

Migration is increasingly shaped by transboundary climate risks. For example, sea-level rise and degraded livelihoods often result in cross-border mobility, underscoring the complex, non-linear relationships between emissions in one place and human migration in another (Mombauer et al., 2023). Labour migration, generating USD 640 billion in remittances globally in 2022 (World Bank, 2022), illustrates migration's opportunities and dependencies amid transboundary risks. However, financial pressures, including debt burdens exacerbated by climate shocks, deepen vulnerabilities and inhibit the capacity of both nations and households to adapt or recover (Alayza et al., 2023; Benomar et al., 2024).

Addressing transboundary climate risks requires governance frameworks that transcend national borders, align regional policies, and account for shared responsibilities. For instance, in the Greater Mekong Subregion, hydropower development as a means of climate mitigation has reshaped water availability in countries downstream, sparking resource conflicts across Thailand, Lao PDR, Cambodia and Viet Nam (Kansal et al., 2019). Such cases illustrate the need for integrated, multi-scalar governance to address both transboundary resource management and the mobility challenges that emanate from these risks.

Despite the urgency of these challenges, governance and protection gaps persist due to fragmented legal frameworks and sectoral silos, compounded by weak regional coordination on shared issues like watershed management (Anisimov & Magnan, 2023). At the same time, countries heavily affected by such resource conflicts often face compounded crises of debt and climate vulnerability, diverting critical resources away from climate adaptation and social protection. This debt-climate nexus further drives distress migration as households take on high-interest loans to meet basic needs when livelihoods collapse. Innovative financial solutions, such as debt-for-climate swaps, could help alleviate fiscal stress in vulnerable countries, redirecting debt repayments towards investments in climate resilience and migration governance.

SEI is uniquely positioned to lead in this space. With a global presence spanning five continents and deep connections to grassroots actors, SEI bridges global research with locally actionable solutions. Understanding transboundary dynamics allows SEI to connect local realities with global challenges, ensuring that mobility solutions

address multi-scalar complexities effectively. Projects such as CASCADES, Adaptation Without Borders and MEFadapt exemplify SEI's ability to address transboundary climate risks while advancing protection for migrants in origin and destination countries. By integrating insights across disciplines, geographies and policy levels, SEI facilitates evidence-based responses to the interconnected challenges of climate, mobility, and governance.

Box 10 provides examples of tools that have been developed by SEI to strengthen understanding of transboundary climate impacts while providing insights for improved policy and project decision-making.

BOX 10. APPLICABLE SEI TOOLS FOR TRANSBOUNDARY CLIMATE IMPACTS AND HUMAN MOBILITY

- [weADAPT](#) is a global networking platform for researchers working on adaptation. It enables SEI to collect and share knowledge on topics such as transboundary climate risks (TCRs) from experts across the globe and shed light on research gaps such as the impact of slow-onset events on mobility. By fostering a community of researchers from diverse disciplines and locations, weADAPT facilitates transdisciplinary collaboration on climate risks and mobility, offering a foundation for innovative projects and practical solutions.

- [AidAtlas](#) is a tool for analyzing trends in development finance, showing how funding flows between actors and sectors, including for objectives such as “Climate change (adaptation and mitigation),” “Disaster Risk Reduction,” and “Refugees in Donor Countries.” For migration and mobility, AidAtlas illuminates the financial landscape of transnational investments, highlighting funding gaps and opportunities for strengthening migration governance. By tracking financial flows, this tool enables SEI researchers and partners to align resource allocation with pressing climate and mobility priorities.

3.2 Comparative, grounded research and shifting power

The impacts of climate change do not affect all people equally. Intersecting vulnerabilities shape mobility patterns that are often socio-economically stratified, gendered and politically charged, disproportionately impacting the most marginalized and disenfranchised communities (Ribot, 2014; Vigil, 2024). However, these vulnerable groups often remain excluded from knowledge production and governance processes. For instance, they are frequently relegated to passive roles in so called “expert-led” initiatives, consulted rather than empowered as agents of change (Faas, 2016). Research on migration is typically led by actors in the Global North, even when conducted in the Global South, further entrenching hierarchies of power and reinforcing colonial dynamics (Piccoli et al., 2023).

This imbalance extends to global agendas, where security-focused narratives from wealthier nations frame migration as a “crisis”, perpetuating xenophobic and racialized discourses (Bello, 2022; Bettini, 2017). Simultaneously, the neoliberal framing of migration as adaptation can instrumentalize migrants as contributors to economic growth while neglecting structural inequalities and failing to safeguard their rights (Bettini & Gioli, 2016). Colonial legacies further compound vulnerabilities by stripping Indigenous and local communities of land and water rights, disrupting their mobility practices, and exacerbating inequalities in access to resources (Yumagulova et al., 2023).

The disconnect between global discourses and local realities results in governance and policy frameworks that often misrepresent the complexities of climate-related mobility and immobility. This has led to poorly designed interventions, such as forced relocations and land dispossession under the guise of “green” infrastructure or development projects, leading to “green grabbing-induced displacement” (Vigil, 2018). In this context, a postcolonial approach to climate and migration research and practice is urgently needed – one that confronts the legacies of racism, exploitation and colonial power structures (Collins, 2022).

SEI’s global legacy of participatory and co-produced research makes it uniquely positioned to advance justice, equality, and human rights in the field of climate related migration and mobility. By collaborating closely with local stakeholders, SEI fosters knowledge production that is inclusive, actionable, and contextually relevant. Initiatives like the Strategic Collaborative Fund (SCF) connect government actors, civil society, businesses, and academia, creating platforms to amplify the voices of local partners in traditionally inaccessible policy spaces. SEI’s emphasis on shifting power dynamics ensures that local perspectives are central to scientific discourses and policy decisions. Insights from SEI’s work can help to decolonize research and resource management, aligning with broader movements to address structural inequalities rooted in colonial legacies (Daszkiewicz et al., 2022).

Box 11 illustrates some of the methods and tools that SEI employs to promote equitable outcomes and build stronger connections between global and local stakeholders.

BOX 11. APPLICABLE SEI TOOLS FOR COMPARATIVE, GROUNDED RESEARCH AND SHIFTING POWER

- [SDG Synergies](#) enables policymakers to assess and visualize interactions between SDG targets, identifying trade-offs and synergies to improve policy coherence. Although primarily used for broader sustainability assessments, it could reveal links between infrastructure development, displacement risks and mobility governance. For instance, it could support policymakers in avoiding unintended displacement pressures caused by climate policies and aligning strategies with safe and responsible mobility goals.
- [Mapstakes](#) enhances stakeholder mapping and engagement through a 5-step process: 1) defining system boundaries; 2) identifying stakeholders; 3) mapping stakeholders; 4) involving them in project co-creation; and 5) monitoring their

involvement. While the tool has been used to improve inclusivity in other contexts, it has strong potential to support migration and mobility research by addressing power asymmetries and connecting stakeholders across origin and destination areas, ensuring more inclusive governance.

- The Tandem framework provides guidance for climate service providers (e.g., agricultural extension service officers) to produce relevant and actionable information and sustainable services that meet the user's needs. This process builds trust, capacity and understanding among stakeholders and could facilitate more equitable and sustainable collaboration in climate and mobility governance.

3.3 Strengthened global cooperation for safe, regular and orderly migration and sustainable livelihoods

Global cooperation is essential to address the interconnected challenges of migration, labour and sustainable resource management in a warming world. Climate change exacerbates vulnerabilities by reducing agricultural productivity, intensifying extreme weather and driving food insecurity. These factors shape migration patterns – whether temporary, seasonal, or permanent – through their combined impacts on livelihoods and socio-economic conditions (Stojanov et al., 2021).

At the same time, addressing climate mobility requires equipping migrants with skills to adapt to new environments and contribute to sustainable practices. Climate-related migration, if well addressed, has the potential to sustain labour market needs and boost productivity (Mason et al., 2022). Green-skilling initiatives and bioeconomy pathways provide critical opportunities in this regard. The transition to bio-based industries, such as renewable energy, agroforestry, and sustainable agriculture, not only helps migrants establish livelihoods but can also foster local economic development and resilience (Virgin et al. 2022).

Despite growing recognition of these connections, global cooperation on migration governance remains fragmented. Policies often fail to align worker protections with sustainable development goals, leaving migrants vulnerable to exploitation. Labour migration for green transition sectors requires coordinated mechanisms that ensure decent work, accountability and transparency while addressing labour demand sustainably.

Decent work and the protection of workers' rights should be central to research and interventions addressing migration and climate change. Yet labour policies remain limited in scope, often operating in silos and failing to account for the needs of migrants in origin and destination contexts. Governments and private sector actors must collaborate to establish mechanisms for international cooperation, ensuring protections for workers while addressing the labour demands of emerging green economies.

SEI is well-positioned to address these challenges through its tools and expertise. By bridging global challenges with local realities, SEI supports policymakers, private sector actors and communities in designing inclusive solutions that enhance livelihoods, protect workers and build resilience in the face of climate change. SEI's tools, originally developed for resource management and transparency, offer significant potential to support migration governance by addressing trade-offs, improving planning processes and promoting equitable outcomes. The examples in Box 12 illustrate how these tools could be applied to strengthen global cooperation and create sustainable migration pathways.

BOX 12. APPLICABLE SEI TOOLS FOR STRENGTHENED COOPERATION FOR SAFE, REGULAR AND ORDERLY MIGRATION AND SUSTAINABLE LIVELIHOODS

- The Water Evaluation and Planning (WEAP) system is a software tool that facilitates integrated water resource planning, enabling stakeholders to identify and address trade-offs during planning processes. WEAP can be applied to migration by examining how water management decisions, such as hydropower projects, affect livelihoods and mobility. By integrating data on crop yields, livelihood diversification and vulnerability, WEAP can support transparent planning that reduces migration pressures and protects communities.

- Trase enhances transparency in the trade and financing of commodities driving deforestation and environmental degradation. These dynamics are closely tied to migration, as the loss of livelihoods in agrarian communities often prompts mobility. Trase can be adapted to investigate how resource exploitation impacts labour markets and migration patterns, providing insights to inform more equitable governance. For instance, the tool could help monitor how trade restrictions and sustainability initiatives shape labour migration dynamics in affected regions.

4. Conclusions and next steps

Climate change is reshaping migration and mobility in profound ways, interacting with socio-economic, cultural and political systems to amplify risks and deepen inequalities. These interconnected dynamics highlight the inadequacies of existing governance systems in addressing overlapping crises – such as extreme weather events, resource degradation and systemic debt – that compel or constrain human mobility. However, climate change is not a singular driver of migration. Instead, it reveals and exacerbates the structural vulnerabilities of human systems, disproportionately affecting those already marginalized by histories of extraction, inequity and exclusion.

Simplistic narratives of climate change as a direct cause of migration obscure these deeper drivers, leading to maladaptive policies and reinforcing systemic inequalities. To move beyond these reductive framings, it is essential to confront the historical and structural factors that shape mobility, while addressing the intersecting aspirations, constraints and inequalities – particularly along gendered and social dimensions – that influence migration decisions. This requires reimagining governance systems and investing in timely, just and transformative solutions that reduce climate risks and support resilient, sustainable livelihoods.

As this report demonstrates, SEI is uniquely equipped to respond to these challenges. Through its global expertise and locally rooted approaches, SEI connects migration governance with sustainable resource management and climate resilience. By focusing on transboundary climate risks, advancing comparative and participatory research, and fostering global cooperation, SEI develops actionable, equitable solutions that integrate climate adaptation with mobility outcomes. SEI's tools and frameworks can provide critical support for policymakers and practitioners, empowering them to address the complexities of climate-related migration with greater precision and inclusivity.

Looking ahead, SEI's work can expand the boundaries of research and action on climate mobility, centring ethics, justice and equity at every step. This includes challenging securitized framings of migration, shifting power dynamics in knowledge production, and amplifying the voices of marginalized groups to shape policies that are truly transformative. Through collaboration with partners across disciplines, geographies and sectors, SEI's research is driving progress toward a just and resilient future for communities navigating the challenges of climate change and human mobility. We invite partners to collaborate with SEI in advancing evidence-based solutions that ensure governance frameworks promote equity, resilience and sustainability for all.

Annexes

Annex 1. Regional actions and challenges

Region	Comparative action	Persistent challenges
Africa	Development of regional and national frameworks on safe, orderly, and regular migration; free movement before, during, and after extreme weather events; and protection of pastoralist movement in the context of environmental and climate change. Climate modelling and risk mapping through initiatives like the 2022 Africa Climate Mobility Initiatives (ACMI, 2022) Use of overseas development aid to manage migration flows (e.g. partnerships like the Green Wall Initiative) (Huang et al., 2022).	Securitization of climate change and migration and international perception that resource scarcity could contribute towards increased conflict and large-scale migration that frames Africa as a security issue for the Global North (Kelley et al., 2015). Africa has the youngest population of these regions, which is growing more rapidly than other aging regions. However, land access remains a barrier particularly for youth in Africa, thus inhibiting their ability to enter agricultural jobs amid rising unemployment and low job creation and contributing to intraregional mobility (Kumeh & Omulo, 2019).
Asia and the Pacific	Formalization of labour migration through bilateral MoUs and other temporary migration schemes (e.g., border pass) across the Mekong region (Molland, 2022). Pacific Island states like Fiji, Vanuatu and the Solomon Islands are leading efforts for developing national relocation guidelines (Ferris & Bower, 2023). However, successful planned relocation processes are incredibly expensive to implement, even at small scales, raising questions about global funding mechanisms and responsibility.	There is significant inter-regional migration in Southeast Asia, particularly to Thailand, Singapore and Malaysia. Developing safer migration pathways and infrastructure, including more expansive protections for migrants engaged in informal and contract-based work and greater access to legal processes of remedy, will be essential to address continued issues of migrant exploitation and abuse in the region. Outside of the Pacific Island States, the development of knowledge and implementation of policy on climate change and human mobility linkages is still non-existent or nascent in national and regional contexts.
Latin America and the Caribbean	Several LAC countries have taken steps to legalize a ‘climate migrants’ category, recognize those impacted by environmental hazards as ‘humanitarian migrants’, or issue humanitarian visas. While these steps are taken to promote greater legal protections, they can impede the ability of migrants indirectly impacted by climate and environmental hazards from accessing protections.	There is a significant disparity in data availability, particularly for smaller island states in the Caribbean, which inhibits the development of effective policies and responses (OIM, 2021). Displacement from Mexico and Central America is often sensationalized to justify border control policies in the US and Canada, failing to address the causes influencing migration and support those remaining in place (Cantor, 2018).

Annex 2. Review of policies

2.1 Key international policy frameworks

Area	Policy/Framework	Year
Climate Change, Environment and Sustainable Development	2030 Sustainable Development Goals Agenda	2015
	Paris Agreement	2015
	Cancun Agreement	2010
	Kyoto Protocol	1997
Migration and Mobility	Task Force on Displacement Plan of Action 2019–2021	2019
	Global Compact for Safe, Orderly, and Regular Migration	2018
	Global Compact on Refugees	2018
	HRC Resolution on Human Rights and Climate Change	2017
	Nansen Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change	2015
	UN Guiding Principles on Business and Human Rights	2011
	ILO Declaration on Fundamental Principles and Rights at Work	1998 (last amended 2022)
	Guiding Principles on Internal Displacement	1998
	International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families (UNHCR)	1990
Disaster Displacement, Management and Risk Reduction	Words Into Action Guidelines on Disaster Displacement	2019
	Sendai Framework for Risk Reduction in Disasters 2015-2030	2015
	Nansen Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change	2015
	Operational Guidelines on the Protection of Persons in Situations of Natural Disasters (IASC)	2011
	Hyogo Framework for Action (HFA) 2005-2015	2005
	United Nations Convention to Combat Desertification (UNCCD)	1994

2.2 Regional policies – Africa

Area	Policy/Framework	Year
Climate Change, Environment and Sustainable Development	Africa Urban Resilience Programme	2023
	African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032)	2022
	African Union Green Recovery Action Plan (2021-2027)	2021
	United Nations Support Plan for the Sahel (UNSP)	2018
	Comprehensive Africa Agriculture Development Programme (CAADP)	2003
Migration and Mobility	Kampala Ministerial Declaration on Migration, Climate Change & Environment	2022
	Protocol on Free Movement of Persons in the IGAD Region	2020
	ECOWAS Disaster Risk Reduction Gender Strategy and Action Plan 2020–2030	2020
	African Union's Three-Year Implementation Plan of Action for the Global Compact On Safe, Orderly And Regular Migration (Gcm) In Africa (2020-2022)	2019
	Tunis Declaration	2018
	African Union Revised Migration Policy Framework for Africa (MPFA) and Plan of Action (2018–2027)	2018
	AEC Protocol to the Treaty Establishing the African Economic Community Relating to Free Movement of Persons, Right of Residence and Right of Establishment	2018
	Migration Policy Framework for Africa and Action Plan (2018-2030)	2018
	ECOWAS Regional Migration Policy	2018
	African Union Humanitarian Policy Framework	2015
	Kampala Convention	2012
	Policy Framework for Pastoralism in Africa	2010
	ECOWAS Common Approach on Migration	2008
	OUA Refugee Convention	1974
Disaster Displacement, Management and Risk Reduction	Programme of Action (PoA) for the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030	2017
	Establishment of the African Risk Capacity (ARC) Agency of the AU	2012
	Africa Regional Strategy for Disaster Risk Reduction (ARSDRR)	2004
	ECOWAS Policy for Disaster Risk Reduction	2006

2.3 Key regional policies – Asia and the Pacific

Area	Policy/Framework	Year
Climate Change, Environment and Sustainable Development	ASEAN Joint Statement on Climate Change to the 27th Session of the Conference of Convention on Climate Change (UNFCCC COP-27)	2022
	The ASEAN Working Group on Climate Change (AWGCC) Action Plan 2025	2022
	ASEAN State of Climate Change Report	2021
	ASEAN Multi-sectoral Framework on Climate Change	2018
	ASEAN Socio-Cultural Community Blueprint	2025
	ASEAN Community Vision 2025	2015
	Samoa Pathway	2014
	ASEAN Declaration on Environmental Sustainability	2007
Migration and Mobility	ASEAN Declaration on The Placement and Protection of Migrant Fishers	2023
	ASEAN Declaration on The Protection of Migrant Workers and Family Members in Crisis Situations	2023
	ASEAN Migration Outlook	2022
	ASEAN Comprehensive Recovery Framework	2020
	ASEAN Declaration on the Rights of Children in the Context of Migration	2019
	ASEAN Consensus on the Protection and Promotion of the Rights of Migrant Workers	2018
	ASEAN Declaration on Migrant Workers	2007
Disaster Displacement, Management and Risk Reduction	ASEAN Framework on Anticipatory Action in Disaster Management	2022
	ASEAN Regional Framework on Protection, Gender and Inclusion in Disaster Management 2021-2025	2021
	ASEAN Guidelines on Disaster Responsive Social Protection to Increase Resilience	2021
	ASEAN-UN Joint Strategic Plan of Action on Disaster Management IV 2021-2025	2021

2.4 Key regional policies – Latin America and the Caribbean

Area	Policy/Framework	Year
Climate Change, Environment and Sustainable Development	Santiago Commitment	2020
	Caribbean Action Plan on Health and Climate Change	2019
	Regional Strategy on Climate Change (RSCC) and Action Plan 2018-2022	2018
	Escazu Agreement	2018
	Montevideo Strategy for the Implementation of the Regional Gender Agenda within the Sustainable Development Framework by 2030	2016
	Caribbean Community Climate Change Centre Regional Framework for Achieving Development Resilient to Climate Change 2009 – 2015	2007
	Amazon Cooperation Treaty	1978
Migration and Mobility	Regional Guidelines on Protection and Assistance to People Displaced Across Borders and Migrants in Countries Affected by Natural Disasters	2019
	Lima Declaration on the Global Compact for a Safe, Orderly, and Regular Migration	2017
	Best Practices for CRM Countries: Protection for People Moving Across Borders in the Context of Disasters	2017
	Framework for Cooperation and Regional Solidarity to Strengthen the International Protection of Refugees, Displaced and Stateless Persons in Latin America and the Caribbean	2014
	Brazil Declaration and Plan of Action	2014
	Montevideo Consensus on Population and Development	2013
	Cartagena Declaration on Refugees	1984
Disaster Displacement, Management and Risk Reduction	Regional strategy for disaster risk management in the agriculture sector and food and nutrition security in Latin America and the Caribbean (2018 –2030)	2018
	Framework for Cooperation and Regional Solidarity to Strengthen the International Protection of Refugees, Displaced and Stateless Persons in Latin America and the Caribbean	2014
	Regional Comprehensive Disaster Management Strategy and Programming Framework 2014–2024	2014
	Caribbean Disaster Emergency Management Agency (workplans)	2005
	Caribbean Community Regional Programme Framework 2005-2015	2005

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