



Climate Change and Migration

An Omnibus Overview for Policymakers
and Development Practitioners

SAM HUCKSTEP · MICHAEL CLEMENS

Abstract

Climate change will have, and is having, major ramifications for migration at every level. While most migration affected by climate change will be internal, the international system is unprepared and inadequate for the needs that will arise.

This paper reviews issues faced in the governance of climate-affected migration at the internal, regional, and international levels. It finds that at every level migration can be a valuable tool for adaptation, but that action is needed if its positive impact is to be maximised and negative consequences are to be avoided. Policy options are proposed or identified in numerous spheres of action.

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Acronyms

| | |
|----------|--|
| AU | African Union |
| CJEU | Court of Justice of the European Union |
| COP | Conference of Parties (of the UNFCCC) |
| CSO | Civil Society Organisation |
| DRR | Disaster Risk Reduction |
| EAC | East African Community |
| ECOWAS | Economic Community of West African States |
| EU | European Union |
| EUTF | (EU) Emergency Trust Fund for Africa |
| FAO | (UN) Food and Agriculture Organisation |
| FEMA | (United States) Federal Emergency Management Agency |
| FRDP | Framework for Resilient Development in the Pacific |
| GCF | Green Climate Fund |
| GCM | Global Compact for Safe, Orderly and Regular Migration |
| GCR | Global Compact on Refugees |
| GIZ | German Corporation for International Cooperation |
| GSoP | Generalised System of Preferences |
| GSP | Global Skill Partnership |
| IDMC | Internal Displacement Monitoring Centre |
| IDP | Internally Displaced Person |
| IFAD | International Fund for Agricultural Development |
| IGAD | Inter-Governmental Authority on Development |
| ILO | (UN) International Labour Organisation |
| IOM | (UN) International Organisation for Migration |
| IPCC | Intergovernmental Panel on Climate Change |
| IRPA | (Canada's) Immigration and Refugee Protection Act |
| LMIC | Low- and Middle-Income Country |
| MAC | (UK) Migration Advisory Committee |
| MDB | Multilateral Development Bank |
| MERCOSUR | Southern Common Market |

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|-------------|--|
| MGNREG | Mahatma Gandhi National Rural Employment Guarantee |
| MIDWA | Migration Dialogue for West Africa |
| NDICI | (EU) Neighbourhood, Development and International Cooperation Instrument |
| NDM | National Directorate for Migration (of Argentina) |
| NGO | Non-Governmental Organisation |
| (Mig.) MPTF | (UN) Migration Multi-Party Trust Fund |
| OAU | Organisation of African Unity |
| ODA | Official Development Assistance |
| OECD | Organisation of Economic Cooperation and Development |
| OHCHR | (UN) Office of the High Commissioner of Human Rights |
| PAC | Pacific Access Category |
| PACER Plus | Pacific Agreement on Closer Economic Relations Plus |
| PALM | Pacific Australia Labour Mobility |
| PCD | Policy Coherence for Development |
| PDD | Platform on Disaster Displacement |
| PEV | Pacific Engagement Visa |
| PIF | Pacific Island Forum |
| PLMAM | Pacific Labour Mobility Annual Meeting |
| RCP | Regional Consultative Process |
| REC | Regional Economic Community |
| RFM | Regional Free Movement |
| SIDS | Small Island Developing State |
| SIPP | Standing Interagency Policy Process |
| SDC | Swiss Agency for Development and Cooperation |
| SDGs | Sustainable Development Goals |
| SPC | (Secretariat of the) Pacific Community |
| SWD | (EU) Seasonal Workers Directive |
| SWP | (Pacific) Seasonal Worker Programme |
| TCLM | (Colombia-Spain) Training and Circular Labour Migration programme |
| TFD | Task Force on Displacement (of the Warsaw International Mechanism) |
| TPD | (EU) Temporary Protection Directive |

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| TPS | Temporary Protected Status |
| TSPA | Temporary Protection/Stay Agreements |
| TVET | Technical and Vocational Education and Training |
| UNDP | United Nations Development Programme |
| UNECE | United Nations Economic Commission for Europe |
| UNHCR | United Nations High Commission for Refugees |
| UNFCCC | United Nations Framework Convention on Climate Change |
| USITC | United States Independent Trade Commission |
| WIM | Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts |

Glossary

Terms related to migration

- **Migration** refers to “the movement of persons away from their place of usual residence, either across an international border or within a State” (IOM, 2019: 137).
- **Forced displacement** refers to “the movement of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters” (IOM, 2019: 55).
- **Circular migration** is “a form of migration in which people repeatedly move back and forth between two or more countries” (IOM, 2019: 29). In the context of climate-affected borderlands, circular migration may prove useful to maintaining livelihoods.
- **Temporary migration** refers to migration “with the intention to return to the country [or area] of origin or habitual residence after a limited period of time or to undertake an onward movement” (IOM, 2019: 213). In the context of climate change, *seasonal migration* (circular temporary migration typically within the same country) often allows rural agriculture-dependent households to diversify their incomes.
- **Remittances** are “personal monetary transfers, cross border or within the same country, made by migrants to individuals or communities with whom the migrant has links.” They may be formal transfers sent through banking networks, or informal, distributed in-kind or as cash (IOM, 2019: 180).
- **Trapped populations** are populations “who do not migrate, yet are situated in areas under threat, [...] at risk of becoming ‘trapped’ or having to stay behind, where they will be more vulnerable to environmental shocks and impoverishment” (IOM, 2019: 220).
- **Climate migration** is defined by the IOM (2019: 31) as “the movement of a person or groups of persons who, predominantly for reasons of sudden or progressive change in the environment due to climate change, are obliged to leave their habitual place of residence, or choose to do so, either temporarily or permanently, within a State or across an international border.” This definition is not used within this paper, for reasons explained in the box on terminology.
- **Environmental migration** is defined by the IOM (2019: 65) as “the movement of persons or groups of persons who, predominantly for reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are forced to leave their places of habitual residence, or choose to do so, either temporarily or permanently, and who move within or outside their country of origin or habitual residence.” This concept is considered preferable to ‘climate migration’, but is again not used, for reasons again explained in the box on terminology.

Terms related to climate

- A **sudden-onset disaster** is “triggered by a hazardous event that emerges quickly or unexpectedly. Sudden-onset disasters could be associated with, e.g., earthquake, volcanic eruption, flash flood,” etc (UNGA, 2016a: 13).
- A **slow-onset disaster** “emerges gradually over time. Slow-onset disasters could be associated with, e.g., drought, desertification, sea-level rise, epidemic disease,” etc (UNGA, 2016a: 13).
- A **hazard** is “the potential occurrence of a natural or human-induced physical event or trend that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources” (IPCC, 2018: 551).
- **Vulnerability** refers to “the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt” (IPCC, 2018: 560).
- **Exposure** refers to “the presence of people; livelihoods; species or ecosystems; environmental functions, services, and resources; infrastructure; or economic, social, or cultural assets in places and settings that could be adversely affected” (IPCC, 2018: 549).
- **Resilience** refers to “the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management” (UNGA, 2016a: 22).
- **Risk** refers to “the potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity.” *Disaster risk* is understood to reflect the concept of “hazardous events and disasters as the outcome of continuously present conditions of risk” (UNGA, 2016a: 14).
- **Adaptive capacity** is the “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequence” (IPCC, 2018: 118).
- **Adaptation** is “the process of adjustment to actual or expected climate and its effects” (IPCC, 2014). This may occur through action that is incremental, or transformative.
- **Maladaptation** comprises “actions that may lead to increased risk of adverse climate-related outcomes, including via increased GHG emissions, increased vulnerability to climate change, or diminished welfare, now or in the future. Maladaptation is usually an unintended consequence” (IPCC, 2018: 553).

Executive summary

Climate change will have major ramifications for migration at every level: domestic, regional, and international. While most migration affected by climate change will be internal, the international system is unprepared and inadequate for the needs that will arise.

This report reviews issues faced in the governance of climate-affected migration at the internal, regional, and international levels. It finds that at every level migration can be a valuable tool for adaptation, but that action is needed if this is to be possible. Policy options are proposed or identified in numerous spheres of action.

Key policy recommendations

1. Regional free movement should be facilitated

Most migration in the context of climate change remains regional. In several regions, free movement is already de jure established through agreed protocols, but requires implementation support. This is a high-potential governance option, allowing climate-vulnerable populations:

- Access to safe territory;
- Rights in a foreign country;
- Lasting solutions elsewhere;
- Circular movement; and
- Pre-emptive mobility.

Crucially, regional free movement does not require migrants to justify the cause of their mobility. The regional economic communities implementing free movement may however lack implementation capacity. Where possible, this should be supported. Actors external to the region supporting border securitisation should consider whether this maintains policy coherence with development and climate adaptation objectives. Actions to support regional free movement include:

- Supporting capacity-building of secretariats;
- Supporting increased access to travel documents;
- Facilitating bilateral pilot free movement regimes, to be scaled up;
- Undertaking bilateral border fee waivers;
- Reducing border corruption; and
- Ensuring that populations are aware of their rights within free movement areas.

2. A new institutional arrangement for climate-conscious labour migration is needed

Beyond the regional level, few options currently exist for adaptive international movement in the context of climate change. The refugee system does not protect those moving due to disaster.

Reforms are unlikely to be possible. Any effort to introduce a protection category for ‘climate migrants’ or similar would face major conceptual and operational challenges.

There are currently three main pathways through which protective stay in third countries can be made possible:

- Humanitarian pathways broadly defined, most prominently asylum under the 1951 Convention;
- Family reunification; and
- Labour visas.

Humanitarian pathways face political challenges and operational issues. Family reunification will very seldom offer access to adequate numbers of people in need of mobility. Educational pathways are not mentioned due to their temporary nature.

Labour pathways are the sole realistic means of providing international mobility to climate-affected persons moving beyond their region or living in regions without free movement agreements.

Labour pathways are however institutionally wholly demand-driven. We propose that states should urgently incorporate supply-side needs, assessing the need for and benefits from movement in areas of origin in a timely manner. This would allow states to prioritise certain populations for access to movement. Implementing this requires:

- A labour migration research agency with a mandate and capacity to assess the external as well as internal impacts of migration; and
- Either a whole-of-government approach to labour migration or, more likely, an Office of the Special Commissioner for Migration, learning from trade policy to govern migration coherently.

Mobility could be permanent, from an uninhabitable area, or temporary, allowing remittances for reconstruction and adaptation.

3. Adaptive internal migration should be supported

For populations vulnerable to climate shocks—such as those dependent on agriculture; members of marginalised communities; or those in debt—internal migration can spread risk and allow adaptation. Internal migration may however be inaccessible due to lack of information and high costs.

Governments should evaluate assisting populations in undertaking circular internal mobility, especially during agricultural communities’ ‘famine seasons’. This can be supported through:

- Subsidised rural-urban transport;
- Training for urban jobs in rural areas or upon arrival;
- Assistance with finding jobs in areas of destination;
- Facilitated skill recognition portability; and
- Provision of information on jobs and wages outside the area of origin.

4. Preparations for internal migration must be made

Migration can be highly effective, even transformative, for climate-affected households. It can however cause negative externalities. These include the spread of infectious diseases, which may accelerate as climates continue to warm; strain on urban services; and exploitation of migrants themselves.

Governments should be aware of the inter-relationships between migration and numerous other policy areas. Migration should be mainstreamed into other policy areas, and climate change should be mainstreamed into all policy areas. Preparations should include:

- Climate-conscious zoning of urban construction options, to avoid incentivising the construction of properties in areas vulnerable to future weather shocks;
- Preparations of assistance in planned relocation, including establishing transparent criteria for movement and funding regimes for relocation;
- Increased awareness of internal labour market needs, to support internal adaptive migration;
- Support for urban areas in receiving migrants, including in service provision;
- Reform of social protection arrangements where necessary, especially increasing the portability of social protection access;
- Evaluating the risk of exploitation of migrant workers, and preparing processes for their protection;
- Preparing healthcare systems for potential increases in transmission of diseases, by mapping the epidemiological profiles of areas of origin vs. areas of destination and preparing to provide health interventions where necessary; and
- Preparing targeted support towards those ‘left behind’ in areas of origin, who may (potentially for a short time) be more vulnerable.

5. A better understanding of the impacts of climate change on displaced populations is needed

Most attention in the climate-migration nexus has been given to those perceived, or expected, to move *as a result of climate change*. Less research has been conducted on the impacts of climate change upon *those already displaced* due to conflict or other shocks.

Displaced populations are not necessarily more vulnerable than other vulnerable populations, but in many contexts they will be. Those living in camps may have less access to energy, healthcare, and food; they also, depending on their context, may have fewer rights, including the right to work or to move.

Camps may be located in areas that themselves face climate shocks, often through flooding. More research in this area is required. In the meantime, governments and other actors should:

- Ensure that where possible refugees and IDPs are not located in areas exposed to climate hazards;
- Provide displaced populations with rights, including to work and to move;
- Ensure that displaced populations have access to healthcare and adequate provision of water, sanitation and hygiene needs, which can become more challenging in flood-affected contexts; and
- Where possible limit the impact of displaced populations upon the local environment, such as by providing alternative energy sources to biofuels.

6. Diaspora engagement for climate adaptation should be stepped up

Remittance flows far outstrip ODA and FDI provision. Where possible, governments should seek to engage with diasporas and migrants abroad to channel remittances towards adaptation projects. This should not be taken for granted: remittances are private capital, the result of a household investment in mobility, and are used for the priorities of the migrant's local network. Nor should migration and remittance-sending be allowed to substitute for state actions.

Where options exist for mobilising remittances in ways that are attractive to migrants, their communities of origin, and governments, they should be pursued:

- The cost of sending remittances should be reduced, allowing migrants to send more in response to or in preparation for shocks;
- Early-warning systems should be publicised to households in hazard-exposed areas, allowing them to request funds from migrant connections in advance of shocks for better results;
- Circular migration programmes should incorporate efforts to increase 'non-financial remittances', training migrants for climate adaptation in their area of origin;
- Diaspora networks should be tapped for their expertise;
- Individuals deciding remittance uses in areas of origin should be engaged with to inform their choices, including via local community leaders, to avoid maladaptive investments;
- Migrants returning can be provided with business support to create growth and diversification;

- Green diaspora bonds could be trialled, allowing diasporas to invest their savings in adaptation efforts (dependent on conditions in the country of origin);
- Remittance matching programmes can provide a discount for state adaptation financing;
- Crowdfunding initiatives can be used to pool funding and support enterprises or initiatives in countries of origin, potentially with returns for funders; and
- Remittances can be pooled at the community level or above to fund local public goods.

Key takeaways

The climate-migration nexus is complex. Climate change is having, and will have, multi-faceted impacts on a very wide range of issues. These will affect migration through direct and indirect pathways. Migration is multicausal, and while climate change will affect mobility choices, so too will many other factors. Attributing causality in cases of movement is therefore almost always hard.

The issue's complexity is not a justification for inaction. Preparations for the effects of climate change on migration must be made, and they must be holistic, without neglecting any of the many different affected policy areas.

Migration is mostly internal. Those moving in the context of climate change are most likely to remain within their country, moving in rural-urban circular patterns to make up climate-induced income shortfalls. This is not a universal rule: citizens of Small Island Developing States, for example, may ultimately need to leave their countries. In other contexts, similarly, the trend may not be permanent.

Where migration crosses borders, it generally remains regional. Persistent climate shocks reduce the assets of those exposed to them; this makes it harder to access long-distance migration. The spectre of a 'tidal wave' of international 'climate refugees' is to be treated with high scepticism.

At the international level, few options exist for those moving in the context of climate change. The refugee system offers scant protection to those not fleeing persecution, and there is little prospect of reform. While some humanitarian pathways are being created for those affected by sudden-onset disasters, people affected by slow-onset disasters are more numerous and have little recourse. New approaches are necessary. Labour migration options are the most likely to succeed, and should be adapted for emerging needs.

Predicting climate-affected migration is highly challenging. Both climate modelling and migration modelling present problems. Conceptual challenges regarding causality; poor historical data; our inability to predict border governance choices; the inherent unpredictability of shocks; and uncertainty regarding future adaptation choices all hinder our ability to make accurate forecasts of movement.

If factors other than climate change militate against migration, international movement could go down. Other factors, such as border governance choices and economic trends, have a far bigger role in determining migration outcomes than climate events.

People most affected by climate hazards will often become involuntarily immobile. Those whose assets are depleted by sudden- or slow-onset disasters will have lower mobility capacity. In many areas climate change will therefore cause migration to decrease. Over the longer term, however, this may not be a trend that holds, and internal 'distress migration' of destitute populations away from areas of shattered livelihoods must be anticipated. Indeed, 'distress migration' is already happening in some areas, notably the Horn of Africa.

People highly exposed to climate hazards will increasingly need relocation support. Without support, they may face unacceptably degraded living conditions in areas of origin; injury and death; or movement without dignity into further vulnerability. Few governments are yet prepared for this, and private sector actors, such as insurance providers, are currently of greater importance in deciding who can move where. Action should be taken sooner rather than later to reduce vulnerability and limit future costs. This should be culturally and socially sensitive.

Migration can allow adaptation against climate shocks. Migration can offer an insurance option to those whose livelihoods are harmed by climate shocks and increased variability, allowing them to access wages in economies not correlated with their area of origin. Money remitted back to the community of origin can be used for adaptation, such as income diversification; the payment of healthcare costs; the purchase of food; and the reconstruction or reinforcement of dwellings.

Migration can also be maladaptive. Poverty exacerbated by climate change may also, for example, make affected populations more vulnerable to exploitation when moving. If this occurs, migration meant to aid adaptation could worsen the situation. Climate-affected populations are especially exposed to debt traps, trafficking, and human slavery. Support should be provided to vulnerable populations before vicious cycles become entrenched; credit providers and intermediaries should be carefully regulated; and abusive situations should be rectified.

Members of migrant-sending households may require support in areas of origin. Those who do not migrate may remain in situ out of preference. They can however often be vulnerable in the absence of household members, and local policy should be attuned to potentially heightened challenges, especially during the period before remittances start to arrive.

Remittances are the crucial mechanism by which migration assists vulnerable populations. Movement allows higher earnings, and money can be sent back to communities of origin. This money can be used to support households during and after shocks; to facilitate movement away from hazards; and to diversify incomes away from climate-vulnerable activities. Remittances are however often not used for climate-adaptive purposes.

Opportunities to earn remittances should be facilitated. At the internal level, this could mean that subsidised transport; vocational training; and information should be provided to vulnerable populations in climate-affected areas. At the regional level, free movement should be supported where possible. At the international level, climate-vulnerable populations should where possible be prioritised for mobility pathways.

The ease of sending remittances should be increased. Remittance-sending costs are currently too high. This reduces access to adaptation funding. Where fees can be reduced, they should be.

More can be done to channel international remittances towards climate adaptation, development, and disaster risk reduction. This should not be taken for granted: remittances are household assets, and most remittances will already be earmarked for vital household uses. Remittance pooling; crowdfunding; green diaspora bonds; and climate-anticipatory remittance mechanisms may however all present options. Success requires project transparency; accountability on the part of governments and other actors involved; and trust on the part of diasporas. Remittances may supplement state or international adaptation spending, but they are not adequate in themselves, and should not be viewed as a way to reduce state obligations.

International labour pathways should be targeted towards climate-vulnerable populations where possible. Earnings from international mobility, even in low-skilled jobs, can be transformational for adaptation. This requires attention to comparative vulnerability and facilitated access for vulnerable populations. It is also likely to require new institutional arrangements.

Cities require preparation for climate-accelerated urbanisation. Rural-urban migration to support climate-affected rural livelihoods may put strain on urban services. Migrants may find themselves moving into urban sites of increased hazard, such as flood-prone informal settlements. Migrants may also become more vulnerable to shocks in urban areas, due to difficulties finding work; lack of knowledge of their new context; and disconnection from support networks and their identity. Local governments need to partner with vulnerable communities; the private sector; national government bodies; and international actors to prepare for climate-related migration into cities and intra-city movements due to climate events.

Section and issue summaries

The following are brief summaries of sections of the paper. Each summary corresponds to one or more sections within which more detail can be found, along with citations.

Access to international mobility

There are very few options for international movement. Climate-affected migration is increasingly prominent in discussions in the international policy sphere, and the 'migration as adaptation' paradigm continues to gain ground. This is likely to be provided through labour migration regimes.

The 1951 Refugee Convention does not offer protections to people moving due to non-agent-caused reasons. The 2018 Global Compact on Migration does encourage the development of labour mobility and free movement regimes, but is non-binding. Migration's place within UNFCCC processes is uncertain, even if previous statements have recognised migration's potential as an adaptive tool. Some regional initiatives, especially the Cartagena Declaration and the 1969 Organisation of African Unity Convention, can provide protection for people moving in the context of climate shocks.

Implementation is challenging, however, and South America's experience with the Venezuelan outflow suggests that even where legal instruments are present, there is limited appetite for increased refugee hosting.

There is little prospect of reform, and conceptual and operational challenges would make this unlikely even if there was appetite. Alternative arrangements, such as a multi-stakeholder platform for the coordination of international approaches to climate-affected mobility, are more likely to succeed.

The urgent need for new governance arrangements

There is not currently a way of managing labour migration systems to reflect supply needs and optimise for development benefits beyond the country of destination. This is a major oversight. Enormous development and climate adaptation potential is therefore squandered.

Each migrant-receiving state should create two new institutions to correct this: a 'migration research agency', evaluating criteria of potential migrant-sending states to determine where access to labour migration pathways would have the largest development and climate-adaptation effects; and a 'commissioner for migration', empowered to negotiate bilateral labour migration agreements and advise on the policy area.

This would allow greater policy coherence, and unlock greater financial flows towards areas in greatest need of adaptation assistance. This is not a replacement for the undelivered US\$100 billion in climate finance transfers, but would be a highly valuable supplement.

Predictions

Our ability to predict the impact of climate change upon migration is very poor. Policymakers should take the many numerical predictions of climate-related migration in different timeframes and geographical areas with a large pinch of salt. Migration is not mono-causally affected by climate change, and the many factors affecting it are beyond our models' predictive capacities. Future economic and conflict-related shocks; cultural priorities regarding movement; poor historical data from which to extrapolate; future governance decisions; and adaptation actions all reduce our ability to forecast migration.

Climate change, conflict and migration

There is no linear relationship between climate change, migration, and conflict. Conflict is primarily the result of governance failures. Frustration with governance failures may grow in contexts affected by climate change, but climate change does not ‘cause’ conflict. Migration, conflict, and other relevant policy areas should however not be addressed in isolated siloes. In some cases, migration to areas already experiencing tense governance situations may worsen or incentivise conflict; in these situations, mobile populations—such as refugees burning wood in low-resource contexts—may be highly vulnerable.

Planned permanent relocation

Many households and communities will require future relocation from areas rendered increasingly uninhabitable by climate change. These relocations will almost always be internal. Few preparations have yet been made for these movements. No meaningful preparations have been made for international relocation, which presents numerous challenges.

Relocations should be proactively planned for and expected to take place, but should be avoided where other options are feasible. This requires identifying ex ante areas that must not be inhabited; identifying options for adaptation in areas that are inhabited; making communities and markets aware of the areas that will not receive adaptation support; and, in close engagement with communities, presenting options for relocation. These options should be culturally and socio-economically appropriate to the relocated population.

The processes for making in situ adaptation financing available versus requiring relocation will be intensely political. They will require the establishment of clear and open criteria. States should review their legal and policy frameworks; develop capacity for planning and undertaking relocations; and conduct local risk assessments and inventories in at-risk areas. Relocation should be undertaken voluntarily; it should be developmental, not moving people into increased vulnerability; and it should be undertaken following and through transparent processes.

Funding regimes for relocation must be urgently established. For many countries, this will require international assistance, potentially via UNFCCC processes. In wealthier countries, close public engagement with private actors, especially with the insurance and real estate sectors, will be necessary.

Reducing policy barriers to movement

Temporary labour migration can present an alternative to subsequent relocation. Many countries, however, maintain barriers to internal labour mobility. These barriers should be eased. The portability of access to social protection, in particular, should be made greater in contexts where it is restricted. This could be targeted towards populations of areas of greater vulnerability.

Social protection and climate-affected migration

Social protection in the areas of origin and destination can be important in allowing in situ adaptation or facilitating adaptive migration. The effects of social protection upon the migration of climate-vulnerable populations are not universal: in some cases social protection allows populations to smooth incomes against shocks and remain in place, but in other cases transfers can reduce resource constraints, aiding mobility.

Social protection is often not accessible to migrants in areas of destination. This increases the vulnerability of rural-urban migrants, and reduces the adaptive effectiveness of migration. Social protection schemes should be made more portable; migrants and vulnerable populations should be better informed of their rights; access should be assisted, including through facilitated registration and provision of identity documents; legislation providing access should be enforced; and programmes should where possible be made more affordable for the most vulnerable populations.

Integrating human mobility into National Adaptation Plans

National Adaptation Plans offer a valuable way of mainstreaming the adaptive role of migration. Not all countries have yet done this, and those that do mention migration in their NAP often do not specify concrete actions. NAPs' inclusion of mobility should be data-informed; establish priorities; set out plans for implementation at multiple levels; establish funding mechanisms; incorporate capacity-building measures; and include adequate monitoring and evaluation systems.

Rural land tenure

Land tenure is key to vulnerability, adaptation, and mobility in many contexts. More research on the relationships between climate change, land productivity, land tenure, and migration, is necessary. Tenure reform, providing populations with greater security, can allow access to credit for adaptation and provide the asset security necessary for temporary migration. It can also cause more harm than it is worth, however, and must be context-informed. Those with land tenure may furthermore not always be those least vulnerable to climate shocks; where land cannot be sold, involuntary immobility may be the result. Where land is expected to become less productive due to climate change, these considerations should inform policy regarding in situ adaptation versus migration.

Supporting migrant integration in cities

Climate-affected rural-urban migrants are often marginalised in urban social networks. This reduces their resilience, harms their income-generating ability, and reduces the adaptive effect of migration. Policymakers should work with informal migrant organisations and networks, and should seek to provide migrant populations with a greater voice in policy processes. This could be undertaken through a migrant engagement council. Informal mutual-support networks should be supported and used as a means of increasing migrants' knowledge of their rights. This is likely

to be undertaken by local government actors; civil society organisations; or NGOs. Given the shared vulnerabilities and hazard exposure between migrant and host communities, especially in informal contexts, these measures should also consider synergies between migrant-specific and host-relevant needs in order to reduce possible tensions.

Urbanisation and informal settlements

Migrants moving to cities often settle in informal dwellings. These are frequently in the cheapest locations: areas exposed to climate-related shocks such as landslides or floods. Migrants can thus move from rural vulnerability to urban vulnerability. Informal settlements and slums have inadequate services, which may be stretched further by increasing climate-affected urbanisation. City government actors may also struggle to respond to intra-urban displacements caused by climate shocks. Further resources will be needed at the city level.

City planners must be aware of the extent of climate-related hazards. Climate-informed zoning will be important to reduce future risks, and the provision of alternative accommodation will often need to be supported. This may require expanding cities. Local policy approaches, undertaken through a city-wide approach, may be best, responding to contextual needs regarding e.g., land zoning. Development should be guided towards areas at lower hazard risk; with adequate current or potential services; and with access to labour markets. Where informal settlements are established, they should be upgraded where possible, in consultation with local populations. These recommendations all require money that city governments often lack. Increased devolution of national funding and access to international funding options for cities could be important in allowing climate-related action.

Secondary cities

Rural-urban migration will often flow towards ‘secondary cities’. These are cities below the top tier of a country’s urban areas. Secondary cities may be closer and more accessible to migrants. These urban areas often face underdeveloped economies and inadequate policies, with low governance capacity due to a lack of skills and underinvestment. They will require increased financial and technical support from national governments and international actors in coping with increased urbanisation and in responding to the needs of migrant populations.

Support for city-level governance actors

Municipal governance actors will require more support. This includes increased devolution of funding from the national to the local level, with more flexibility in responding to changing circumstances; and capacity-building and financial support from international actors in improving governance systems and accessing much-needed finance flows, through new sources or mobilised through multi-stakeholder and pooling approaches. City-level actors will be directly responsible

for the welfare of rural-urban climate-affected migrants, and will need increased resources. Best practices can be usefully exchanged through city-level peer networks such as C40 Cities.

Climate-affected migration and healthcare

Migration in the context of climate change can lead to new healthcare challenges. Movement may see populations—both migrants and hosts—exposed to threats from new pathogens to which they do not yet have immunity. Climate-affected migrants may also require mental health support. Governments should proactively consider needs, by mapping possible migration flows and considering epidemiological profiles of sending, transit, and host populations to inform public health interventions; and by considering the health risks and needs of migrants in areas of destination. Migrants and service providers should be made aware of migrants' rights to healthcare access. Where rights are limited, they should be expanded. Migration may also improve the health of both migrants and communities of origin thanks to increased wages and access to urban services.

Facilitating adaptive migration through information provision

Inadequate access to information regarding work opportunities and wage differentials can constrain migration. This may for many be the greatest cost inhibiting movement. Governance actors can facilitate adaptive mobility by allowing potential migrants to know more about their options elsewhere. This requires knowledge of labour market needs and prices in areas of destination, and conveying that information to areas of origin.

Improving migration outcomes by facilitating training

Many people lack the skills to take advantage of job opportunities in areas of destination. Those who would most benefit from climate-adaptive mobility can thus not have access. Governance actors can increase access to mobility, and increase the effectiveness of movement, by providing potential migrants with training in skills useful in areas of destination. This requires knowledge of labour market needs; collaboration across geographic areas; the provision of teachers; and the provision of portable qualifications upon the completion of training programmes. Training could take place in the area of origin or the area of destination.

Improving adaptive labour migration outcomes

The climate-adaptive impact of remittances relies on migrants finding work. For migrants new to an area, this is often difficult. This slows or reduces their earning ability, reducing the adaptive impact of migration. This is especially likely if they have limited access to social networks. Migrants can be assisted in finding jobs through job application workshops; subsidised urban transport; training; and advance knowledge of job options, such as through an app connecting workers to potential employers.

Exploitation and trafficking

Those moving in the context of climate change are often desperate and vulnerable to exploitation.

Migrants relying on middlemen for movement and to find a job can become trapped in debt; unable to leave an employer; forced to work longer hours, potentially in dangerous conditions; and with arbitrary deductions from paychecks, preventing the sending of remittances. Such migration outcomes render movement maladaptive as a response to climate change.

Governance actors should act to reduce exploitation where possible. This can be done by informing migrants of their rights; providing access to trustworthy intermediaries, or by tightly regulating intermediary businesses; establishing helplines providing exploited migrants with advice; assisting exploited migrants in leaving employers; and providing bridge support to migrants transitioning from exploitation.

Funding internal migration: reducing the prevalence of 'trapped' populations

The cost of movement is often a key barrier to mobility, keeping populations in situations of greater vulnerability. This is especially the case for households whose assets have been reduced by the effects of climate change. Households with constrained credit also have fewer options for funding movement. Governance actors can support involuntarily immobile populations by providing small grants or low-/no-cost loans to allow movement and access to better labour markets to allow remittances to flow.

Debt

Debt is a double-edged sword, but harms many. Debt can be positive, allowing adaptation and movement, but often leads to debt traps and vicious cycles of poverty. This can drive distress migration, including towards trafficking and long-term exploitation. Microfinance providers should in many contexts be better regulated to avoid over-collateralisation and credit for poor investments.

The negative impacts of debt in migration can be reduced by reducing the costs of mobility to migrants; increasing migrants' financial literacy; creating more responsible, lower-cost lending programmes for adaptation and migration, potentially through state actors; and providing access to insurance or pre-disaster funding, to limit exposure to debt traps and subsequent distress migration.

Supporting 'left-behind' members of migrant-sending households

Those remaining in the area of origin can face new challenges. Those 'left behind' are often women, and in patriarchal contexts can be more vulnerable. Vulnerability is likely to be highest when household members are away, but remittances have not yet begun to be sent back in adequate quantities. Local governance actors should be aware of the heightened vulnerabilities of migrant-sending households during this period, and should seek to address local labour challenges; education difficulties where relevant; and challenges to women.

Climate change and displaced populations

Climate change can increase the vulnerability of populations that are already displaced.

Little attention has been given to these groups, including to those in refugee or IDP camps.

Camps are often located in areas exposed to hazards. Climate change may threaten displaced populations' livelihoods, reducing the possibility of self-sufficiency; heighten health threats; and disrupt sanitation provisions. Governance actors should be aware of climate-related hazards in deciding where to locate camps. More research should be conducted to assess the major challenges and options to reduce them. Camps' damage to local environments should also be mitigated where possible, including through the provision of alternatives to biofuels.

Regional migration regimes

Access to regional movement can allow adaptive mobility. This can be facilitated through regional free movement or through wide webs of bilateral migration agreements within regions. This is often more politically feasible than any international multilateral agreement.

Implementation of regional arrangements is often challenging. Support should be provided to secretariats managing free movement implementation; to states in implementing agreements, including in providing citizens with knowledge of their rights and access to necessary documents; and to civil society organisations in holding state actors accountable in implementation. Outside actors engaging in migration governance, including through border securitisation measures, should also consider the extent to which their policy approaches are coherent with development and climate adaptation needs.

Internal-international link in migration

Most climate-affected migration will occur internally, but it may have secondary effects for international migration. These dynamics are poorly understood and require more research.

Much of this international migration will be irregular, due to low availability of regular migration options and the high costs of regular movement. Greater access to regular migration pathways may reduce the incentive to undertake irregular migration, although this is uncertain.

Development interventions incorporating climate-affected migration

Migration should be a choice. There is a widespread focus on addressing the 'root causes' of migration through development. This extends to the area of climate-affected migration. This is to be welcomed where it increases agency, but will not always have the desired effect.

Care should be given to ensuring that development and adaptation efforts do not entrench unsustainable path dependencies. Projects should also be undertaken to improve development outcomes and enhance dignity, not as the result of a pathologizing of movement.

The ‘migration hump’ hypothesis suggests that development is unlikely to reduce migration.

This may not hold in cases of rural livelihoods assistance. It may also not hold in the longer term in climate-affected areas, where mobility may ultimately more resemble forced displacement than economic migration.

International relocation

There is no international legal framework for international relocation in the context of climate change. Populations of uninhabitable countries, such as submerged small island states, will require relocation assistance. This opens up a host of problems, however, including questions of sovereignty and citizenship.

Temporary protection options

Temporary protection options are good if they allow access, and of very limited use if they do not. Multilateral temporary protection and stay arrangements can allow better management of large, sudden movements across borders in situations of sudden displacement. This may be useful in contexts of sudden-onset climate disasters, but is less likely to be of use in cases of slow-onset climate disasters (except in rare cases where socio-economic tipping points are suddenly reached, leading to rapid large movement).

Temporary protected status, as is used in the US and elsewhere, is less useful. Temporary protected status prevents the deportation of people already in a third state at the time of a disaster. These people are often left in a legal limbo, disincentivising use of the instrument. It also cannot help those who are really vulnerable, but only those already out of the hazard-struck area. While it can enable a useful flow of remittances, it is not an optimal policy.

Humanitarian protection in the EU

EU humanitarian protection options follow the 1951 Convention, and thus are very seldom of use to those moving in the context of climate change. Austria is a rare outlier in that it does not require agent-caused harms for justification of protection; it has therefore accepted far more people for subsidiary protection than peers.

Humanitarian protection elsewhere

Humanitarian pathways are few and challenging. Brazil in 2017 passed a law allowing those displaced by disasters to access humanitarian protection through temporary visas. The law has however not yet been ratified. Decisions on the definition of an ‘environmental disaster’ and the processes for admission and stay are still needed.

Argentina in 2022 created a new humanitarian visa, which has entered into force. This is applicable for South American and Caribbean citizens moving in the context of sudden-onset disaster, and provides three-year protection with a pathway to permanent protection.

The United States provided international protection for those affected by environmental disasters from 1952 until 1980. The provision was never used, however, and was dropped without debate in 1980.

New Zealand briefly trialled a new visa bringing small numbers from the Pacific Islands, in light of anticipated sea-level rise. This was discontinued after six months due to resistance from Pacific Island States to the idea of becoming ‘climate refugees’. New Zealand is instead now providing in situ adaptation assistance.

Place-based visas

Place-based visas offer an untested middle option between humanitarian visas and labour pathways. They provide international migration, but only to ringfenced areas of destination.

Place-based pathways allow movement to areas that have requested migrants, such as rural areas in need of skills and people. This may be more politically acceptable than more general labour pathways or humanitarian pathways. Trials have already been conducted, including in providing access to refugee populations, and interest has been lodged elsewhere.

Targeting labour programmes

International labour mobility is one of the highest potential options in the context of climate-affected mobility. This is because humanitarian options seem politically shackled, and family reunification options—the other major visa category—are numerically inadequate. Labour pathways can allow access to permanent relocation, or to higher earnings to allow adaptation. Bending labour pathways towards climate-vulnerable populations requires the identification of comparatively vulnerable populations, and efforts to ensure that those who would most benefit can access them.

Visa lotteries

Visa lotteries may provide an equitable way of opening labour migration pathways up to vulnerable populations. Quotas could be assigned to particularly vulnerable populations, and minimum access criteria could be imposed. Visa lotteries may assuage fears of ‘cherry-picking’ higher-skilled migrants, causing brain-drain. It is possible that visa lotteries undertaken at the country level, without the ability to sift applicants at more granular vulnerability levels, may allow access to less vulnerable individuals, causing controversy. They may however be a justifiable ‘second-best’ option, and more research should be conducted.

Skill and mobility partnerships

Skill and mobility partnerships can facilitate labour market movement for climate-vulnerable populations. Skill and mobility partnerships allow the training of potential migrants in their country of origin for labour market needs in the country of destination. These pathways are beneficial to migrants, sending countries, and countries of destination; because they are tailored to provide necessary skills, they may be more politically acceptable. Skill and mobility partnerships could be targeted towards vulnerable populations. They could also be targeted towards skills needed for climate change mitigation and adaptation, especially in ‘green skills’ for solar panel installation, smart agriculture, etc.—an area of key international skill shortage.

Circular labour migration schemes

Circular labour migration schemes can allow vulnerable populations access to transformative remittances. Some good examples exist; other current programmes could be adjusted to support development needs.

Several migration programmes in the Pacific, including New Zealand’s Recognised Seasonal Employer scheme and the Pacific Australia Labour Mobility scheme, could or do already benefit populations affected by climate change. They were created in part due to a recognition of the future impacts of climate change, and have high development benefits.

The Colombia-Spain Temporary and Circular Labour Migration programme ran from 2007–2012. It brought Colombian workers from vulnerable communities to work in agriculture in Spain. Recruitment intermediaries in Colombia were directed to particularly target those affected by or vulnerable to environmental impacts. The scheme both allowed access to remittances, and provided training in business development and adaptive measures. It had a high development impact, and similar programmes could have a large effect.

The Haiti-US Temporary Work Visas for Development initiative saw the US provide Haitians with temporary labour visas following the 2010 earthquake. Over two years 68 workers came to the US for short work periods. Employment in the US increased their average wage by 1,400 percent, allowing transformational change in the area of origin.

The EU Seasonal Workers’ Programme brings hundreds of thousands of lower-skilled workers to the EU each year. It does not currently seek to incorporate development and adaptation goals, but could do so to great effect.

Learning from complementary pathways

Complementary protection pathways have enough similarities to climate-conscious pathways to provide lessons. Complementary protection pathways are intended to provide individuals in need of

international protection with alternative options to refugee protection, through humanitarian visas and admission programmes; community sponsorship; labour mobility; education visas; and family reunification.

They require political will; knowledge of the options among eligible populations; and engagement with the private sector regarding skill accreditation. Lessons for climate-conscious labour pathways can be learnt from complementary approaches; their example suggests that climate-conscious labour pathways are feasible.

Funding adaptive labour migration pathways

The cost of mobility should not be placed on the shoulders of those who are most vulnerable. As is evident in the discussion of debt, this approach risks making migration a maladaptive option. Migrants should be made fully aware of all costs that will be required, and should be shielded from sudden demands.

Instead, states of destination are most likely to support mobility programmes financially. These costs may be ODA eligible. Multilateral development banks, especially the World Bank, can play a role in funding climate-conscious labour migration programmes. For full engagement, reforms may be necessary. Given the effectiveness of migration options, this may be justifiable for them on both a poverty-reduction and climate-adaptation basis. Finally, private sector actors may be open to financially supporting these pathways. This is likely to occur at a later date, after their viability has been proven.

Remittance flows in response to shocks

Remittances can play a vital role in helping communities to weather shocks. During and following shocks remittances are sent in higher amounts, allowing the smoothing of consumption. When compared to humanitarian funding, remittances are better targeted towards the poorest; have wider coverage; are often larger in quantity; respond better to shocks; and can go beyond basic needs. Options for earning and sending remittances should be increased.

Allowing anticipatory remittance-sending

Delivering funding before a shock hits can allow better adaptive responses than funding delivered after. Hazard warnings to allow parametric state cash transfers are already being used in some areas. These systems should be diffused to migrant networks, allowing anticipatory remittance sending to reduce the impacts of disasters.

Remittances as preparation for shocks

Remittances can greatly increase resilience ahead of shocks. They can allow investment in more robust dwellings; improvements of agricultural techniques; and diversification into non-agricultural activities. In many places households receiving remittances are notably less vulnerable than households that do not. Options to earn and send remittances should be increased, and support should be given to remittance-receiving households to assist them in deciding how best to spend funds.

Non-financial remittances

Knowledge gained by migrants can increase resilience in communities in the area of origin. The spread of good ideas can be fostered by building training in relevant areas into circular labour migration programmes, and by providing migrants returning to areas of origin with platforms and networks within which to disseminate good practices. Diaspora networks should also be engaged with to allow their subject- and context-specific expertise to contribute to development and resilience-building.

Increasing remittance flows

In addition to allowing more migrants to earn remittances, governance actors can also undertake actions to make it easier to send remittances. If remittance-sending costs are to meet SDG targets they must fall to less than 3 percent by 2030; as of 2022, however, average costs were around 6 percent. This incentivises remittance transfers through informal networks, which have higher risks. Governance actors can reduce the cost of remittance-sending by increasing access to financial and especially digital systems.

Guiding remittance flows towards climate-adaptive activities

Remittance flows are large, and can be channelled towards resilience-building uses. Remittances can support resilience to climate shocks, but are often spent on basic or 'conspicuous' consumption. This is not inherently a bad thing, but governance actors can support households in becoming more aware of their exposure to climate-related hazards and selecting fund uses for climate resilience.

Remittances can also be spent in maladaptive ways, by local and external actors. Awareness of the local context; engagement with remittance use decisionmakers; and subject-specific knowledge, possibly necessitating outside experts, could all improve adaptation outcomes. In many cases engagement with community leaders will help in fostering a 'culture of adaptation' in remittance uses.

Remittance pooling

Remittances can be pooled for public goods, including for adaptation. They are generally sent through household networks for use as private financial assets. In some cases they can however

be pooled. Formal pooling can occur with the help of government actors or NGOs; informal or quasi-informal pooling can occur through collective groups and community arrangements. External actors can facilitate remittance pooling through the use of online crowdfunding projects linking migrants and diaspora networks with communities and enterprises in need of support. They can also support and advise community-led pooling efforts, to strengthen their financial management processes. Accountability and trust are crucial in all efforts to use remittances for public goods.

Avoiding reliance on ‘vigilante infrastructure’

‘Migration as adaptation’ must not be allowed to become a neoliberal substitute for state action.

Many vulnerable communities will require support that can only be delivered by the state. Migration should be a choice, not obligated by state negligence.

Remittance matching programmes

Remittance matching programmes funnel remittances towards state activities by pledging to match money sent with state funding. This can allow governments to enjoy a discount on activities. It can also, however, encourage state actors to divert activities towards areas perceived to be attractive to diaspora funding. Because many migrants leave relatively wealthier areas, remittance matching may furthermore not be a viable way of helping poorer communities. In Mexico, remittance matching programmes began in a promising way, but were politicised, suffered from corruption, and had inadequate accountability. In all remittance use efforts, accountability and transparency is central.

States wishing to raise remittances through matching should seek to build trust-based relationships with diasporas; engage with communities in selecting local projects; subject project implementation to scrutiny; and use a proportion of saved or raised money for more vulnerable communities, recognising that remittances will flow towards relatively wealthier areas.

Green diaspora bonds

Diaspora bonds can provide funding for green and adaptation initiatives. They allow diasporas to use saved money earning low interest rates to help their countries of origin, paying below-market-rates to support development projects. Green diaspora bonds would support adaptation or mitigation projects.

Diaspora bonds require trust in the government. Many climate-vulnerable nations exhibit high levels of corruption, and diaspora bonds may not be feasible in these contexts. Where they can be used, they should be used to support community-level green or adaptation projects; they should be issued by the central government; they should have a relatively short maturity period; and they should allow early withdrawal or transfer to another domestic development project.

Limitations of the paper

The climate-migration nexus is complex, vast, and requires holistic policy responses. This paper provides a comprehensive, but not exhaustive, overview of many of the issues that are and will be faced in this area, with a particular focus on slow-onset climate change, and identifies or provides policy options for addressing new and emerging challenges. Among the many areas touched upon but which the authors have not had the capacity to cover in great depth are:

- Climate change and movement by pastoralists;
- Issues relating to gender, including marriage migration;
- Issues relating to the disabled and elderly;
- The relationship between climate change, conflict, and migration;
- The potential protection role of mobility schemes based on private or community sponsorship, e.g., the US' new programme;
- The role of national urban planning and urbanisation strategies;
- Border securitisation;
- Several aspects of migration in the context of sudden-onset climate change, including evacuations;
- The data situation and data needs;
- Mobility of children in climate-affected contexts;
- Issues specific to youth;
- Discussions relating to loss and damage;
- Relocation and displacement due to development programmes;
- Comparative analysis of country-specific displacement strategies.

Part I. High-level overview of climate-affected migration

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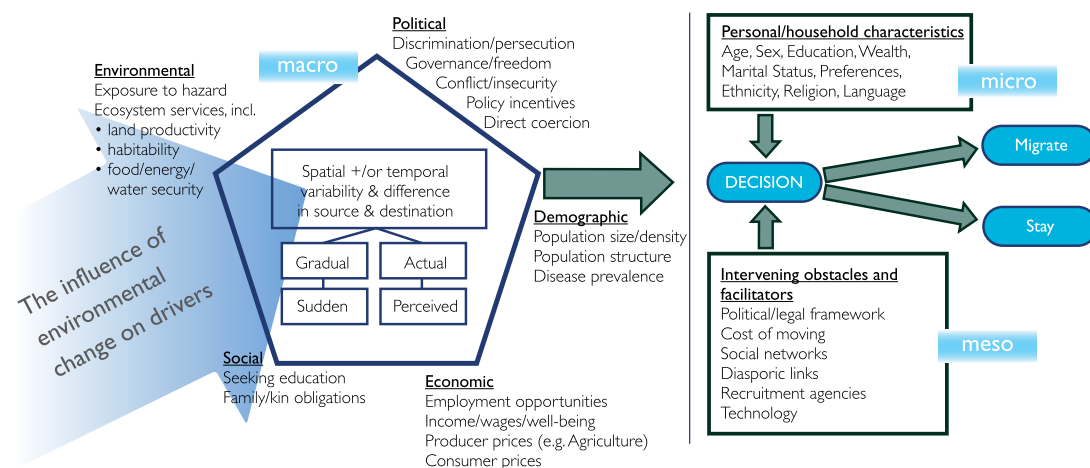
This section provides a high-level summary of climate-affected migration, including key factors and considerations regarding policy responses. Readers already familiar with the subject area may wish to continue to subsequent sections, where individual issues are considered in greater depth.

Climate change will have, and is already having, major impacts on mobility. Climate change will increase hazards and exacerbate vulnerabilities, shaping mobility choices.

This requires new policy approaches. These should not be targeted towards ‘climate migrants’: this is a demographic that cannot be identified. Instead, assistance should be targeted towards those with heightened vulnerabilities. This should include assistance in moving, but could also include assistance in staying in place, and assistance in areas of destination.

The relationship between climate change and migration is not a linear one. Hazards do not translate predictably into movement. Instead, climate change affects migration in a multitude of ways (see Figure 1). Movement may be long-term or merely brief during an evacuation; it may be cross-border, but is more likely to be internal; it may occur in a gradual trickle, or involve the sudden movement of most of a population, depending on the nature of a disaster. In some cases, migration may become less likely due to the impacts of climate change (Boas et al., 2019; Martin et al., 2022; Foresight, 2011; Cattaneo et al., 2019).

FIGURE 1. The ‘drivers’ of migration and the influence of environmental change

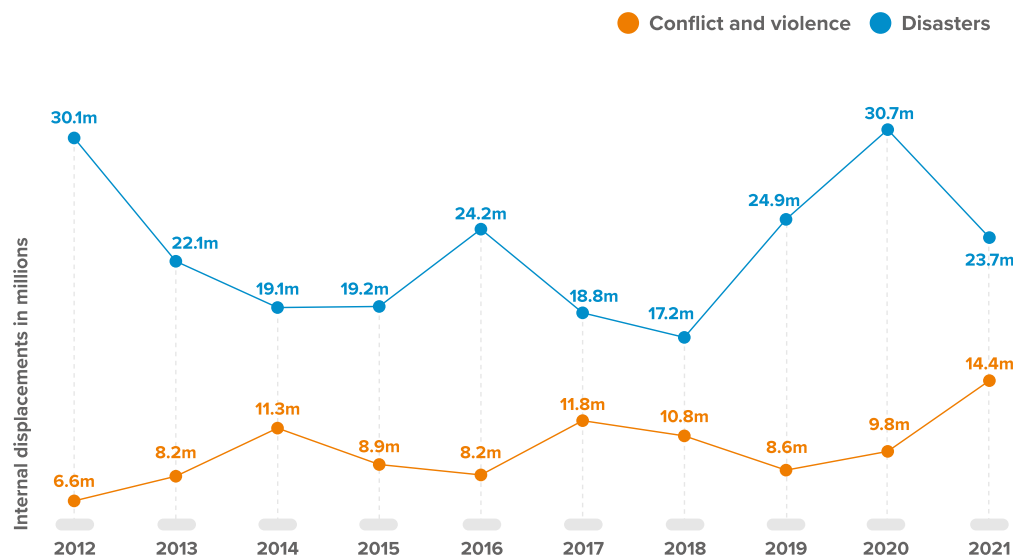


Source: Foresight (2011: 12).

Climate change is already severely affecting livelihoods worldwide and will increasingly do so in the future (Ahmad et al., 2022; Kabir and Serrao-Neumann, 2019; Muringai et al., 2019). Climate change will lead, and is in some cases already leading, to the intensification of disasters (Cattaneo et al., 2019); rising sea levels are already making coastal areas less inhabitable, and rendering water sources and agricultural areas salinated (Storlazzi et al., 2018); agricultural production will continue to decrease (Cohn et al., 2017; Stringer et al., 2020); and, in some cases, conflict will potentially become more likely (Black et al., 2011a; Raleigh, Choi, and Kniveton, 2015; Brzoska and Fröhlich, 2016).

In these circumstances, migration patterns are likely to be disrupted (Boas et al., 2019), and in some cases total migration will increase (Hunter and Simon, 2022; Cai et al., 2016). ‘Disaster’ displacement is already a larger cause of global internal displacement than conflict; the Internal Displacement Monitoring Centre (IDMC)’s 2022 report suggests that 23.7 million displacements occurred due to disasters versus 14.4 million due to conflict (IDMC, 2022; see Figure 2).¹

FIGURE 2. Causes of internal displacement globally, 2012–2021



Source: IDMC (2022:12).

Understanding *where* migrants may go, and what the key ‘tipping points’ are which may lead to significantly altered migration flows, are crucial questions (Black et al., 2011a). ‘Tipping points’ (see Box 3) are understood to be thresholds at which small quantitative changes in a given system trigger non-linear change processes driven by system-internal feedback mechanisms leading inevitably to a qualitatively different system state, often irreversible (Milkoreit et al., 2018; McLeman, 2018). Currently, however, the social and physical science on ‘tipping points’ is under-developed. False positive ‘tipping points’ may be identified, and actual tipping points overlooked (Milkoreit, 2022).

Given the importance of tipping points, policymakers should not expect that climate change will lead to migration in a universal, linear fashion. Different actors and communities will respond to similar stimuli in different ways. It is better, firstly, to ask—as Boas et al. (2019: 902) do—“whether (and if so, how) climate change will alter existing interconnections and human mobility patterns under different scenarios of global warming and mitigation and adaptation policies”. Migration will not

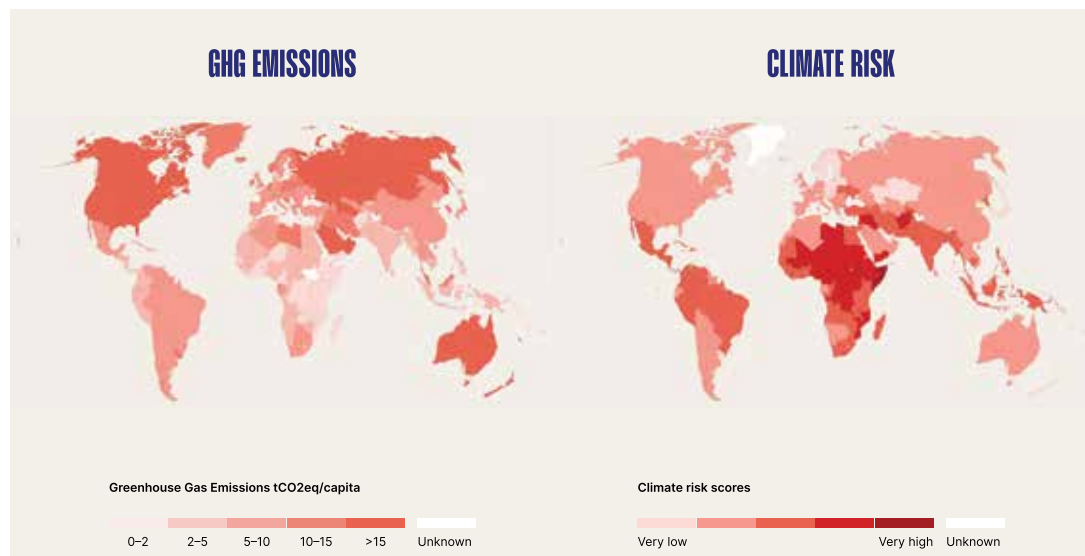
¹ It is worth noting that while the number of *individual displacements* due to disasters outstripped the number of displacements due to conflict in 2021, there were far more persons remaining displaced due to conflict and violence at year-end than there were due to disasters. 53.2 million displaced by conflict and violence were still displaced at the end of 2021; only 5.9 million remained displaced of those who had moved due to disasters. Displacement due to conflicts is typically far more protracted than displacement due to disasters.

always increase in contexts of increased climate hazard; in many contexts, it will decrease against the wishes of affected populations. Secondly, the relationship between climate change and migration must be seen as one that plays out within *complex adaptive subsystems* within larger socio-ecological sub-systems (Zickgraf et al., 2022). This means in practice that migration choices and outcomes are likely to be constantly shifting, with non-linear emergent properties interacting with other aspects of socio-economic networks.

In the context of climate change migration offers a form of insurance. It allows households to access labour markets disconnected from the unfavourable climate conditions in the area of origin, to instead earn higher amounts elsewhere (Kniveton et al., 2008). Money earned by migrant household members can be vital for investment into agriculture, including as adaptation to the effects of climate change, and may be one of the main reasons for migration to be undertaken (Tacoli, 2011). The remittances sent back by *individual* migrants may allow *households* to stay in-situ where they would otherwise leave their home areas. Remittances can serve as valuable regular payments, allowing households to plan outlay or have a buffer against shocks (Yang and Choi, 2007). Indeed, where other forms of conventional insurance is available—such as through community risk-sharing mechanisms or rural public works programmes—temporary migration may be less likely to take place (Morten, 2019).

Given that there is a stark discrepancy between the countries that have produced greenhouse gases and the countries that are most exposed to the resulting impacts (Figure 3), there is a moral obligation for adaptive and equitable governance approaches to be sought.

FIGURE 3. Global climate risks versus emissions



Source: Amakrane et al. (2023: 42).

1. Patterns of interaction between climate stressors and human mobility

Several patterns of interaction between human mobility and climate stressors are identifiable in the literature, and are sketched below.

Disaster displacement and return

An increase in climate-related sudden-onset hazards sees an increase in short-term relocations to avoid physical harm (e.g., Ober, 2019). When normality is restored following these shocks, return is assumed to occur within a short timeframe (Stojanov et al., 2021; Brzoska and Fröhlich, 2016; Warner, 2022). Populations may however often not return within the short periods assumed: a lack of data makes it hard to know whether those who are displaced or evacuated do return soon after. The Internal Displacement Monitoring Centre notes however that based on the limited evidence available, “many who flee are unable to return quickly to their home” due to challenges in rebuilding homes and livelihoods (IDMC, 2021: 78). Where these shocks occur frequently, or occur multiple times within shorter periods, the evacuation-return cycle may come to be viewed as infeasible, replaced by permanent out-migration (Kaczan and Orgill-Meyer, 2019).

Migration as livelihoods insurance

When livelihoods reliant on clement weather deteriorate, movement may be undertaken to find food sources or to earn money to support necessary consumption purchases. Where access to essential resources, such as fish, firewood, or crops, is reduced due to increased climate extremes and unpredictability, existing livelihood options in the area of origin may become untenable (see e.g., Musah-Surugu et al., 2018; Maharjan et al., 2021; Warner and Afifi, 2014). In these contexts migration can serve as a valuable form of ‘insurance’, allowing access to better wages in local economies not so exposed to climate shocks (Gemenne, 2022; Lagakos et al., 2018).

Where this is the case, people may choose to migrate in the medium-term, sending home remittances (Tacoli, 2011) to allow their households to remain in situ (Jónsson, 2011). It is assumed that many will return to areas of origin in seasonal patterns, possibly returning permanently towards the end of the life-cycle (Weinreb et al., 2020); however, where livelihood options in the area of origin become excessively degraded, permanent departure may occur. This may happen gradually over time, creating a slow ‘tide’ of departures rather than the ‘wave’ often expected (see McMichael et al., 2023); or it may happen more quickly after socio-environmental tipping points are surpassed (e.g., Thalheimer et al., 2023).

Displacement in the climate-conflict nexus

Where climate change destabilises fragile political equilibria, conflict may result, forcing larger displacement. Climate stressors has been argued to act as a threat multiplier (see e.g., ACCES, 2010), increasing the likelihood that tensions develop into armed conflict. The interaction between climate

change and conflict is however uncertain: conflict is highly contextual, and even in cases where climate change does make it more likely, the primary reasons will always relate to governance (Brzoska and Fröhlich, 2016; Abel et al., 2019). Conflict may result in large-scale population movement, with return only being possible when peaceful conditions are re-established. (See the later box on climate, conflict and migration).

Permanent out-migration due to longer-term reduction of region habitability

Where areas of origin become uninhabitable, due to the salination of water sources, inundation of dwellings, or intolerable heat, permanent movement away may occur (Storlazzi et al., 2018; Brzoska and Fröhlich, 2016). This could occur through a gradual decline in the population. It could also, if a 'tipping point' is reached, occur rapidly (see e.g., Thalheimer et al., 2023).

Movement away from areas of increased uninhabitability could occur on an individual or household basis, or could occur through state-organised planned permanent relocation programmes. Return would be unlikely, made possible only through climatic adjustment or the introduction of new adaptation technologies.

Involuntary immobility

Where climate shocks reduce assets and market liquidity, populations may become unhappily 'trapped' in their area of origin, despite the fact that it is increasingly uninhabitable. The inability to move could be due to repeated sudden-onset shocks, or due to a gradual depletion of assets to the point that movement is no longer affordable (Selby and Daoust, 2021). Vulnerability is likely to increase in these situations (Foresight, 2011; Amakrane et al., 2023). Decreases in assets due to climate shocks are already found to have reduced access to migration in multiple contexts (e.g., Migali et al., 2021; Nawrotzki and DeWaard, 2018; Amakrane et al., 2023). Involuntary immobility is not a fixed category. Populations may become immobile following movement, such as in a city (Ayeb-Karlsson et al., 2020). Immobility is tightly interconnected with migration choices and with other adaptation measures (Zickgraf, 2021). The desire to remain in place, for example, could lead to adaptation spending which is ultimately unsuccessful, leaving populations unable to move.

Voluntary immobility

Populations may choose not to move despite climate change worsening their standard of living. The decision to stay is frequently complex and personal. In surveys of young people in Ethiopia, Vietnam, and India, Schewel and Fransen (2022) find that many respondents prioritised remaining close to their family. Attachment to place can also play an important role, especially in communities where land is considered spiritually important (Schwerdtle et al., 2018; McAdam and Ferris, 2015). This can persist even where policy interventions seek to persuade people to leave. In Chilean Patagonia, for example, where slow-onset weather hazards are increasing vulnerability to landslides, villagers are found

to prioritise ‘ontological security’ in situ over the potential for greater incomes and ease elsewhere (Weigel et al., 2021). Even when sudden-onset disasters such as cyclones occur, people may be unwilling to move due to cultural, religious and social understandings of place, responsibility, and community (Ayebe-Karlsson et al., 2019). This extends to willingness to move internationally as well as internally. In the Pacific, a region where future movement is often expected to be compulsory, voluntary immobility is frequently preferred by inhabitants of small island states (Farbotko, 2018; 2022).

‘Acquiescent’ immobility

The concept of “acquiescent immobility” has also been proposed (Schewel, 2019: 328), describing those who have neither the capability nor the intention to migrate. In many contexts this will be the largest group (see e.g., Adams, 2016; Rabbani et al., 2022; Linekar and Frouws, 2022). Non-migration can be due to an inability to imagine a happy life beyond a certain place, as well as due to insurmountable barriers. In a study of 1,500 households affected by slow-onset sea level rise in Bangladesh, Adams and Kay (2019: 129) find that “migration as an outcome is determined by psychological propensity to move, and that levels of capital act to modulate, rather than determine, migration responses, their timing and outcome.” Willingness to move depends on aspirations more than it does on capabilities. This provides further reason to doubt the narrative of large future numbers of ‘climate migrants’.

As perceptions of the habitability of the place of origin shift due to more frequent or harsher shocks, voluntary and acquiescent immobility may become less widespread in some areas (Selby and Daoust, 2021). Both ‘voluntary’ and ‘acquiescent’ immobility can present challenges to policymakers. This is particularly the case given that it can be very hard to distinguish between ‘involuntary’ and ‘voluntary’ immobility, especially from a distance (Carling, 2002; Jónsson, 2011; DeWaard et al., 2022).

BOX 1. Terminology and causation: a caution

The relationship between climate change and migration is neither simple nor linear. Disentangling the factors behind a given migration decision is very challenging. This should be reflected in the language used when discussing the issue.

Studies have used a variety of ways of describing migration undertaken in the context of climate change:

- Some use the phrase ‘**climate-induced migration**’ (e.g., Musah-Surugu et al., 2018; Bharadwaj et al., 2022b). We consider that this phrasing overstates the confidence in attributing a given migration act to climate change.
- The phrase ‘**climate migration**’ (see e.g., Stojanov et al., 2021; Card et al., 2022; Rosengärtner et al., 2022) makes a still more confident statement, taking for granted the suggestion that this is an identifiable form of migration discrete from any other. As will be discussed, this is inaccurate.

- The phrase ‘**environmental migration**’, used by the IOM in the 2020 *World Migration Report* (see Oakes et al., 2020), allows the possibility of greater attention to the local environment from which a migrant moves. This is preferable to ‘climate migration’, because it can recognise that the migrant’s *environment* is affected by more than merely *climate*. It nonetheless implies that the act of migration is primarily or solely the result of the environment in the area of origin, and is therefore to be avoided.
- The term ‘**environmentally displaced person**’ (see e.g., Zetter, 2011) is in some (rare) cases correct, but cannot be used as a blanket term. It occludes the agency possessed by those moving, who often have a greater degree of choice than the word ‘displaced’ may imply (see e.g., Schewel, 2019). It also again overlooks the fact that for most people moving, their choice to migrate takes into account far more than just changes to their local environment.
- The concept of the ‘**climate (or environmental) refugee**’ is, as is discussed in subsequent sections, inaccurate. Refugees are protected under the 1951 Convention; those moving in the context of climate change are not except for reasons of persecution incidental to climate change, and are unlikely ever to be for the reason of climate change alone (Ionesco, 2019; Brown, 2008; see subsequent sections). Refugees moreover must cross borders, whereas most migration in the context of climate change is internal.
- The phrase ‘**climate mobility**’, or ‘climate mobilities’ (e.g., Cundill et al., 2021), is gaining prevalence in the academic literature. This phrasing is intended to recognise the fact that climate-induced changes to the local environment do not necessarily result in *migration*: the ‘mobility response’ may instead be the choice to remain in situ or undertake a range of movement options, or an inability to move (Boas et al., 2019; Boas et al., 2022). This is a valuable point, but the phrase is arguably somewhat vague for the purposes of this paper, given that it encompasses all possible mobility responses to climate change.

This paper uses the term ‘**climate-affected migration**’. This is intended to reflect the fact that migration undertaken in the context of climate change is first and foremost *migration*, which is undertaken for a host of simultaneous reasons, but that it is also *migration affected by climate change*. The extent to which the decision-making process for a given migration act is affected by climate change will vary significantly: climate-affected migrants are not a homogenous group. Some migration which appears to be undertaken due to climate factors will in fact be motivated more by other needs, and vice versa. As Mayer (2013: 84) asks, “is there *anything* common between a retired Canadian deciding to go and live in Florida to avoid Canadian winters, a disparate fisher family from a ‘sinking’ island, a Nigerien farmer migrating to town to earn some revenue during the dry season, and a Bangladeshi family taking refuge in a shelter during a cyclone?” The impact of climate change upon migration, while uncertain, nonetheless cannot be overlooked, and must be prepared for.

2. Key factors affecting climate-affected migration

The factors affecting migration decisions intersect and interact with each other in numerous ways. The discussion below provides a brief review of several key factors, but by no means all.

Assets

Migration relies upon individuals and communities having the assets necessary to migrate. Asset possession is affected by wider market conditions, and in climate-affected contexts access to assets—and consequently migration—may be affected in unexpected ways.

Where assets are reduced, migration may be used to supplement or substitute for shortages, or may become impossible. Asset destruction reduces households' capability to pursue migration, potentially resulting in 'trapped' populations who may be highly vulnerable in intersecting ways (Foresight, 2011). The duration, frequency, and timing of shocks, and their resultant effects on asset levels, affect migration responses (Daoust and Selby, 2023, forthcoming).

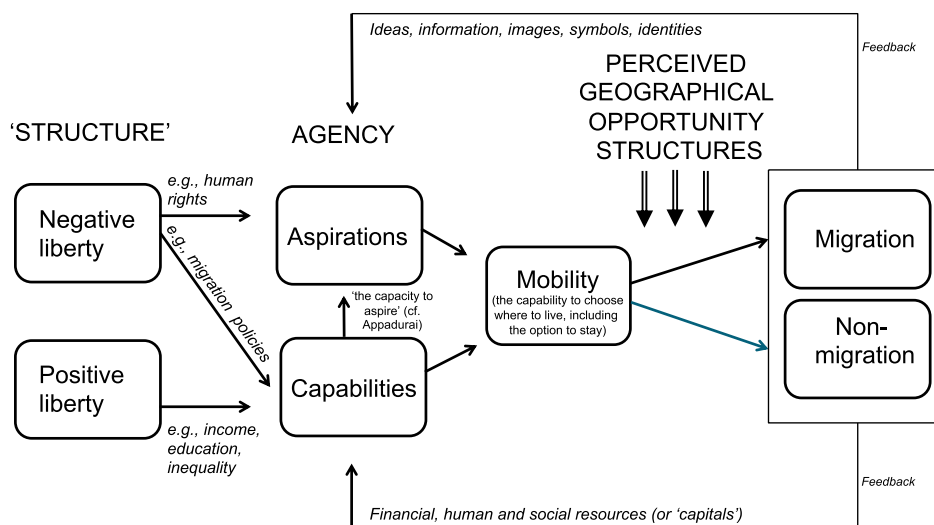
Those with the assets necessary to adapt to climate change, through the diversification of income streams, the hiring of labour, or investment in more productive practices, may either have *less need to migrate*, or *increased ability to migrate* (see e.g., Mueller et al., 2014; Abdelali-Martini and Hamza, 2014). The nature of the choice made will depend upon the wider context, including perceptions of migration informed by cultural norms.

Those who have greater assets may be less vulnerable—disincentivising migration—or may have the resources necessary to undertake migration if desired.

Perceptions and culture

Where lives are made harder by climate change, migration will not always be a favoured response strategy. This is not merely due to the practical difficulties of migration: it hinges also on the fact that *perceptions* of migration, community, and identity vary. The *capability* to migrate shapes migration outcomes, but for migration to occur there must also be the *aspiration* to move (de Haas, 2021; see Figure 4).

FIGURE 4. The aspirations-capabilities framework for conceptualising migratory agency



Source: de Haas (2021: 25).

Aspirations are not fixed. A change in perceived risk in the area of origin may lead to migration where there had previously been little, according to whether thresholds in affected populations' perceptions of an acceptable life have been surpassed (Bardsley and Hugo, 2010; Dow et al., 2013). Understandings of risk and value are culturally shaped, and may change (Ayeb-Karlsson et al., 2018); as these change, aspirations to migrate will also change (Czaika et al., 2021). Policymakers must take cultural perceptions of migration into account when proposing it as a solution to climate-related risk, and when attempting to reduce communities' need to migrate.

Migration occurs when there is the capability, but also an aspiration, to move. In some cultures migration is less likely to be desired, even when climate hazards increase.

Agriculture

The 'agricultural linkage' (Cai et al., 2016) plays a central role in climate-affected migration in many contexts. This is unsurprising: migration has long been used as a means of adapting to climate-driven agricultural fluctuations (Rain, 2001; Tacoli, 2011). Declining agricultural incomes can also, however, reduce the ability of potential migrants to move by depriving them of the necessary assets. Sometimes, it may have both effects over different timeframes. In a study of rural-urban migration in Burkina Faso from 1970–1998, for example, unfavourable rainfall conditions are found to *increase* short-term migration reacting to diminished agricultural incomes, but to decrease longer-term migration to urban areas. Poor rainfall is found to decrease socioeconomic capital, decreasing

migration capabilities (de Longueville et al., 2019). Ibañez et al. (2022), in a study of El Salvador, find that climate shocks' impact on migration is mediated through agriculture and the labour market: agricultural yield declines reduce rural farmers' willingness to hire, incentivising rural-urban migration by wage workers who can no longer find work.

The interactions between climate, agriculture and migration are complex, and it is uncertain whether negative income shocks affect migration directly, working through income effects, or based on more complex and contextual mechanisms (Falco et al., 2018). This makes policy responses challenging. Cash transfers to aid consumption, for example, may be implemented with the aim of reducing the need for migration; often, however, cash transfers can be used to facilitate migration (Clemens, 2022a).

In many contexts, actors seeking to deter climate-affected migration promote in-situ income diversification as an alternative to 'migration as adaptation' (Stojanov et al., 2021). This can be very useful: the Mahatma Gandhi National Rural Employment Guarantee (MGNREG), for example, is assessed to have often helped rural households increase their resilience through greater access to work opportunities (Godfrey-Wood and Flower, 2017; Fischer, 2019). This will not always be possible, however. In some circumstances, the negative effects of climate change upon local agriculture-dependent economies will be too great. In Mexico, for example, increased harmful degree days are found to decrease non-farm labour and wage work as well as farm revenues (Jessoe et al., 2018); where local economies are over-stretched by the effects of climate change, diversification options will be limited. This will have varying effects on migration, to which policymaking must be attuned.

The climate-agriculture-migration link is one of the most important aspects of the climate-migration nexus. Reduced agricultural yields incentivise rural-urban migration as an insurance strategy.

BOX 2. Climate change and staple crop yields

Several staple crops are currently expected to be significantly affected by climate change. This is especially likely where crops are reliant on rainfall—the case for over 75 percent of the world's agricultural area, and the vast majority of agriculture in areas where it is the primary livelihood (Ratna Reddy and Syme, 2015). This will either impact migration directly, or, by affecting nutrition, education outcomes and other mediating factors, will affect migration indirectly.

Maize, a crucial crop in many areas, is expected to be particularly affected. In sub-Saharan Africa, maize accounts for around 30 percent of all calories consumed (BMGF, 2022). It is also highly temperature-sensitive. When temperatures exceed 30 degrees Celsius, pollination and photosynthesis slow, and the growing process breaks down: each additional degree per day in which the temperature is above 30 degrees Celsius reduces crop yield by at least 1 percent

(Shi and Tao, 2014). This is cumulative: five days of 25 degrees Celsius sees 25 percent of the harvest lost (Lobell et al., 2011). Wheat, rice, and soybeans—other key staple crops—also exhibit tipping points near 30 degrees Celsius, beyond which yields decline significantly (Zhao et al., 2017). Research by IFAD of crop outcomes in eight African countries warns that staple crop production could decrease sharply if the world’s average temperature increases by 2 degrees Celsius. In the Namibe province of Angola, for example, the annual maize crop per household could decrease by 77 percent by 2050 (IFAD, 2021b). These losses could be reduced with adequate adaptation methods (Abramoff et al., 2023).

With decreased yields, both subsistence capabilities and income levels are harmed, with impacts on wider economies (Li et al., 2022). This impacts nutrition, with possible impacts on child development (Block et al., 2022) and employment (Jessoe et al., 2018). Where crop tipping points are exceeded, new migration patterns are likely to emerge, in response to disrupted livelihoods and new economic situations (see e.g., Thalheimer et al., 2023).

Land

Issues of land tenure are crucial to migration decision-making in many contexts. Land tenure status may determine access to shelter; access to credit; and socio-economic status through cultural connotations.

Firstly, attachment to *place* affects mental resilience, and may reduce willingness to move for reasons of identity (Farbotko, 2022; Adams, 2016). Policymakers must take the emotional resonance of hereditary land into account in considering relocation.

Secondly, land tenure status affects ability and motivation to invest in improvements, including with regard to climate adaptation (see e.g., Murken and Gornott, 2022; Maharjan et al., 2021).

Thirdly, in areas where land holdings are necessary both for economic success—such as through agriculture—and for cultural status, demographic growth resulting in fragmented inheritances may reduce the likelihood of aspirations being fulfilled, potentially making movement more likely during droughts (see e.g., Gioli et al., 2014; Etana et al., 2021).

Fourthly, land possession may cut both ways in affecting movement. Those with larger amounts of land may have more agency, and be more able to either adapt to the effects of climate change, *or* migrate. Those who own *some* land may by contrast be tied in place, without the resources to adapt, but also without being willing to risk losing the land they have by moving. Those who own little land, by contrast, may be more willing to move in response to shocks, and thus counter-intuitively more able to adapt (see e.g., Singh and Basu, 2020; Mueller et al., 2014). In attempting to target assistance to climate-vulnerable populations, policymakers must bear in mind that ‘raw asset values’ alone do not determine vulnerability.

Fifthly, in areas of origin climate change, migration, and land use change will see changes to the fungibility and value of land holdings. Where smallholders quit agriculture and move to urban areas, local elites or out-of-area buyers may purchase sold land, potentially leading to consolidation (see e.g., Stringer et al., 2020; Bharadwaj et al., 2022b; Deshingkar et al., 2016).

Sixthly, land tenure is often a major challenge in destination areas, and requires policy attention, especially in urban settings where informal settlements are likely to receive the majority of rural-urban migrants (see e.g., Wiederkehr et al., 2022).

Land access and tenure affects migration in multiple ways. As an asset, land may decrease vulnerability, reducing the need to migrate; or it may increase access to migration. Where people fear to lose their land, movement may be less likely. (Land is discussed in more depth in a subsequent section).

Debt

Migration is frequently undertaken in order to repay debt. This debt may be incurred as a result of agricultural yield reduction resulting from increased climate variability (see e.g., Bharadwaj et al., 2022b). Where migration is motivated by the need to service debts, migrants may have less agency, and be more vulnerable to exploitation. Migration undertaken in these circumstances is less likely to be ‘adaptive’, and less likely to generate remittances that could be used to support communities of origin or finance adaptation (Vinke et al., 2022). Debt is, however, not inherently bad. Credit can be used for investment, including in climate adaptation (Maharjan et al., 2021), and climate-affected rural out-migration may be incentivised by a lack of credit access leaving farmers unable to smooth expenses through other means (Selod and Shilpi, 2021). Debt can also be used to finance migration.

The need to repay debts—such as following agricultural yields reduced by climate shocks—may drive migration; debt may also be used to finance movement. (Debt is discussed in more depth in a subsequent section).

Education

Those with higher levels of education are typically more likely to migrate from climate-affected contexts (Tacoli, 2011). Education increases both migration aspirations and capabilities to act on aspirations (Schewel and Fransen, 2018). It may also reflect other factors, such as asset provision and social marginalisation, which themselves affect migration propensity. The better-educated may have greater knowledge of work opportunities elsewhere, and may also have more confidence in their ability to benefit from them. Education affects distance and duration of migration, although this varies according to context (see e.g., de Haas, 2003; Bekaert et al., 2021).

The educated are more likely to aspire to migrate, and to have greater capabilities in pursuing desired movement.

Access to information

Connections with existing migrant networks affect knowledge of opportunities and the likelihood of migration being undertaken. Contacts, such as family or friends, can provide support upon arrival in areas of destination, and can provide advice regarding access to jobs and accommodation (McLeman, 2019; Bharadwaj et al., 2022b). Where people in areas of origin have more knowledge of labour market opportunities in potential areas of destination, migration decision-making may change to reflect new aspirations (Baseler, 2021). This is discussed in a subsequent section ('The information gap').

Movement requires knowledge of options.

Age and life cycle status

The young are far more likely to migrate; this remains the case in circumstances affected by climate change. Young migrants may move on an intentionally seasonal basis, returning to their area of origin during the year, or may move for a period of years before returning to their home community later in their life cycle. In some contexts, most young people will move with the expectation of later returning (Weinreb et al., 2020). In some circumstances, climate change may affect these aspirations to return, with implications for community replenishment and old-age care (see e.g., Entwisle et al., 2020).

Migration often follows a life cycle pattern, with the young undertaking rural-urban movement before returning later in life.

Gender

Migration in the context of climate change is, like all migration, heavily affected by gender dynamics (Boas et al., 2019). This fact must be borne in mind by policymakers as a crucial lens during all decision-making, but more often is overlooked (Maharjan et al., 2021).

Men are far more likely to move in climate-affected contexts than women. Due to structural discrimination, women generally have lower migration capabilities (Lama et al., 2020; Ober, 2019). In many areas, such as the Hindu Kush, women have reduced access to land, credit, and other resources, resulting in gender-differentiated climate change impacts (Maharjan et al., 2021).

Where climate change correlates with increases in out-migration, this is typically undertaken by young men (see e.g., Bohra-Mishra et al., 2016). In many cases, women have fewer labour market opportunities in areas of origin (Cattaneo et al., 2019). This is however not always the case. In some countries, due to cultural norms or gendered labour opportunities, female migration may exceed male migration. In Bangladesh, for example, gendered opportunities in the very large garment sector mean that women often have more migration capabilities than men (Gavonel et al., 2021). In this situation, circular migration responding to climate shocks may be more likely to be undertaken by women.

In many areas, cultural norms around marriage strongly affect how gendered migration patterns respond to climate change. In highland Ethiopia, for example, movement by women is reduced by drought: the principal reason for female migration is marriage elsewhere, but drought decreases the ability of potential husbands to afford a dowry (Gray and Mueller, 2012). In China, by contrast, climate anomalies are found to *increase* the likelihood of permanent marriage migration. This may be because shocks incentivise families to accept marriage offers arriving from elsewhere, where economic conditions are not correlated with downturns in the area of origin (Gray et al., 2020).

Because migration is most frequently undertaken by men, women are often left behind in the area of origin. This can in some cases result in the enjoyment of higher autonomy and decision-making power (see e.g., Clemens and Tiongson, 2017; Singh and Basu, 2020; Simelton et al., 2021). This is however not universal, and where male migrants can return to make key decisions, or decision-making is passed on to other male family members in patriarchal societies, female autonomy may remain the same or even decrease (see e.g., Porst and Sakdapolrak, 2020; Simelton et al., 2021; Bharadwaj et al., 2022b).

Women remaining behind in the area of origin are also often left with a labour burden due to the departure of household members (a subject discussed in more detail in the section on ‘Supporting the “left-behind”’). In Mali, for example, migration is found to increase the labour burden upon women then required to engage in activities traditionally undertaken by men, increasing their vulnerability and reducing their wellbeing (Djouidi et al., 2013). In Kenya, migration is found to force women to spend more time doing necessary tasks unsupported, including spending three to five hours a day fetching water and gathering firewood (Nyaoro et al., 2016). This is not a phenomenon unique to those remaining behind after climate-affected migration, but should be borne in mind by local policy-makers considering how best to target support.

The impact of gender on migration is affected by context. Gender-related patterns are not universal. Gender-specific vulnerabilities should however be borne in mind in policy regarding the climate-migration nexus.

Governance choices

Migration does not occur in a vacuum. Policies shape the opportunities available to those responding to the effects of climate change, and can increase or reduce populations' access to migration (Castles, 2004). Policy choices frequently have a “sedentary bias” (Bakewell, 2008), aiming to keep people in situ where possible: in 2019, 55 percent of governments had policies intended to reduce internal rural-urban migration (UN DESA, 2020). Internationally, policy choices are frequently made reacting to fear of imagined ‘mass migration’ resulting in waves of ‘climate refugees’ (Boas et al., 2022). Independent of climate concerns, international borders have become increasingly tightly regulated, limiting the ability of some groups to migrate (Balsari, Dresser, and Leaning, 2020). These trends may continue in the future. Government policy is among the most important factors in shaping climate mobility flows; it is crucial that it reflects reality rather than projected fears, and that it seeks to support adaptation and risk-sharing.

Governance choices shape migration options. Policies frequently seek to reduce migration; this can be harmful to climate adaptation.

BOX 3. Tipping points

Climate change does not linearly lead to predictable mobility reactions. Instead, limited mobility may occur during gradual degradation of socio-economic systems, followed by sudden movement when a ‘tipping point’ is reached (Bardsley and Hugo, 2010). These tipping points are crucial to policymaking, but are little understood. Currently, sudden-onset hazards typically result in temporary migration followed by return when conditions improve; as coping capacities are eroded by successive disasters, however, people who had endured unstable environments out of a preference not to move may choose to undertake longer circular migration or permanent movement as a last resort (Schutte et al., 2021).

These can lead to the development of new adaptive systems—including the use of migration where previously it was little considered (Hunter and Simon, 2022; see e.g., Østergaard Nielsen and Reenberg, 2010). In Somalia, for example, ongoing drought has seen in-situ coping capacity almost entirely reduced. Where initially migration would not have been undertaken, split migration was adopted as a coping mechanism, with men remaining in the community of origin to care for cattle; when the cattle finally died, families would move permanently (Hujale, 2022a; IOM, 2022b). This is an example of non-linear properties emerging from unstable systems. Disaggregated data on internal displacement in Somalia from 2016–2018 (early in the multi-year drought) indicate that relatively small shifts in weather patterns have had outsized effects there. An increase in temperature anomalies from 1 degree Celsius to 2 degrees Celsius leads to a tenfold increase in displacements; a reduction in precipitation from 50mm to 0mm led to a fourfold increase in displacement (Thalheimer et al., 2023). This would appear to be an instance of a tipping point being surpassed.

McLeman (2018) provides a useful summary of tipping points within the climate/migration nexus:

- 1) Adaptation becomes necessary;
- 2) Adaptation becomes ineffective;
- 3) Substantive changes in land use or livelihoods become necessary;
- 4) In situ adaptation fails, and migration is seen as a viable alternative;
- 5) Migration rates become non-linear;
- 6) Migration rates cease to be non-linear.

If migration can be made available as a form of insurance (see e.g., Lagakos et al., 2018) at the stage at which adaptation becomes necessary, and prior to disastrous system degradation making adaptation ineffective and major changes unavoidable, permanent distress migration may be avoidable. This is context-dependent, and requires a good understanding of the socio-economic and climatic challenges in affected areas in order to target insurance-migration programmes.

‘Tipping points’ in climate, ecological, and socio-economic systems are crucial. They affect the decision-making environment in which migration occurs and can lead to sudden changes in outcomes, but are poorly understood and very difficult to predict.

Economic consequences of climate change

Migration is fundamentally epiphenomenal. It is the result of a human choice made in an individual set of circumstances, and cannot be fully understood without considering the environment in which these choices are made, nor the particular goals of the individuals making the decision to move (Geddes et al., 2012a). Adaptation to climate change—including through migration—requires an understanding of the wider impacts of climate change upon economic decision-making (Diaz and Moore, 2017). These impacts will necessarily vary according to multiple factors determining the vulnerability of different productive and non-economic sectors (Kikstra et al., 2021).

At the macro level, there is little confidence in predictions of the magnitude of the effects of climate change. Most scholars acknowledge that assessing the economic impacts of climate change is challenging due to the multiplicity of impact vectors, systemic effects, and socio-economic responses (e.g., Rising et al., 2022; Stern, 2021; Auffhammer, 2018). Analysis by the Swiss Re Institute (Guo et al., 2021) suggests that the global economy could be reduced by up to 14 percent without accelerated mitigation (compared to a world without climate change) by 2050, and still falling by 4.2 percent if Paris Agreement targets are met. By 2100, global GDP could be 37 percent lower than it would have been without global warming (Kikstra et al., 2021).

Many non-linear relationships between climate change and its socio-economic effects, such as those manifested through conflict, famine, and poverty, remain poorly understood (Rising et al., 2022). Climate change will have substantial negative effects for agricultural production, reducing the “four pillars of food security—availability, access, utilisation and stability”, and harming the likelihood of an end to famine becoming possible (Fróna et al., 2021: 118). Global yields could potentially be reduced by up to 30 percent (Quiggin et al., 2021). Energy production may furthermore be significantly affected by changing weather patterns. In 2020 87 percent of global electricity generated from thermal, nuclear and hydroelectric sources was directly dependent on water availability; in some areas, these facilities are facing and will face increased water stress (WMO, 2022a).

Urban areas are also susceptible to economic damage resulting from climate change. In a study of gross regional output across 1,500 regions in 77 countries, Kalkuhl and Wenz (2020) find that productivity levels and growth are diminished by increased temperatures, with damage highest in tropical and poor regions. Their analysis excludes damages from extreme weather events and sea-level rise, which are likely to have severe economic impacts. Cities are frequently highly vulnerable due to their location in low-lying areas near water bodies (Gasper et al., 2011). Direct impacts, such as flooding damage caused by rainfall anomalies, will negatively affect economic productivity and growth; second-order impacts, such as climate-related reductions to power supplies affecting industrial operations and domestic energy needs, will also have wide ramifications with implications for migration.

The economic effects of climate change are relatively poorly understood, but may in some contexts be severe. Unexpected consequences of climate change, such as water shortages reducing factory output, will affect production and employment—with effects for migration choices.

3. Predicting climate-affected migration

Numerous efforts have been made to quantify climate-affected migration over different timeframes. Early predictions of over 200 million climate-induced migrants by 2050 (Myers, 2002) attracted significant media and policy attention, but have subsequently been roundly criticised within the academic literature (e.g., Jakobeit and Methmann, 2012; Gemenne, 2011). See Table 1 for examples of different predictions. Some recent efforts have continued to predict alarming, and alarmist, trends of mass displacement. The Institute for Economics and Peace, for example, suggested (2020) that around 1.2 billion could be displaced due to climate-related factors by 2050. The World Bank, in its *Groundswell* reports (Rigaud et al., 2018; Clement et al., 2021), forecast that by 2050, between 44 million and 216 million people could migrate internally.

TABLE 1. Predictions of climate-affected mobility

| Source | Timeframe | Number | Dimensions |
|--|-----------|------------------------|---|
| Myers (2002) | 2010 | 50 million | Cross-border, globally |
| Myers (2002) | 2050 | 162 million | Cross-border, globally |
| Baird et al. (2007) | 2050 | 300 million | Internal |
| Institute for Economics and Peace (2020) | 2050 | Over 1 billion | Unclear |
| Rigaud et al. (2018) and Clement et al. (2021) | 2050 | 44 million–216 million | Internal; variation depends on RCP followed; does not cover all regions |
| Elhabrouk (2022) | 2060 | 1.4 billion | Unclear |
| Amakrane et al. (2023) | 2050 | 1.2 million | Cross-border, within Africa |
| Amakrane et al. (2023) | 2050 | 47 million–113 million | Internal, within Africa; variation depends on RCP followed |

These efforts face data shortfalls and methodological challenges. It remains challenging to systematically attribute extreme weather events and the harms caused to climate change (Clarke et al., 2022). Migration data is also lacking, at both the international and internal levels. Many studies use census data, which has large time intervals and cannot capture the shorter-term movement which often predominates. Other approaches, using survey or panel data, also have serious constraints including representativeness, and results from such studies face comparability difficulties (Helbling et al., 2023).

They also invariably have serious conceptual difficulties. This is in part due to the omnipresent challenge of classifying migrants. As Boas et al. (2019: 902) argue, “categorizing climate migrants as distinguishable from ‘non-climate migrants’ is not empirically possible in most, if not all, circumstances. As a consequence, predictions of mass climate-induced migration are inherently flawed.”

Difficulties in extrapolation

While we cannot differentiate between those who move *due to* climate change, we can attempt to suggest how movement may be likely to be *affected by* climate change. Even in this, however, current predictive abilities are very limited. Migration is not mono-causally affected by climate change: political and socio-economic factors are of central importance. Existing models have not yet begun to integrate the characteristics of people at risk, leaving them highly inaccurate (Guadagno and Yonatani, 2022; Tacoli, 2011). Instead, predictions either attempt to use previous migration patterns to give insight into future movements under different climatic scenarios (Black et al., 2011b), or crudely assume that a given proportion of those in ‘hotspots’ expected to be affected by increased climate extremes will move (e.g., Elhabrouk, 2022).

The first approach is undermined by the non-linearity and epiphenomenal nature of migration; by our inability to predict how sudden events and tipping points will unfold (Disney et al., 2015; Adger et al., 2015); and by the fact that there is furthermore only limited data on past and present migration, especially internal mobility (Schewel et al., 2022). The second is undermined by the possibility of adaptation.

The challenge of uncertainty in future adaptation

While climate change will have major effects, humans will also be able to respond to it. Future local development and adaptation pathways are likely to greatly affect migration choices and outcomes (Beine and Jeusette, 2019). Within the field of Disaster Risk Reduction (DRR), there are two key axioms (Kelman, 2019):

- Disasters are *social*, not *environmental*, processes;
- Disasters are *caused by vulnerabilities*, not by hazards.

This means that while *hazards* may increase, *vulnerabilities* will not increase at the same pace in all circumstances. Responses to increasing hazards, including mobility responses, will thus also not be uniform. Where vulnerability to a hazard results in a large mobility response at a given point in time, large investment and preparations (adaptation to climate change) may mean that the same hazard produces a very different response a decade later. In the absence of preparations, by contrast, governments may attempt to attribute disasters to climate change in order to absolve themselves of responsibility (Lahsen and Ribot, 2021).

Adaptation pathways and choices limit our ability to extrapolate from previous trends (Piguet et al., 2011). In China, for example, responses to environmental effects are found to have changed significantly during just the period 1989–2011. Prior to 2000, temperature anomalies increased permanent internal migration; after 2000, these effects were reversed. Declining household vulnerability to temperature in the agricultural sector has allowed households to retain migrants during adverse climate conditions rather than send them as an insurance option (Gray et al., 2020). While few countries are likely to exhibit similar rates of poverty alleviation to China, adaptation and development will change mobility responses to climate change.

These are thus far not taken into account by predictive efforts. The World Bank's *Groundswell* report, for example, explicitly does not consider adaptation (Clement et al., 2021). Such an approach does not allow credible estimates (Selby and Daoust, 2021). The invention of heat-resistant crops, for example, or increased access over the next decades to cheap solar power allowing refrigeration and air conditioning, could greatly increase resilience to hazards, reducing the need to move. This inhibits our ability to predict future trends.

Macro-level factors

At the more macro level, conflict; the emergence of new regional economies and attendant shifts to international labour markets; and fluctuations in global commodity prices, will also affect migration patterns, and are hard to predict on the decadal scale needed for accurate quantifications of global climate-affected migration (Foresight, 2011). The relationship between climate change and conflict is currently uncertain (Buhaug, 2016), especially in an increasingly fractured geopolitical order, but will inevitably have serious consequences for future migration.

Climate change mitigation policies, representing an unprecedented economic shift, will also see major changes at the global and local levels, with ramifications for migration. Local mitigation—and adaptation—can result in displacement (Vigil, 2015; Paprocki, 2019). Global commodity price changes can either restrict migration capabilities, or provide individuals and communities with the resources necessary to act on migration aspirations (Ludolph and Šedová, 2021; Vigil, 2022). If oil prices fall with mitigation, some migration routes—such as to Gulf countries—may change to reflect new economic situations (Huckstep and Dempster, 2022a). Similarly, increases in demand for commodities required by the green transition, such as lithium and cobalt (European Commission, 2022b), may see adjacent economies boom and migration become more accessible or less desirable.

In an evaluation of climate-related migration forecasting models for USAID, Schewel et al. (2022: 5) conclude that shorter-term and more local projections can be more accurate than longer-term and more macro estimates. Research in the field is nonetheless concluded to be “still in its infancy”, and Schewel et al. warn that projections “should be seen as notional at best.” This is incontestable. For policymakers, the challenges in predicting migration in a future of climate change are problematic, but cannot be a reason not to act. Unpredictability requires robust, adaptive policies, with contingency layers and cost-benefit analysis undertaken for actions in multiple scenarios.

Predicting the effects of climate change upon migration is extremely challenging, and all forecasts are currently unreliable. Migrant classification challenges; development pathways’ divergence from historical trends; shocks; and the unpredictable relationship between adaptation and hazards, all raise major difficulties. Adaptive and scenario-based planning is therefore preferable.

4. Policy for ‘migration as adaptation’

Policy responses, whether specific to migration or impacting it directly, shape movement options. As Geddes et al. (2012: 1078) note, “migration linked to environmental change is not a *problem for* governance but a *problem of* governance”: migration is embedded within social and political systems. What happens will be determined by choices of categorisation and institutional responses.

Increasingly, migration in the context of climate change is perceived as a key means of adaptation. This has become a dominant paradigm within the research sphere (McLeman, 2016). The *adaptive* approach is understood to be a proactive approach in which mobility can be used to allow people to more easily adjust to a changing climate by moving from places at risk or obtaining resources to allow them to remain in areas of origin if preferred (Gromilova, 2016). This is not a new stance (see e.g., McLeman and Smit, 2006). Tacoli (2009: 513) states that:

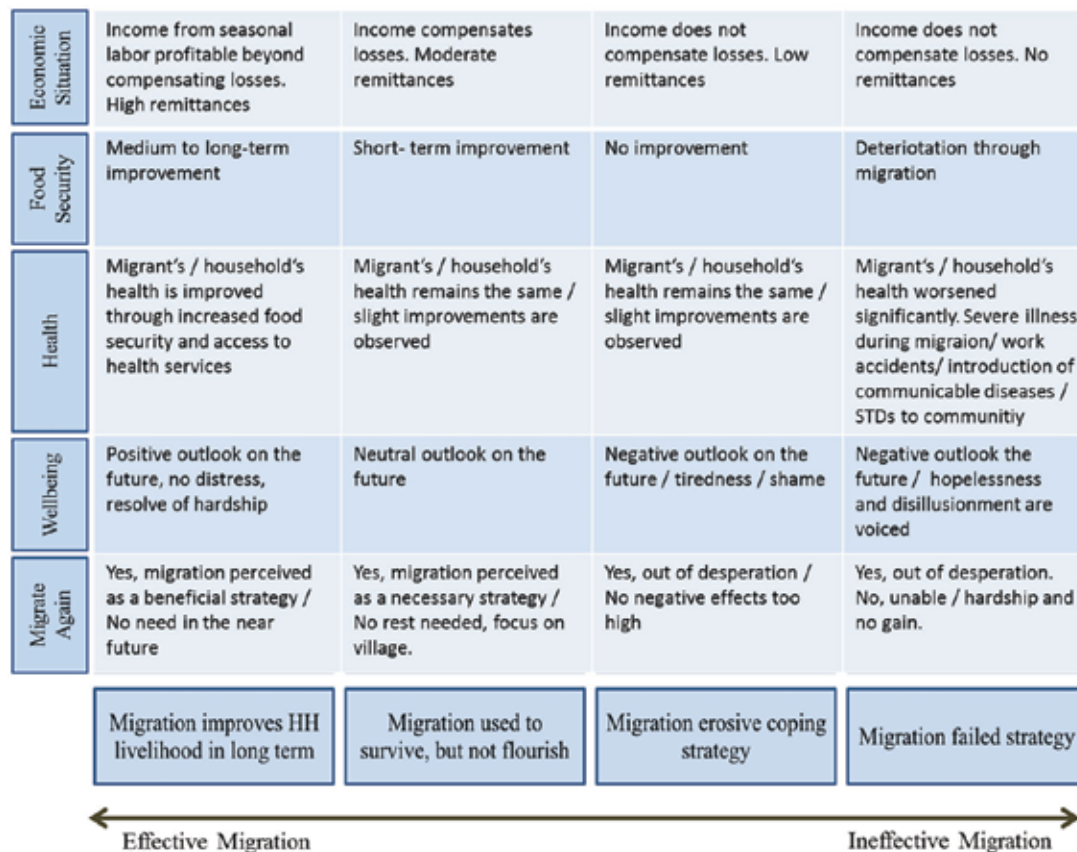
What we do know is that mobility and migration are key responses to environmental and non-environmental transformations and pressures. They should therefore be a central element of strategies of adaptation to climate change. This requires a radical change in policy makers' perceptions of migration as a problem and a better understanding of the role of local and national institutions in supporting and accommodating mobility.

Exactly *how* this should be undertaken is a subject of greater debate. Recognising that mobility in the era of climate change may evolve substantially in the future, some analysts propose 'no-regrets' approaches to policymaking, arguing that approaches that "make sense [even] in the complete absence of climate change" (Luetz, 2017: 69) are most sensible.

When considering migration-specific policies, this may be both the most *sensible* approach, and also the *fairest*. As Betts (2010) argues, it is hard to suggest that those migrating in response to inadequate livelihoods for climate reasons should hold greater rights than those migrating after their livelihoods collapsed due to, for example, local state fragility; a 'survival migrant' should be assisted in surviving regardless of the reason for their endangered status.

Given the size of the impact of climate change in many contexts, however, the 'no-regrets' approach may not always be feasible. There will often be trade-offs to be made, within which the role of climate-related developments must be anticipated. This is especially the case given that 'adaptive migration' may sometimes be *maladaptive*, and have harmful consequences (see Figure 5). Much of this report concerns ways of anticipating harmful migration outcomes and reducing their probability.

FIGURE 5. Migration effectiveness framework



Source: Vinke et al. (2022: 328).

Many policies that are not explicitly migration-focused nonetheless impact migration. This is so much the case that Czaika and de Haas (2013: 489) argue that “there is no clear objective yardstick we can use to distinguish migration from non-migration policies”: migration is affected by the labour market; welfare; foreign policy; and many other areas. This requires a holistic approach to movement, with numerous policy areas considered. This report attempts to consider many of these policy areas.

Migration-specific policy, such as visa access, clearly also crucially affects decisions regarding movement in the context of climate events. Post-hurricane migration flows from Puerto Rico to the United States, for example, were higher than flows from elsewhere, in large part due to the historically close relationship between the two countries, and the potential for family reunification migration to the United States through the large Puerto Rican population already there (Piguet, 2021).

Sustainable migration policy

What do we mean by ‘sustainable migration’, and how can it be achieved in policy? Gavonel et al. (2021: 99) define sustainable migration as migration that *simultaneously* fulfils three broad requirements. It:

- a) Increases material wellbeing;
- b) Reduces inequality in multiple spatial, economic, and health dimensions, and thus promotes diversity and political freedom, and reduces insecurity; and
- c) Lowers environmental burdens.

Importantly, achieving such ‘sustainable migration’ requires a proactive stance on the part of governments. It must seek to create opportunities for dignified migration while also assisting populations in remaining in situ where this is preferred. This may be through assisted internal movement, often rural-urban, to allow populations struggling with the effects of climate change to access better wages as a form of insurance. It may also be through international labour migration programmes. This could, as we propose in a subsequent section, be with the intention of providing vulnerable populations with access to higher wages for adaptation. It could also be in order to allow permanent migration away from increasingly uninhabitable areas, although as discussed in a subsequent section, this is highly challenging.

Migration can have a major role to play in achieving sustainable outcomes. Migration “interacts with all dimensions of development” (Foresti et al., 2018: 2): it both affects, and is affected by, all SDG outcomes. At the same time, migration is often inadequately integrated into both development or climate adaptation plans. Very little thought, for example, has yet been given to the role of labour migration in the green transition (Huckstep and Kenny, 2022)—an area of work which could satisfy all three of Gavonel et al.’s dimensions of sustainability. Both sustainability and mobility are, however, inherently political. Where migration is framed as a problem to be managed, and migrants as primarily a labour resource—who may become scapegoats during economic downturns—the likelihood of migration offering a source of sustainable transformation becomes smaller (Scoones et al., 2020; Gavonel et al., 2021).

Among signatory states to the 2018 Global Compact on Migration, the majority of policies relevant to climate mobilities focus on preventing environmental displacement, with little attention given to regular pathways to movement for those affected by climate change (Mokhnacheva, 2022).² Blake, Clark-Ginsberg and Balagna (2021), in a review of national policy approaches in six countries, summarise ‘climate mobility’ policies into five ‘policy frames’.³ These are:

- *Security and the rule of law*, focused on reducing the perceived threat of climate-related migration to national security and urban areas.

2 The twenty-one countries examined are Albania; Argentina; Bangladesh; Costa Rica; Egypt; Fiji; Germany; Ghana; Jamaica; Kenya; Lesotho; Nepal; New Zealand; Niger; Peru; Tajikistan; Tuvalu; Uganda; the United States of America; Vanuatu; and Viet Nam.

3 The six countries considered are Bangladesh; Kenya; Kiribati; Norway; the United States; and Vanuatu.

- *Rights*, focused on the impacts that climate-related migration has upon the rights of those migrating and those in the areas to which they migrate.
- *Development*, focused on the relationship between climate-affected migration and economic, social, and political development.
- *Preservation of customs and cultures*, focused on the need to sustain the norms, values, and traditions of those groups that may be migrating or receiving migrants under climate-affected circumstances.
- *Resilience*, focused on the unpredictability of the relationship between climate change and migration, and the need to make systems of governance more responsive to changing circumstances.

'Migration as adaptation' is thus a dominant research paradigm, but has not yet become widespread within policy. In moving to incorporate it, governments should be aware of its limitations. Where it is successful it will not be enough in itself, and it must accompany state activities. Migration is not always successfully adaptive: in some cases it is unable to meet the needs introduced by severe environmental change, and in others it may be actively maladaptive. Support for migrants is needed to ensure that migration does contribute to sustainable development and the reduction of climate hazards, and for communities to reduce climate hazards at their origins (see e.g., Vinke et al., 2020; Gemenne, 2022; Jacobson et al., 2019).

Migration can be an important adaptive response to the difficulties of a changing climate. Sustainable policies must support access to migration; they must be just; and they must provide agency while also assisting affected populations.

Annex I. Vanuatu's National Policy on Climate Change and Disaster-Induced Displacement: an example of good practice

Vanuatu's *National Policy on Climate Change and Disaster-Induced Displacement*, ratified in 2018, provides an example of good practice in managing internal climate-affected migration. It sets out concrete ways in which to prevent, respond to, and resolve mobility in Vanuatu in the context of climate change and disasters. It acknowledges displacement's multi-causal nature, and recognises the importance of integrating into planning the perspectives of communities affected by displacement (Ferris, 2019). The policy (Government of Vanuatu, 2018) provides twelve strategic priority areas in managing migration in the context of climate change. Paraphrased, these are:

1. *Institutions and governance.* Durable solutions for displacement-affected communities are recognised to require a coordinated, pan-governmental approach with clearly articulated implementation responsibilities, including a 'first point of contact' for displacement response.
2. *Evidence, information and monitoring.* Responses to climate-affected displacement require multi-hazards risk mapping and vulnerability assessments to identify at-risk populations before disaster events, and to minimise post-displacement risk. They also require information on the profiles, needs, and mobility patterns of displaced populations.
3. *Safeguards and protections.* Those moving, especially at-risk groups, may be highly vulnerable. Government agencies should pay particular attention to the vulnerabilities and needs of disadvantaged groups.
4. *Capacity-building, training and resources.* To successfully implement policies, technical skills and knowledge is necessary. These include capacities to assess assets, socio-economic needs, and livelihoods; to track displacement; and to manage community engagement.
5. *Safety and security.* Displacement could affect the security of both migrants and host communities. Safety risks should be minimised wherever possible, through the implementation of policies to reduce discrimination; limit exposure to trafficking and exploitation; manage violence risk; etc.
6. *Land, housing, planning and environment.* Innovative, community-led processes for the negotiation of land and accommodation arrangements are recognised to be vital to resolving displacement crises. This is relevant in cases of return migration post-disaster; temporary emergency housing; managing rural-urban migration; and finding land for relocation, navigating communal tenure conventions.
7. *Health, nutrition and psycho-social well-being.* Access to medical care and mental health support is recognised to be important in cases of displacement. Health and medical needs are to be considered in displacement contexts and relocation planning.
8. *Education.* Access to education is to be ensured for all those affected by displacement, including internal migrants and host communities. Displaced communities should be located near schools, or schools should be established in new locations to meet needs.

9. *Infrastructure and connectivity.* All people affected by displaced should be included in infrastructure planning and should have equal access to water and sanitation; energy; transport; communications and ICT. Infrastructure should be repaired rapidly in areas of disaster; needs in informal settlements post-displacement should be met; infrastructure in destination areas post-relocation should be upgraded if necessary.
10. *Agriculture, food security and livelihoods.* Displacement and migration considerations are to be mainstreamed into national agricultural; fisheries; livestock; employment; and vocational education policies. Agricultural livelihoods in potential areas of origin should be maintained where possible, allowing durable solutions in situ. Various policy instruments, including small bridge grants or loans; retraining; managed internal labour migration; and micro-insurance options, are to be considered.
11. *Traditional knowledge, culture and documentation.* Displacement is recognised to endanger the continuation of community identity and knowledge. Efforts to be made to preserve traditions and knowledge in the event of movement. These include the use of traditional knowledge for adaptation; improved personal documentation for identification purposes; and mapping of family networks and land ownership.
12. *Access to justice and public participation.* Displaced or migrant populations, especially in the context of evictions, are to be ensured equal access to justice, including the right to appeal decisions of settlement location and circumstances surrounding movement.

Vanuatu's National Policy furthermore establishes actors responsible for the implementation of each priority area and sub-areas, and specifies that a monitoring and evaluation framework should be developed to assess the policy's success. This is vital to ensuring adequate management of a complex and evolving situation. Not all governments will need such a detailed plan of action. Where countries expect to have large populations exposed to climate hazards, however, and where those populations have limited in situ adaptation options, Vanuatu's National Policy could offer a valuable blueprint.

National policies governing the climate-migration nexus are best if they consider multiple intersecting areas of policy. These include health; infrastructure; accommodation; land and tenure; and other key determinants of the success of migration. This requires a whole-of-government approach, which must be coordinated by allocating responsibility clearly and establishing clear plans of action.

Part II. The global governance of the climate-migration nexus

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“To be effective,” Stephen Castles (2002: 874) notes, “[migration] policies need to be fair and to be perceived as fair by all the groups involved.” In the context of climate change, this is exceedingly difficult. Those moving due to reduced livelihoods are frequently citizens of states that made small contributions to climate change. The states that produced the most carbon emissions, typically far from migrants’ countries of origin, have little willingness to welcome migrants. The nearby states to which migrants are moving may have limited capacity to receive them, and migrants run the risk of becoming political footballs. A global agreement on the governance of climate-affected migration would be valuable. Climate change could result in both significant migration across borders—although dwarfed by internal movement—and significant need for relocation from uninhabitable areas. This section evaluates the extent to which current arrangements provide for international movement in the context of climate change, and considers the prospects for new initiatives. It concludes that any new global agreement is unlikely to be attainable.

5. Current international arrangements

It is frequently argued that the current international arrangements are ill-suited to the governance of migration in the era of climate change (see e.g., Williams, 2008; McAdam, 2014; Couldrey and Herson, 2015; Sagar, 2017), and that this results in normative gaps preventing people moving in climate-affected circumstances from acquiring a defined protected legal status (Gromilova, 2016). This sub-section briefly sketches relevant international agreements.

The New York Declaration and Global Compacts

The New York Declaration of the UN General Assembly, made in 2016, recognised the impacts of climate change, disasters and other environmental drivers upon migration, and endorsed pledges to strengthen protections for affected populations (UNGA, 2016b). It stresses that “migration should be a choice, not a necessity” (UNGAB, 2016: 43), and acknowledges the need both to reduce the environmental pressures that may incentivise migration, and to support host communities of refugees and migrants to reduce the environmental impact of increased populations. The GCM and GCR are non-binding, but represent “cautious steps forward in the recognition of the protection needs of climate migrants and the responsibilities of the international community” (van der Vliet and Biermann, 2022: 79).

The Global Compact on Migration

The Global Compact on Migration (GCM) was adopted in 2018, and sets out common pledges in the management of international migration. The GCM is non-binding, and was not agreed to by every country, but it nonetheless sets an important precedent in mainstreaming climate change within migration policy negotiations and in seeking to establish international cooperation in addressing the area. The GCM’s effectiveness in preparing states for responding to climate-affected migration

has been hindered by low implementation levels. At the International Migration Review Forum in 2022, the quadrennial meeting to assess GCM implementation, climate-affected migration was a frequent subject of discussion. It was recognised however that little progress on expanding options for international movement had been made (Huckstep and Dempster, 2022b).

Objective 2 (UN, 2018a: 9) refers to measures relevant to migration in the context of climate change, considering the need to reduce environmental pressures to migrate and the impact of environmental degradation. These highlight the need to invest in transversal governance issues contributing to resilience in the face of climate, including employment creation and decent work; resilience and disaster risk reduction; infrastructure; and gender equality. It furthermore sets out several areas for international cooperation in managing responses to cross-border climate-affected migration (10):

- States should improve joint analysis and information sharing to map, predict, and address movement, including those arising from climate-related factors;
- States should develop adaptation and resilience strategies responding to adverse effects of climate change, “while recognising that adaptation in the country of origin is a priority”;
- States should integrate mobility into disaster preparedness strategies, and should cooperate with neighbouring countries in planning for disasters;
- States should harmonise approaches at the subregional and regional levels, “ensuring that they have access to humanitarian assistance that meets their essential needs with full respect for their rights wherever they are, and by promoting sustainable outcomes that increase resilience and self-reliance, taking into account the capacities of all countries involved”.

These objectives all respond to both sudden-onset and slow-onset climate change. They also reflect a recognition of the need for multi-level governance, acknowledging the role of regional cooperation.

Objective 5 (2018a: 12), “Enhance availability and flexibility of pathways for regular migration” and Objective 7 (15), “Address and reduce vulnerabilities in migration” provide specific guidance for the facilitation of movement, some of which is highly relevant to mobility in the context of climate change. Among these are:

- The development of human rights-based bilateral, regional and multilateral labour mobility agreements;
- The facilitation of regional and cross-regional mobility, such as through free movement regimes;
- The involvement of local authorities in effective skills-matching within the national economy (a proposition potentially useful in facilitating improved rural-urban adaptive circular migration);
- Facilitation of family reunification measures following movement;

- Establish policies and partnerships that “provide migrants in a situation of vulnerability, regardless of their migration status, with necessary support at all stages of migration, through identification and assistance, as well as protection of their human rights” (23(b)).

The two most relevant and useful guidelines, both within Objective 5, are:

- The development of national and regional practices for “admission and stay of appropriate duration based on compassionate, humanitarian or other considerations for migrants compelled to leave their countries of origin owing to sudden-onset disasters and other precarious situations” for so long as “adaptation in or return to their country of origin is not possible” (21(g));
- Cooperation to “identify, develop and strengthen solutions for migrants compelled to leave their countries of origin owing to slow-onset disasters, the adverse effects of climate change, and environmental degradation, such as desertification, land degradation, drought and sea level rise, including by devising planned relocation and visa options, in cases where adaptation in or return to their country of origin is not possible”.

Objective 23 (39(b)), furthermore, commits states to deepen international and regional cooperation in cases in which irregular migration is the result of climate change and disaster.

The Global Compact on Refugees

The Global Compact on Refugees (GCR), also agreed in 2018, gives less attention to environmental displacement. However, it does recognise that “While not in themselves causes of refugee movements, climate, environmental degradation and natural disasters increasingly interact with the drivers of refugee movements” (UN, 2018b: 4). Countries affected by environmental degradation and disasters are thus able to access its responsibility-sharing mechanisms (Kraler et al., 2020).

The GCR in particular:

- Recognises the interactions of climate and environmental degradation with other drivers of displacement (2018b: D.8);
- Proposes that States may seek support from the international community, including via the UNHCR and IOM, in responding to the “complex challenges” of forced displacement resulting from environmental degradation and sudden-onset disasters (III.12);
- Acknowledges that States may need international support to mitigate the environmental impacts of hosting large numbers of displaced persons (2.6(78));
- Calls on the international community to support efforts to alleviate poverty and reduce disaster risks (D.9).

The GCM is important in attempting to mainstream climate-affected movement within international migration policy. However, it is non-binding, does not extend particular new protections to migrant groups, and is relatively unspecific. The GCR recognises the interaction of climate and other factors behind refugee movement, but is of less relevance.

UNFCCC processes

The place of climate-affected movement within the UN Framework Convention on Climate Change is somewhat uncertain. This is in large part due to concerns among parties regarding liability and compensation for losses and damages associated with climate change, as a result of which broad framings of climate-affected migration and its policy implications are adopted (Serdeczny, 2017).

The UNFCCC's 2010 Cancun Adaptation Framework differentiates between three categories of climate-affected movement: displacement; migration; and planned relocation (Blake et al., 2021). In not limiting itself to displacement, the framing opened the door to the use of migration as an adaptive tool (Geddes et al., 2012b). It urges (UNFCCC, 2010: II.14(f)) all parties to seek to implement "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". The Cancun Adaptation Agreement proposed for the first time that migration, displacement, and planned relocation should become part of National Adaptation Plans (NAPs) (Kälin and Schrepfer, 2012). It thus represented an important step forward; however, it is a non-binding instrument, and many countries have not yet integrated migration into NAPs. It is important that this changes. Migration affects and is affected by numerous direct and indirect impacts of climate change, and NAPs offer a valuable way of ensuring that these interconnections are recognised in policy planning processes (Warner et al., 2015). (See the section 'Integrating human mobility into NAPs'.)

Initially, migration at the UNFCCC was related to the adaptation workstream, and it only subsequently moved to the loss and damage workstream (Traore Chazalnoël and Randall, 2022). This opens up the possibility of loss and damage funding to support climate-affected migration under the Cancun Framework. This is a challenging issue (Vanhala and Calliari, 2022), although may become less so. Under the 2010 Framework, developed nations are required to *endeavour* to assist developing countries in adapting to the negative effects of climate change, but are not *obliged* to provide support (Gromilova, 2016). This latitude, and uncertainty regarding migration's political flammability, results in funding shortfalls (Huang, 2022). Support for a loss and damage-oriented approach to climate-affected migration had for some time received support from some states and several leading academic voices (see e.g., Huq et al., 2013), but appeared unlikely. Loss and damage negotiations are deeply political, requiring difficult negotiations; linking migration and climate change, both

politically sensitive topics, with liability discussions seemed unlikely to bear success (Calliari et al., 2020; Mayer, 2017). Despite this, the 2022 COP27 saw the creation of the loss and damage fund, with the Sharm el-Sheikh Implementation Plan (UNFCCC, 2022b: 44) including “forced displacement... [and] human mobility” within the loss and damage section. This may in time make it possible for climate-affected mobility policies and operations to be funded by climate finance.

The Cancun Adaptation Framework recognises the importance of migration in responding to climate change, including through planned relocation and through adaptive migration. The Sharm el-Sheikh Implementation Plan, by placing mobility within the losses and damage umbrella, may open up future funding streams for climate-affected mobility programming.

The Warsaw International Mechanism

Within the UNFCCC processes, the Warsaw International Mechanism (WIM) for Loss and Damage Associated with Climate Change Impacts—an expert body established in 2013—is prominent with regard to migration. From 2015, the WIM Executive Committee has incorporated a thirteen-member Task Force on Displacement (TFD), established with the adoption of the Paris Agreement (Traore Chazalnoël and Ionesco, 2022). The TFD is mandated by the UNFCCC COP to “develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change” (COP of UNFCCC, 2015: 50). Its main functions are to disseminate knowledge and support capacity-building. In 2018, the TFD’s recommendations were included in a WIM report presented to COP24. The report’s adoption was not disputed, recognising that the legitimacy of the inclusion of migration in discussions of climate change has grown considerably (Traore Chazalnoël and Ionesco, 2022). This may have contributed to an increased presence of mobility issues in National Adaptation Plans.

Attention is now turning to implementation of WIM recommendations at the national and regional levels (Traore Chazalnoël and Ionesco, 2022). The WIM TFD has mapped policies, knowledge, and data sources relating to the climate-migration nexus, and has made recommendations for national actions, with which some countries—such as Tajikistan and Kyrgyzstan—are starting to align their policies (Traore Chazalnoël and Randall, 2022). More widespread adoption of the TFD’s recommendations is, however, likely to require funding support. A systematised reporting process has also not yet been established, unlike in the case of the GCM (Traore Chazalnoël and Ionesco, 2022). At COP25 the Santiago Network was established with a view to supporting the operationalisation of WIM recommendations. Subject to the Santiago Network receiving adequate funding, it may be valuable in supporting capacity-building in developing countries (Secretariat of the PDD, 2022).

The Task Force on Displacement established under the WIM provides a knowledge actor, but operationalisation relies on capacity-building and funding.

Guiding Principles on Internal Displacement

The Guiding Principles, presented by the UN in 1998, are a global non-binding set of guidelines. The Principles contain thirty standards outlining the protections available to internally displaced persons, applying principles from humanitarian law and human rights. These have gained some adherence as a useful tool for managing internal displacement. The Principles are, for example, the basis for the Inter-Agency Standing Committee Framework on Durable Solutions for Internally Displaced Persons, and are also specifically invoked in Bangladesh's National Strategy on the Management of Climate—and Disaster-Induced Internal Displacement (Siddiqui et al., 2020). The Guiding Principles define an internally displaced person as anyone compelled to leave their places of residence “in particular as a result of or in order to avoid the effects of armed conflict, situations of generalised violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognised State border” (United Nations, 2004).

Accordingly, they also apply to those displaced internally due to environmental events. They do not give any special status to internally displaced persons: internally displaced persons are entitled to the same rights and protections as they would have had had they not been displaced. The Guiding Principles reflect international law, but are not exhaustive. They do not address protections for those moving as a result of indirect consequences of climate shocks, such as economic collapse following disasters. However, they address a number of specific protections, including protection from arbitrary displacement and arbitrary evacuation in the context of disasters, and oblige authorities to prioritise any feasible alternative to displacement.

Central to the Principles is the affirmation that primary responsibility for protection belongs to states (Ferris, 2019). Because the Guiding Principles are non-binding, they only become concrete if states incorporate them into domestic law (Cotroneo, 2018). Signatories to the Kampala Convention, the first binding regional legal instrument addressing internal displacement in the context of both conflict and disasters/climate change, are for example obliged to follow the Guiding Principles (Beyani, 2020); at least seventy further laws and policies protecting IDPs have also been adopted since 1998 (Nicolau and Pagot, 2018). They are considered to have been a successful soft law mechanism, having been used by numerous states (Cohen, 2001; Ferris, 2019), and have also been valuable in forging consensus regarding the understanding of IDP status (Russell, 2018). The implementation of the Principles and associated national laws, however, is often lacking. Even where Principles-informed law has been formulated, in almost a third of cases, they have not been implemented at all with regard to climate change (Orchard, 2019). Where implementation gaps occur, it is due to a lack of domestic political will (Dirikgill, 2022); a lack of resources; and a lack of technical capacity (Scott and Salamanca, 2020).

The Guiding Principles on Internal Displacement are not specific to climate-affected populations, but do provide valuable protections, including from arbitrary displacement. However, they are non-binding and have often not been fully implemented.

Kampala Convention

The Kampala Convention (its full name is the African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa) was adopted in 2009, and builds upon the Guiding Principles on Internal Displacement. Crucially, unlike the Guiding Principles, it is a legally binding instrument, and the first regarding internal displacement to cover the entirety of the African continent (Ferris, 2019; a previous legally binding instrument governing IDP treatment was agreed for the Great Lakes Region alone: see Boswijk, 2012).

The Kampala Convention was the first international treaty to place obligations upon states with regard to their response to displacement in the context of climate change (Beyani, 2020). It makes specific reference to persons displaced by climate change, and explicitly incorporates movement in the context of disasters. In so doing, it goes beyond the Guiding Principles and provides stronger protection to climate-affected migrants (Adeola, 2018). In Article V(4) (African Union, 2009) the Convention states that “States Parties shall take measures to protect and assist persons who have been internally displaced due to natural or human made disasters, including climate change.”

The Convention follows the Guiding Principles in enshrining the right not to be arbitrarily displaced, protecting potential migrants from obligatory movement in the context of resettlement. It furthermore follows the Guiding Principles in incorporating the right of IDPs to seek and receive assistance, intended to protect IDPs from the worst consequences of displacement.

The Kampala Convention’s aims are to:

- Reduce the causes of internal displacement, providing durable solutions in areas of origin;
- Establish a legal framework to reduce internal displacement, and to protect and assist those who are internally displaced;
- Increase cooperation between states in order to reduce and manage displacement;
- Set out the obligations and responsibilities of both state and non-state actors with regard to the prevention of internal displacement and protection of those internally displaced.

While the Kampala Convention is a pathbreaking instrument providing increased and binding protections, its implementation is still lacking (Beyani, 2020). An increasing number of states have ratified it: of the 55 African Union Member States, 31 have now ratified (the most recent being Ethiopia in 2020) (UNHCR, 2020b). In 2018 the African Union, with the support of the IOM, published a model law setting out how the Kampala Convention could be incorporated into domestic law for implementation (African Union, 2018), comprising over 60 articles. With regard to climate change, these articles stipulated that ‘competent authorities’ should “bear the primary duty to protect people and give particular attention to the special needs of the people most vulnerable to and most affected by climate change, environmental hazards, and other disasters, including IDPs, hosting communities and those at the risk of displacement” (African Union, 2018: VI(1)). This reflects an increasing and welcome ‘whole-of-government’ approach urged in the Kampala Convention’s implementation.

While accession and ratification have accelerated, however, implementation has not been fully successful. For IDPs' situations to be improved in practice, legal frameworks and policies need to be known and supported by all stakeholders; enacted; and enforced, where operationalisation is lacking. This can be challenging in states where political will is lacking, or where financial and human resources are insufficiently available (Cotroneo et al., 2019).

The Kampala Convention, governing IDP approaches in Africa, is a rare legally binding instrument and pathbreaking in its inclusion of climate-related displacement. It obligates states to reduce the causes of displacement and assist those displaced. However, implementation has lagged.

1951 Convention

The 1951 Convention on Refugees is the most prominent instrument for the protection of those forced to move internationally. However, it is widely considered not to be obviously applied to those migrating in the context of climate change.

The Convention (UNGA, 1951) limits refugee status to persons who meets *all* elements of the following definition: they must be outside their country of origin or habitual residence, and hold a “well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion”, which prevents them from being able to avail themselves of the protection of their country of nationality (UNGA, 1951: 1A(2)). Disasters, by contrast, are not actors. While those who are disadvantaged by human-created structures are certainly more exposed to hazards (Kelman, 2022), the climatic hazards themselves cannot discriminate, nor can a persecutor be identified in cases of environmentally affected displacement (Mc Adam, 2011; Rose, 2021). Although a limited number of exceptions have been identified (see Scott, 2019), the way in which the 1951 Convention has been interpreted makes it difficult for most people to establish that they have a well-founded fear of being persecuted when the conditions they face are not directly related to the intentional infliction of serious harm by a human actor of persecution.

Expanding the 1951 Convention is unlikely to be politically acceptable. In 2006 the Government of the Maldives proposed that the definition of a ‘refugee’ in article 1A(2) of the 1951 Convention should be extended to also include ‘climate refugees’; Bangladesh in 2009 made a similar proposal informally (McAdam, 2011). Migrant-receiving states, however, have more power within global migration governance, and have few incentives to increase their obligations. Experts at the IOM and elsewhere have furthermore warned that attempting to expand the 1951 Convention risks weakening the protected status of refugees currently recognised by the Convention (e.g., Ionesco, 2019). Both the UNHCR and IOM recommend against the use of any language of ‘climate refugees’, warning that the term “does not appear in international instruments and could create the misleading impression that a new legal category or obligations are proposed” (Garlick and Michal, 2022: 59; Ionesco, 2019).

Finding protection under the 1951 Convention

While an expansion of the Convention is unlikely there may be the possibility, in some contexts, for the Convention to be applied to climate-affected migrants. This is most likely to be the case where “in the risk reduction/preparedness phase, before a disaster occurs, or in the aftermath of a disaster, particular populations may be left out, leading to some being disproportionately affected or even targeted” (UNHCR, 2021: 157). Where the negative effects of climate change upon an individual are exacerbated by deliberate inaction on the part of the state due to membership in a particular group, dangerous levels of vulnerability and exposure to hazard could be argued to be ultimately the result of persecution, opening the possibility of refugee status (Kälin and Schrepfer, 2012; Garlick and Michal, 2022). In many cases, however, this is likely to have a negligible effect on total access to protection: a claim granted in this context would be granted for reasons of discrimination leading to serious harm, with the impacts of climate change incidental to the human activity.

This argument could be expanded. If vulnerability to climate hazards is not an inherent characteristic but socially constructed (see e.g., Kelman, 2022; Cannon, 2022), anyone moving as a result of climate-related hazards could be argued to be doing so as a result not just of climate, but also of social phenomena. If disasters are primarily social in nature, harm as a result of ‘natural’ disasters is in fact caused by structural violence committed *by agents* (see Scott, 2016). The UNHCR (2021), in a guiding note, suggests that governments’ choices to withhold or de-prioritise different forms of protection—such as post-disaster relief, but also conceivably pre-disaster investment in infrastructure—can constitute persecution. Weerasinghe (2018: 10), reviewing international protection in the intersection between conflict and disaster, notes that in cases of such nexus dynamics it will be especially important to “explain human factors and root causes” when considering applications.

Some analysts have argued that the protection envelope could be pushed further still. In the case of hazards exacerbated by climate change, emphasis could be placed on the *hazard as produced by an agent*, as well as *socially produced vulnerability to the hazard*. Climate change is the product of human activities, and is thus an indirectly agent-caused harm. In this context, “climate change is [itself] an injustice rather than a misfortune”, and the actor originating it could be argued to have a responsibility to provide access to movement where necessary (Gonzalez, 2020: 402). This argument does not yet appear to have been tested, but could be attempted in coming decades.

If the argument regarding socially produced vulnerability is followed, someone moving in the context of climate change could be justified in claiming refugee status as a result of agent-caused harms. Such a reframing of climate vulnerability and hazard exposure as persecution risks, however, excessively expanding the refugee concept under the 1951 Convention. This would be deeply unpopular among states. If this reframing occurs, it will be the result of a gradual change in judicial understanding of protection doctrines. This could have serious ramifications for the implementation

of the 1951 Convention by states increasingly resistant to their obligations due to domestic political incentives.

Will climate change increase asylum claims?

The extent to which climate events have thus far contributed to applications for refugee status is unconfirmed. One study (Missirian and Schlenker, 2017) finds that asylum applications to the EU increased when the country of origin's temperatures deviated from the 20°C optimal for agriculture, leading to the forecast that asylum applications will continue to rise as global temperatures increase. Abel et al. (2019) similarly find that droughts lead—in some areas only—to increased conflict, with a resulting increase in international asylum-seeking. Abel et al.'s findings disagree with Missirian and Schlenker (2017) in arguing that climate shocks contributed to conflict only in certain countries and within a certain narrow period—of 2010–2012. Abel et al. (2019: 246) argue that climate change “will not generate asylum seeking everywhere”, but will be more likely to occur from “a country undergoing political transformation where conflict represents a form of population discontent towards inefficient response of the government to climate impacts.”

A more recent study (Schutte et al., 2021) finds that when climatic conditions' effects on EU-bound asylum applications are evaluated relative to economic, political, and other contextual factors, they are weak predictors of asylum migration. This leads Schutte et al., like Abel et al., to argue that political changes in vulnerable societies are more likely to determine future asylum migration flows than climatic conditions. One study of asylum applications in Sweden found that during the period 2006–2019, fewer than 200 referred to hazard events (Ammer et al., 2022).

The 1951 Convention, due to its narrow definition, does not readily provide protections to climate-affected populations. It is therefore likely to remain of peripheral relevance unless the understanding of 'persecution' is significantly expanded. It is moreover uncertain whether climate change will cause more asylum claims to be lodged.

The Nansen Initiative, the Protection Agenda, and the PDD

The Nansen Initiative was established in 2012 following the 2011 Nansen Conference on Climate Change and Displacement, intended to help meet the protection gap for persons displaced in climate-affected circumstances. This was a response to the 2010 UNFCCC Cancun Agreements' call for increased collaboration and knowledge-building concerning climate change-related displacement (UNFCCC, 2010). The Nansen Initiative gave rise to the “Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change” (Nansen Initiative, 2015), which offers a toolbox for states and other stakeholders, consolidating the findings from numerous regional consultations. The Protection Agenda focuses on cross-border displacement, but

also covers numerous other areas, including internal circular migration; planned relocation; and internal displacement.

The Agenda is intended to provide a framework for response to diverse challenges before, during and after climate-related displacement events, and stresses the need for inter-sectoral coordination in planning and implementation. The Platform on Disaster Displacement (PDD) was created to support the implementation of the Protection Agenda in 2016. It has subsequently convened numerous discussions at the regional and international level, undertaking research, information-sharing, and policy development. The PDD has taken a notable role in supporting policy formulation, including assisting in formulating the Strategy for Climate and Disaster Resilient Development in the Pacific; the Free Movement of Persons Protocol created by East Africa's Inter-Governmental Authority on Development; and the Cartagena +30 and Regional Conference on Migration in Latin America.

The Nansen Initiative and its successors provide opportunities for the exchange of best practice, and are important in formulating adequate and adaptive policy.

Sendai Framework

The Sendai Framework for Disaster Risk Reduction 2015–2030 (UNISDR, 2015) was adopted in 2015 and signed by 187 countries. The framework focuses on managing risks, rather than consequences, of disasters, including the prevention of new risks. It conceptualises population movements as both a source of risks, and a means for increasing community resilience. It also recognises that migrants' knowledge, skills, capacities and resources can contribute to the development and implementation of disaster risk reduction approaches (Stojanov et al., 2021). The Framework recognises:

- That governments should engage with all relevant stakeholders, including marginalised groups and migrants, in preparing for disaster risks and in responding to them (UNISDR, 2015: 10; 18);
- That international cooperation is necessary in reducing the risk of transboundary issues, which would include cross-border displacement (18);
- That those displaced by disasters or environmental degradation should be given access to shelter, food, and other basic needs (21); and
- That migration can contribute to the growth of resilience and the reduction of risk (23).

The Sendai Framework views migration through a disaster risk reduction lens, and presents migration as both a source of, and means of mitigating, disaster risk.

1969 OAU Convention on Refugees

The Organisation of African Unity (OAU)'s 1969 Convention on Refugees is notable in using a broader definition of 'refugee' than the 1951 Convention, with the possibility that some moving in the context of climate shocks could be covered for protection (UNHCR, 2021). The Convention provides protection to (OAU, 1969: I(2)):

"...every person who, owing to external aggression, occupation, foreign domination or events seriously disturbing public order in either part or the whole of his country of origin or nationality, is compelled to leave his place of habitual residence in order to seek refuge in another place outside his country of origin or nationality."

The word 'events' in the term "events seriously disturbing public order" implies a wide-ranging understanding of justifications for movement (Adeola, 2022). The creation of this "expanded definition" reflected the political realities of a continent in flux during the immediate post-colonial period, within which a wide array of challenges related to the emergence of new nation-states were recognised to be likely to result in fluid causes of refugee movement (Okoth-Obbo, 2001: 137; Adeola, 2022). As of 2020, forty-eight of the 55 member states of the African Union, the OAU's successor, had ratified the treaty. Forty-six states had adopted domestic refugee laws, with the OAU's refugee definition referenced in the domestic laws of 37 states (Weerasinghe, 2020).

As in other cases the individual migrant must have been "compelled to leave his place of habitual residence" and cross a border *by the event in question* (Weerasinghe, 2020). The phrase "in either part or the whole of his country" precludes consideration of an internal flight alternative, (Sharpe, 2013; Wood, 2019b). Assessing whether there is a sufficient risk of serious harm from a disturbance of public order, warranting an international protection response, depends on (UNHCR, 2021):

- How the disaster unfolds and develops;
- The geographical proximity of the disaster to the person's place of habitual residence;
- The effects of the disaster on the life, physical integrity, liberty and enjoyment of other human rights of the claimant; and
- The response of the state of origin.

The Convention has not, however, always been implemented since 1969, and Okoth-Obbo (2001) notes a number of egregious instances of *refoulement* in contravention of the 1951 Convention as well as the 1969 Convention. The non-implementation of the 1969 Convention has led some to suggest that it may need to be revisited and updated (e.g., Okello, 2014).

The 1969 OAU Convention adopts broader grounds of justification for claim of international protection. Its clause regarding "events seriously disturbing public order" may be relevant to climatic shocks, allowing cross-border movement and stay.

Cartagena Declaration

The 1984 Cartagena Declaration, a non-binding regional initiative covering Latin America, follows the 1969 OAU Convention in adopting a broader definition of ‘refugee’ than the 1951 Convention. It recommends the extension of protection to (Colloquium on the International Protection of Refugees, 1984: III(3)):

“...persons who have fled their country because their lives, safety or freedom have been threatened by generalized violence, foreign aggression, internal conflicts, massive violation of human rights or other circumstances which have seriously disturbed public order.”

The Cartagena Declaration is included in a non-binding regional instrument, but has been incorporated into national laws and state practices by fifteen states in Central America, Mexico and South America (Cantor, 2018). As in the case of the 1969 OAU Convention, the Cartagena Declaration may also not require proof against an internal flight alternative (Weerasinghe, 2020). Its reference to disturbances of public order, following the 1969 OAU Convention, may allow states to provide protection to those moving in the context of disasters, but does not oblige them to: discretion in deciding the circumstances under which eligibility for protection is held remains with the migrant-receiving state. It may thus allow greater protection for those not covered by the 1951 Convention (UNHCR, 2021). So far, however, protections under disturbances to ‘public order’ have required governmental or political circumstances rather than circumstances related to disasters (Cantor, 2018).

The Cartagena Declaration is non-binding, but offers broader criteria for protection than the 1951 Convention.

BOX 4. Climate change, ‘public order’ and movement

Several instruments (such as the OAU Refugee Convention of 1969 and the Cartagena Declaration) state that access to a state or member states may be provided in cases in which ‘public order’ is disturbed. Others (such as the ECOWAS and IGAD Regional Free Movement Protocols) state that access may be suspended on the grounds of disturbance of public order.

There is also no agreed way of establishing whether a given case of movement is caused by public order issues. It has been suggested (Hansen-Lohrey, 2022) that ‘public order’ could be interpreted both narrowly—‘law and order’—and broadly, including concepts such as moral or social order, to admit more or fewer migrants. An interpretation of public order following Francophone jurisprudence (*‘ordre public’*) could lean towards an assessment based on whether public policy, respecting the rule of law and human dignity can be maintained. In this case, public order would be seriously disturbed when “the basic standards governing the State in its relation to the community

and its members” are suspended (Weerasinghe, 2020: 22; Wood, 2019b). In an analysis of the concept of public order with regard to the 1969 OAU Convention, Sharpe (2013: 15) notes that the phrase has in several cases been interpreted to imply “loss of governmental control and the inability or unwillingness of the government to regain such control.” Wood (2019: 307) notes that the 1969 Convention “draws no distinction between human and ‘natural’ events”. With regard to the Cartagena Declaration, Sharpe (2013: 16) notes that the UNHCR, when applying the agreement, has considered that international protection under its mandate is warranted where “serious (including indiscriminate) threats to life, physical integrity or freedom [result] from generalized violence or events seriously disturbing public order”. This is a more expansive interpretation.

Agreed indicators of public order, such as respect for the rule of law and maintenance of human rights, could be monitored in countries of origin to give guidance as to whether public order is indeed breaking down. This is important given that in assessing whether a given claim is valid, the central concern is whether “a serious disturbance to public order *exists as a matter of fact*, based on an assessment of available evidence” (UNHCR, 2021: 162), rather than the *causes* of this disturbance. The absence of an agreed definition and criteria for ‘disturbance of public order’ reduces the predictability of protection claims in the context of climate change. While recognising that it may be unwise to create a closed list of criteria, given the wide range of ways in which public order could be seriously disturbed (Weerasinghe, 2020), its definition and criteria could nonetheless usefully be discussed and harmonised, especially within regions sharing instruments.

The concept of ‘public order’ is important in several instruments, but has not yet been formalised. This could usefully be harmonised.

6. Imagining a multilateral ‘climate migrant’ policy

Recognising that the global protection regime does have holes into which those moving in the context of climate change may fall, there have long been calls for a new protection instrument explicitly and specifically addressing the needs of those displaced due to climate change (see e.g., Biermann and Boas, 2008). The first requirement, however, for any policy seeking to regulate the international migration of ‘climate migrants’ lies in the definition of the demographic being targeted. This is less of an issue for internal migration, during which migrants generally have access to most rights regardless of where they are in their state of origin (although as will be discussed, this is not always the case, with harmful results). In the case of international migration, however, during which decisions must be made regarding the acceptability of migrants’ claims to rights in states other than their country of origin, any policy seeking to give those moving as a result of climate change particular preference for access would need to be clear in defining the criteria to be met for qualification as a ‘climate migrant’.

The challenge of causality in the climate-migration nexus

Migration is the result of numerous factors, many of which are influenced by climate change, or which affect the impacts of climate events. When considering the reasons for an individual act of migration, it is extremely hard to disentangle factors related to climate change from other key factors, such as governance failures or economic downturns. This is especially the case with regard to slow-onset climate change (Traore Chazalnoël and Randall, 2022). This makes it very challenging to determine the target demographic for any programme proposing to use movement to protect those affected by climate change.

In Iraq, for example, climate change is having significant effects, with temperatures far exceeding their averages, and low precipitation resulting in water shortages. Large numbers are migrating to cities as agricultural land availability shrinks and rural livelihoods become unsustainable. However, the difficult circumstances from which people are moving is not solely the result of climate change: it is also the product of conflict; economic instability resulting in a poor investment environment; and of endemic corruption plaguing water governance (Younis, 2022). Syria offers a similar example. The effects of the 2007–2012 drought in north-eastern Syria coincided with increases in extreme poverty and increased rural-urban and regional migration. This has often incorrectly been attributed to climate change, which is argued to have created the conditions for conflict interacting with migration and resource scarcity (see Selby et al., 2017; Selby et al., 2022). Instead, the effects of the drought should be recognised to have been originated by increasing land tenure insecurity caused by privatisation and unequal redistribution, and by an agricultural policy that over-subsidised wasteful use of groundwater at a time when the population was also increasing rapidly (Mitchell and McEvoy, 2019). This means, Selby et al. (2017) argue, that the water scarcity of 2007–2012 was primarily due to political choices, not to climate change. Movement from such a context could not justifiably be given blanket protection under a ‘climate migrant’ regime.

Moreover, decision-making with regard to migration varies across and within communities exposed to the same stressors. Bardsley and Hugo (2010) suggest that decisions to move are taken when stressors cross ‘thresholds’, in which immediate stress caused by natural hazards, combined with the anticipation of such events in the future, surpass the decision-maker’s willingness to remain in situ. This willingness, however, is not mechanical. Much of what causes someone to move—or to remain—relates to interactions with people, culture, and place: it is subjective and normative (Ayeb-Karlsson et al., 2019). In a study of migration decisions in increasingly vulnerable villages in Chile, for example, villagers are found to prefer to remain where they feel “ontological security”—something that may not always mean the same thing (Weigel et al., 2021).

Relationships, mental situations, and other subjective factors determine resilience in the face of climate-related stressors (Waters and Adger, 2017), and also willingness to move. Sudden-onset disasters obligate short-term movement for survival’s sake (UNDRR, 2019a)—although not all, as

Ayeb-Karlsson et al. (2019) note, will move even in the face of a cyclone. Movement in the context of slow-onset disasters, by contrast, require a potential migrant to decide that the cost of remaining exceeds, in multiple dimensions, the cost of moving. Given the subjectivity of the costs being weighed up, and the variation in the value judgements being made across and within communities, there is no possibility of an ‘archetypal climate migrant’ in comparison with which individual cases can be assessed. It is thus unlikely, as numerous scholars have argued, that it will ever be possible to identify people for whom environmental change was the primary driver of migration (see e.g., Zetter, 2011; Boas et al., 2019; Geddes et al., 2012a). McAdam (2011: 13) concludes that “from a policy perspective, it would seem both practically impossible and conceptually arbitrary to attempt to differentiate between those displaced people who deserve ‘protection’ on account of climate change, and those who are victims of ‘mere’ economic or environmental hardship.”

Ascribing a given migration act to climate factors is very difficult. Migration is very seldom mono-causal. Deciding who should be given any new form of ‘climate protection’—and who should be excluded—is thus highly challenging.

7. Operationalising ‘climate migrant’ policy

If particular protections were established for those moving in particular climate-affected circumstances, they would then need to be implemented. Due to conceptual challenges, this is likely to hold further difficulties.

Setting acceptability thresholds

A key challenge in deciding who should have access to any new protection category lies in assessing where the ‘acceptability threshold’ for movement falls: in other words, whether a given migrant could have remained in their country of origin without suffering unreasonably. Different actors—and different potential migrants—will inevitably hold conflicting opinions of where the ‘acceptability threshold’ sits. As de Sherbinin et al. (2022: 12) remark, “anything short of death may, depending on one’s perspective, be deemed an acceptable alternative” to migration. Mobility occurs on a blurred continuum from voluntary movement to forced displacement (Carling and Schewel, 2018). In situations of slow-onset disaster, especially, it is very challenging to identify whether someone is moving to happily pursue new opportunities elsewhere, or moving unwillingly because their original circumstances have become untenable. In many cases, indeed, the migration act may be very mixed in motivation. As Dewan (2023) notes with regard to the misattribution of women’s migration from coastal Bangladesh, there is a risk of “a false binary” of “migration as ‘climate-induced’ vs. ‘non-climate-induced’” being deployed. In most cases political problems; gendered vulnerabilities; affective relationships; and misinformed development interventions are key complicating factors in individuals’ mobility choices.

An ‘acceptability threshold’ may be surpassed even in circumstances which are little affected by climate change. Madagascar, for example, currently faces a severe drought, resulting in more than one million people experiencing food insecurity. The World Food Programme (2021) warned that this could be “the world’s first climate change famine”. A rapid attribution study found however that the drought was not the result of climate change, and that the famine was the product of poverty and policy choices (Harrington et al., 2021)—a similar story to those in Iraq and Syria. For protection to be legitimately afforded to populations affected by climate change, they would need to face significant threats to their wellbeing. Differentiating between those facing climate-caused threats, and policy-caused hazards, would inevitably be arbitrary. If policy-caused harms are accepted to give justification for international movement, the protection demand would become unacceptably great. Two key questions are unavoidable in operationalising any concept of climate-related protection, considered below.

1. Did the area in which the migrant lived become ‘sufficiently uninhabitable’ as a result of hazards related to climate change?

This is a question closely related to the challenge of causality. Defining ‘uninhabitability’, or the point at which it is ‘justifiable’ to move away with the expectation of protection, is already very hard. Most habitability assessments are ‘top-down’, attempting to create uniform methodologies against which locations are assessed using quantitative models. This overlooks key factors in resilience and factors allowing habitation to continue, such as the role of mutual support networks (Horton et al., 2021; see also Waters and Adger, 2017; Adger et al., 2020).

Some cases are more clear-cut than others. It is likely that many atolls will be uninhabitable by the mid-21st century due to sea-level rise, which will increase wave-driven flooding and lead to the salination of groundwater sources in ways that will not be mitigable (Storlazzi et al., 2018). In these cases, in situ adaptation to climate change would not be possible, and any movement that resulted could be attributed solely—or at least overwhelmingly—to climate change. In other cases, however, the challenge of disentangling climate change-related factors from human factors returns.

This can be the case even for movement from small island states. Schwerdtle et al. (2018), for example, suggest that relocation away from the Carteret Islands was made necessary due to rising sea-levels caused by climate change. Connell (2016), however, finds that the construction of sea walls had caused accelerated degradation of the coast. Even in seemingly ‘clear-cut’ examples of climate change leading to migration—such as those of small island states—human agency and policy miscalculations are seldom easy to set aside. For bureaucracies charged with determining whether someone is making a climate—or policy-related claim, this makes the assessment very challenging. Even in individual cases, in which those charged with making assessments can interview claimants, migrants may not identify climate-related factors in movement unless prompted (Ficcarelli et al., 2022).

Borges (2019) argues that given the potentially unprecedented snowballing of socio-economic breakdown in contexts of high vulnerability and low adaptive capacity, it may be more productive to displace *causality* as the key focus in favour of *the rights of those affected*, and the extent to which they are exposed to intolerable harm. This requires, however, a definition of ‘intolerable harm’, raising again the challenge of the acceptability threshold; and may require setting timeframes within which this harm threshold must be exceeded if protection is to be triggered. Different interpretations of these parameters risk, firstly, establishing unjust subjective thresholds in policy; and, secondly, widening protection responsibilities to a politically unacceptable degree.

Political acceptability will itself depend on the framing of the protection responsibilities and the acceptability threshold. The Teitiota case focused on a rights-based approach to *non-refoulement*—itself different to cases relating to admission to a territory. In that case, the threshold related to *the denial of a right to life with dignity*. This can, as explained in the Human Rights Committee’s decision, occur before a person faces death but life has become so challenging that ‘dignity’ is no longer possible. Jurisprudence thus far suggests, however, that the threshold of ‘uninhabitability’ is likely to continue to be related to imminent risk of loss of life.

Differentiating between climate—and policy-caused hazards incentivising movement is very challenging. This would raise conceptual and practical problems in assessing protection claims made by international migrants.

2. Even if climate change was not the sole factor contributing to migration, did it result in the absence of an acceptable alternative to international movement?

The first question is unlikely to soon be often asked or plausibly answered in the affirmative. The second question is already being asked, but remains difficult to answer. The affording of additional rights to those moving in the context of climate change assumes that they are forced migrants and could not feasibly have remained in their area of origin. ‘Forced’ migration in the context of climate change occurs when the threshold of acceptability in the area of origin is surpassed, and life in that area is no longer considered tenable. Identifying where this threshold is, however, is highly subjective. As Schewel (2019) notes, any person moving will almost always have decided that the alternatives to movement were not acceptable; otherwise, they would not be moving.

Different people will have different views on the point beyond which life in a given location is unacceptable and migration is needed. Alternative adaptation measures, such as diversifying into less-attractive jobs (Rao et al., 2019) or pulling children out of school to work (Bharadwaj et al., 2022b), may be seen as more or less acceptable than international movement by different people in the same community. For some communities, even greatly increased poverty or risk is considered preferable to migration away from the area of origin (e.g., Østergaard Nielsen and Reenberg, 2010; Wiegel et al., 2021). The line at which the ‘acceptability threshold’ is drawn is thus inevitably arbitrary.

Most, however, will prefer to migrate internally rather than internationally (Bekaert et al., 2021). For states receiving international migrants claiming protection from hazards related to climate change, it is valid to ask why these migrants were unable to relocate to a safer location in their country of origin. In some cases—such as atolls (Storlazzi et al., 2018), and as argued in the Teitiota case—nowhere in the country of origin will sustain a reasonable standard of living. In others, there are domestic alternatives to international movement, even if they are less attractive. In a review of judicial responses to climate-related claims of protection in Austria and Sweden, this issue is identified as a key reason for refusals of protection (Ammer et al., 2022). The UNHCR (2021: 159) notes that an “internal flight alternative” may provide another option to international asylum, but that where the government is unwilling to provide adequate protection to populations, or where slow-onset effects of climate change spread across the country, internal relocation alternatives may be “neither relevant nor reasonable.”

Even where a place becomes ‘sufficiently uninhabitable’ to justify protection post-departure, there are likely to be other places within the country of origin to which migrants could move instead. This presents a difference between refugee and imagined climate-migration protections. Alternative flight options will however not always be present, and may become less available.

Vulnerability

Vulnerability is a crucial concept in any effort to determine who should have access to climate-related movement and to international protection. As a concept, however, it is contested and hard to pin down. The impacts of environmental change upon populations are unevenly distributed in the world. Developed nations are better-placed to respond to changing environmental conditions, both by virtue of their greater average relative distance from the equator, and thanks to their more resilient economies, political systems, and social protection provisions. Less-developed countries, by contrast, are more likely to rely on activities highly affected by environmental variability, such as agriculture. They are also likely to have worse education rates, lower financial resources for responding to shocks, and a lack of human and technical capital and institutional resources.

Borges (2019) suggests that while vulnerability is relatively ambiguous, it can serve as a useful “starting point” for framing areas where individuals are more likely to have need of legal protections in moving. However, vulnerability is also the product of a social context: it is a “relational” concept, shaped by human interactions. As a result, vulnerability is unevenly distributed across and within countries, and unevenly distributed at the community and even household level (O’Brien et al., 2008). Within human rights law, the concept of vulnerability has been challenged (Borges, 2019), with a tension often identified between group-based and universality-based understandings of vulnerability. The group-based understanding recognises that membership of particular groups—such as minorities; older people; women; ‘the poor’; or ‘inhabitants of particular locations’—may increase vulnerability to climate-related shocks. Membership of these groups could accordingly

afford increased likelihood of protection. The universality-based understanding recognises that in fact *all* people are potentially vulnerable, and that greater vulnerability to climate hazards occurs when social systems break down and the state's response is inadequate. This would see an expanded protection regime, open to more segments of society, which may in turn need a more demanding acceptability threshold.

Decisions regarding whether an acceptability threshold has really been passed, and whether a given case of migration was 'justifiable' in the sense that the migrant could not have reasonably been expected to remain in their area of origin, will always be taken by an outside observer, such as a judge in the receiving country. This observer would need to demand evidence of significant expected suffering in a non-migration counterfactual if a migrant is to be recognised as 'displaced.' This would require an assessment of the vulnerability to climate risks of the migrant in question, and the likelihood of serious harm befalling them. The nature of vulnerability, however, is again subjective, and hard to compare across cases. It is ultimately socially constructed, resulting from socio-economic and cultural factors as well as from natural hazards (Kelman, 2022; Cannon, 2022). Leboeuf (2022) warns that 'vulnerability', to climate or other risks, is unlikely ever to be legally definable in any comprehensive way, making it impossible to ever set thresholds against which given mobility acts could be reliably assessed. This issue is further addressed later in the paper (in the section 'Targeting by vulnerability').

The concept of vulnerability to climate hazards is important in determining which populations have greater justification in seeking protection. Assessing and comparing vulnerability levels is however extremely challenging, and may not be possible: it is affected by far more than climate factors alone.

The limits of place-based claims

Any claim for protected status on the basis of climate-related factors must be judged at a granular level (see Ammer et al., 2022). Information about the claimant's social situation, income, wider environment, and expectations of further shocks are all important. This raises challenges for bureaucracies assessing claims. With the possible exception of small island states rendered wholly uninhabitable by sea-level rise, it is unlikely that mere habitation of a given climate-affected state will be acceptable justification for movement to a third state. This will require receiving states to assess claims using more detailed information, which may impose onerous administrative burdens and take excessive time. This does already occur when considering eligibility for refugee status, but assessments for refugee status are arguably less complex than the assessments that would be necessary in cases of climate-justified migration, in which far more would need to be known by assessors than whether a claimant is a member of a group understood to be persecuted in the country of origin.

Some shortcuts may be possible. For example, a state could set specifications for entry according to geographical location, providing particular rights to those coming from an area of origin defined as a ‘hotspot’ according to their own criteria. One of these criteria could, for example, be significant risk of exposure to high wet bulb temperatures, limiting the possibility of work and endangering life. (Wet-bulb temperatures combine dry air temperature with humidity to measure heat-stress conditions. The maximum wet-bulb temperature endurable by a human is around 32°C (Vecellio et al., 2022)). If this criterion was chosen, individuals migrating out of areas considered at high risk of experiencing a certain number of days at high wet bulb temperatures would have the right to enter the receiving state.

This approach would alleviate the administrative burden on receiving states, which would otherwise need to assess each individual claim in depth according to its individual history. It nonetheless holds several risks.

Firstly, and fundamentally, there is the problem that the areas exposed to the worst climate hazards ‘in a vacuum’ may not be those whose populations are most vulnerable. Israel, for example, has worse water index scores than Sudan despite the two countries having very different real vulnerability levels (Selby et al., 2022).

Secondly, not all people in highly affected areas are highly vulnerable. Those who are most vulnerable may be unable to move. Indeed, those most able to move in the context of hazards may be those with the most resources, potentially in part because they had previously benefited from local power imbalances (e.g., Bharadwaj et al., 2022a).

Thirdly, even those in geographically delineated eligibility zones would be likely to be able to find acceptable alternatives domestically, disqualifying them from international protection (UNHCR, 2021).

Fourthly, a place-based system may incentivise undesirable behaviour, such as encouraging people aspiring to international migration to first move into areas understood to be a valid area of origin for ‘climate migrant’ status—or, more likely, to claim to be from that area. False claims may often be hard for assessors to disprove. If the burden of responsibility is placed on the applicant, however, it may also be hard to prove a genuine place-based claim. Following the 2023 earthquake across Turkey and Syria, for example, Germany established a visa fast-track scheme. This required applicants to provide documents proving that they were both a resident of a disaster-hit region and had been physically present at the time of the earthquake, a demand so difficult to fulfil that many Syrians who were initially interested in emigrating were unable to apply (Miller, 2023).

Fifthly, some areas prone to debilitating weather lack adequate weather stations, and accurately assessing the areas that meet chosen criteria may not always be possible. This is especially the case

in South America, Africa, and parts of Central Asia; in Africa, for example, only one in four weather stations in 2020 produced data meeting international standards (Cullmann et al., 2020).

Sixthly, vulnerability comparisons are extremely challenging. Vulnerability indicators are only reliable at very local levels (Hinkel, 2011), and different conceptual and methodological approaches give very different results, making it very hard to reliably compare areas for prioritisation (Crane et al., 2017). Increased engagement with private sector risk modelling could give improved results. Current efforts—such as the often-used Notre Dame Global Adaptation Initiative indices, which includes the World Bank’s discredited Ease of Doing Business Index among indicators in vulnerability assessment—are far from reliable enough for use in assessing protection priorities.

Some degree of place-based assessment is likely to be necessary in any more comprehensive protection regime. Assessing which regions have more ‘need’ of international movement, comparing vulnerability across contexts, is however very challenging.

8. The political needs for a global ‘climate migrant’ policy

Even if one assumes that a new global protection paradigm is desirable, any effort to establish one must contend with political reality. Currently, a new climate-oriented mobility protection regime appears unlikely to be politically acceptable. Even if one could be established, implementation would present a further hurdle. As McAdam (2011) notes, a treaty would not in itself ‘solve’ the governance challenges presented by an increased number of people moving in contexts of climate change: even where agreements are already present, implementation is often lacking. This is the result of a lack of resources, but also a lack of political will. The political will necessary for establishing a ‘climate migration’ protection treaty is unlikely ever to be successfully mobilised. Implementation would require yet stronger commitments.

The challenge of self-interest and ‘migration diplomacy’

“One of the defining characteristics of migration governance” is that it is fragmented (Kainz and Betts, 2021: 65). There is no global migration governance regime, and it is extremely unlikely that there ever will be. The fall of Belgium’s government in 2018 following disputes over the non-binding Global Compact on Migration (Cerulus and Wheaton, 2018) illustrates the difficulties facing any effort to establish a more binding supranational system.

International migration governance is fundamentally produced through systems of power and inequalities. Within these systems, the most important elements determining states’ preferences are their identities as migrant-receiving or migrant-sending, a structural relationship itself contingent on other factors, such as economic inequalities (Betts, 2011). Within these power asymmetries, weak states (more likely to be ‘migrant-sending’) seek multilateral governance, and relatively strong

states (more likely to be ‘migrant receiving’) veto it. States in these different circumstances have very different desires in migration negotiations (Lahav and Lavenex, 2013). The pursuit of these conflicting desires has been described as ‘migration diplomacy’ (Adamson and Tsourapas, 2019). ‘Migration diplomacy’ sees the management of cross-border mobility become an international issue over which states bargain, often through linking migration and other issues. The European Union, for example, has increasingly linked migration with development aid (Fine et al., 2019), providing more aid to countries willing to restrict migration (Tagliapietra, 2019). In some cases, the arguments for doing so are already explicitly or implied to be due to concerns about inter-regional climate-related mobility (see Scott, 2023; and the subsequent section on ‘Development interventions to reduce climate-affected migration’).

With regard to international movement in the context of climate change, the states expected to possibly send more migrants in the future are those that are unable to sufficiently adapt to changing conditions, often due to poverty and state weakness. The needs of these states have little relevance to wealthier, often distant, industrialised countries. Multilateral agreements obligating the protection of vulnerable populations are not attractive to countries that have the power to instead maintain a low-obligation status quo (Kälin and Schrepfer, 2012).

The global migration governance regime is fragmented, and currently operates according to states’ interests. Escaping this status quo requires high-influence states to vote against their narrow self-interest.

Legitimacy and increased protection obligations

Wealthy migrant-receiving states have little incentive to change the status quo of global migration governance. If they were somehow strong-armed into doing so, however, a new higher-protection regime may not last long. At present, the fragmented migration governance regime is state-driven. This reflects a pragmatic desire to maintain a system in which major states have veto power. If this veto power was given up, domestic imperatives would nonetheless be likely to see the new system swiftly abandoned.

Any international agreement for the governance of climate-affected migration, and any international organisations charged with ensuring adherence, would need to retain legitimacy (Tallberg and Zürn, 2019). Following the 2015 influx of migrants into the EU, for example, migration became increasingly politicised, leading to significant debates between EU Member States (Fröhlich, 2017). In the face of a crisis situation, states pushed back against constraints on domestic decision-making, and urged the scaling-up of externalisation efforts to reduce migration (Knoll and Veron, 2019). Börzel and Zürn (2021) use this trajectory as evidence for a wider corrosion of the liberal international order, proposing that the escalation of decision-making beyond the national level is increasingly challenged.

Migration, in particular, is susceptible to domestic politicisation by political entrepreneurs (Castles, 2004; Hutter and Kriesi, 2021), threatening the robustness of international agreements (De Vries et al., 2021; Capano and Jun, 2017). A new mobility governance paradigm extending obligatory protections to those affected by climate hazards would impose major new obligations on governments. Given fiscal challenges due to Covid-19 and the invasion of Ukraine, this would be politically challenging.

If a given country did adopt any hypothetical new protection obligation at a particular moment in time, it is very possible that a subsequent government would exit or not implement the agreement. An example of such behaviour is visible in South America. The Cartagena Declaration should have seen the more than five million Venezuelan citizens displaced since 2014 afforded refugee rights in neighbouring countries, with attendant protections. However, only Mexico and Brazil applied the Cartagena Declaration's refugee definition, instead choosing to regularise these migrants to avoid burdensome obligations (Guerrero Ble et al., 2020; Freier et al., 2022). The United Kingdom's decision in March 2023 to de facto suspend its adherence to the 1951 Convention for domestic political reasons offers a further example (UNHCR, 2023; Syal and Stacey, 2023). States are already reneging on current obligations: a binding new expansion of obligations will not be agreed, and any hypothetical agreements would be unlikely to be respected.

New protection regimes placing high obligations on states risk rapidly losing acceptance among citizens, leading to limited adherence and implementation, and ultimately to abandonment.

Moving to alternatives

If global rights-based protection regimes are unlikely to be successful at the scale required to address challenges relating to potentially larger numbers of people moving across borders in the context of climate change, alternative approaches are necessary. This requires looking beyond the global level, and beyond solely the rights-based regime. The international migration legal order is currently fragmented into three approaches (Lahav and Lavenex, 2013):

- An economic approach focused on facilitating mobility;
- A rights-based approach focused on the rights of migrants and refugees;
- A security-based approach emphasising the imperative of migration control.

Efforts to advance the governance of climate-affected migration may prioritise one of these broad focuses, or may attempt to link multiple or all areas. At present, the rights-based approach is on the wane, with a security-based approach increasingly prioritised in many of the areas most affected by climate change (Boas, 2015).

Challengingly, these issue-areas follow their own internal logics, are prioritised by different actors with varying levels of influence in different spheres, and have different priorities for regulation. Instead of occurring through unified systems, the governance of migration is thus “dispersed, diverse and contested” (Pasetti, 2019: 7), with responsible actors at multiple levels holding competing values, resources, and interests. Migration policy may be focused on one of these approaches, or attempt to address all three.

Within the international migration legal order, three basic visa categories predominate (Aydemir, 2020):

- Skill-based visas (labour migration);
- Kinship-based visas (family reunification); and
- Humanitarian visas broadly defined, including refugee pathways.

Within the economic approach sit regional free movement instruments and demand-driven labour migration policies; within the rights-based approach sits refugee protection and other forms of mobility directed by humanitarian imperatives. Straddling the economic and the rights-based approaches are family reunification visas. The entire system operates within the imperative of migration control, which limits the creation of new approaches and alters the framing of climate-affected cross-border migration (Boas, 2015).

If the search for a treaty securing global protection standards for ‘climate migrants’ is set aside, attention could be usefully shifted towards from the many available proactive options at the local, national or regional level (McAdam, 2011). How can this be done? It is evident that access to humanitarian pathways is currently inadequate, and likely to remain so. Family reunification visas will also never be sufficient for increased needs, and rely on the previous presence of a family member elsewhere. Instead the economic approach to migration, through regional economic communities or bilateral labour migration arrangements, holds high potential for increasing climate mobility options. This is especially likely if governments take steps to wed labour migration to a rights-based approach (as is discussed with regard to labour migration pathways elsewhere in the paper).

If global, rights-based regimes are unlikely to be politically acceptable, alternative approaches pursued at different governance levels or uniting rights-based approaches to economic approaches may be more plausible.

Alternative proposals for international arrangements

Beyond new protection regimes in the mould of the 1951 Convention, proposals have been made for more or less ambitious mechanisms in support of changing climate-affected mobilities.

Assistance for migration in the Lima Call for Climate Action

The Lima Call for Climate Action (UNFCCC, 2014: 17), published during COP20, called for the strengthening of institutional arrangements under the UNFCCC to “support the implementation of the commitments related to loss and damage”, including displacement. This included:

- Supporting emergency relief;
- Assisting in “providing organised migration and planned relocation”; and
- Undertaking compensation measures.

Unsurprisingly, the Lima clauses did not make it to the final text for COP21 in Paris in 2015; under fierce opposition from nations that feared being obliged to accept ‘climate migrants’, they were dropped from the draft agreement (Milman, 2015). Had the Lima proposals been included in the Paris Agreement, however, they would still have encountered operational challenges. As Mayer (2017: 122) notes, these proposals are “not clearly distinct from adaptation projects”; migration is an instrument in assisting populations in adapting to the effects of climate change. Furthermore, any coordination proposals face the same difficulty in differentiating between those moving in particularly climate-affected circumstances, who would fall within their remit, and those moving as a result of more general factors, who would not.

A comprehensive multi-stakeholder platform for norm-setting and coordination

More plausibly, Aleinikoff and Martin (2022: 2) call for a new mechanism “supporting and supplementing the many valuable sub-global processes and norms that already exist through sustained attention and increased funding”. The key areas of activity identified are:

- Mapping activities and responsibilities at the UN and global level;
- Developing a comprehensive and coherent approach to environmental mobility;
- Assisting regions and States regarding prevention, disaster risk reduction, planned relocations, data, monitoring, evaluation;
- Developing norms and template agreements; and
- Sharing best practices.

Many of these activities are already undertaken by one agency or another. The Platform on Disaster Displacement (PDD) works towards a more coherent approach to environmental mobility; the UN Office for Disaster Risk Reduction (UNDRR) leads in disaster prevention and risk reduction; and the IOM, Food and Agriculture Organisation (FAO), International Fund for Agricultural Development (IFAD), and UNHCR all conduct research into the climate/mobility nexus, propose policy, and implement programmes. While significant activity is already happening, Aleinikoff and Martin propose that a more coherent approach would be beneficial.

They suggest three possible models for undertaking this: a coordination mechanism; a lead agency; or a multi-stakeholder platform. A multi-stakeholder platform is proposed to be the best option.

A *coordination mechanism* could bring together the many actors working in the climate/migration space; however, this is not considered “likely to produce the synergies needed for comprehensive action across a wide range of fields and issues” (46).

A *new lead agency* could be identified which would assume responsibility for activities related to environmental mobility. Neither the IOM nor UNHCR, the two candidates for a lead agency role, are considered able to perform the necessary functions, in particular due to the size of their existing obligations and the likelihood of ‘turf wars’ inhibiting its establishment and operational success. It is noteworthy however that since 2015, when the IOM established its Migration, Environment and Climate Change Division, its capacities in this area have been growing (Traore Chazalnoël and Ionesco, 2022).

A *multi-stakeholder platform* is recommended as the best option. This would conduct research and create templates for best practice supporting national and regional efforts, but would not conduct field operations. This could allow a more proactive approach to the climate/mobility nexus, rather than relying on reactive and fragmented responses to disasters. The platform would complement and build on the work of the PDD, but would have a broader mandate to also consider anticipatory migration, planned relocation, and mobility in the context of slow-onset disasters as well as sudden-onset shocks. The platform would require an authorising body or bodies, such as the Secretary General or a ‘parent’ UN agency to establish its formation and functions. To ensure its legitimacy, representativeness, knowledge, and expertise, the platform would comprise:

- States;
- UN agencies;
- Civil society;
- The private sector;
- Affected populations; and
- Foundations.

To support the multi-stakeholder platform, a multi-donor trust fund and secretariat are recommended.

New inter-agency and inter-actor arrangements could allow better coordination of activities in the climate/migration space. This would be beneficial in making the most of the opportunities available short of significant new instruments. Given the wide range of issue areas present in the climate-migration nexus, a multi-stakeholder coordination platform is considered likely to be of use.

Annex II. The Teitiota case

The case of *Ioane Teitiota v. New Zealand* attracted significant attention in the international media and in subsequent legal studies. It illustrates both the limits of the 1951 Convention, and possible openings to its broader deployment for the protection of climate-affected individuals.

Mr Teitiota, from Kiribati, brought a case against the Government of New Zealand after overstaying his visa. With no other way of legalising his status, he applied for protection as a refugee in 2012, which was denied initially and on appeal. From Kiribati, to which he was deported, he in 2015 filed a complaint to the United Nations Human Rights Committee (HRC), arguing that his right to life according to Article 6 of the International Covenant on Civil and Political Rights (ICCPR) had been violated through his removal. He claimed that the effect of climate change upon sea levels was leading to salination of water sources on Kiribati and the erosion of land, resulting in overcrowding and disputes leading to an untenable and violent environment for him and his family. This claim was found to be admissible by the Human Rights Committee, following the New Zealand courts in previous hearings.

The Committee noted (2020: 9.7) that:

“A general situation of violence is only of sufficient intensity to create a real risk of irreparable harm under articles 6 or 7 of the Covenant in the most extreme cases, where there is a real risk of harm simply by virtue of an individual being exposed to such violence on return, or where the individual in question is in a particularly vulnerable situation.”

Teitiota’s case was not considered to be a “most extreme” case: the Committee found that Teitiota’s case “did not establish that he faced a risk of an imminent, or likely, risk of deprivation of life upon return to Kiribati” (UN HRC, 2020: 9.12), on the grounds that although “sea level rise is likely to render the republic of Kiribati uninhabitable ... the timeframe of 10 to 15 years, as suggested by [the claimant], could allow for intervening acts by the republic of Kiribati, with the assistance of the international community, to take affirmative measures to protect and, where necessary, relocate its population” (9.12). His case was therefore not found to reflect a violation of the *non-refoulement* obligation.

Nonetheless, the Teitiota case did open the possibility of future protections against return (Behlert and Diekjobst, 2020). The Committee found (9.11) that:

“...without robust national and international efforts, the effects of climate change in receiving states may expose individuals to a violation of their rights under articles 6 or 7 of the Covenant, thereby triggering the non-refoulement obligations of sending states. Furthermore, given that the risk of an entire country becoming submerged under water is such an extreme risk, the conditions of life in such a country may become incompatible with the right to life with dignity before the risk is realized.”

The Committee's findings reflect the expectation that states must "ensure that [human rights] are realized in practice as comprehensively as possible", 'fulfilling' their obligations (Kälin and Künzli, 2019: 88). This poses a potentially high barrier to the anticipatory movement to which the Human Rights Committee decision opens the door. Where state authorities are or should be aware of a possible environmental threat to the rights of their citizens, they must take "such protective measures as [can be] taken with available resources and might reasonably [be] expected to avert the danger" (Kälin and Künzli, 2019: 104). At present, arguments of future harm, as made by Teitiota, are likely to continue to fail. Projections of future hazard exposure are tempered by the expectation that many 'front-line' states, with support from the international community, will respond adequately to the effects of climate change. Climate change-related harms are currently insufficiently "actual or imminent" (4.5). In future decades, by contrast, when states facing major environmental hazards prove unable to adapt sufficiently to avoid violations of ICCPR rights, the Teitiota case may provide an important precedent. The case thus demonstrates the challenges in establishing adequate 'threshold points' at which future vulnerability should permit movement in the present; and the large role expected of states in preparing for the effects of climate change.

The case did not create any new protection status, and media reactions to the first 'climate refugee' (e.g., Godin, 2020) were not accurate.

The Teitiota case illustrates the growing importance of a human rights paradigm in climate-affected migration discourse. However, the ultimate judgement of the UN Human Rights Committee also establishes an extremely high bar for anticipatory cross-border movement on human rights grounds, placing great hope in states' adaptation activities.

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Most migration in the context of climate change is, and will remain, internal (Foresight, 2011). Internal migration in the context of climate change is largely rural-urban; it responds to agricultural stresses; and it is shaped by contextual factors such as gender norms. Mobility occurs at varying time scales. Short-term shocks—including sudden-onset events, such as hurricanes or flash floods—typically lead to temporary migration, in which people leave their area of origin to avoid a threat to life before returning when it subsides. Longer-term climatic trends, such as more frequent sudden-onset disasters; soil salinisation; or desertification, which leave livelihoods in areas of origin untenable, may lead to increased permanent migration (Selod and Shilpi, 2021).

These mobility patterns must be taken into account alongside other policy areas. Agricultural policies, for example, which incorporate weather changes but not out-migration of people in response to reduced yields, will result in unintended consequences (Wilkinson et al., 2016). Policymakers must see migration as *a part of*, not siloed from, wider systems. Areas of destination and areas of origin are frequently two sides of the same coin. This is a key part of the ‘translocal resilience’ argument, which stresses that households remain a single unit even if their members are in different locations (Sakdapolrak et al., 2016). Areas of origin and areas of destination are thus in interaction with each other; the experiences of migrants in areas of destination—which are affected by a range of other factors—will affect the lives of those remaining in the area of origin, including potentially their capacity to adapt to climate change and the likelihood of their own migration (Zickgraf et al., 2022).

Migrants to urban areas can play a vital role in supporting their communities of origin (e.g., Jha et al., 2017), but they may also struggle in areas of destination. This can in some cases lead to migration ultimately being *maladaptive*, with a net negative effect (Vinke et al., 2022). This is especially likely if migrants move into areas of increased hazard exposure, such as low-lying land in flood-exposed coastal cities (Ayeb-Karlsson et al., 2020; Kallergis, 2022). Many migrants may not have the skills necessary to flourish in their new locations (Wilkinson et al., 2016); they may also lack information regarding jobs, travel, accommodation, social support, and other key aspects of success during migration. This can increase the vulnerability of the migrant, and can negatively impact the outcome of migration for the community of origin (Gemenne, 2022). Support for both communities in areas of origin and migrants in areas of destination can increase resilience against climate shocks.

Without support migration may in some instances be impossible, with negative results for community resilience. While internal migration is frequently a coping or adaptive strategy through which communities respond to climate-related challenges, climate shocks can also reduce access to migration (Foresight, 2011). In poor countries, higher temperatures may result in reduced rural-urban migration due to liquidity shocks (Peri and Sasahara, 2019). This appears to confirm the ‘migration hump’ hypothesis (Clemens, 2014) in a new context, a finding confirmed in some studies of the income/migration relationship in climate-affected circumstances. It is possible however that the ‘hump’ hypothesis may not hold in areas so badly affected by climate change that migration becomes predominantly involuntary or ‘distress’ migration. For more discussion of this subject, see the section on ‘Development interventions to reduce climate-affected migration’.

Regardless of the impact of the migration ‘hump’, urbanisation will be a key aspect of the climate/migration nexus. Cities require support in preparing for increased in-migration. Cities will themselves face increasing challenges as a result of the urban heat island effect, which will see warming occur faster in urban areas than in rural environments (IPCC, 2022). They will also require support in integrating migrants: finding them work, accommodation, and social security. This is, given the fact of ‘translocal resilience’, important both for migrants in urban areas, and for the rural sending areas relying on their remittances.

Not all migration will follow the rural-urban pattern, however; the direction of movement is affected by the wider economic context and the extent to which the country or region is industrialised and urbanised. In a study of 29 Sub-Saharan African countries from 1960–2009, Henderson et al. (2017) find that adverse climate trends do result in rural-urban movement, but only where neighbouring urban areas have a manufacturing base that allows rural workers to gain better wages in export-oriented enterprises. Similar patterns are observed more widely. In agriculture-dependent nations with low levels of urbanisation, rural-rural migration predominates. Regions with high levels of urbanisation, by contrast, see more urban-urban movement (Tacoli, 2011).

In some cases, organic migration will not be sufficient, and planned relocation organised or facilitated by the state is necessary. Significant further thinking is necessary in this area in advance of more damaging climate hazards growing in frequency, especially given a very chequered record of success thus far.

Numerous policy areas are of relevance to internal mobility in the context of climate change. These include land tenure; healthcare; labour market governance; property insurance; urban planning; infrastructure development; service provision; and natural resource management.

BOX 5. Climate, conflict and migration

Studies of the effects of climate change have long suggested that conflict and consequent migration are likely results (e.g., Barnett, 2003). Displacement to areas of inadequate resources is argued to increase conflict over resource access, harming wellbeing and possibly resulting in further migration (Schwerdtle et al., 2018). In both areas of origin and areas of destination, complex relationships can develop between climate impacts, mobility, and violent conflict. Climate change is often described as a ‘threat’ or ‘stress’ multiplier, within which migration is affected by or affects conflict (e.g., ACCES, 2010; Werrell and Femia, 2015). For example:

- In Assam, climate change is argued to exacerbate tensions between Bodo tribes and Bangladeshi migrants already in periodic conflict: prolonged floods and soil erosion caused by glacier melt has harmed livelihoods (Bharadwaj et al., 2022b).
- In the Lake Chad Basin, water use and sharing conventions are disrupted by the arrival of migrant populations, with inter-community tensions occasionally resulting in conflict

where negotiations over resource use fail (Nagabhatla et al., 2021). These tensions can incentivise onward migration, or may result in undesired immobility where resources are lost or inaccessible.

However, the narrative of climate effects leading predictably to conflict, and thence to conflict-driven migration, is increasingly challenged (see e.g., Brzoska and Fröhlich, 2016; Buhaug, 2016; Beaumont and de Coning, 2022). Just as climate change does not deterministically lead to migration, it also does not lead linearly to conflict (Wiederkehr et al., 2022).

Conflict is primarily the result of governance failures, often at the subnational level, which lead to a breakdown in non-violent negotiations of the allocation of power (Justino, 2018; 2013). Resource constraints, including those exacerbated by climate change, can increase the likelihood of violence, but they are neither necessary nor sufficient causes. Equally, wider ramifications of climate change, such as income shocks, can also contribute to increases in the likelihood of violence—but only if there is already a fragmented political economy (World Bank, 2011). Institutional arrangements are crucial. A study of relationships between food prices, conflict, and climate in 24 African states from 1997 to 2010, for example, finds that there are positive feedbacks between anomalously dry conditions, food prices, and violence, but that these are mediated by institutional arrangements (Raleigh et al., 2015).

To manage these conflict risks—and reduce spillover effects of conflict—local institutions capable of supporting adaptive agriculture and managing markets are needed. Where government interventions are sluggish due to disorganisation, corruption, or discrimination, conflict and attendant movement may be more likely—as is argued to have occurred in Syria (Mitchell and McEvoy, 2019). The effects of climate-related stressors are determined by the reactions of governance actors. A country with very difficult climatic conditions might fare far better, including in avoiding conflict, than a country with better climatic conditions—such as larger water reserves—but worse governance systems (Selby et al., 2022; Furlow, 2022). The complexities of these systems means that uncertainty in the climate-conflict linkage is “unlikely to be eliminated or even reduced” (Mach et al. 2020: 4).

When considering the climate-migration nexus, conflict must be incorporated into scenario planning exercises and policy formulation. Conflict and migration are often addressed in siloes, as are other relevant policy areas (such as livelihoods, water management, and skills training). Actors in these different areas should coordinate to ensure that interventions do not destabilise what may be fragile situations.

The relationships between climate change, conflict, and migration are complex. They are important and must be taken into account, but they do not interact linearly, and attributing causality to climate is doubtful.

9. Planned permanent relocation

An increasing number of households and communities inhabit areas that will be highly affected by climate change. In some cases, these effects will make it impossible to sustain an adequate standard of living: this may be due to the collapse of livelihoods, caused for example through salination of crop fields, or through outright danger to human life (Arnall, 2018). Where this occurs, populations may have no choice except to leave (Boston et al., 2021). Often, however, due to the depletion of assets by climate-related income decreases and expenditures, those who are most affected cannot move. Planned relocation, undertaken by the state in consultation with affected communities, may protect these populations from further negative impacts, reducing unbearable risks (Ferris and Weerasinghe, 2020).

Planned relocation is pre-emptive evacuation, with the aim of avoiding future displacement and loss of life and possessions. If evacuation is temporary the movement of persons away from an immediate threat of or ongoing disaster (McAdam, 2022a), and displacement is understood to be longer movement with the possibility of return (Noorda, 2022), ‘planned relocation’ is a further, more organised responsive activity, intended to be permanent (McAdam and Ferris, 2015). A joint study (Georgetown, Brookings, and UNHCR, 2015: 5) defined it as:

“a planned process in which persons or groups of persons move or are assisted to move away from their homes or places of temporary residence, are settled in a new location, and provided with the conditions for rebuilding their lives. Planned Relocation is carried out under the authority of the State, takes place within national borders, and is undertaken to protect people from risks and impacts related to disasters and environmental change, including the effects of climate change. Such Planned Relocation may be carried out at the individual, household, and/or community levels.”

‘Relocation’ is often used synonymously with ‘resettlement’ (Noorda, 2022), although given that resettlement has a defined legal meaning in international refugee law (UNHCR, 2011), this is erroneous and should be avoided (Georgetown, Brookings and UNHCR, 2015). As a concept, it is not new; the transfer of populations from areas perceived dangerous to safer locations has been practiced since the 18th century (McAdam, 2015). Nor has planned relocation always been undertaken due to climate-related disasters; overpopulation and development projects, among other reasons, have also been justifications for population movement.

Risk management in planned relocation

Planned relocation has the potential to reduce disaster risk, but contains risks of its own. Historically, many analysts have suggested that the risks involved strongly disincentivise planned relocation efforts. The UNHCR (2015) recommends that it should always be an option of last resort; UNDRR (2019a: 38) similarly suggests that “*when other options have been exhausted*, planned relocation may be the most effective way to save lives and reduce displacement risk” [italics added].

McMichael (2012: 649) recommends that “for reasons of health alone”, planned relocation to avoid vulnerability should be avoided. Other risks include inadequate housing in the area of destination; mental health challenges following movement away from land key to perceived identity disruptions of livelihoods; and problems relating to community structures and traditional values (McMichael and Powell, 2021). This is especially likely to be the case when multidimensional determinants of success—such as labour market access and livelihood availability; attitudes in the area of destination; hazard exposure in the area of destination; and infrastructure provision—are under-considered (Nalau and Handmer, 2018). In the case of famine-related relocation in Ethiopia in the 1980s, the lives of many of those relocated were worsened, despite the fact that they were moving out of famine-struck areas (Kloos, 1990). Eriksen et al. (2021: 5) cite more recent relocations of pastoralists in Ethiopia as an “extreme case of [a] top-down intervention *introducing vulnerability*” [italics added].

Increasingly, however, it appears to be accepted that planned relocation will be necessary in many contexts. The language of ‘last resort’ may thus start to be reconsidered (see e.g., Ferris and Bower, 2023). Where relocation is adequately planned and undertaken in a consultative way, for example, it is now accepted to have potentially positive outcomes for health by protecting people from hazards in the area of origin (McMichael and Powell, 2021).

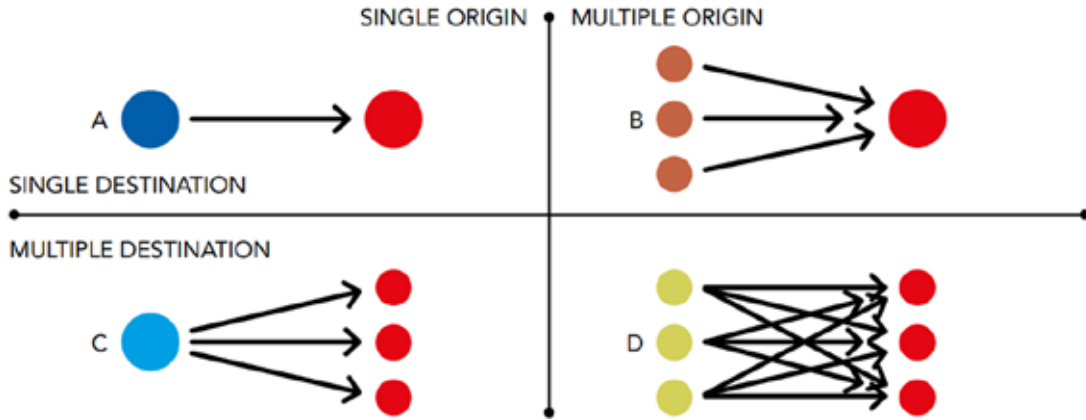
Where relocation does occur, it should always be based on consent, but is sometimes relatively arbitrary—as is frequently the case around development projects (e.g., Randell, 2016)—increasing the likelihood of resultant harms. In the case of the Carteret Islands in Papua New Guinea, for example, community members deemed relocation necessary after over 50 percent of the island land coastal erosion reduced the islands’ landmass by 50 percent since 1994. The community relocated to another island some 100km away, providing adequate land space and access to traditional fishing grounds. Many residents believed they would be worse off after moving, however, and preferred not to be relocated (Connell, 2016; Schwerdtle et al., 2018).

Relocations may also fracture community structures. This may be especially likely if relocated populations come from multiple locations or need to be dispersed across multiple locations due to a lack of available contiguous space. Bower and Weerasinghe (2021) provide a useful typology of patterns of planned relocation (see also Figure 6):

- **Single origin—single destination.** In the most common form of planned relocation, a single community or group of households is relocated to a single destination site.
- **Multiple origin—single destination.** In some cases, multiple communities or groups of households from separate sites of origin were supported in relocating to a single site of destination.
- **Single origin—multiple destination.** Where not all households from a single community or site of origin can be relocated to the same destination, households may be supported in relocating to separate destination sites.

- **Multiple origin—multiple destination.** In some cases, groups of households or communities from separate locations of origin are supported in moving to multiple sites of destination, with no measures put in place to ensure that the majority of households from any shared single origin site remain together at the destination. This has for example occurred in relocation projects in Ethiopia and Vietnam.

FIGURE 6. Typology of planned relocation spatial patterns



Source: Bower and Weerasinghe (2021: 19).

In some cases—as has occurred in the Pacific—local populations in the area of destination have also been resistant to the arrivals, leading to social tensions (McAdam and Ferris, 2015). This illustrates the importance of undertaking consultations at both the area of origin and the area of destination.

Planned relocation can reduce risk. The risks it carries itself means that it should in most cases be an option of last resort: nonetheless, it must be expected and planned for.

Political economy requirements in planned relocation

In planning relocation, furthermore, there are important political economy factors to be accounted for. In a study of planned relocation in West Bengal, authorities are found to be risk averse, seeking to avoid responsibility for potential negative consequences. In the absence of a single consistent and enforced resettlement policy, government responses are uneven, with relocation occurring according to varying levels of state interest and power. This resulted in uneven implementation and socioeconomic disparities between those affected (Mortreux et al., 2018). These examples demonstrate the importance of consistent community engagement; forward planning; and a unified, cross-government approach to relocation policy, spanning different policy siloes. Community engagement must be present in areas of destination as well as areas of origin, to avoid conflict and lack of access to necessary resource and services.

Permanent internal movement requires close engagement with both those moving, and those in the area to which communities are being moved. The case of the Biloxi-Chitimacha-Choctaw Tribe of the Isle de Jean Charles in Louisiana offers an example: the community had been advocating for their facilitated relocation to mainland Louisiana for nearly twenty years, and was enabled to do so through a \$48 million grant in 2016 provided by the Department of Housing and Urban Development (Boyd, 2019). The receiving community nominated, however, resisted their relocation, arguing that their presence would exacerbate flooding risks. The relocation programme furthermore endangered the tribe's land rights in their area of origin, presenting them with an unwelcome trade-off (Rothschild, 2019). They therefore did not move. In the case of relocations in Fiji, by contrast, close engagement with affected communities, and adequate funding and planning for relocation, allowed movement to occur in a well-managed manner (Moore, 2022).

Planned relocation involves political calculations, and results may be harmed by particular interests. For success, communities in the relocation and destination areas must be closely involved in planning and implementation.

Principles in implementing planned relocation

Three key principles of adaptive planned relocation are identifiable in the literature (Arnall, 2018):

1. **Relocation as adaptation is a matter of last resort**, to be undertaken only when necessary and unavoidable. In some cases, relocation may not become unavoidable for several decades, and communities can happily and productively remain in situ. In others, pre-emptive relocation may be better undertaken even decades before it is unavoidable without loss of life, in order to avoid unproductive path dependent processes.
2. **Adaptive relocation should be voluntary**, providing communities with the choice of whether to move or stay. This is ethically preferable, but may not in fact always be possible. De facto obligatory movement through strong disincentives to remain have already been used in some cases.
3. **Adaptive relocation should be developmental**: those relocated should be no worse off following relocation and, ideally, should see improvements in their wellbeing. This is far from always the case. Even for those participating in the same programme—such as relocation following Hurricane Sandy—outcomes may vary substantially (see Koslov et al., 2021; McGhee, 2017). Many of those self-relocating in the face of climate change-related consequences suffer depression and anxiety due to social and physical losses caused by hazards and movement (e.g., Ayeb-Karlsson, 2021). Those participating in relocation programmes appear similarly at risk of negative results (Chung et al., 2022).

To succeed in implementing planned relocation, five cross-cutting elements are needed (Georgetown, UNHCR and IOM, 2017):

1. Establishing and complying with an appropriate legal framework;
2. Understanding and addressing the needs and impacts of planned relocations on affected populations;
3. Providing information to, undertaking consultation with, and ensuring the participation of affected populations;
4. Understanding and addressing complexities related to land issues; and
5. Undertaking monitoring and evaluation, and ensuring accountability.

Relocation frequently occurs in the absence of one, several or all of these elements (Bower and Weerasinghe, 2021). This is the case despite the fact that fifty of the 102 nations to have submitted National Adaptation Programmes of Action to the UNFCCC mention relocation or managed retreat in their plans (Harrington-Abrams, 2022). Relocation plans are especially prominent in Pacific Island States (Ferris and Weerasinghe, 2020). Examples include:

- Vanuatu's National Policy (Government of Vanuatu, 2018) includes clauses on planned relocation.
- Fiji's Planned Relocation Guidelines, published in 2018, were the first national framework for guiding internal relocation processes. By 2020, Fiji had fully relocated the populations of five coastal villages endangered by sea-level rise (Goering, 2020); as of 2022 a further village had been moved and 43 in need of future relocation had been identified by the government (Huckstep and Dempster, 2022b). Activists have suggested that as many as 795 more communities will need relocation in the future (Elliott and Needham, 2022).
- New Zealand has begun the process of developing detailed planned relocation policies over recent years (New Zealand Ministry for the Environment, 2022). Its 2022 National Adaptation Plan contained a chapter on managed retreat, and it anticipates passing legislation by the end of 2023 (New Zealand Government, 2022).

Relocation is becoming more frequent and better organised, especially in the Pacific. However, it has historically often fallen short of best practice.

Funding planned relocation

As experience of planned relocation increases and policies become better developed, funding for such initiatives is likely to gradually become more accessible, including through new loss and damage mechanisms. As Ferris and Weerasinghe (2020) argue, it is important that support is given to allow national and local authorities, with potentially affected communities, to begin to plan and prepare for relocations. This includes:

- Reviewing legal and policy frameworks to assess adequacy;
- Reviewing environmental and community risk assessments, and the likelihood of relocation being required to mitigate risk;
- Developing capacity to plan and undertake relocation, including through knowledge sharing; and
- Taking inventories of knowledge held about affected communities, including information on land tenure and demography.

International actors have an important role to play in funding, supporting human capital growth, and facilitating knowledge transfers in the planned relocation space. If planned relocation is to be successful, furthermore, timing will be crucial (Siders et al., 2021). To minimise disruption to individuals, communities, and economies, relocation must be managed to take place over time. This requires a prioritisation of movement by government actors.

Relocation costs and funding regime gaps

Current funding regimes are not yet prepared for planned relocation, and relatively little research has been conducted into possible future regimes. Relocation programmes are typically expensive. The relocation of the Biloxi-Chitimacha-Choctaw Tribe in Louisiana was funded at US\$48 million in 2016 (Boyd, 2019). The relocation of the Vundigoloa and Narikosa communities in Fiji is understood to have cost nearly three times more than the anticipated US\$360,000. Moreover, while it was originally intended that the government would pay for 75 percent of the relocation costs, with the relocating community funding 25 percent, local media reported that the local communities were unable to fully match their expected funding (Tronquet, 2015). Ultimately, it was only with EU funding that the relocation project was completed (Moore, 2022).

These movements are seldom straightforward. They may often involve the loss of valued assets, including homes, businesses, and land. In many locations, state support for communities leaving their areas of origin will be necessary, but policies can carry large risks. In the United States, federal buyout programmes of individual properties have started to be scaled up (Flavelle, 2019; Siders, 2019b), including the facilitated movement of whole villages (Davenport and Robertson, 2016). Funding for ‘managed retreat’ within the United States comes from the Hazard Mitigation Grant Program or Flood Mitigation Assistance Grant Program, managed by the Federal Emergency Management Agency (FEMA); or from the Disaster Recovery Buyout Program, managed by the Department of Housing and Urban Development (Freudenberg et al., 2016). In other countries, less funding may be available.

Planned relocation is expensive, and often costs more than expected. Many countries will struggle to cover the costs.

Engagement with the insurance and real estate sectors

The extent to which the government prevents and covers damages, including post-disaster relocation, is crucial to insurance, and public-private coordination in funding will be essential as the effects of climate change grow. This will have enormous impacts upon migration decisions, affecting mobility decisions through housing prices. Current insurance regimes in the United States have not yet been fully updated to account for increased risk of significant, frequent, and unpredictable damage. At a March 2023 United States Senate hearing, the president of the insurance firm Aon declared that climate change-related uncertainties have created “a crisis of confidence around the ability to predict loss” (Frank, 2023). Prices are increasingly being revised to reflect changing circumstances. In the January 2023 renegotiations the cost of property catastrophe reinsurance rose globally by an average of 37 percent, driven by increasing risks of climate-related shocks (Smith, 2023). Some reinsurers are already exiting the property market in anticipation of unpredictable and costly climate risks (Smith, 2022b).

This will have knock-on effects upon insurance markets. In Australia, one in twenty-five properties are expected to be wholly uninsurable by 2030, with a further nine percent of properties facing annual damage costs of 0.2 percent or more of the total replacement cost (Hutley et al., 2022). In much of Europe, private insurance has become the primary safety net in flood incidents, with the flood insurance sector increasingly deregulated. In this context pricing is “entirely market-driven, leading to the exclusion of low-income groups or insurance being unavailable at any cost” (Tubridy and Lennon, 2021: 527). As extreme weather events become more frequent, this will lead to increased impoverishment of those in uninsurable houses exposed to hazards, and increased need for relocation with a greater burden placed upon state actors.

New Zealand offers an example of a country where this issue is increasingly recognised. New Zealand’s 2022 National Adaptation Plan lists “develop options for home flood insurance” among its nine ‘critical actions’ for adaptation (New Zealand Government, 2022: 16). Following the impact of Cyclone Gabrielle in early 2023, the discussion of how best to rebuild and adapt after disasters has accelerated. An estimated 675,500 New Zealanders live in inland areas identified as prone to flooding and likely to face increased exposure due to climate change, while more than 72,000 further people are exposed to coastal flood risk (New Zealand Ministry for the Environment, 2020). During Cyclone Gabrielle over 10,000 people were displaced by flooding (Sowden, 2023). Many homeowners have a ‘total reinsurance’ policy, which entitles them to compensation if their house is destroyed or made uninhabitable, but will not cover the cost of the property. This incentivises households to rebuild in situ, even if they would rather sell and relocate. As hazards become more frequent, even this imperfect insurance is likely to become prohibitively expensive in many of the most affected areas; retreat by insurance providers is considered “inevitable” (Morton, 2022).

In some cases, governments will wish to challenge assessments made by private market actors. These could for example be cases of excessively cheap insurance or property prices incentivising settlement in areas that will become uninhabitable in unacceptable timeframes (see e.g., Gourevitch et al., 2023); they could also be cases in which insurance premiums are considered to have been raised to unacceptably high rates in areas in which governments either do not anticipate hazards to be excessive, or in which adaptation investments are planned. For such outcomes to be avoided, insurance actors will need to be aware of planned government investments, and governments will require a better knowledge of the factors behind insurance actors' risk calculations. Companies' modelling, however, is often held in a 'black box' model, which makes scientific critiques of their methodologies impossible. This is risky: if the models are bad they can dangerously heighten hazard exposure, and if they are good they may create inequities. Governments wishing to challenge their assessments—which, given the uncertainties in climate modelling and the effects of policy, may have significant flaws—are thus forced to create alternative models, which may be beyond the capacities and budgets of state actors. There are two prominent options, not mutually exclusive, for responding to this issue (Condon, 2023):

1. States could invest in climate risk modelling at a far greater scale, in order to reduce their dependence on commercial models often poorly understood by government actors.
2. Actional and transparent climate information services could be declared a public good, with black box models obliged to become more accessible. This would recognise both the immense importance of risk assessments to adaptation, and the large role of publicly funded research in the creation of these privatised models.

At the operational and funding level, the gulf between government policy and insurance market responses is likely to grow without closer collaboration. A solution could be to make government actors and residents of at-risk areas pay more insurance and more of post- or pre-disaster costs. This however risks widening wealth inequalities and, in some contexts, harming people who are already vulnerable in other respects. It may also lead to government bodies shouldering an excessive portion of the insurance burden. In California, the state-run plan providing insurance to those unable to afford commercial plans has now accumulated a US\$332 deficit, and with limited reinsurance options could be pushed into insolvency by a major wildfire. A similar state-run plan in Florida has tripled in size since 2019; across the United States, state-run plans increased by 29 percent between 2018 and 2021 (Frank, 2023).

Before public finances are devastated by greatly increased insurance and reinsurance prices, decisions will have to be made regarding areas to be deprioritised for reconstruction and support. In the United States, real estate worth \$1.4 trillion is located within 700 feet of the coastline; if one-tenth of owners retreated from the coast at FEMA's expense, it would cost \$140 billion—thirty times what FEMA has spent on relocation and managed retreat in its history (Siders, 2019a). It is assumed that preparations in many other countries will be still less well developed than in the United States, but this is an area in need of more research (see Ferris and Bower, 2023).

Funding arrangements require close collaboration with the insurance industry, both to facilitate movement where necessary and to ensure that insurance premiums do not rise to prohibitive prices. Avoiding dangerous public-private divergence, with large subsequent costs, may require greater openness of commercial risk modelling and increased state investment in granular climate risk modelling.

Options for creating viable funding regimes

Creating viable funding regimes is vital to permit future planned relocation. Where planned relocation has occurred so far, it is most frequently in the context of sudden-onset events, in which cases insurance is more likely to be at least partially liable. Domestically, the four actors that may cover the costs of planned relocation are:

- Central government;
- Local government;
- Insurance companies (public or private); and
- Relocated communities themselves.

Government funding mechanisms are likely to work best in areas where there are lower levels of public sector corruption, high transparency, and public accountability. Where corruption levels are higher, suspicion of land grabs is likely to also be higher, and community participation in planning will suffer (Noy, 2020). Boston et al. (2021) identify several possible forms of funding at both the domestic and international levels:

- **Dedicated tax**, imposed on local or national taxpayers as a levy to provide a safety net to those affected by climate change.
- **Utility fees**, in which utility users subsidise relocation. Stormwater fees are currently being used in Charlotte, North Carolina, US, to fund buyouts of houses on flood plains. This is however outstripped by the pace at which houses are being built in these areas (Hino et al., 2023).
- **Relocation incentives**, subsidising relocation using taxpayer funds. This could be paired with disincentives to settle in at-risk areas.
- **Government emergency assistance funds**. Generally delivered post-disaster, as recovery and reconstruction support.
- **International aid and grants**. Similarly, generally delivered post-disaster, as recovery and reconstruction support. Examples of this include relocation after Typhoon Haiyan in the Philippines (Boston et al., 2021), or a number of World Bank-supported relocation projects (Rigaud et al., 2019). Funding could also come from the UNFCCC's Adaptation Fund, which has not yet undertaken any planned relocation projects; or the Green Climate Fund (GCF). Access to funding through the UNFCCC has however thus far been an extremely

slow process (Bharadwaj et al., 2022a), and while the GCF has supported several projects with mobility components, no projects have yet focused primarily on human mobility dimensions (IOM, 2018). Vanuatu has however requested UNFCCC relocation support via the Loss and Damage mechanism (Moore, 2022).

- **Trust fund**, supported by levies and if possible international funding. Examples include Fiji's Climate Relocation and Displaced Peoples Trust Fund.
- **Borrowing or bonds**. Borrowing for relocation may be risky, given that it generates limited returns; however, it may prevent severe losses, and thus be sensible. Bonds can include green bonds; these are starting to be tested in the United States, but have not yet been used for buyouts and relocation.
- **Conservation Mitigation Credits**. Credits would be available to buy and sell for funding relocation and ecosystem restoration, monetising the indirect economic benefits (such as tourism) of rewilding developed land. Relocation would here be an investment.
- **Insurance-linked**. Those paying for insurance, or taxpayers—depending on the structure of the insurance mechanism—fund buyouts. Examples include France's Major Natural Risk Reduction Fund, which can in certain circumstances be used for natural hazard risk reduction.
- **Community housing savings groups**. Local communities fund their relocation. Examples include the case of Fiji, in which communities part-funded their relocation with government and international support; and a community-led resettlement from a high flood-risk slum in Pune, India.

Keeler et al. (2022) propose a further option, suggesting that state actors could buy properties in advance of increased hazards (as discussed below in the section on buybacks) before renting them to those who previously owned them. This would reduce incentives to engage in investments in defensive measures (such as sea barriers) providing transitory benefits and—potentially—ultimately large-scale migration after their failure. The approach would also allow the state to manage a gradual planned withdrawal. It could however require prohibitively large up-front costs in many areas, especially given that these proactive purchases would be undertaken *before* increased hazards drive prices down significantly. The announcement of such an intervention could also perversely incentivise the purchase of at-risk properties.

A range of funding options are available for relocation, with different distributions of cost and responsibility.

Trust funds and state-international funding partnerships

For developing nations, international support for relocation should flow to agencies responsible for planning relocation before a disaster occurs, to minimise loss of life and assets. International

financial support for planned relocation has not yet been made available in meaningful quantities. In their absence, governments could look increasingly to the diaspora and the use of remittances in trust funds, or to taxes on international visitors or other revenue streams, as is already undertaken in Fiji (Thornton, 2022). Such an approach would need to be careful not to burden citizens.

Where responsibility for planned relocation has not yet been allocated, institutional arrangements should be established. Trust funds may be particularly useful instruments, and have begun to show promise in some contexts. Climate-related trust funds are instruments that establish an ongoing fund to respond to problems arising due to climate change. This approach would see government institutions work with civil society, the private sector and international actors to gather financial resources to be used to pursue specific objectives, such as adaptation support or relocation. While these approaches do hold promise, some key features are challenging, such as the blending of finance from different sources; the establishment of a governance structure; and the maintenance of transparency (Tänzler and Bernstein, 2022). The approach may however offer a funding option less controversial than Vanuatu's requests for direct relocation support via the UNFCCC's Loss and Damage mechanism (Moore, 2022). Examples of trust funds include:

- Bangladesh, a country certain to require significant planned relocation, does not yet have any mechanism through which to fund mobility programmes (Haque et al., 2018). It does, however, have the Bangladesh Climate Change Trust and Resilience Funds, the second part-supplied and managed by the World Bank. This could be a viable instrument for relocation support, but does not yet have formal funding responsibility in the area. Thus far the Ministry of Land, working with other departments and with local government, has funded and organised relocation through its Climate Victims Rehabilitation Project. This workstream focuses on the construction of new houses; rehabilitation through capacity building; and the growth of socioeconomic resilience to reduce subsequent vulnerability to disaster (Kisinger and Matsui, 2021). It is possible that Bangladesh's Trust Fund could be developed for use in relocation on a larger scale.
- Fiji's Climate Relocation and Displaced Peoples Trust Fund, instituted in 2019, attracted support from donor states. FJ\$5 million is to be contributed to it each year, raised from levies on the service and tourism industries (Thornton et al., 2021). During the Covid-19 pandemic, when tourism was significantly reduced, inflows to the relocation fund were presumably also straitened. The first international pledge was provided by New Zealand, giving encouragement that domestic funding sources can be combined with international funding (Tänzler and Bernstein, 2022).
- Tonga established its Climate Change Trust Fund in 2012, seeded with a US\$5 million grant from the Asian Development Bank. It makes up to US\$250,000 available for each relocation project, and would need international support for any sizeable relocation efforts (Thornton, 2022).

Following the establishment of a loss and damage fund during COP27 (UNFCCC, 2022b), it is possible that relocation financing through the UNFCCC may become more feasible. Access to loss and damage funds is however made harder by the fact that the conceptual location of mobility within loss and damage frameworks is still uncertain. It is currently rare that movement can be clearly said to be in itself a cause of or response to climate-induced loss. In many cases this is likely to be hard to resolve, despite declarations at Sharm el-Sheikh (PDD, 2022; UNFCCC, 2022a). UNFCCC relocation funding may be most viable in the cases of small island states faced with rising sea levels, where the climate-linked causality is more clear.

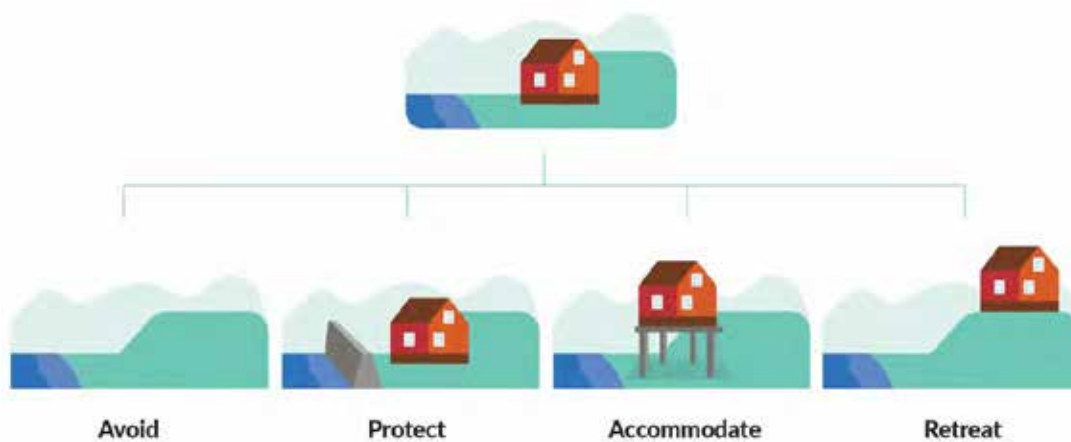
The funding regime for planned relocation is not yet coherent. Increased international support will be required in many contexts, but this has largely not yet been made available; is not provided for by multilateral funds; is not yet clarified within the UNFCCC; and may be an excessively slow process.

The politics of relocation and resilience-building: the need for transparency

The amounts of money needed for either relocation or structural protection against the effects of climate change will be extremely large. These decisions will have large domestic political consequences. It is likely that in democracies, marginal seats will swing on the ‘relocation sections’ of manifestoes. In the United States, for example, a relatively optimistic forecast suggests that cumulative damages to coastal real estate and infrastructure will total US\$800 billion by 2100 (USGCRP, 2017). Decisions regarding the focuses of preservation efforts, and the communities selected for relocation, will have fortunes riding on them. Not everywhere can be protected. Areas that are not prioritised may require relocation help, or may see their vulnerability directly increased by protection measures elsewhere (see e.g., Kelman, 2022). In some places—such as the Netherlands—the effects of this are so controversial, and the solutions so potentially radical, that politicians may be unwilling to begin discussing it (see e.g., Hernández-Morales and Coi, 2023).

New Zealand’s National Adaptation Plan, for example, sketches four options for adaptation: ‘avoid’, ‘protect’, ‘accommodate’, and ‘retreat’ (see Figure 7). Each will involve difficult political discussions in different contexts. ‘Avoid’ requires not using land that may be attractive in the short-term. ‘Protect’ requires allocating limited resources to adaptation measures that may not be guaranteed to last or succeed; protection will also not be possible for all communities, and equity issues will be important. ‘Accommodate’ may not be possible in all circumstances; it may also be an option with a limited duration of success. ‘Retreat’ requires financial support and may be resisted.

FIGURE 7. Adaptation options: avoid, protect, accommodate, retreat



Source: New Zealand Government (2022: 80).

Relocation choices will have potentially significant implications for social justice: buyouts could exacerbate or reduce existing social inequalities. Thus far, lack of state transparency in the governance of buyout schemes has made public trust and participation in the process more challenging. Political motivations and cost-benefit arguments risk encouraging disproportionate movement of low-income or minority communities, potentially perpetuating entrenched patterns of inequality (Siders, 2019b; Tubridy et al., 2021). The new relocation efforts being made in the US context have thus far been relatively small: the flagship programmes have spent \$46 million in 2016, and \$130 million in 2021 (Flavelle, 2021; 2022), but faced difficulties in selecting communities for relocation and have not made their criteria public. Where they have selected communities, the programmes have also been accused of ignoring their needs and exploiting the relocation process for political posturing (Jarvie, 2019). In 2019 a US\$16 billion disaster-mitigation programme was proposed, at least part of which would be used to fund relocation (Flavelle, 2020). Similar problems are being experienced with regard to resilience-building. Less-wealthy US cities and states, with smaller administrative capacity, are less able to access federal adaptation grants; instead the money flows to wealthier areas with more grant officers (Sherfinski, 2023). This will ultimately translate, in some contexts, into either relocation or increased vulnerability for those already at greater risk.

It is crucial that, as the scale of relocation and resilience-building trade-offs inevitably grows, governance quality of these programmes also improves. Resilience-building efforts, which will determine future relocation needs, must be accessible, equitable, and transparent. Future relocation efforts must also be highly transparent, and must engage closely with communities on the basis of adequate information (Harrington-Abrams, 2022). Determining what information is 'adequate' presents further challenges, with ramifications for political and policy discussions. Many of these

conversations will be similar to those concerning international movement, including those of the ‘acceptability threshold’ and the role of human agency versus climate change. For example:

- The parameters for relocation are likely to be disputed, and will need to be discussed openly.
- The attribution of parameter breaches to climate change, versus contributions made by policy or market-driven choices, will be disputed and controversial.
- Political polarisation presents a further challenge. It is imaginable that citizens of one area could resist supporting the relocation of citizens from areas in which heightened vulnerabilities are believed to have been caused by mismanagement under a ‘rival’ political party. Internal political divides should be considered when creating funding mechanisms.
- In some cases, locations will be continue to be habitable for a reduced population. Deciding how many should be supported in moving away in these circumstances, and how relocation participants should be selected, may be challenging (McAdam and Ferris, 2015).

Previous relocation programmes elsewhere (as noted in ‘Managed retreat’) have been harmed or harmful due to political slants. This can be avoided by making the rationale for relocation or resilience-building open to the public, explaining the legal and financial options available to decision-makers, and making the factors used in evaluations of risk publicly accessible during the decision-making process and in subsequent evaluation reports.

Relocation decisions and funding provision are intensely political at the local level. Transparency and predictability are crucial.

Examples of previous relocation projects

State support for internal movement will frequently be inadequate, constrained by budgetary limitations; lack of information of migrants’ needs; or lack of interest in maintaining migrants’ dignity. For example:

- Rwanda has experimented with allocating farming plots elsewhere to those expected to need to move away from areas facing increased climate hazards. Resettlement sites, however, have often been located on rocky soils unsuitable for agriculture, forcing migrants to return to vulnerable riverside areas where they furthermore risked state penalties (Gebauer and Doevenspeck, 2015). The Government of Rwanda has committed itself to continuing resettlement through villagisation; scanty detail in its NAP, however, suggests that the challenges of land acquisition and human rights protections during resettlement have not been adequately considered (McDowell, 2013).

- In the case of the Biloxi-Chitimacha-Choctaw Tribe of the Isle de Jean Charles in Louisiana, United States, the community had been advocating for their facilitated relocation to mainland Louisiana for nearly twenty years. This was enabled through a \$48 million grant in 2016 provided by the Department of Housing and Urban Development (Boyd, 2019). The receiving community nominated, however, resisted their relocation, arguing that their presence would exacerbate flooding risks. The resettlement programme furthermore endangered the tribe's land rights in their area of origin, presenting them with an unwelcome trade-off (Rothschild, 2019), and came to ignore community wishes regarding the implementation of the relocation (Jarvie, 2019). Most community members therefore did not move.
- In Fiji, by contrast, close engagement with affected communities, and adequate funding and planning for relocation with assistance from international actors, has allowed several relocation projects to occur in a relatively well-managed manner. Notably, however, inadequate engagement with women in preparatory consultations has led to problems. In the case of the relocation of the village of Vunidogoloa, viewed as one of the earliest examples of climate-related planned relocation within Fiji, several years of planning and consultations nonetheless saw 30 houses built without kitchens (Moore, 2022). The Vunidogoloa relocation process was made easier by the fact that the village owned the land to which it was moving. Fiji has also undertaken multiple partial community relocations (Piggott-McKellar and Vella, 2023).
- Following Cyclone Idai in 2019, 88,000 individuals were relocated to 66 new permanent sites in Mozambique. The relocation was not highly successful: most people still depended on aid, and access to agricultural land or other forms of employment was seldom ensured. The lack of livelihoods in new areas meant that most relocated households were moved from one type of risk to another. Difficulties regarding the legality of land tenure and land expropriation processes presented a particular challenge to the relocation programme, as did resulting conflict between those relocated and members of host communities (Jacobs and Almeida, 2020).
- Australia has undertaken a single relocation project. This occurred in 2011, following a flash flood in the town of Grantham. Following the flood, the town mobilised; the process was extremely fast, and the first home in the new location was occupied within 11 months. Some residents did not relocate and shared concerns with the process, but the project is considered a success. Factors considered key to its success include: strong leadership; excellent and adaptive coordination across levels of governance; the ability to acquire suitable land near the original site; and the participation of community members in decision-making (Piggott-McKellar and Vella, 2023).

BOX 6. The Peninsula Principles

The Peninsula Principles on Climate Displacement within States was created by a coalition of academics and NGOs, led by the NGO Displacement Solutions, in 2013. The document, which proposes a new normative framework addressing climate displacement, attempts to establish protocols and obligations in responding to climate-affected migration *within* states (Displacement Solutions, 2013). The key focuses include:

- Prevention and adaptation: the conditions that may increase internal climate-related displacement should be avoided by states' full compliance with international law.
- International assistance: states should cooperate in providing adaptation assistance, including in response to climate-affected movement, when requested by affected countries.
- Participation and consent: climate-affected populations should actively participate in contingency planning and in the implementation of climate-related programmes.
- Community rights: in planned relocation, communities should continue to enjoy all rights in areas of destination. States should thus ensure that livelihoods access is ensured; that moving populations have the chance to gain new skills; and that migration boosts prosperity for both displaced and host communities.
- The centrality of land: given the importance of destination-area land in climate-affected movement, states should identify and set aside sufficient suitable land to which populations can be relocated. States should provide relocated communities with adequate information regarding their new areas and their challenges and opportunities.
- Humanitarian assistance: where populations cannot be displaced before climate hazards cause grave harm, states should provide all assistance necessary.
- Return to areas of origin: migrants should be assisted in returning to their original communities if this is possible and those affected agree.
- Responsibilities for implementation: the primary obligation for protection of affected persons rests with their state of origin, although assistance from other states can be requested and should be provided.

While the Peninsula Principles address internal displacement, they also argue that states should “develop appropriate laws and policies for loss suffered and damage incurred in the context of climate development” (2013: 12). This is explained (Leckie, 2013: 16) to furthermore entail that “people and communities forced to flee their homes and lands due to climate change, must be treated as rights-holders, with all of the corresponding state obligations and international support measures implemented in full to ensure these rights guarantees.” Implementation of this concept would hinge, as always, on both the willingness of states to supply adequate funding to support those affected, but also on actors' abilities to identify those who have been “forced to flee... *due to* climate change”.

10. Managed retreat and state buyouts

Although an initially unpopular concept, a system of organised relocation away from endangered areas or of disincentivising settlement in these areas is increasingly referred to as ‘managed retreat’ (Koslov, 2016). This recognises that the movement involved is characterised by withdrawal from a position of high risk (Ajibade et al., 2020).

As a concept, ‘managed retreat’ is very similar to ‘planned relocation’, and the two phrases are often used interchangeably (e.g., Siders, 2019a). Insofar as they differ, it is arguably only in the timeframes and a greater attention to pre-emptive disincentivising of settlement in at-risk areas, attempting to alter decision-making by changing market functions or offering buyouts of at-risk communities in advance of disaster. While unilateral migration is generally self-funded, managed retreat is often facilitated by government spending (Ajibade, 2019). In practice, ‘managed retreat’ raises many questions: which areas are considered at-risk; which areas are considered unacceptably at risk, such that their continued use is unviable; who therefore should be moving; where people will move to; who will be making these decisions; and how retreat will be financed in cases where assets are stranded, among many others (Siders and Ajibade, 2021).

Buyouts

Despite the costs of buyouts, it is likely that in flood-prone areas it will be more cost-effective to buy land once and then return it to nature, rather than build and maintain structural defences such as levees and seawalls (Koslov, 2016). Flooding is a particularly major challenge: it is already one of the major reasons for relocation and asset loss (Bower et al., 2022), and recurring events in the same areas are likely as climate change advances. This is especially the case given that while structural defences can protect assets from water damage, they may also displace damage or, creating a false impression of security, incentivise construction in areas at a low risk of immense damage should defences be overwhelmed by rare events (Kelman, 2022). After buyouts, new land uses need to be found. Siders (2019a) suggests the creation of a National Seashore in the United States, comprising a stretch of varying width along the entire US coastline in which very limited or no construction is to be permitted, and which could in part be used as a national park.

Minimising the need for buyouts

To limit the costs of future buyouts, investment in assets in at-risk areas can also be discouraged through legislation. Indonesia already requires a 100m shoreline setback for all buildings from the mean high-water line; Sri Lanka has a variable setback according to the rate of coastal erosion on a given section of the coast; and the Philippines requires a variable setback according to land use in the area concerned (Hüttche et al., 2002). Around the Mediterranean, signatories of the Integrated Coastal Zone Management Protocol of the Barcelona Convention (Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean) have agreed to establish a zone

set back at least 100m from the coast within which construction is forbidden, taking into account “climate change and natural risks” (UNEP et al., 2008: Article 8).

The Convention is a binding legal instrument, and will have profound impacts upon future internal migration if carried through, but implementation will be challenging given the many stakeholders involved. The Convention waives setback requirements “for projects of public interest”, or “in areas having particular geographical or other local constraints, especially related to population density or social needs, where individual housing, urbanisation or development are provided for by national legal instruments” (Article 8(2b)).

It is likely that, given these loopholes and local short-term political incentives, this managed retreat effort will not fully prevent future need for planned relocation. In the US state of North Carolina, for a point of comparison, ten new residences were built on floodplains for every state buyout between 1996 and 2017. This is due to local development policies running counter to state-level aims to reduce long-term risk and buyout necessities, possibly due to local political incentives regarding land development (Hino et al., 2023). It is crucial that zoning regulations are created with long-term climate-related risk reduction in mind, and that they are rigorously enforced. Failure to do so will result in future loss of property and necessitate costly relocation. In the US, residential properties in zones at risk of flooding are estimated to be overvalued by up to US\$237 billion due to a lack of laws obliging disclosure of flood risk (Gourevitch et al., 2023). This could become immensely expensive—if the state steps in—or create destitution, if it does not.

State buyouts can be more cost-effective in the long-term than persistent funding of reconstruction. Banning investments in at-risk areas without buyouts can also reduce future costs, although short-term incentives may see efforts circumvented.

Key factors in planning buyouts

In making decisions regarding buyouts of endangered properties, policymakers should consider (adapted from Georgetown, UNHCR, and IOM, 2017):

- **Community-level demand.** Buyouts function best when organised at the grassroots level; where collective decisions can be sought and communities can maintain a sense of agency throughout the buyout process, results are likely to be better. In some cases, those who would most benefit—such as those in rural areas aware of their vulnerability and desiring to move—may be unaware of their options. In these cases, far-reaching awareness campaigns will be necessary in order to maintain equitable access to relocation support.
- **Prior damage and future risk.** Where damage is likely to recur, requiring ongoing costs, buyouts are more likely to be economically sensible, and existing residents are more likely to want to move. Buyouts are currently more often post-disaster, but may become pre-emptive as awareness of risks grows and policy options are developed.

- **Viable relocation.** The price for a buyout must be sufficient for a recipient to find a viable new home. The location of the new home should be less vulnerable to climate shocks, but also sufficiently close to workplaces, schools, and social networks. In some cases—such as that of the Carteret Islanders—communities may desire to remain together rather than relocate individually.
- **Other affected populations.** Buyout programmes often affect more than just the relocating homeowners. They may affect people in areas neighbouring bought-out areas, and residents of destination areas potentially priced out of inflating housing markets.
- **Future land use and maintenance.** Bought-out land is necessarily then put to alternative use. If use choices are made well, this can increase adjacent property values, offsetting potential losses in tax revenue (and the possibility of the government being sued by homeowners whose houses have lost value) (Boston et al., 2021). In other cases, planned land use change may necessitate migration. Many National Adaptation Plans anticipate large-scale land-use conversion likely to result in internal population displacements, but the impacts of these changes and consequent movements have often not yet been fully considered (McDowell, 2013).

Challenges in buyout programmes

Buyout programmes present challenges in targeting; values; implementation; and cost. The size and complexity of these challenges lead Tubridy et al. (2021: 1265) to conclude that managed retreat through buyouts is “almost uniquely disruptive”, requiring “the marshalling of extensive knowledge and resources to avoid repeating the mistakes of the past.” The following subsections use headings adapted from Georgetown, UNHCR, and IOM (2017).

Cost

Buyouts have high up-front costs: voluntary participation requires that owners receive what they consider fair value (Freudenberg et al., 2016). This can be insurmountable for less wealthy local governments, even if the longer-term cost of not undertaking a buyout could be greater. Costs can be reduced by ensuring that government actors in intended areas of destination have adequate construction supply chains.

Precedent and equity

As elsewhere in questions of climate-affected migration, deciding who has the greatest need for mobility support is a fraught process. Where there are more homeowners seeking state buyouts than there is money to support the programme, difficult decisions will need to be made (Siders, 2019b). Targeting policies based on quantitative exposure models—such as simple predicted exposure to flooding—may overlook wider socioeconomic disparities. On some coastlines those most exposed to

flooding may for example be highly wealthy owners of beachfront properties (Siders, 2019a). In an analysis of over 40,000 managed retreat buyout programmes in the United States, local governments in counties with higher populations and income levels are found to be more likely to undertake buyout programmes, with poorer and more sparsely populated rural areas receiving less assistance. The properties bought out are found to be concentrated in areas of greater social vulnerability within these counties (Mach et al., 2019). The study was unable to ascertain whether white residents were moving away from racially diverse areas or whether people of colour were being located, due to inadequate data granularity. This points to the need to have disaggregated data in buyout programme management, to allow better transparency of managed retreat efforts and ensure that there is an accountability demand for equitable outcomes.

Buyout programmes work best when organised at the community level, but communities have varying levels of organisation capacity and voice (Georgetown, UNHCR, and IOM, 2017). Voice will vary within communities as well as between them (see e.g., Coca, 2021).

Holdouts

Where people have unclear land tenure or hold negative equity, they may refuse to accept a buyout offer or may be unable to participate. In these situations, buyout actors may seek debt forgiveness from lenders. Holdouts may also occur where people feel unable to leave land to which they have strong emotional attachments: this is a challenge that is noted to occur frequently in the Pacific, where land has a deep spiritual meaning (Coca, 2021). Ways of navigating these situations will be important: those 'left behind' in bought-out areas will become more isolated and vulnerable, but will also require continued provision of infrastructure and services, creating a large per capita maintenance of potentially stranded assets (Georgetown, UNHCR, and IOM, 2017). Holdouts are less likely to occur when a narrative of 'uninhabitability' becomes widespread, making migration more imaginable (Selby and Daoust, 2021).

Lack of trust in government

If buyouts are perceived to be a 'land grab', or there is distrust of government intentions of post-buyout land use, communities may refuse to consider movement (Georgetown, UNHCR, and IOM, 2017). Community engagement and ownership, personal outreach, open lines of communication, and information transparency are important in reducing this risk. In Canada, buyout programmes for managing flood risk are found to be most likely to be socially acceptable when:

- Participation is voluntary;
- There are flexible pricing options combined with financial incentives; and
- Programme design and implementation are transparent.

Stakeholder involvement, effective communication of risk, and trust in governance actors are thus key (Raikes et al., 2022).

The failed ‘Gurcha Gram’ Project in Bangladesh in the 1980s/90s is an example of the effect mistrust can have. In this effort, the government attempted to resettle landless urban poor by relocating them to areas in which they could farm. Landowners fiercely resisted government attempts to redistribute land to landless families, however, and local elites seized land nominally delivered to peasants for themselves. Some of those affected later applied to Canada for asylum (Immigration and Refugee Board of Canada, 1994). In other cases, relocation has been proposed by governments seeking to move populations for internal political reasons (Arnall, 2018). In these cases ‘climate adaptation’ may offer a convenient cover story for no-consultation relocation desired for the state’s ends, as is noted to have occurred in China (Rogers and Xue, 2015).

Displaced risk

If participants in buyouts cannot find secure, stable housing in less vulnerable locations, risk may be relocated rather than reduced. If funding is inadequate, participants may purchase the cheapest housing options they can find in areas of destination—which may often be land in flood zones. In one study of relocations from Staten Island in New York after Hurricane Sandy, 20 percent of buyout participants moved to an area as exposed to flood hazards as their original location; 98 percent moved to areas with higher levels of poverty; and buyout participants saw an average increase in their vulnerability levels of 26 percent (McGhee, 2017). In the Chinese cases (Rogers and Xue, 2015) and multiple others (e.g., Gebauer and Doevenspeck, 2015; Arnall, 2018), a lack of close engagement with community needs and lack of follow-up support saw vulnerability increase, rather than improve.

Buyout programmes require close engagement with affected populations; transparency; and trust in government. If they are to be equitable they must be consultative, demand-driven, and adequately funded such that they can both take place and be genuinely adaptive.

11. Supporting adaptive migration choices

Migration is not a new coping strategy; across the world, movement has always been used to manage climate-related risks. However, it is not available to all. Those who are most vulnerable to the effects of climate change may be unable to move (Adger et al., 2015). This can restrict adaptation options. Migration can be an extremely valuable coping or adaptive strategy, allowing populations access to better wages as a form of insurance against local income shocks (Selod and Shilpi, 2021). In Bangladesh, for example, temporary internal migration offers a safety net, allowing access to alternative livelihood opportunities from which remittances can be sent to communities in areas of origin to support spending needs (McAdam, 2011). Where internal migration is not available, there

is a strong argument for increasing access. This will most often mean access to temporary labour migration following seasonal rural-urban patterns.

Policy barriers to movement

At the national level, policy restricts internal migration in many states. Around 55 percent of countries have policies intended to reduce rural-urban migration (UN DESA, 2020). These policies reflect a “sedentary bias” (Bakewell, 2008) among policymakers and development practitioners, and can significantly affect migration choices. The two most prominent examples of these practices are in India and China, which together account for around 35 percent of the world’s population.

India’s Mahatma Ghani National Rural Employment Guarantee programme is intended to support rural populations, but also to disincentivise migration. It achieves this by a) providing an in-situ livelihood alternative to movement and b) requiring claimants to remain in their villages of origin in order to access social protection programmes. This incentivises populations to remain in place. In practice, however, this also means that where the MGNREG system breaks down and work is not sufficiently available, or where major income shocks force household members to seek work elsewhere, there is a limited safety net (Bharadwaj et al., 2021b). This makes possible migrants more likely to remain within their states: average migration between neighbouring districts in the same state is at least 50 percent larger than between neighbouring districts on different sides of a state border (Kone et al., 2017). For those living in internal borderlands, there are thus fewer adaptive options available through migration; this will inevitably reduce resilience.

In China, the state’s influence over migration remains large, primarily through the *hukou* system (Gray et al., 2020). Despite recent reforms, the *hukou* system continues to restrict mobility capabilities by preventing migrants’ access to state services in non-origin areas (Tebboth et al., 2019). Large municipalities, in particular, continue to limit access to urban social welfare systems for migrants with *hukou* credentials from agricultural areas, some of whom are moving to escape climate-constrained livelihoods (Sun, 2019). Most migrants can only access basic welfare provision in their areas of origin, constraining children and the elderly, in particular, to rural areas while those of working age travel temporarily to cities, where they are exposed to greater risks (Biao, 2006). The *hukou* constraints, implemented despite a theoretical relaxation in 2002, appear to be the result of urban policymakers’ fear of bearing the cost of migrants’ social services (Selod and Shilpi, 2021). In 2020, an estimated 376 million ‘floating’ workers—migrants without local *hukou* credentials—were in urban areas. Rural-urban migration has thus continued, driven by a lack of opportunity and support in rural areas, but falling short of its potential due to semi-enforced family divisions and lack of urban social safety nets (Chan, 2021). Similar registration systems are also in place elsewhere, including in Vietnam; Ethiopia; and Indonesia (Gray et al., 2020; Deshingkar, 2006).

This is an area of significant importance. Both China and India will face growing climate pressures (Gray et al., 2020; Rao et al., 2019), against which migration can play a valuable role. Ensuring internal

migrants retain access to social protection will be vital in supporting vulnerable and marginalised individuals on the move. This can allow their economic productivity to be maximised; reduce the likelihood of their exploitation; and enable the continued support of households in areas of origin (Cundill et al., 2021). Given the close linkages between struggling rural households and the migrants sent to urban areas, this is a policy issue of importance to both rural development and the rights of internal migrants. While recognising the high costs to urban areas that can be brought by migrant influxes (Hopkins et al., 2016), cost-effective methods to support migrant populations can allow benefits that spill beyond urban areas. In the long term, support for rural-urban migrants may allow rural communities to remain in their areas of destination for longer, *reducing* pressure on urban areas.

Migration is, however, seldom adequately integrated into sustainability policies. Gavonel et al. (2021) remark that the Millennium Development Goals fail to mention migration at all; and that, while the SDGs do refer to migration to a limited extent, it is still frequently not incorporated into international, national, and local governance sustainability programmes. Surveys of National Adaptation Plans (McDowell, 2013; Mokhnacheva, 2022) suggest that countries generally seek adaptation solutions that allow populations to remain in situ, preferring to avoid incentivising migration. If migration is to be maximised as a tool for climate change adaptation, policy areas must be joined up to reduce barriers to internal movement. Subsequent sections examine ways in which this can be undertaken.

In some contexts—such as in China and India—explicit or de facto barriers to movement prevent adaptive migration. This reduces access to remittances, and will harm long-term resilience.

Social protection systems, climate change, and mobility

‘Social protection’, following Devereux and Sabates-Wheeler (2004: iii), “describes all public and private initiatives that provide income or consumption transfers to the poor, protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalised; with the overall objective of reducing the economic and social vulnerability of poor, vulnerable and marginalised groups.” Social protection systems are typically implemented through transfers of income, assets, or consumables; insurance against risks, such as illness, unemployment, or disaster (Schwan and Yu, 2018); or job provision programmes (Bharadwaj et al., 2021b). Social protection systems can have a large impact on migration decision-making. While the decision to migrate is highly personal, reflecting individual *aspirations*, access to social protection systems will inevitably shape the *capabilities* of an individual responding to shocks and opportunities (see de Haas, 2021; Carling and Schewel, 2018).

For this reason, as noted in the previous section, governments have often sought to use limitations placed on social protection system access in order to reduce internal movement (Gemenne, 2022). In some cases, as in India, this can have a significant deterrent effect against certain patterns

of migration, following the incentive structures shaped by deliberate social protection policies (e.g., Kone et al., 2017). The relationship between social protection systems and migration is however neither universal nor linear (Hagen-Zanker and Himmelstine, 2013). In the context of climate change, both social protection systems and migration can play important roles in helping vulnerable populations to adapt. It is important that governments recognise these intersections and needs, and avoid incoherence and unintended harms.

Social protection access in the area of origin

Social protection may be able to reduce the need to migrate of climate-vulnerable rural populations by offering them a viable safety net or livelihood alternatives in their area of origin. This has not yet been adequately examined, and further research is necessary (Cattaneo et al., 2019). Initial research suggests however that social protection programmes can have a positive effect on adaptation, allowing greater agency in undertaking migration (Schwan and Yu, 2018; Silchenko and Murray, 2023). Schwan and Yu (2018) offer a set of criteria for assessing the usefulness of social protection systems climate-vulnerable populations who may choose to migrate:

- The relevance, quality and climate-proofing of assets and infrastructure;
- Predictability and timeliness of support;
- Adequacy of support in meeting needs; and
- Flexibility in targeting (regionally and by level of income).

Social protection systems must be targeted to the most vulnerable. Poor households are often de facto excluded from formal financial instruments, and are thus unable to benefit from social protection policies. They are therefore unable to access credit or insurance to smooth shocks, and thus must either suffer in situ or undertake distress migration (Schwan and Yu, 2018). Across lower- and middle-income countries, only about a third of the population are estimated to be covered by some form of social protection (Tanzing, 2020). Social protection coverage is likely to be further stretched by climate change, which will bring new exposures to hazards for many vulnerable households and increase the number of households in poverty (Hallegatte et al., 2016).

Social protection in the area of origin is not a silver bullet. Insurance systems in particular may respond with difficulty to slow-onset climate shocks, and may also overlook non-climatic dimensions of vulnerability (Tanzing, 2020). Given the many factors contributing to climate vulnerability and to the decision to migrate, policymakers should seek to involve a wide variety of actors when designing social protection programmes. This is always wise, and should allow greater attention to group specificities (Himmelstine et al., 2023), but is especially necessary when engaging in the complexities of climate vulnerability.

Cash for work programmes, such as India's National Rural Employment Guarantee programme, can support recovery and reconstruction following shocks, or prevent assets from being excessively

eroded by agricultural yield reductions over time. This may reduce the need to take on debt (Patwardhan and Tasciotti, 2022) and ultimately undertake distress migration. Social protection programmes can thus provide a safety net, providing an alternative to migration and supporting in situ adaptation. In a study of seven countries of Northern Latin America and the Caribbean, Baez et al. (2017) find that targeted development interventions in drought-prone rural areas reduce youth out-migration, suggesting that this should encourage the use of social protection programmes targeted towards areas of particular climate vulnerability.

In some cases, access to social protection in the area of origin can also *facilitate* adaptive migration. In Zambia, for example, rural inhabitants are often made involuntarily immobile by heat shocks harming agricultural livelihoods. Cash transfers during these periods increase migration capabilities, resulting in significantly increased levels of rural out-migration. Illustrating the complexity of the relationship, however, cash transfers make migration *less* likely during significantly hotter periods. This may be both because considerably increased heat reduces farmers' earnings, reducing their purchasing in peri-urban towns, and thus reducing labour opportunities for rural migrants to the same secondary towns. It may also be because when yields are significantly reduced, farmers prefer to use cash transfers to smooth consumption rather than investing it in riskier movement (Mueller et al., 2020b).

Where some members of a household have left the area of origin, social protection programmes can furthermore serve to support 'left-behind' household members (Silchenko and Murray, 2023). This is especially valuable during the periods before remittances have begun to arrive (see the section on 'Supporting the 'left-behind)'). Some social protection programmes incorporate the role of return and circular migration, but this is not frequently attempted (Himmelstine et al., 2023; Silchenko and Murray, 2023). This could be facilitated through the inclusion of social protection considerations in NAPs (see the section 'Integrating human mobility into National Adaptation Plans').

Social protection provision in the area of origin can provide an alternative to movement, allowing diversified income streams and in situ adaptation. It can also, however, facilitate adaptive migration, reducing the resource constraints on mobility. Given the complexities of the climate-migration-vulnerability nexus, social protection programmes should be designed in consultation with varied affected populations.

Effects on migration decisions

Social protection programmes have two broad effects on migration decisions: they can either decrease migration aspirations, by improving the standard of living in the area of origin and providing assistance contingent on continued residence in a given space; or they can increase migration capabilities, allowing individuals and households with the resources needed to act upon a desire to move (Schwan and Yu, 2018).

Clemens (2022a), in a review of the effects of cash transfers upon international migration, finds that they frequently facilitate increased migration even when they are conditional upon investment. Cash transfers conditional on investment in education, for example, are found to facilitate the acquisition of human capital and to lower capital constraints, increasing both migration aspirations and capabilities. Clemens suggests that unless cash transfers are made *conditional on long-term presence* in the area of reception, they are unlikely to reduce the incentive to migrate. The *Oportunidades* social protection scheme in Mexico, which provides cash transfers to poor rural households, is for example found to have reduced migration constraints and therefore allowed increased migration to the United States (Angelucci, 2013).

This is not universal, however, and the effects of social protection schemes upon migration are mediated, as always, by other factors. In a study of the effects of social protection upon migration in four countries (Ethiopia, Kenya, Tanzania, and Malawi), Deshingkar et al. (2016) find that cash transfers are in practice rarely used to directly fund migration, even when they do not include any provisions against migration. They do, however, have indirect effects:

- In Kenya, the amount of cash transferred was too small to fund migration with supplementation;
- In Ethiopia, older beneficiaries of cash transfer programmes preferred to remain in situ and diversify their livelihoods locally: while recipients recognised that local conditions were worsening, transfers were used to stay in situ in areas to which recipients had cultural and social attachments;
- In Tanzania and Ethiopia, young people migrated without the knowledge of their guardians, who were the recipients of the cash transfers; and
- In Malawi, cash transfers may have indirectly facilitated migration by enabling people to complete primary education, allowing them to later move for higher education of better-paid jobs.

Where local employment prospects are poor, conditional social protection is also unlikely to do more than temporarily dissuade migration (Hagen-Zanker and Himmelstine, 2013). In the case of India's MGNREG programme, which aims to provide vulnerable rural populations with a work buffer against climate shocks, the guarantee of 100 days of low-pay work is inadequate to prevent distress migration. This shortcoming is compounded by low wages; delayed payments; unpredictability of assured work; and delays in declaring drought due to budgetary standoffs between national and regional governments, therefore also delaying employment at crucial times (Bharadwaj et al., 2021b).

Given the wide varieties of effects of social protection upon migration—especially in contexts of heightened climate vulnerability, and in areas in which migration may be or come to be a significant response to climate change—more research should be undertaken regarding the relationships between social protection and migration (Himmelstine et al., 2023), with particular attention paid to the role of climate change (Cattaneo et al., 2019).

The effects of social protection programmes upon climate-affected migration are not linear. They may increase or decrease migration depending on context, and more research is needed.

Social protection access in the area of destination

Migrant populations often have limited access to social protection in areas of destination. This can reduce the effectiveness of climate-adaptive migration. Limited access in areas of destination may be due to a lack of knowledge of their rights among migrants; de jure or de facto discrimination against migrants; a need to re-register for semi-portable protection rights; or low absolute provision of social protection nets in low-income countries (Hopkins et al., 2016; Cundill et al., 2021; Bharadwaj et al., 2022b; Himmelstine et al., 2023). Migrants working in the informal sector may also be worried of attracting unwelcome attention by seeking out state support.

In most states, social protection frameworks do not pay explicit attention to the situations of migrants and displaced populations. Their vulnerability in areas of destination is therefore heightened. This is especially true of women, children, and other members of marginalised populations, who may have less recourse to alternative options (Sabates-Wheeler, 2019).

Further research into the effects of social protection access in areas of destination is required, and few studies have been conducted. In India, migrants undertaking ‘distress’ migration into urban areas are found to often be left without any social protection, instead forced to live and work in “sub-human conditions for survival”, without “any rights, benefits or entitlements” (Bharadwaj et al., 2021b: 6). Bharadwaj et al. (2021b) recommend that social protection provision should be internally portable, ensuring that climate-vulnerable populations undertaking rural-urban migration are not penalised for hardships in their areas of origin. This has already been partly undertaken in India through the ‘One Nation One Ration Card’ scheme, which has expanded access to subsidised food for those moving beyond their village of origin.

The following policy steps are likely to improve migrants’ access to social protection schemes, making migration more likely to have a successful adaptive outcome:

- *Knowledge:* Migrants should be informed of their rights in accessing social protection, both pre-departure in areas of origin and in areas of destination. This may require informing government workers, especially in urban areas; and working through informal networks, community-based organisations, and NGOs. They should be assisted in registering for social protection schemes in areas of destination.
- *Enforcement:* Migrants’ rights to social protection programmes should be enforced. Currently, legislation allowing migrants access to schemes may be in place, but is not always enacted (Himmelstine et al., 2023).

- *Access:* Migrants should be provided with identity papers where possible. Where circular rural-urban migration is recognised to be likely to allow adaptation to climate change, populations likely to benefit should be given access to the documents necessary to access social protection in areas of destination (Bharadwaj et al., 2022b).
- *Affordability:* Where social protection systems require financial contributions by beneficiaries, the affordability of access should be improved where possible. This could be undertaken by introducing a flat premium not tied to wages; a stratified contribution system; and top-up systems (Himmelstine et al., 2023).
- *Portability:* Social protection should be portable across areas of origin and destination, ensuring that migrants have a form of safety net in destination areas. This is likely to reduce migrants' vulnerability to exploitation, and to increase the adaptive effects of migration, benefiting areas of origin (Bharadwaj et al., 2022b). This could be facilitated in practice through the use of identity documents held on mobile phones (Himmelstine et al., 2023).
- *Implementation:* many social protection programmes will be implemented by city governments. Where this is the case, increasing numbers of migrants, and increasing demands for greater access, will often stretch resources. To assist cities in providing greater access to circular migrants, more resources should be made available (see the section on 'Supporting city-level governance actors').

Social protection is often inaccessible to migrants in areas of destination. This requires more research. Programmes should however be made more accessible.

Integrating human mobility into National Adaptation Plans

The National Adaptation Plan (NAPs) process was established under the Cancun Adaptation Framework (UNFCCC, 2010). They form a core part of the UNFCCC processes for preparing countries for the effects of climate change, and provide a valuable opportunity to ensure that human mobility responses in the context of climate change is adequately considered within policy processes (Warner et al., 2014). NAPs are intended (UNFCCC, 2021a) to be:

- A plan stating what is known about a country's vulnerability, and setting out adaptation actions prioritised within set timeframes;
- A policy instrument, coordinating all actors and stakeholders and driving actions; and
- Supported by a process comprising observation; research; analysis; assessment; priority-setting; planning; implementation; reporting; monitoring; review; and evaluation.

Given the importance of NAPs to planning adaptation responses to climate change, it is crucial that they incorporate human mobility considerations. The Executive Committee of the Warsaw International Mechanism for Loss and Damage has urged countries to prepare policies responding to mobility in the context of climate change, especially with regard to scenario planning for

pre-emptive action and contingency or post-impact measures (UNFCCC, 2021b). NAPs can serve two primary purposes in this regard. They can firstly guide states' preparations in reducing the impact of climate-related shocks. In so doing they can reduce the need to undertake planned relocations, and can allow populations greater agency in choosing how to make their mobility decisions. Secondly, they can incorporate migration into adaptation decision-making, mainstreaming it within policy processes as a means of coping with climate change (Warner et al., 2014; Wright et al., 2020).

As of April 2023, 44 NAPs have been submitted to the UNFCCC 'NAP Central' system (UNFCCC, 2023). Of those submitted, 35 include references to human mobility. The table in the annex to this part of the paper (Part III Annex) summarises the presence of human mobility in NAPs. A number of NAPs mention different forms of mobility without making commitments to act. Where they do make commitments, mobility-related actions fall into seven broad categories (Mombauer et al., 2023):

- Enhancing data availability and closing evidence gaps;
- Enhancing policy coherence and vertical or horizontal integration;
- Engaging in anticipatory planning and scenario development;
- Strengthening an enabling environment;
- Protecting and supporting people on the move, families staying behind, and host communities;
- Reducing the need to move through adaptation and resilience-building; and
- Using mobility as an adaptation strategy, especially through planned relocation.

In integrating human mobility into NAPs, a number of recommendations are identifiable in the literature.

Firstly, integration relies on an adequate understanding of the impacts different climate change and development pathways will have upon the country in question, and the effects these impacts will have upon migration patterns. This requires an accurate knowledge of current migration flows, and how both the areas of origin and destination will be affected by climate change. To understand these dynamics, states can commission national assessments on migration, the environment, and climate change, collating existing data, research and policy relating to the climate-migration nexus. States can also convene expert working groups from across multiple spheres (Melde et al., 2017), bringing together academics, civil society representatives, and policymakers at the national and subnational levels. This can assist in bridging policy siloes, and allow an ongoing, reliable, and organised gathering of information to inform the mainstreaming of climate-affected migration within policy processes. Where useful, these processes could culminate in the creation of a specific internal migration policy.

Secondly, states should define their national priorities related to human mobility in the context of a changing climate. This should be undertaken in a cross-sectoral manner, especially with

consideration for DRR strategies. The UNDRR (2019b) provides the following four priorities for action, following the Sendai Framework:

- Understand disaster risk, including vulnerability; adaptive capacity; exposure of persons and assets; hazard characteristics; and the hazard-exposed environment;
- Strengthen disaster risk governance to manage disaster risk, mainstreaming and integrating disaster risk reduction within and across all sectors;
- Invest in disaster risk reduction for resilience, allocating resources at all governance levels to develop and implement DRR strategies in all relevant sectors;
- Enhance disaster preparedness for effective response and recovery, rehabilitation and reconstruction.

Priorities should include the development of early warning systems; scenario planning; evacuation and pre-emptive relocation plans; and resilience-building approaches in the communities of origin and destination.

Thirdly, concrete plans for action should be elaborated. These plans, following Warner et al. (2014), will be broadly intended to either reduce the need for migration by supporting in situ adaptation in the area of origin, where possible; or intended to mainstream the role of adaptive migration across policy areas. This will involve ‘troubleshooting’ ways in which mobility is *maladaptive* (Melde et al., 2017), as much of this report has considered, and preparing improvements to allow adaptive migration to take place. Among many aspects, this could include:

- Improving social protection systems’ coverage of migrants;
- Preparing options for planned relocation;
- Subsidising rural-urban migration; and
- Improving systems intended to ensure the recognition of migrants’ rights in work environments and areas of destination.

Fourthly, these plans will require the preparation of funding mechanisms. Implementation and effective management may require capacity-building at all levels of government (Wright et al., 2020), including the level of local and city governance, where much of the NAP will be implemented (see e.g., Richmond et al., 2021).

Fifthly, the plans require implementation. Success in implementation will require context-specific approaches: different forms of disaster will have different timeframes and different effects on migration (Wright et al., 2020). In planning and implementation, intersectional approaches to vulnerable populations should be ensured, recognising that different groups will have different needs, visibility to governance actors, knowledge of rights and opportunities, and voice within policy processes and actions (Mombauer et al., 2023).

Sixthly, NAPs must be monitored by subcomponent and evaluated at the national and subnational levels. The Sendai Framework requires that DRR strategies have defined timescales, with targets, indicators and timeframes for implementation (UNDRR, 2019b). NAPs should follow a similar approach, but currently do not always do so (Mombauer et al., 2023).

The integration of human mobility into National Adaptation Plans is a valuable way of mainstreaming the adaptive role of migration. Not all countries have yet done this, and those that do mention migration in their NAP often do not specify concrete actions. NAPs' inclusion of mobility should be data-informed; establish priorities; set out plans for implementation at multiple levels; establish funding mechanisms; incorporate capacity-building measures; and include adequate monitoring and evaluation systems.

Rural land tenure and land markets

Rural land is frequently a key factor in migration access and mobility decisions. This is in part due to the role of land in the relationship between climate change, agriculture, and mobility. It is likely that rural land markets will be increasingly affected by the effects of climate change, often in ways that may not currently be planned for. Land use policy and migration-relevant policy should be considered in tandem, seeking opportunities for coherent planning.

Tenure and investment in adaptation

A lack of land tenure makes it harder to access collateral, restricting rural households' ability to invest in adaptation. In Syria, for example, a lack of widespread formal land tenure is found to make loans difficult to obtain, incentivising circular migration to obtain remittances for investment in the face of climate change (Abdelali-Martini and Hamza, 2014). In other contexts, over-collateralisation of land to access microfinance after climate shocks may itself motivate migration in the event that loans are either used for consumption or investments do not generate the expected returns (see e.g., Guermond et al., 2022). In the Hindu Kush, landlessness is found to reduce the likelihood of adaptation measures by agricultural households by 38 percent, and by 60 percent for those primarily engaged in livestock practices (Maharjan et al., 2021).

Smallholders with insecure land tenure may also lack the motivation to invest in climate-adaptive practices, such as planting trees, out of recognition that the fruits of investment may not be available to them (Murken and Gornott, 2022). This is not to argue that land tenure formalisation provides a panacea; formalisation often ignores complex existing institutional arrangements, and can itself lead to displacement caused by expropriation (e.g., McAuslan, 2013).

Women are in many contexts especially vulnerable as a result of a lack of land tenure. For example:

- In Nepal, only 10 percent of all farms are owned or co-owned by a woman. This reduces their access to credit, which in turn reduces their ability to diversify crop choices and livelihoods (Government of Nepal, 2021).
- In Sierra Leone, it has only been possible for women to formally own land since 2022. The injustice of the previous land governance regime has far more vulnerable to climate shocks, with plots farmed by women typically suffering from lower agricultural quality due to their size, quality, and location (Turay, 2023). Despite the passage of new laws, women will need further support if historical imbalances are to be corrected and they are to have adequate adaptive capacity to climate shocks.
- In Tanzania, women face limited de facto land tenure security despite the de jure recognition of their customary rights by the Land Act and Village Land Act. To address this, the government is undertaking village land use planning, mapping land tenure and zoning village land for different uses. In practice, however, this process risks continuing to exclude women, who often do not have the voice necessary to make their claims heard (Nchimbi, 2022).
- In rural Guinea, customary land tenure practices prevent women from owning land. Their tenure is therefore insecure, and often held as a result of informal loans and without legal documentation. In some areas, women's rights activists have been able to exert pressure on landowners, obtaining written loan certificates recognised by authorities (Barry, 2022). This is an imperfect solution, but can allow the security needed for investments and adaptation.

Inadequate access to secure tenure will inevitably harm adaptation, with mixed effects on mobility (as seen below). A one-size-fits-all approach to land tenure is not, however, the correct way to improve situations. Formalisation policies are not always straightforward: they can displace existing institutions, reducing security (Bromley, 2009), and can themselves lead to displacement if they do not recognise local imbalances of power (Toulmin, 2009). Instead, central governments should recognise that they often do not have the capacity of knowledge to implement an equitable national land registration system, and (Toulmin, 2009). A local approach that incorporates gender should (Sutz, 2021):

- Recognise gender equality as a fundamental governing principle in land tenure arrangements;
- Adopt explicit legal provisions protecting women's equal rights to land, including support for inheritance rights and independent of marital status;
- Consider any customary tenure norms or practices that discriminate against women's tenure rights to be void;
- Provide local government with adequate financial and technical resources to implement these provisions; and
- Integrate tenure reform programmes with development programmes.

Land tenure shapes resilience to climate change, especially in rural areas. When assessing populations' vulnerability to climate change, and when preparing efforts to assist affected populations, land tenure dynamics must be considered. The needs of women, who are often excluded from land tenure institutions, must be a particular object of consideration.

Inheritance practices and migration

Land inheritance in rural areas often holds cultural and institutional importance. It is also of importance as a source of livelihoods and subsistence. These factors interact with climate change effects to affect migration. For example:

- In rural Ethiopia, members of households expecting to inherit small land parcels are more likely to undertake long-distance permanent migration, including to urban areas (Kosec et al., 2018).
- Gendered inheritance norms, which in many areas preclude access to land for women, can have a large impact on migration. In Ghana, women can be forced to migrate to find alternative livelihoods after losing land upon the death of their husband (Tebboth et al., 2023). When land holdings are abruptly reduced due to gender-discriminatory customs, vulnerability to climate shocks can increase.
- Where inheritances are fragmented over time, fewer well-resourced young men are available locally for marriage. Internal migration can in some contexts—such as Ethiopia—become one of few available livelihood strategies, especially for women whose families cannot easily support them due to reduced agricultural yields (Tsegay, 2021).
- In Morocco, high demographic growth in oasis contexts has led to the fragmentation of arable land; combined with more challenging environmental conditions and the exhaustion of aquifers, migration becomes more incentivised (Sobczak-Szelc and Fekih, 2020).

Inheritance practices affect access to land, shaping migration decisions. Where climate change reduces yields, fragmented land holdings may necessitate adaptive migration. Women often have less access to land inheritance than men.

Climate change, land markets and migration

Climate change is already affecting rural land markets, and will do so to an increasing extent. Existing land tenure arrangements, valuations, and ownership patterns are often shaped in part by climatic suitability. Increasing climatic variability and extremes will affect both the value of land, and the ability of different actors to purchase it (Murken and Gornott, 2022). This will affect migration, potentially by reducing prospective migrants' ability to sell land to raise capital as values

fall. Lloyd's of London (2020), reviewing the effects of climate change in the Global North, note that commercial real estate in some locations may become less desirable due to climate-related effects, reducing the property's value as collateral for loans. Similar trends are likely to be seen universally, including in rural areas in the Global South.

Where this occurs, split migration may become more likely. Following a land sale restriction in Sri Lanka, for example, a feminisation of rural labour was noted due to increased split migration: households could no longer quit that area while retaining their assets, and so were forced to partially remain (Emran and Shilpi, 2017). In some circumstances, land sales will result in greater land consolidation (Stringer et al., 2020), including by local elites (e.g., Bharadwaj et al., 2022b).

If managed well, and connected to opportunities through out-migration for rural smallholders, land consolidation could reduce environmental harms and increase the supply of food (Duan et al., 2021). If managed poorly, shocks could lead to distress sales, desperation migration, and riskily increased hold over agricultural production by a smaller number of actors (Stringer et al., 2020). This can lead to inadequate holdings by renters and smallholders as leases are not renewed and richer farmers buy more land to make up for yield reductions (Castro and Kuntz, 2022), possibly resulting in distress migration. In studies of distress sales in Kenya (Musyoka et al., 2021) and Cambodia (Kenjiro, 2005), idiosyncratic shocks (including crop failures and other shocks such as illness) are found to lead to more distress sales of farmland than covariate shocks. Where shocks are not idiosyncratic, but affect a whole community (Yang and Choi, 2007)—as will often be the case in climate-affected contexts—local money for land purchases is less likely to be available (see Pelham et al., 2011). In these cases, land will either be unsellable except at far lower prices, or distress sales to out-of-village actors may become more likely (e.g., Deshingkar et al., 2016; Urban Land Institute, 2022).

Low land availability—including where the result of land sales to outsiders—can also spur migration. Where rural land markets are vibrant and land is accessible even to those who do not inherit, migration decreases: land constraints spur migration (Kosec et al., 2018). Where land is inaccessible, due to increasing populations and to the effects of climate change, migration may become more likely.

The relationship between climate change, migration, and land prices is poorly understood, and numerous outcomes are possible. Governments should monitor rural land market/climate/migration relationships.

Tenure security and migration propensity

Where tenure is insecure, out-migration can become less likely. This may be due to two reasons: firstly, the sale of land may be harder, reducing access to capital with which to finance movement; and secondly, the risk of losing occupied land may be considered too great (Waldinger, 2015). Land certification programmes may therefore increase the probability of migration. Following a land

certification programme in Mexico from 1993 to 2006, households obtaining certificates were 28 percent more likely to send a migrant than those who did not (De Janvry et al., 2015). Where households fearing loss of tenure do undertake migration, it is likely to be through split migration rather than whole-household migration in order to retain possession of land holdings (Selod and Shilpi, 2021).

In the context of programmes intended to consider planned relocations; prepare evacuation contingencies; or facilitate circular migration, knowledge of tenure patterns is necessary. As is recommended in Vanuatu's National Policy on Climate Change and Disaster-Induced Displacement (Government of Vanuatu, 2018), tenure mapping should be undertaken, in order to assess the likelihood of migration; the cost of compensation to relocated communities; and the vulnerability levels of climate-affected communities. Given that large amounts of land are held in informal or communal holdings, tenure mapping often presents a challenge; however, its role in the climate-migration nexus makes it impossible to overlook.

Tenure insecurity can change the likelihood and nature of climate-affected migration. Governments should map tenure regimes in areas where facilitated migration or relocation programmes may be beneficial.

Land use planning, migration, and maladaptation

Land use planning and migration policy are seldom considered in unison, but this should change. There are globally an estimated 475 million smallholder farms (Cohn et al., 2017), many of which will become increasingly unsustainable in the face of climate change (Hermans and McLeman, 2021) leading to the quitting of agriculture and rural out-migration (Stringer et al., 2020). These socio-economic dynamics must be incorporated into considerations of how land can best be used in a context requiring both climate adaptation, and mitigation. For example:

- In Mexico, rural-urban migration and agricultural intensification has allowed areas of marginal farmland to be abandoned, leading to a forest recovery with beneficial environmental effects (Lorenzen et al., 2020).
- In Nepal, out-migration is found to lead to less intensive use of farmland due to a reduction in yield need thanks to remittances (Bhawana and Race, 2020).
- In northwest China, the resettlement of 'ecological migrants' from ecologically fragile rural areas resulted in abandoned land being "dramatically affected", with significantly increased grassland and forest coverage created in the areas of origin (Zhang et al., 2022: 1).

If land abandoned following migration is to become an effective carbon sink, it is likely to require supplementary policies supporting use change. Without active restoration efforts, ploughed land takes over a century to recover its plant diversity and productivity (Isbell et al., 2019). These need

to consider land use rights, including ownership, and the socio-cultural and economic factors influencing land use choices, including migration and livelihood resilience.

Migration out of rural areas can create opportunities for environmentally positive land use change. Land use policy should be created with consideration to migration trends.

Where existing livelihoods are anticipated to be unable to support communities in their areas of origin, support should be given to either enable diversification or facilitate migration. This could be either through permanent relocation, as in the example from China, or through circular migration, as in the Mexican case. Where out-migration is anticipated to grow or be needed due to increasing local vulnerability to the effects of climate change, land use change should be considered in tandem. Land use change could be encouraged in advance, or could be facilitated during or after significant out-migration. If undertaken in advance, communities could avoid wasted investment—such as in unsustainable borewells (see e.g., Rao et al., 2019)—and population hardship during livelihood breakdown, and to create positive environmental outcomes. In some cases, funding for land use change and ongoing work—such as for rewilding projects—could possibly be found in international funds. In such cases communities could be enabled to remain in situ working on changed-use land.

Where development projects responding to anticipated land use change are undertaken, the impacts of change upon migration choices should be considered in order to mitigate negative consequences. Schipper (2020; 2022) notes that adaptation efforts—such as the shift from one form of crop to another—can appear to hold promise but ultimately fail, and that this can undermine resilience to climate shocks. Eriksen et al. (2021) review 34 internationally-funded efforts to reduce vulnerability to climate change, and find that many of these interventions created, reinforced, or merely displaced vulnerability. In some cases, this can lead to unintentional increases in migration. In Bangladesh, for example, the anticipation of sea-level rise led to a World Bank-funded project to shift livelihoods from rice farming to shrimp aquaculture. This led to saltwater intrusion and—because shrimp-farming requires fewer workers—the loss of jobs, resulting in out-migration against villagers' wishes (Paprocki, 2019).

Where land use change is thought necessary due to climate change, development projects should consider their effects on livelihoods and migration outcomes. Land use change can allow populations to avoid migration, or could be opened up through migration; however, it can also force migration with negative effects.

12. Preparing cities for increased population

Urban areas are key destination points in the context of climate-affected migration. Most migration will be internal (Bekaert et al., 2021), and a significant part of this migration will be rural-urban as

a coping strategy (Adger et al., 2020; Amakrane et al., 2023; Rosengärtner et al., 2022). This will not be a uniform phenomenon: climate change will in some contexts see migration and urbanisation decrease (e.g., Mueller et al., 2020a; Tacoli, 2009), and the heterogeneous nature of rural-urban transitions means that in some areas rural populations will grow faster than urbanisation occurs, necessitating close attention to rural smallholders (Gemenne, 2022). Where climate change does incentivise increased rural-urban migration, however, major and coherent policy preparations will be required. This section considers how the positive effects of rural-urban migration can be maximised, and how various challenges can be mitigated across multiple areas.

Preparing cities for climate-affected migration is challenging. The interactions between climate, migration, and urban development are complex. Because of this, many policy suggestions in the existing literature are high-level and non-specific (Chung et al., 2022), and may be of limited use in specific local contexts. Other suggestions, recognising that both climate mobilities and climate-sensitive urban planning may evolve substantially in the future, propose 'no-regrets' approaches to policymaking, arguing that approaches that "make sense [even] in the complete absence of climate change" (Luetz, 2017: 69) are most sensible.

This may only be wise to a limited extent. Firstly, while urbanisation is already accelerating due to demographic transitions, industrialisation, and growing wealth (Gray et al., 2020), these patterns will be further accentuated by climate change (Adger et al., 2020; Rosengärtner et al., 2022). Secondly, although climate-affected rural-urban migration is frequently predicted, limited preparations have been made for the challenges these population increases will cause for service provision and social cohesion in urban environments (Askland et al., 2022; Rosengärtner et al., 2022). Thirdly, cities will themselves experience major challenges in the era of climate change. The urban heat island effect is expected to see increased warming in air temperatures of up to $\sim 3^{\circ}\text{C}$ (Huang et al., 2019). Rising urban heat will require significant adaptation, and may in some places greatly diminish productivity (Costa et al., 2016). A national panel study of Indian factories, for example, finds that annual plant output falls by around 2 percent per degree Celsius increase, caused by reduced output elasticity of labour under more challenging environmental conditions (Somanathan et al., 2021). Preparations must thus be made with close attention paid to the impacts of climate change.

For migrants and their households remaining in the area of origin, the move to urban regions can be very beneficial. Poverty rates in developing countries are significantly lower in urban areas compared to rural areas (Castañeda et al., 2016). Wages in urban areas can be significantly higher, allowing remitted earnings to communities of origin to complement inadequate livelihoods and possibly support adaptation (Maharjan et al., 2021). Urban wages are uncorrelated to rural labour market or agricultural conditions, allowing risk to be spread; migration can thus serve as an insurance mechanism (Selod and Shilpi, 2021). In some cases, these remittances are crucial for households in the area of origin (e.g., Musah-Surugu et al., 2018). This allows a form of "translocal

resilience”, in which success in the city is wedded to success in rural areas and vice versa (Sakdapolrak et al., 2016). In the case of Bangladesh, Rana and Ilina (2021: 1) argue that “making resilient cities would be impossible without sufficient and simultaneous considerations of rural resilience.”

Migration outcomes are not always happy, however. Migration to cities can also be deeply challenging, leaving families in an area with risk as high, or higher than, their place of origin (Adger et al., 2020). Accommodation may be expensive (Rosengärtner et al., 2022). Where migrants move to coastal cities, they are often forced to live in areas at risk of flooding, landslides, or other hazards—where accommodation is cheapest (Geddes et al., 2012a). In Bangladesh, for example, inhabitants of the sinking Bhola Island migrated to Dhaka, where they have become trapped in high-risk accommodation and exploitative work (Ayeb-Karlsson et al., 2020). Migrants may live in slums and informal settlements, where they are vulnerable to natural and man-made shocks and to diseases (Waters and Adger, 2017; Rosengärtner et al., 2022). Jobs, especially in the informal sector, may be exploitative, even to the point of being considered forced labour (e.g., Bharadwaj et al., 2021b). Migrants often also have limited knowledge of their new contexts, and thus lack access to decision-makers or to informal support networks (Porst and Sakdapolrak, 2018).

For cities, the arrival of migrants brings both opportunities and challenges. Migrants can fill labour market gaps, and can contribute to intercultural development and diversity (Gemenne, 2022). They are also often argued to be more likely to be entrepreneurs, although this expectation must be nuanced (Naudé et al., 2017). Their presence can also lead to social cohesion difficulties, and to stretched infrastructure and service provision capacities. Social cohesion challenges and stretched resources often pre-date migration; the role of migration in urban growth is furthermore often overstated, with service provision often struggling to keep up with birth rates (Amirali, 2020). This may be the case especially in border cities, where national governments may be reluctant to support services for what are understood to be temporary non-citizen migrants (Stürner-Siovit, 2021). In these circumstances, migrants can become the scapegoats of political entrepreneurs.

For municipal policymakers, the primary issue to be faced is that of maintaining service provision for an increasing population while also undertaking climate adaptation. This does not require targeting climate-affected migrants specifically. As Gemenne et al. (2020: 32) note, “when considering inclusive climate action in cities, distinguishing between forced migrants and migrants matters little”. The questions of marginalisation from basic services and climate adaptation for the entire population are more important. Climate-affected migrants may often be affected by both issues, but so too are many other inhabitants of cities. City-level governments will require support in doing this, primarily from national governments—which often devolve limited financial and decision-making powers—but also often from international actors.

BOX 7. Urban climate challenges and indirect migration consequences

Urban areas frequently face elevated climate risks; these elevated risks will continue to climb as climate change continues and cities become more densely populated (IPCC, 2022). Many of the world's largest cities are situated on coasts, exposed to future sea-level rise. Both public good assets, such as infrastructure, and private goods, such as possessions and dwellings, may be negatively affected (Gasper et al., 2011; Rosenzweig et al., 2018; Becker et al., 2023). National and local government actors in many areas are likely to face increasing challenges in ensuring water supply for industrial and consumption purposes (Strong et al., 2020); this will inevitably impact capital investment, employment, and internal migration. Coastal ports, energy systems, high-employment industries, and dwellings may often be unprepared for climate-related changes. The insurance industry is particularly vulnerable (as discussed in a previous section), and its decisions will have significant spillover effects for other activities. Where flooding repeatedly occurs, and insurance support is less available, a self-reinforcing cycle of poverty and climate-related damages can become entrenched.

These risks may be indirect as well as direct. Unexpected climate-related pressures upon industry will affect labour markets and cities' revenues. In 2020 87 percent of global electricity generated from thermal, nuclear and hydroelectric sources was directly dependent on water availability; in some areas, these facilities are facing and will face increased water stress (WMO, 2022a). Examples of recent economic impacts with potential impacts upon labour markets and migration include:

- In Mexico, water shortages during the summer of 2022 saw the national government order the water-intensive beer industry to relocate from the northern Monterrey area to Mexico's south, where the water supply was more reliable (The Economist, 2022).
- In Sichuan province in China, factories were forced to close for a week in August 2022 due to a combination of reduced hydropower production due to drought affecting the Yangtze River, and vastly increased domestic power demand due to increased air conditioning needs in anomalously elevated temperatures (Hui, 2022; Southwell, 2022).
- In Germany, water levels on the Rhine River fell below the level necessary for barge transport in summer 2022. This restricted the distribution of coal, petrol, wheat and other commodities (Oltermann, 2022).
- In early 2022, a massive heatwave in India saw electricity demand soar in order to run air conditioning appliances. This led to frequent blackouts, halting manufacturing (Kay, 2022; Kumar Singh, 2022).

These events have indirect consequences upon enterprise and labour needs, and are likely to become more frequent as climate change continues and weather systems become increasingly destabilised (IPCC, 2022). Where the green transition is able to provide reliable sources of energy,

such climate-affected local economic downturns need not become too large a factor. Where this is not ensured, increasing difficulties in obtaining necessary inputs could be a drag on local economies, and become a factor in migration decisions in response to labour market signals (Van Hear et al., 2018). The vulnerability of particular industries and energy supplies to climate change must be considered by policymakers when deciding the locations from and to which migration ought to be facilitated. In some places, such as Bangladesh (Government of Bangladesh, 2008: 54), the future relocation of industry, “taking account of private and social costs”, is already anticipated.

This is important: the future location of industry will to some extent determine migration flows. In Africa, drought increased urbanisation across 29 countries from 1960–2010; however, urban growth was concentrated in the 25 percent of cities that already had a strong manufacturing base, and could thus offer employment opportunities to rural-urban migrants. The other 75 percent of towns, by contrast, mostly service agriculture, hold fewer opportunities for labour migration, and are moreover themselves negatively affected by secondary effects of declining agricultural incomes (Henderson et al., 2017). Governments should consider the location of industry and employment opportunities in conjunction with migration flows; facilitated adaptive migration efforts; and relocation programmes.

Cities’ industries and productivity will be affected by climate change. This can be mitigated through effective adaptation, but will also indirectly affect migration. Especially in the context of planned relocation to urban areas, the capacity of key urban industries to continue must be assessed.

Supporting integration and mutual support networks

Like any migrants, climate-affected migrants arriving in cities from rural areas often face difficulties in integrating. This is the result of a lack of connections to existing networks within cities; language barriers; age gaps; lack of knowledge of their new context; and low financial resources. This causes problems for migrants; for receiving urban communities; and for communities in the area of origin. For migrants, integration difficulties make it harder to find work, accommodation, and social protection; it reduces their voice, making exploitation more likely; and it increases their vulnerability. For receiving urban communities, integration challenges risk damaging social cohesion; they can result in public health risks; and they reduce the economic benefit of labour migrants. For communities in the migrant-sending areas, urban integration difficulties reduce migrants’ earnings and remittances, reducing the effectiveness of the migration for adaptation purposes.

A lack of access to social support networks is a key determinant of urban vulnerability. Severed from their social networks in their areas of origin and with reduced capital of various forms, socioeconomic integration in areas of destination is crucial for the well-being of migrants.

This is important both for their mental health (Torres and Casey, 2017), and for their socio-physical wellbeing and economic integration. Waters and Adger (2017: 42) find in a study of slum resilience in Kampala that “the key determinants of individual-level adaptive capacity [in urban areas] are attachment to place, social networks, and duration of residence”—the first and second determinants being the result of, and a precondition for, embeddedness into social networks. Accordingly, “there are significant differences in adaptive capacity between slum areas, as well as strong social group and temporal dimensions.”

Where circular migrants only stay in cities for a shorter amount of time, they may face additional challenges. Unless they already have connections able to introduce them to supportive contacts and into resilience-building social networks, they may be unable to avoid marginalisation (Gemenne, 2022). Stigmatisation as a result of negative public perceptions of migrants raises further challenges. For example:

- In Ghana, rural-urban migrants moving due to climate-related pressures are found to face victimisation, stigma, criminalisation, making it hard to find employment and increasing their indebtedness (Alhassan, 2017). This is potentially increased by the fact that migrants in Ghana are often portrayed in a negative way, as a threat to social stability and potentially criminal (Awumbila, 2015).
- In Dhaka, Bangladesh, climate-affected rural-urban migrants have insufficient social connections in urban areas, making it harder to locate work. They are frequently stigmatised by members of the host community (Ayeb-Karlsson, 2021), and because of a lack of knowledge of their new political context are more likely to be exploited by corrupt governance actors (Adri and Simon, 2018). Those moving temporarily frequently struggle to find accommodation and jobs, reducing the efficacy of migration as an adaptation strategy to climate challenges (Penning-Rowsell et al., 2013).

These challenges can intersect with other forms of marginalisation and vulnerability. In South-East Asia, ‘climate injustices’ and low information access can interact with caste-based discrimination. Chu and Michael (2018), in a study of Bengaluru and Surat in India, identify four main factors driving ‘climate injustice’ against migrants:

1. Broken patronage and social networks following rural-urban migration;
2. A lack of voice and local citizenship rights in a new—and potentially relatively foreign—sociopolitical setting;
3. A higher likelihood of conflict in ‘relatively foreign’ communities with potentially differing gender, class, caste, religious and ethnic divisions;
4. Increased exposure to environmental risks, resulting from difficulty in finding secure employment; inability to advocate for access to public and financial services; and possible further displacement.

Policymakers should work to reduce these factors, including by:

- Making migrants and service providers aware of migrants' rights to access services and formal works, where these rights do exist;
- Providing migrants with access to deliberative processes, such as through a migrant engagement council (Gemenne, 2022);
- Assisting migrants in finding work; and
- Working with informal community-led organisations and networks to identify and support vulnerable populations.

Enhancing the role of migrant-supporting social networks

Social network challenges harm migrants' resilience, reduce their earnings, and have a negative knock-on effect for communities of origin. In responding to harsh welcomes in areas of destination, migrants frequently rely on individuals from similar backgrounds, and through connections to existing networks (Hillmann et al., 2020). For example:

- In Pacific Island urban areas, migrants' integration has been assisted through the presence of community networks in informal settlements. These include kinship networks, networks composed of migrants from shared areas of origin, and new social networks through sports clubs and churches (Campbell, 2019).
- In Arusha, Maasai men who migrated to support climate-affected home communities are found to have improved their mental health through mutual aid societies (Heaney and Winter, 2016). Mutual-aid societies, meeting once a week, offered a formal and consistent setting in which migrants could support each other, identify and solve problems of different types, and find fellowship with a positive effect on mental health.
- In South Africa, rural-urban migrants rely on mutual support networks to alleviate the effects of poverty and manage their vulnerability. These informal arrangements provide a measure of protection against the effects of failing to find work or inability to access social welfare, but are not a cause for complacency (du Toit and Neves, 2009).
- In Kampala's slums, the Somali population demonstrates significantly higher levels of adaptation and resilience than other groups, including through the use of an informal financial insurance mechanism using lists of Somali residents (Waters and Adger, 2017).

Greater integration into social networks, facilitating connections that can spread knowledge efficiently, can increase access to jobs; to social protection; and to better accommodation.

Without access to these networks, migrants can—as a study of rural-urban migrants in China suggests—“risk being trapped in permanent poverty and falling into the underclass in city societies” (Yue et al., 2013: 1704). (It is worth providing the caveat that while networks can play an invaluable role in providing resilience-building through solidarity (Waters and Adger, 2017), they can also in some cases lead to exploitation of underinformed migrants by members of their own community (see e.g., Lewis et al., 2019)).

These networks are most important when migrants first arrive in a city. In the longer term, they risk becoming exclusive and developing community-based fault-lines, leading to inter-group mistrust and scepticism of government actors, to the harm of social cohesion and long-term integration (Kindler et al., 2015). In cases of rural-urban migration in Vietnam, for example, mutual-aid arrangements in informal networks are reported to have contributed to discrimination against those falling outside tight circles, leading to reciprocal vilification of migrants by urban residents (Sawamoto, 2014).

To avoid this, government actors should work with and support migrant integration networks. They should provide them with information of work and social protection opportunities; support the rights of migrant workers; and could, where necessary, provide social networks important to migrant integration with funding or in-kind support. Where this is challenging for local governments, for example due to the fact that informal networks include persons with irregular status, NGOs or local governments may find it easier to hire local agents able to play an intermediary role. Kindler et al. (2015), in a review of the literature on the importance of migrant networks to integration, draw the following conclusions:

1. The formation, use and meaning of social capital not only differ between migrants and natives, but also within migrant groups. Legal status and education being important dividing factors.
2. Bonding social capital, including in the form of ethnic networks, can be conducive to integration at the local level; however, it has to be accompanied by a particular context—or opportunity structure.
3. Social capital—its formation and development—is age- and generation-dependent and people's social networks that are sources of social capital extend beyond the locality, creating even trans-local places of reference and attachment. This may present a challenge in the context of climate-affected rural-urban migration: many of those moving are young (Gemenne, 2022; Weinreb et al., 2020).
4. For those who primarily have access to local social networks and spaces, what impacts social capital is not so much diversity, but the quality of neighbourhoods. Given the frequency with which climate-affected migrants live in informal or slum accommodation, this presents a challenge to their integration.
5. Instead of directly attempting to foster inter-ethnic contact, policies should provide such opportunities by creating places of potential meeting between different groups.
6. It is important that policymakers take a broader spatial perspective than the neighbourhood or locality. This should be with regard to the institutional context, but also to policy design and implementation.
7. Membership in any form of organisation (ethnic or non-ethnic) increases political participation and integration.

State support for integration-supportive networks can foster improved outcomes. This may be challenging, however. “Endogenous” modes of resilience, founded upon informal structures, by their nature operate outside of formal urban governance. In some cases—as one experience in the Pacific suggests—they may be harmed by efforts to impose formal governance if they are not fully accounted for (Trundle et al., 2018). At the same time, given their reach into communities which may otherwise be “invisible to the official state apparatus” (Chu and Michael, 2018: 139), they offer potentially valuable avenues. Moreover, the successes of migrants’ informal urban adaptation—such as they are—should not be used as a way of justifying non-engagement (McDonnell, 2019).

Mutual-aid societies, as were formed in Arusha, are a frequent model of social support for migrants. These could be supported by the state to offer a form of quasi-formal safety net to migrants newly arriving in urban areas, increasing the likelihood that information of opportunities could reach marginalised populations (Tacoli et al., 2015). This would contribute to counteracting the isolation felt by many migrants upon first arrival, who struggle to find support and to locate affordable housing and jobs (Ngo et al., 2022). Efforts to circulate information to migrants through these channels should also incorporate information on labour rights and access to social protection schemes: migrants are frequently de facto covered by social protection nets, but often do not access them due to a lack of knowledge (Hopkins et al., 2016), harming the outcomes of adaptive migration.

Frequently, migrants will move multiple times in a relatively short space of time (Gemenne, 2022). Where this is the case, urban governance actors may need to work both through networks, and through place-based approaches, targeting locales to which low-asset migrants may be likely to move. A knowledge of the locations to target requires adequate data regarding migrant populations, their livelihoods, their incomes, dependents, and so on. This data is typically vastly lacking (Tacoli et al., 2015). Better information could be gathered through partnerships between international development or state governance actors and community organisations, whose involvement in data-gathering processes may also provide them with greater knowledge with which to advocate for service improvements. With regard to initial place-based support for migrant populations, however, interventions will frequently need to be targeted towards informal settlements.

Access to social networks is important to the integration and prospects of climate-affected migrants. Often, however, rural-urban migrants have few connections and limited knowledge, increasing their vulnerability. Governments can support migrants through collaboration with informal mutual support networks and community organisations, and through place-based interventions targeting locations with higher proportions of at-risk migrant populations.

Urbanisation and informal settlements

Rural-urban migrants risk exchanging one set of vulnerabilities for another (Michael et al., 2019). With limited money, and needing to send back a high proportion of earnings as remittances to support their communities of origin, climate-affected migrants have little money for accommodation and often little knowledge of accommodation options. A high proportion are considered to live in informal settlements or ‘slums’ (Gemenne, 2022; Ayeb-Karlsson et al., 2018; Waters and Adger, 2017). Even in these areas, migrants moving due to climate-related pressures may experience greater levels of vulnerability than other migrants and long-term inhabitants, themselves also highly vulnerable. In Dhaka City, for example, those understood to be moving for environmental reasons are five times less likely to own a house in an informal settlement than those moving for reasons unconnected to environmental hazards (Adri and Simon, 2018).

UN-Habitat (2015) defines an informal settlement as a residential area in which:

- Inhabitants may have no security of tenure for the land or buildings inhabited;
- Inhabitants may squat or rent informally;
- Neighbourhoods lack basic services and urban infrastructure, such as limited or no access to water and sanitation;
- Housing may not comply with planning or building regulations, and may be located in environmentally hazardous areas.

Informal areas are characterised as being “marginalised in terms of governance, service provision and infrastructure” (Waters and Adger, 2017: 42), and with high vulnerability to natural and man-made shocks due to their location; the poor build quality of their housing; and the poverty of their inhabitants (Global Center on Adaptation, 2022).

In the absence of adequate data on housing and living conditions, it is uncertain precisely how many migrants live in ‘slum’ households—a concept which is itself uncertain (Tacoli et al., 2015). There is currently no operational dataset providing statistical and spatial information about the location and diversity of slums, informal settlements, and other deprived areas. It is possible that the combination of conventional datasets (such as surveys and census data) with new data sources (such as Earth Observation data) could yield new insights (Abascal et al., 2022); this should be an area of focus for international development actors, such as UN-HABITAT, or national-level agencies with adequate resources. Findings should be shared with city-level governance actors.

The pace at which people are assisted in escaping irregular tenure status is outstripped by the speed at which informal urbanisation is occurring. While estimates are challenging, those that have been undertaken suggest that the number of people in informal settlements is high and rising, and expected to grow significantly as urbanisation continues and climate-affected rural-urban

migration increases (Roderick et al., 2022). This accompanies challenging existing trends. Between 2000 and 2014 320 million people were lifted out of life in slums (UN-Habitat, 2016); however, between 1990 and 2014, the global inhabitant count of informal settlements was estimated to have increased from 192 million to 880 million (Usamah et al., 2014). In 2020, approximately 1 billion people were estimated to live in informal settlements, primarily in urban areas in low- and middle-income countries (Satterthwaite et al., 2020).

Climate change is contributing to rapid urbanisation. Rural-urban migrants frequently find themselves in cities. For both urban governance and rural resilience, better understanding of informal settlements is vital.

Making adequate housing available

The issue of dwellings in informal settlements has long been recognised as a key policy area in migration and urban dynamics (see e.g., de Soto, 2000). In the context of climate change this becomes a still more urgent area of work, but is frequently overlooked (Chung et al., 2022).

The rapid provision of both affordable accommodation and adequate household services will be of great importance to both the outcomes for urban areas, and the effectiveness of adaptive migration for communities of origin. States and city governments will need to enable more efficient building of accommodation. This is difficult for local governments lacking funding (see ‘Supporting city-level governance actors’). States that have previously struggled to meet demand driven by urbanisation are unlikely to be able to do so where migration increases following climate change. Such states will be obligated to work with the informal sector and support self-building and community-driven service initiatives. Municipal governments could positively engage by:

- Supporting data-gathering, including by working with community organisations (Kallergis, 2022);
- Investing in construction supply chains and human capital;
- Rezoning cities to facilitate construction in safe areas while restricting construction in unsafe areas;
- Supporting formalisation;
- Providing low-interest construction loans and building advice;
- Investing in urban transit to allow access to work and services for those living further from the centre; and
- Increasing the access of vulnerable groups—such as the elderly, or those with disabilities—to selective housing provision.

Where municipalities are unable to provide safe housing themselves, support to reduce vulnerabilities in informal settlements can increase resilience. This could be through deliberate

interventions against climate-related hazards (see e.g., Satterthwaite et al., 2020), or through support for community-driven initiatives in service provision areas such as sanitation, water, and electricity (e.g., McGranahan and Mitlin, 2016). In many contexts, lodging is cheapest in areas vulnerable to flooding or other forms of hazard (Liu and Balk, 2020). This has negative consequences for migrants' resilience, and knock-on effects for areas of origin. In Ho Chi Minh City, for example, flooding is reported to harm migrants' financial security and ability to remit money, inducing new costs and losses (Ngo et al., 2022). In Lima, large-scale rural-urban migration has led to the construction of an estimated 600,000 homes in areas highly exposed to climate hazards (Rosenzweig et al., 2018).

Progress beyond slums is best achieved through a city-wide approach, rather than through piecemeal improvements. Interventions to improve informal settlement living standards will often be context-dependent, according to local needs. In Hanoi and Bangkok, the removal of regulatory constraints on floor-area ratios has been important in allowing the construction of affordable housing; in Recife, Brazil, special zoning rules allow planning needs in informal settlements to be addressed in local-specific ways (UN-Habitat, 2016). In Thailand, the state has engaged in housing provision through CODI, an intermediary institution, to support community-driven housing development with flexible accessible funding (through subsidies and low-interest loans) and institutional support. This has successfully scaled local community approaches to co-produce housing, creating community ownership and an efficiently collaborative approach. This grew out of a longstanding process initiated first to support community savings accounts, and illustrates the benefits of responding adaptively to developing needs (Boonyabanacha and Kerr, 2018).

Forms of accommodation

The optimal form of accommodation will be context-dependent, but in most contexts the urgency of providing housing of any sort will mean that there will not be scope to provide optimised housing. While the literature suggests that climate-affected rural-urban migrants typically move individually and temporarily (e.g., Vinke et al., 2022; Østergaard Nielsen and Reenberg, 2010), this is not universally the case. For example:

- In Dhaka City very few climate-affected migrants (only 1.2 percent) are found to have migrated alone; 98.8 percent migrated with their whole family. In comparison, 56 percent of migrants identified as non-climate-affected migrated alone initially before being joined by their families (Adri and Simon, 2018).
- In Somalia, reports suggest that households initially responded to drought through partial-household migration, but have often transitioned to whole-household mobility as conditions became increasingly unbearable (e.g., Anna, 2022).

This suggests that in some contexts, especially those in which repeated climate shocks have left people in migrant origin areas increasingly desperate, urban areas will need increased provision of

whole-family accommodation. In contexts in which migrants are moving individually, by contrast, accommodation for individuals, such as in boarding houses, may continue to better meet the needs of migrants within resource constraints. Little knowledge is available of temporary migrants' housing needs, and little attention is typically paid to it in city planning processes (Satterthwaite et al., 2020). In practice, given that this is the case, the priority must be to upgrade informal settlements and provide more housing generally. Attempts to target the type of housing towards the specific needs of disaggregated groups—both migrants and other populations—are unlikely to be feasible, but should be undertaken where possible.

Providing accommodation and household services is urgent and crucial to support urban populations and ensure that migration is adaptive. This is a general need, and it is unlikely that housing forms targeted to disaggregated population needs will be possible.

Guiding migrant populations beyond slums

Guiding climate-affected migrants towards areas that are at lower risk is also an important strategy. In many cases undesired informal settlements are razed after being built up; this is harmful to the interests of migrants and communities of origin. In Dhaka, for example, migrants in informal settlements have been evicted by government actors razing slums with no notice, causing them to lose livelihoods and enter increased precarity (Schwerdtle et al., 2021). A proactive approach to rural-urban migrant settlement can avoid the great economic and non-economic costs of slum clearing. Numerous criteria need to be considered in assessing options for directed or guided urbanisation. In a study of possible urbanisation options in the town of Diffa, in southern Niger, six main needs were considered by a consortium of evaluators reporting to UNHCR (Agora, 2019). These were:

- Access to education;
- Access to healthcare;
- Access to water and sanitation;
- Economic opportunities;
- Environmental resilience and hazard exposure; and
- The sustainability of potential new districts.

In guiding urbanisation, municipal actors and NGOs will very often need to work with informal networks to disseminate information about area-based hazards and available programmes of support. This could be achieved by hiring well-connected individual migrants as intermediaries between governance actors and migrant populations, and by obliging planners to engage with representatives of community organisations to disseminate information and consult on options (Kallergis, 2022). In one Pacific SID, community networks structured around membership of church denominations and women's groups have been found to organise themselves to dissuade people

from occupying urban areas exposed to flood risk (Trundle et al., 2018); similar community-based networks are likely to offer valuable entry-points elsewhere. Without engagement with community-based networks, indeed, inhabitants of high-risk informal settlements may be unwilling to accept living in lower-risk areas further from their contacts.

Market conditions, urban planning policies, and migrants' lack of access to credit options, all play significant roles. In Pacific Island states, urban areas have grown rapidly in recent decades. This has increased pressure on land resources, and has seen poverty rise. Original urban planning boundaries were overwhelmed by the accommodation needs of incoming migrants. A combination of problems have seen urbanising areas in Pacific Island countries demonstrate reduced standards of living, centred around land tenure challenges and informality resulting from urban housing and land market failures. Housing construction is unaffordable for many migrants; affordable credit is unavailable; pressure on land is excessive, in part because the tenure regularisation process is very slow; government funds are inadequate to meet service needs; affordable alternative urban housing is unavailable; and urban infrastructure planning is not well integrated into other policy areas (Campbell, 2019). These challenges are not unique to Pacific Islands; nor are they solely the result of migration, but are also the product of governance dysfunctionality and populations growing in their own right.

Urban planning can play a vital role. In Ethiopia, the national government has created a programme entitled 'Making Room for Urban Expansion', which works in 18 cities undergoing rapid growth to prepare to expand city boundaries. This recognises that while current plans for urbanisation often focus on the existing area, expecting dense high-rise development within a contained space, these ambitions are frequently unrealistic and lead to unplanned sprawl, including into higher-risk informal settlements (Angel et al., 2021). Instead, the programme prepares cities to purchase peripheral land—often currently being used for agriculture—in preparation for gradual habitation, building necessary infrastructure in advance (Lamson-Hall et al., 2019). By mainstreaming migration into urban planning and preparing areas in advance, arriving populations can be gradually guided towards safe, planned housing rather than into higher-risk settlements (Kallergis, 2022).

Land tenure systems can also make it challenging for rural-urban climate-affected migrants to find accommodation. In the Caribbean, tenure systems restrict land fungibility. This makes accommodation less accessible, pushing migrants towards informal settlements and higher rents (Hamza et al., 2017). Similar systems are in place in Pacific Island states, where land is often held through customary lines within communities, and relocation—of a community or an individual—requires the transfer of land from one community to another, which may not always be possible (Campbell, 2019). Groups that have historically occupied tracts of land demonstrate reluctance to share land with other groups (Trundle et al., 2018). As sea-level rise caused by climate change continues to occur, these tendencies may attenuate; or—depending potentially on the actions of local political entrepreneurs—they may become more entrenched.

The availability of adequate housing for climate-affected rural-urban migrants is important for both their wellbeing when in cities, and for the success of adaptive migration efforts. This is however often extremely challenging. Policies must be context-dependent; guiding migrants away from high climate risk areas is however crucial.

BOX 8. Guiding urbanisation in formalised circumstances

Well-guided urbanisation is of keen interest to policymakers, but also to private sector actors such as real estate firms and insurance providers. In contexts where formal settlements predominate but climate-informed urbanisation policy is nonetheless lacking, pricing decisions by insurance and real estate actors are likely to strongly influence urbanisation patterns. This is starting to be recognised by real estate actors, and is a strong argument for more climate-informed coherence in urbanisation policy. In a report on future trends in the real estate sector, LaSalle—a major actor in the sector—proposed the following factors in assessing property construction and purchasing options (LaSalle, 2022):

- Preliminary market screening:
 - Economic fundamentals
 - Physical risk exposures
 - Transition risk exposures
 - Market-level adaptive capacity
- Deep-dive market assessment:
 - Market level demographic trends
 - Economic resilience—sectors and firms
 - Economic resilience—individuals and households
 - Physical resilience measures
 - Asset ownership and tenure
 - Countervailing forces
 - Net appraisal and thematic tipping points

This list provides a high-level summary of information useful but unlikely to be obtained. A rare report on specifically the climate/migration/real estate nexus undertaken by the Urban Land Institute with Heitman, another large real estate actor, notes that the lack of information, and distrust of existing modelling attempting to predict the climate-migration relationship, has created a “perfect storm” (Urban Land Institute, 2022: 13). Sector actors recognise future challenges, but are uncertain of where and when the challenges will emerge, and their size and nature. Because of this, investment into climate-risk-exposed places is continuing, following market dynamics. This is less the case for the insurance industry, which in some cases is already starting to pull out of some property markets (Smith, 2022a; 2022b), than for the real estate

industry, which can operate on shorter timeframes. If properties can be built or bought and sold within the investment timeframe, regardless of their long-term viability, the entity has succeeded in its fiduciary duties.

New cross-sectoral collaboration approaches and innovative policies may be needed to ensure that current market incentives do not result in stranded assets, stifling longer-term economic development and failing to respond to climate-related migration choices. This could include obliging construction projects to find a guarantee of acceptable insurance before commencing construction, to ensure that a longer time-frame is taken into account.

More riskily, real estate actors involved in a construction or purchase could also be made responsible in particular contexts for some of the costs of relocation or reconstruction of properties later found to be unviable, incentivising closer attention to climate risks. This would require a careful overhaul of relevant law. It would also require close collaboration between real estate actors and government agencies responsible for adaptation choices. (This should happen regardless of responsibility allocation.) Alternative approaches which do not oblige private sector actors to recognise climate hazards risk loss of life and property, failed or necessary relocation, and economic losses for the state and/or insurance actors. It is more efficient to find ways of incentivising more careful urbanisation choices in the present.

Where housing production is formalised, insurance and real estate actors hold crucial roles in shaping climate-affected urbanisation. Insurance prices rising with increasing climate hazards can render areas de facto uninhabitable. Real estate actors' shorter-term fiduciary duties can guide residents towards at-risk areas, which they will later have to leave. In the absence of coherent policy, private sector actors thus shape current and future migration trends at a local level. Closer collaboration between the public and private sectors is vital in climate-aware accommodation planning.

Service provision in informal settlements

Many municipalities refuse to acknowledge the existence of informal settlements. As a result, they are geographically, economically, socially and politically disengaged from urban opportunities and decision-making, and typically suffer from poor provision of vital services such as clean water, waste removal, and energy access (Avis, 2016). City governments frequently respond to informal settlements by razing them (Satterthwaite et al., 2020). This typically only increases the vulnerability of slum settlers (Enobong Roberts and Okanya, 2022).

Where possible, informal settlements should be upgraded, while bearing in mind the need to encourage relocation away from areas dangerously exposed to climate hazards. This reduces the likelihood of migration outcomes being harmful for adaptation, and maintains the benefits

of translocal resilience between urban and rural areas. It also reduces the likelihood of risks compounding in unpredictable ways (Dodman et al., 2017). For many local government actors, support to achieve this would be necessary. They may also be reluctant to improve conditions in informal settlements out of the fear that they could subsequently grow further; face funding constraints; lack technical capacity; or have inadequate political support (Satterthwaite et al., 2018).

A first necessity is that municipal actors improve their knowledge regarding vulnerable populations. ‘Invisible residents’—such as temporary migrants living in informal settlements—are often not captured in government statistics (Satterthwaite et al., 2020). They are therefore less likely to be targeted by funding and projects (Rosengärtner et al., 2022). Where surveys and censuses are undertaken they could usefully ask whether respondents are supporting household members in their area of origin, to understand the extent to which given urban locations are connected to the translocal resilience of households in rural areas. This may require capacity-building support for local authorities, especially in sustaining data collection practices over time (Anzellini and Leduc, 2020).

It has, secondly, previously been suggested that tenure regularisation is a pre-requisite to protection against eviction and service upgrade efforts (see de Soto, 2000). This increasingly appears unlikely. While evictions do happen, most informal settlements survive despite a lack of legal title (Gilbert, 2012). Legal protections beyond formal tenure can also be made available. In South Africa, for example, a court order is required before eviction can be undertaken (Williams et al., 2019). This does not provide blanket protection against eviction (Chenwi, 2015), but is widely known of and does provide inhabitants of informal settlements with “significant and increased judicial protection against eviction” (Kahanovitz, 2007: 7).

With regard to poor service provision in informal settlements, three dimensions constrain access (Duflo et al., 2012):

- Supply constraints, such as the cost and technical complexity of service provision;
- Demand constraints, ie. state unwillingness or inability to provide services;
- Institutional constraints, in which state actors are unable to cooperate or manage services correctly, or where accountability is limited.

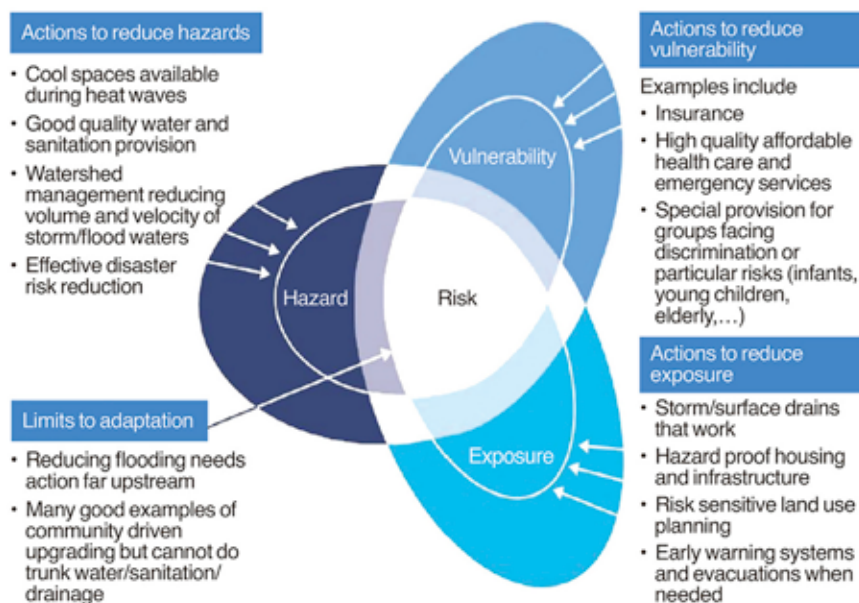
Service providers may furthermore be unaware of their obligations to provide services to migrants. Residents’ perceptions of the likelihood of eviction are also an important factor. In Buenos Aires, investment in housing quality in informal settlements was found to be determined by a combination of *perceived probability of eviction* and the *feeling of fear*. Where residents of informal settlements feel secure, they are more likely to invest. This opens up alternative policy options to a programme introducing formal land tenure: assuring residents that a given settlement will not be destroyed may be sufficient to incentivise resident investment (van Gelder, 2007).

Findings elsewhere support the idea that even in the absence of tenure, formal recognition of the existence of an informal settlement, and assurances that it will continue, can increase state service provision. In the Mandala slum in Mumbai, some neighbourhoods have been afforded legal recognition, while others have not. Households in an unrecognised neighbourhood are found to suffer relative disadvantages in water infrastructure, accessibility, reliability and spending, with significantly fewer litres per capita of water per day (Lubeck-Schricker et al., 2023). Where clean water is not available, health hazards follow; this reduces the economic capacity of climate-affected rural-urban migrants, reducing remittances to areas of origin. This is not to argue that climate-affected migrants, however defined, should be prioritised when in urban areas: however, policymakers should be aware of the translocal effects of challenges.

Where municipal actors are reluctant to upgrade informal settlements and provide improved services on a more granular basis, they should nonetheless seek to protect residents from climate shocks where possible. This could be through, for example:

- The construction of flood barriers;
- The use of early warning systems, and ensuring that residents of informal settlements have access to warnings; and
- The construction of 'cold rooms' in areas vulnerable to high heats, allowing residents of informal dwellings, often without air conditioning or other adaptation methods, to endure high-heat days.

FIGURE 8. Addressing hazards, risks and vulnerability for populations in informal settlements



Source: Satterthwaite et al. (2020: 145).

Given the importance of rural-urban migrants to many rural areas (Sakdapolrak et al., 2016), improvements to informal settlements can have large consequences for rural sending areas as well as for urban livelihoods, health, and wider quality of life. Decisions regarding upgrading will often be taken at higher levels, with local government actors serving primarily as implementers. In the operationalisation of upgrading, the most important aspects are arguably communication between municipal representatives and settlement inhabitants, and the enumeration of household statuses and needs (Satterthwaite, 2021). There are different forms of upgrading for informal settlements (see Table 2).

TABLE 2. Different forms of informal settlement upgrading

| Form of Upgrading | What it Involves | Government Engagement with Community Members |
|---|---|---|
| <i>Upgrading that is actually eviction</i> | Pushing residents out of their homes and settlement and rebuilding but with residents not able to access 'upgraded' dwellings. | Directed by government, and usually implemented by contractors. |
| <i>Rudimentary upgrading</i> | Some very basic interventions such as community taps and public toilets. | Directed by government, usually implemented by contractors, and followed by inadequate maintenance. |
| <i>More complete upgrading</i> | Piped water and toilets in each home, electricity, some reblocking, paved access roads, sometimes sewers and drains. Little consultation with residents. | Planned and managed by government agencies, and mostly implemented by contractors; subsequent maintenance may be lacking. |
| <i>Comprehensive government-led upgrading</i> | Legal land title, full range of infrastructure and services (including neighbourhood level such as drainage, street lighting and solid waste collection), support for housebuilding and improvement and for enterprises. Consultation with residents. | Government is strongly committed, but processes are planned and managed by government agencies and mostly implemented by contractors. |
| <i>Comprehensive community-led upgrading</i> | As above but with community control as exemplified in upgrading programmes supported by close cooperation with slum-dweller federations, such as Slum Dwellers International, or inclusive local groups. | Government provides strong support for community organisations' decisions. |
| <i>Comprehensive community-led upgrading with resilience lens</i> | As above but with greater attention to assessing and anticipating future risk levels. In the context of climate change, this is increasingly important. | Upgrading occurs within a strong community-local government partnership. |
| <i>Transformative upgrading</i> | As above but with attention to maintaining a low carbon footprint. | As above, but national government provides support where necessary to allow best outcomes. |

Source: Adapted from Satterthwaite, 2021; Satterthwaite et al., 2020.

Where possible, upgrading of informal settlements should be undertaken in ways that are both climate-resilient and low-carbon. This may not always be feasible. Where it is possible, however, it will depend on local commitment; adequate financing (see the section Unlocking Funding for Urban Action); a collaborative approach; clear stakeholder coordination; adequate sharing of information; and capacity-building of local administrations (Shah et al., 2023).

Informal settlements frequently lack adequate service provision. This creates wellbeing challenges for inhabitants, including for rural-urban climate-affected migrants, who are likely to end up in informal settlements. Settlement upgrades are often constrained by low state capacity; where upgrades are possible, they should be undertaken in consultation with communities.

Conflict and political participation in urban areas

Cities are “inherently sites of conflict” (Avis, 2016: 33). Generally, these conflicts can be managed through social, cultural and political mechanisms; occasionally, however, these mechanisms will break down. In the context of increased resource constraints, limited service provision, high population density, and low average ages, this may be more likely. Climate-affected rural urban migration, which may in some contexts reduce average resource access; stretch service provision; increase population densities; and lower average ages (Gemenne, 2022), can thus present a challenge to city governance actors.

This is not a linear process, and conflict is not inherent to rural-urban climate-affected migration. In Syria, for example, Selby et al. (2022) dismiss the idea that climate-affected rural-urban migration was a significant contributor to urban conflict. In Bukavu (Democratic Republic of the Congo) and Maiduguri (Nigeria), migration to urban areas is similarly found to decrease the accessibility and affordability of land and water, but not to necessarily result in violent conflict. Instead, the presence of conflict is more likely to depend on the responses of local governance systems and conflict mediation approaches. In both cities, conflict between newly arrived climate-affected migrants and long-term residents was not reported. This may have been due to the establishment of relationships between long-term residents and new arrivals, allowing social networks that diffused tensions and allowed negotiation and support; or it may have been due to the fact that access to land and resources has largely not been instrumentalised by political entrepreneurs or connected to broader conflict dynamics. Over the longer term “urban governance, rather than displacement and migration, might have a larger effect on exacerbating vulnerabilities and risk of violent conflict” (Starc Card et al., 2022: 56).

As noted, migrants often have limited access to urban social networks. They may moreover also be scapegoated by urban politicians for local political purposes. Where this happens, vulnerability is likely to increase, and conflict may become more likely (Wiederkehr et al., 2022). As is discussed in

the section on integration, migrants should be supported in accessing social support networks, to increase contact with local residents and to increase their own resilience.

To avoid urban conflict between climate-affected rural-urban migrant populations and longer-term residents, migrant groups should be given greater voice within local political processes (Avis, 2016). Community engagement mechanisms should account for migrant populations' needs; city governance actors should engage with community leaders, especially with representatives of groups at higher levels of intersectional vulnerability, such as migrant women and irregular migrants; and urban climate risks, such as with regard to water supplies, should be proactively considered and prepared for. Decentralised, community-based approaches may increase engagement in democratic processes, increasing accountability and transparency, and managing and resolving conflicts before they become violent. This could involve migrant engagement councils feeding into local urban policy processes (Gemenne, 2022).

This may require new approaches to municipal governance, and potentially increased resources: many city-level governments may have limited desire to deliberately engage migrant populations, or may have a normative commitment to doing so but lack resources (Saliba and Zanuso, 2022). Moreover, participatory planning approaches, while desirable, may be skewed towards community members already in situ without attention being given to the future needs of those who have not yet arrived. Where participatory approaches are undertaken, officials will need to balance current needs against anticipated, longer-term mobility trends (Landau et al., 2013).

Climate-affected rural-urban migration does not inevitably contribute to conflict, but where governance systems are inadequate this may occur. Participatory democratic governance can manage and resolve conflicts before they become violent.

Secondary cities

Especially in contexts of demographic increase, 'secondary cities' are becoming increasingly important. Not all climate-affected rural-urban migration is directed towards major cities: instead, a high proportion goes towards closer, more accessible, and smaller towns. In sub-Saharan Africa, secondary cities are expected to double or even triple before 2040 (Githira et al., 2020).

Secondary cities see rural and urban areas increasingly interlinked, creating networks of towns through rural and structural transformation. In these contexts, describing migration as 'rural-urban' becomes less accurate (Weinreb et al., 2020). The definition of a 'secondary city' is not wholly agreed, and cities are often assessed relative to the national urbanisation context. The World Economic Forum defines a secondary city as one with between 100,000 and 1 million inhabitants (WEF, 2022). In Africa, this would cover nearly 65 percent of the urban population, numbering 180–200 million people across an estimated 885 secondary cities (Roberts et al., 2022).

Secondary cities are already in many contexts important in migration histories. In Tanzania, for example, a panel survey of households in rural Kagera from 1991–2010 found that twice as many migrants moved to secondary cities—or towns—than to the major cities of Dar es Salaam or Mwanza, despite the fact that incomes are far higher in the larger metropolises (Christiaensen et al., 2013). This may be due to the increased financial and emotional costs of migrating to larger urban areas, which may be more distant, have higher prices, and be more uncertain. Frequently, migrants will continue onwards from secondary cities to larger urban areas after first moving out of rural areas, according to developing aspirations and capabilities (Ingelaere et al., 2018). Their ability to do so is contingent on the opportunities that present themselves during the journey from the area of origin to the area of ultimate destination (Lucas, 2015).

Secondary cities frequently suffer from underdeveloped economies and insufficient policies; large metropolitan and capital cities are often prioritised over them by the national government (Roberts et al., 2022). They are also often out of the eye of international donors and development actors, possibly due to a lack of robust data regarding their needs (Easton-Calabria and Wood, 2022). Poorly managed growth and increasingly stretched resources can lead to poverty traps, and exacerbate systemic deprivations (Starc Card et al., 2022). In sub-Saharan Africa, secondary cities are found to face (Githira et al., 2020):

- *Governance and institutional deficiencies*, leading to slum growth and inadequate infrastructure development. Legal foundations, administrative procedures and financial instruments must be developed if secondary cities are to develop sustainably.
- *Poor urban connectivity*: secondary cities generally have less adequate road connections; ICT links; and market integration. This makes it hard for them to attract investment and jobs.
- *Domination by primary cities*: big cities act as a magnet for bigger businesses and skilled workers. Sub-Saharan secondary cities are behind big cities in almost all measurements of urban development.
- *Weak economies*: secondary cities may have resources, but have limited economic specialisation and value addition. Without urban competitive market advantages, young migrants to secondary cities often remain unemployed.
- *Urban planning deficiencies*: Most secondary cities are not following any master plan blueprint. Urbanisation is thus conducted in an unconsidered manner. When cities later attempt to enact strategies, plans may end up unconnected to urban realities, and un-implementable.
- *Weak data systems*: data is vital to urban governance. Migration secondary cities is however under-researched and poorly understood, as are secondary city dynamics and sustainability challenges and options. Local data shortages make it hard to formulate plans; propose them to national and external funders; and implement projects.

- *Poor social and physical infrastructure*: secondary cities frequently suffer poor physical infrastructure (such as transport networks, sewerage systems, waste disposal systems, and power grids); and poor social infrastructure (such as healthcare and education systems). This increases migrants' vulnerability.
- *Unfavourable living environments for children and vulnerable groups*: secondary cities typically lack childcare provision and safe environments for children; and a lack of planning inclusivity and infrastructure may leave vulnerable groups, such as the elderly or disabled, at higher risk.
- *Low human capital*: highly trained individuals, such as lawyers and doctors, typically prefer to live and work in primary cities rather than secondary cities. This makes it harder to plan and implement urban improvements.

Supporting city-level governance actors

Rural-urban climate-affected migration will, in many places, stretch urban service provision (Gemenne, 2022). This is especially likely in places where major adaptation investment will be required merely to maintain baseline service provision levels, such as where the impacts of climate change are repeatedly damaging infrastructure or requiring the relocation of longstanding settlements (e.g., Becker et al., 2023; Kumar, 2021). As Rosengärtner et al. (2022: 12) argue, “investments and actions in urban destination areas can shape whether migration is supportive of, or an obstacle to, climate adaptation”. Improved practices, and greater resources, will therefore need to be shared or provided to support growing populations amid situations of increased difficulty (Richmond et al., 2021). Almost all necessary actions will not benefit solely, or possibly even primarily, climate-affected rural-urban migrants. By improving their environment, however, they can improve the adaptive outcomes of migration and support the resilience of households in areas of origin.

Supporting exchange of best practices

Cities are on the frontlines of climate adaptation practices. Urban areas, with large and dense populations; governance institutions; and key industries, are where implementation must take place. City-level government decisions may have a more direct, and more immediate, impact on large numbers of people even than policies at the national or international scales (Maheshwari and Malik, 2018). While cities' needs are differentiated, there are nonetheless significant overlaps between issues facing urban governance actors (Knuth and Krishnan, 2021). These include urban heat island effects; unplanned sprawl or informal settlements; and particulate pollution, all of which are found in many cities globally.

Given these commonalities, city governance actors can usefully learn from each other, and successful ‘experiments’ undertaken in one city (see e.g., Bulkeley and Broto, 2013) could be shared and considered for replication in other cities (Negreiros et al., 2021). Mayor and city networks can

thus facilitate peer learning and support, and can bolster local champions (Rosengärtner et al., 2022). Lessons shared may directly concern responses to climate-affected migration, including for example approaches to informal settlements. More often, they will indirectly affect climate-affected migrant populations.

A large number of city-based climate adaptation networks now exist, some with significant migration components to their collaboration. These include (Dzebo, 2019):

- 100 Resilient Cities
- C40 Cities Climate Leadership Group, a network of 96 cities (Gemenne et al., 2020)
- Cities Alliance
- Cities Climate Finance Leadership Alliance
- Global Platform for Sustainable Cities
- Global Covenant of Mayors (which covers 6,150 cities (Boukerche et al., 2021))
- Local Governments for Sustainability
- Making Cities Resilient Campaign
- Mayors Migration Council

Several of these organisations have close working relationships: C40 Cities and 100 Resilient Cities, for example, have agreed a formal partnership (C40 Cities, 2016). Of the knowledge-sharing networks operated between global cities, most are led by NGOs and funded by international actors. These include the 100 Resilient Cities initiative and the Asian Cities Climate Change Resilience Network, both of which receive funding from the Rockefeller Foundation, a major private donor in the urban adaptation space. This suggests, Dzebo (2019: 458) argues, that “it is hard to achieve effective outcomes without leadership or direct support from a large actor”. The Global Platform on Sustainable Cities, which seeks to create diagnostic tools for cities and hold workshops promoting knowledge sharing, is similarly headed by the World Bank.

The two most significant initiatives relating to climate-affected migration are C40 Cities Climate Leadership Group and the Mayors Migration Council. C40 Cities serves primarily as a knowledge-exchange forum, hosting events and discussions, and producing knowledge products through its secretariat. The Mayors Migration Council commissions research relating to climate-affected migration, and has also partnered with philanthropic organisations to fund initiatives supporting migrants and refugee populations in over twenty cities, often with climate-relevant components. Examples of the projects funded are provided in the section ‘Interventions supporting migrants in areas of destination.’

Similarities in the challenges faced by municipal governance actors mean that best practices can be usefully shared across contexts. A number of initiatives are already doing this.

Unlocking funding for urban action

Funding for urban adaptation is often sorely lacking. The World Bank estimates that by 2050 cities will hold an additional 2 billion people, requiring an extra US\$1.3 trillion of investment (World Bank, 2022a). This makes the implementation of necessary responses to climate change, let alone an expansion of services to meet the needs of increasing populations, highly challenging (Knight and Negreiros, 2022; Richmond et al., 2021). Funding is especially lacking in Sub-Saharan Africa and South Asia (Negreiros et al., 2021).

This section briefly surveys some of the key barriers to cities in obtaining the financial resources necessary to respond to climate-affected migration, identifying some possible responses. Few of the issues raised are unique to cities' challenges in welcoming climate-affected migrants. Nor will the reason for which migrants move to cities be likely to be highly important to municipal policymakers charged with managing the effects of growing populations (Rosengärtner et al., 2022). Instead, they are facts of governance for city-level actors, especially in developing countries, with ramifications for their capacities in hosting climate-affected migrant populations. Accelerating urbanisation in the context of climate change risks locking in high-risk and high-emissions development pathways (Boukerche et al., 2021). Without financing support, this is unavoidable.

City governments broadly have three channels for financing programmes. All typically have drawbacks or limitations restricting the ability of urban governance actors to respond to migration-related challenges (Saliba and Zanuso, 2022):

- **Municipal revenues**, comprising taxes and fees levied within the city (sometimes referred to as 'own-source revenues'). In low- and middle-income countries own-source revenues are often a very small proportion of total city government income, e.g., 10–20 percent.
- **Donor funding**, including grants from national governments, multilateral organisations, or private sector actors. Most subnational governments rely heavily on intergovernmental fiscal transfers (Knight and Negreiros, 2022). These are typically earmarked by the national government for specific purposes, limiting the options available to subnational governments. Inclusion-focused projects, such as support given to migrant populations, are often low on national government agendas; this reduces the resources available to city governments. Intergovernmental fiscal transfers are normally a stable revenue source, but may not have the flexibility to respond to shocks, such as the arrival of displaced populations.
- **External financing**, including debt—issued as loans or bonds—and public-private partnerships. These sources are often relevant during crises, including for longer-lasting migration-related development projects in cities with limited own-source revenues.

City access to donor initiatives

Donor engagements continue to typically be managed through national government, rather than at the city level. A growing number of donor mechanisms can support cities in receiving migrants and adapting to the effects of climate change. These include:

The Global Cities Fund for Migrants and Refugees: The fund, run by the Mayors Migration Council in collaboration with C40 Cities and several UN agencies, supports cities in meeting needs in supporting migrants and displaced people. Cities are funded directly to implement projects of their own design, creating examples of fiscally feasible initiatives that can then be learnt from and replicated or improved upon elsewhere. The initiative elevates the profiles of city-level leadership, and has now supported a pipeline of 21 cities with funding support of US\$200,000 each (C40 Cities, 2022b).

UN Migration Multi-Party Trust Fund (MPTF): Following the agreement of the GCM, the Migration MPTF was established to support initiatives implementing the GCM at multiple levels. This allows cities to access grants ranging from US\$1 million to US\$5 million. The fund's operational manual states that proposals should include collaboration with city governments. The MPTF could allow city governments working with UN Country Offices to be direct recipients of funding, rather than implementation partners or recipients of funds mediated through the national government (Roderick et al., 2022).

International Municipal Investment Fund (IMIF): Managed by United Cities and Local Governments, an umbrella organisation for subnational government bodies, and the UN Capital Development Fund, the IMIF channels private sector finance towards SDG-aligned projects sponsored by subnational government bodies. The fund has a target capitalisation of US\$250 million, and can support cities with projects of up to US\$25 million. The IMIF also provides technical support in advance of a financing application. The IMIF does not yet incorporate a migration component, but could in future include the requirement that infrastructure projects are assessed on their inclusion effects (Saliba and Zanuso, 2022).

An increasing number of international development actors are making funding available to individual cities or networks of urban governments. These funding sources can allow cities to prepare and implement programmes relating to climate-affected migration.

City-level funding through climate finance channels

Funding through multilateral climate finance remains crucial for climate-related investment. To be most effective, it must reach the local level and assist direct implementation (Soanes et al., 2017). In 2017–18, however, global finance streams for urban climate adaptation projects amounted to

US\$7 billion, versus US\$69 billion for urban mitigation and dual uses. This comprises only 9 percent of investments at the project level (Negreiros et al., 2021). Climate finance currently faces a number of challenges in assisting cities in developing countries (Dasgupta, 2023):

- Climate finance is oriented primarily towards mitigation rather than adaptation;
- Requirements for accessing concessional climate finance are less attainable for developing countries; and
- Low capacity and other systemic hurdles reduce developing country cities' ability to access all forms of finance, including climate-related finance.

Climate finance channels may however be becoming more diverse, and in some cases are becoming more accessible to cities. For example (Knuth and Krishnan, 2021):

- The World Bank's Clean Technology Fund has made large city-level climate finance contributions across Latin America.
- The Green Climate Fund has a country-driven approach, but is increasingly making financing accessible to city-level projects.
- The Asian Development Bank's Shandong Green Development Fund and the European Bank for Reconstruction and Development's Green Cities Facility both seek to leverage public finance for cities.

Many cities require early-stage finance and technical support for project preparation purposes. This is especially the case in developing and emerging economies. This severely limits cities' ability to apply for finance streams, including climate finance (Negreiros et al., 2021). The World Bank (2021a) estimates that before 2030 approximately US\$300 billion per year will be needed to support the formulation of project proposals, a need often overlooked by national governments when allocating budgets. The World Bank's Gap Fund (World Bank, 2021a; 2021b) has been developed to support cities in applying for climate finance. It:

- Provides technical assistance and capacity building for low-carbon and climate-resilient development;
- Supports a high-quality pipeline of urban investment projects in preparation for later technical assistance, assisting cities in applying for international climate finance; and
- Shares knowledge on project preparation with developers and financiers.

The Gap Fund has already supported technical assistance in preparing proposals across 17 cities in 11 countries (World Bank, 2021a), with the intention to include projects relating to low-carbon and carbon-resilient slum upgrading (Shah et al., 2023). In Africa, the EU's African Investment Facility similarly provides grants for the early stages of project identification and preparation (Haas, 2023).

Climate finance channels are most likely to be relevant to supporting cities hosting climate-affected migrants when dual-use mitigation-adaptation projects are feasible. Where adaptation is the

primary need, national-level climate adaptation funds (Roderick et al., 2022) or loss and damage financing mechanisms—if made available—may be more appropriate.

City-level funding through climate finance streams is starting to become more possible, but cities face challenges in applying for funding due to capacity-related issues. Climate finance is also unlikely to be used for adaptation rather than mitigation, and thus will often not be relevant to addressing needs relating to climate-affected migration.

BOX 9. ESG funds for dual-use projects in Freetown, Sierra Leone

Where programmes serve both an adaptation and a mitigation purpose, it may be possible for cities to obtain funding for them from companies needing to meet corporate social responsibility or carbon offsetting requirements. The capital city of Sierra Leone, Freetown, offers an example of a programme that has started to attempt this approach (C40 Cities, 2022a). Freetown has planted over 560,000 trees since 2020, which have been digitally tracked and ‘tokenised’ using a bespoke but replicable app. A large proportion of the trees have been deliberately planted in informal settlements, where they can reduce heat stress and improve air quality; in water catchment areas, to improve water retention; in coastal areas, to reduce coastal erosion; and on slopes, to reduce risks of flash flooding and landslides. These prioritisations could all benefit climate-affected migrants likely to be exposed to heightened vulnerabilities.

The progress of the trees in planting and growing is tracked through the app, and each geolocated tree is assigned a ‘token’. This allows Freetown to offer an impact investment market for reforestation, which can be offered to corporations and institutions with climate or corporate social responsibility needs. Revenues are ringfenced for further nature-based solutions. The project was seed funded by the World Bank and the Bloomberg Global Challenge. The model requires upfront capital, but could potentially be replicated to support nature-based solutions elsewhere. Similar projects enhancing adaptive capacity and resilience while also achieving mitigation goals—such as the installation of distributed solar grids—could also attract mitigation funding from private sector actors of climate finance providers (Maheshwari and Malik, 2018).

Increasing cities’ access to credit markets

Cities’ access to finance, including concessional finance, is restricted by their level of creditworthiness (Richmond et al., 2021; Boukerche et al., 2021). This is typically equal to or lower than the national government’s sovereign credit rating. When local revenue is unpredictable and unstable; fiscal rules are opaque; governance capacity is limited; and financial markets are underdeveloped, creditworthiness is considered lower (Saliba and Zunuso, 2022). The World Bank estimated in 2019 (GPRBA, 2019) that only 20 percent of the 500 largest cities in developing countries were considered creditworthy. This is a crucial factor in unlocking funds: the same report

estimates that every US\$1 invested in improving creditworthiness leverages US\$100 of additional private sector financing. Improving creditworthiness requires ensuring that operating income exceeds operating expenditures, allowing municipal governments to spend surpluses on new loans. Municipalities without a sound revenue base may therefore need significant support in improving their organisational structures and financial performance if they are to access the resources necessary to respond to the challenges of climate change.

The World Bank has since 2014 run the City Creditworthiness Initiative, co-funded with several partners. This aims to increase cities' access to finance for infrastructure investment by supporting the development of creditworthy financial systems and adequate institutional environments.

This has involved:

- The creation of creditworthiness academies, which have trained at least 650 senior financial and urban planning officers across 300 cities in 60 low- and middle-income countries (World Bank, 2022a);
- Programmes to provide technical assistance in bolstering creditworthiness; and
- Research products relating to creditworthiness, including the creation of a 'City Creditworthiness Self-Assessment and Planning Toolkit', allowing cities to map their practices against those needed to access financing and be guided in the processes to access World Bank assistance (World Bank, 2022b).

Cities often struggle to access credit markets due to national government constraints and low creditworthiness. Technical capacity-building assistance may allow greater access, supporting adaptation projects that could benefit climate-affected rural-urban migrants.

City-level green bonds for adaptation

Municipal bonds have been used in the United States for financing urban projects since the 1850s. Such initiatives have been rarer in lower-income countries, where a combination of a lack of capacity and excessive risk for lenders has made them harder to implement (Dasgupta, 2023; Saliba and Zanuso, 2022). They may also be less useful in responding to the challenges of climate-affected rural-urban migration, which are fundamentally adaptation projects. Mitigation projects are more acceptable to lenders or donors because their effects are easier to measure and quantify. It is by contrast harder to neatly assess the impacts of adaptation interventions (Dasgupta, 2023), and it will therefore be challenging for them to be 'assetised' sufficiently to access green bond markets (Knuth and Krishnan, 2021). The lack of bankable projects, stemming from policymakers' focus on *economic* returns and lenders' focus on *financial* returns, is a key impediment to obtaining funding. Economically beneficial climate adaptation projects without clear payback models will struggle to obtain support (GPRBA, 2019). It is worth noting, furthermore, that cities facing climate shocks of increased frequency and severity may as a result face steeper bond markets (Condon, 2023).

City-level green bonds are of limited use for needs relating to climate-affected migration due to the insufficiently 'assetised' nature of adaptation projects.

Adopting untraditional financing mechanisms

With access to conventional financing avenues limited, cities needing to support climate adaptation and increasing populations have begun to trial less traditional financing mechanisms. These include (Saliba and Zanuso, 2022):

- **Performance-based finance:** Performance-based financing instruments make payments contingent on the achievement of predefined outcomes. By contrast with conventional financing mechanisms, payment is therefore determined parametrically. This reduces risk for investors; incentivises performance; and, by setting targets but not prescribing methods, allows innovation. The World Bank operates a performance-based financing programme, and has proposed (Hyunji et al., 2022) that urban local governments could draw upon it. Success requires credible, transparent, and robust performance assessments undertaken jointly by the lender and the fund recipient.
- **Social (or environmental) impact bonds:** Social impact bonds provide investors with a return on investment if the results are achieved. This is a form of performance-based financing that transfers the risk of project failure to the investors. These have previously been used for migrant inclusion projects by cities in high-income countries, but have thus far not been widely used by cities in lower-income countries.
- **Blended finance:** Blended finance approaches use public or philanthropic funding to reduce the investment risk for private sector actors. Blended finance volumes have so far been low, and seldom directed towards city-level recipients. The World Bank in 2020 announced a US\$ 17.5 million blended finance facility to increase the financial viability of projects benefiting refugees and host communities. It has also argued for increased blended finance provision to city governments for climate mitigation, proposing that creditworthiness, accountability, and institutional capacity are the key challenges to be overcome (GPRBA, 2019). Blended finance will only work if the fundamental economics are right, however, and no amount of de-risking can 'crowd in' poverty alleviation or infrastructure projects that make a financial loss (Humphrey, 2018). Blended finance approaches typically reach the poorest—such as highly vulnerable rural-urban climate-affected migrants—indirectly, such as through supporting projects that lead to jobs (Caio, 2019).
- **Local pooled financing mechanisms:** Pooled financing involves cooperation between local authorities to fund local investments. Combinations of smaller urban governments can become more eligible for capital markets than individual city governments with low creditworthiness. These approaches can be implemented through joint bonds, or through special purpose vehicles acting as an intermediary between the city and capital markets.

These mechanisms are often complex, but can unlock larger resources. These could be used to support climate-adaptive infrastructure or support for migrants or host communities.

- **Multi-stakeholder partnerships:** cities struggling to raise adequate funds can engage with a combination of international organisations; national agencies; and the private sector to coordinate funding. The Tunisian city of Sfax is an example of a case in which this appears to have succeeded (Stürner-Siovitz and Morthorst, 2023).

A range of further funding options are open to cities. These include blends between international and private funds; social impact bonds; and pooling mechanisms at local or blended levels. Some of these financing mechanisms could support projects relating to climate-affected migration.

Approaches to systemic limitations of municipal government adaptation financing

Developing-country cities' access to development finance pathways remains constrained. While urban governments in the Global North often have access to large municipal bond markets, city-level governments in the Global South are more frequently unable to borrow directly for their needs. This is due to centralised governmental structures, which limit city governments' fiscal autonomy, and reluctance by lenders to provide credit to potentially risky borrowers (Knuth and Krishnan, 2021).

City governments have thus continued to access financing options through intermediaries, especially national governments and international institutions. Funding is negotiated at the national level, and cities have very restricted ability to argue for localised needs and interests. City governments also have limited financial management capacities, making it far harder for them to identify and propose 'bankable' projects acceptable to lenders and donors (Dasgupta, 2023; Boukerche et al., 2021).

There are further challenges to accessing and using resources to support migrant and displaced communities within cities (Saliba and Zanuso, 2022):

- Investors have limited knowledge of municipal finance contexts and cities' local needs;
- City-level projects are often smaller than is convenient for financiers, leading to excessive transaction costs. Funding by international donors is also more likely to target infrastructure investments or humanitarian crisis responses rather than development objectives;
- Funding organisations' application processes are often not designed for engagement by city-level governments, requiring national government mediation;
- City governments often do not have the capacity to engage in funding application processes, e.g., through preparing proposals for bankable projects;

- Cities lack the evidence base and political support for projects targeting long-term migrant inclusion outcomes; and
- City governments often have inadequate autonomy to raise, access, or manage new financial resources.

Cities' access to financing requires alterations of behaviour at multiple levels by different actors.

At the city level, government actors should (Negreiros et al., 2021; Saliba and Zanuso, 2022):

- Improve municipal finance capacities, including by maximising the income to expenditure ratio via increased own-source revenue streams, demonstrating that investments can be viable (Boukerche et al., 2021). Improvement methods will be context-dependent, but will generally fall within the categories of administrative reforms to improve revenue management, or policy reforms altering revenue structures (Haas, 2023);
- Seek where possible to engage with National Development Banks for financing for climate-resilient developments and adaptation (Harb et al., 2021a);
- Build relationships with national actors and external funders, including the private sector, advocating for cities' needs; and
- Link the needs of migrant communities to improvements in their lived environment, emphasising the relationship between urban governance and outcomes for migrants.

At the level of national government, policymakers should (Knight and Negreiros, 2022; Negreiros et al., 2021; Saliba and Zanuso, 2022):

- Declare a national climate emergency, committing to greater finance for frontline (city-level) adaptation;
- Involve city-level officials in policy discussions regarding migration and displacement, recognising that policies are ultimately implemented in urban spaces;
- Include city-level policymakers in the development and updating of NAPs, NDCs, and other key national-level climate documents (Boukerche et al., 2021);
- Assist in creating connections between city-level governments and international organisations, donors, MDBs, and private sector actors, through the use of subnational financial intermediaries, such as National Development Banks (Harb et al., 2021b), and recapitalisation (Haas, 2023);
- Support subsidiarity in funding;
- Invest in national preventive measures, including adequate early warning and contingency plans, to protect city budgets from shocks; and
- Support city-level governance actors through provision of national-level expertise, e.g., through support to subnational development banks.

External organisations, such as MDBs, should (Saliba and Zanuso, 2022):

- Where possible, provide direct funding to city governments for the support of migrant integration;
- Incentivise cities to incorporate inclusion into their projects and investment plans;
- Consider how best to provide or fund capacity-building for city-level government actors, including in project and financial management, to create pipelines of supportable transformative projects (Richmond et al., 2021; Haas, 2023);
- More consistently tag their municipal-level funding for climate adaptation projects (Negreiros et al., 2021);
- If necessary, provide financial support via National Development Banks (Harb et al., 2021b); and
- Incentivise city government participation in national policy and funding deliberations.

A range of actions are necessary at the municipal, national and international funder levels to increase cities' access to finance. These are a combination of horizontal and vertical integrations.

13. Climate-affected migration and healthcare

Climate-affected migration can be a vital means of adaptation. It can, however, also come with costs for migrants, communities of origin, and communities of destination. The costs and benefits are context-dependent, and do not inevitably result. Among these are the possible costs of health challenges, especially in contexts in which migrants are unable to access healthcare in the area of destination. The relationships between climate change, health, and migration are furthermore heterogenous, and globally relevant findings are unlikely to emerge (Schwerdtle et al., 2020). Healthcare challenges in the context of climate-affected migration can be both physical and mental. On the other side of the coin, climate-related health challenges may also lead to migration; these possible interactions have not yet received significant research attention (McMichael, 2020).

Ensuring migrants are not overlooked

Climate change has been identified by the World Health Organisation as the 'defining issue' for public health in the 21st century (Sheehan et al., 2017). It is expected to lead to increased prevalence of heatwaves, and to changes in the distribution of diseases. This is likely to lead to, and may already contribute to, an increased number of deaths. Health burdens associated with food- and waterborne diseases, malnutrition, mental health conditions, respiratory diseases, and extreme disasters are expected to rise due to climate change (Rocque et al., 2021; IPCC, 2022). The extent and pattern to which this occurs will depend on the choices made with regard to mitigation and adaptation (Ebi and McLeman, 2022).

Groups that are already more vulnerable to adverse weather impacts, especially those that already hold relatively low social capital, are at higher risk (Benevolenza and DeRigne, 2019). Migrants frequently have low social capital: having relocated, they often have few ties with the networks in which they newly find themselves, and may face discrimination and a lack of understanding of their new contexts (Singh and Basu, 2020). Lack of adequate integration opportunities frequently acts as a key determinant of migrant health (Schwerdtle et al., 2018).

Migrants are moreover often inadequately included in healthcare service provision planning: they may be 'invisible' to under-resourced governments, or may be overlooked due to their poverty; stigma; deliberate or unintentional discrimination; social marginalisation and exclusion; language and cultural differences; lack of access to networks; and lack of legal status (Satterthwaite et al., 2020; Maitlin et al., 2018). Inequalities, discrimination, and exclusion from access to health services are thus in all contexts major influences on migrants' health outcomes (Abubakar et al., 2018).

Greater healthcare support should be directed towards areas expected to receive large numbers of migrants, especially urban informal settlements (Ebi and McLeman, 2022). Migrants should be given access rights to healthcare similar to those of established residents, and they should not be excluded due to their residential status or citizenship. Given that increasing urbanisation in the context of climate change will place pressures upon numerous sectors, different sectors of government must work together, ensuring that interconnected aspects of migrant care, integration, and work do not become siloed (Mazhin et al., 2020).

Increased temperatures and humidity pose significant public health risks. Early warning systems alerting populations to extreme heat before onset; information campaigns; public cooling shelters; and state water distribution may all reduce mortality (Ebi et al., 2021). The UN's Early Warnings For All initiative, which aims to ensure that by 2027 everyone in the world is covered by an early warning system (WMO, 2022b), should include measures to specifically target migrant populations, who may in some contexts have less access to knowledge or digital communications devices.

Policies should ensure that:

- Health inequalities are minimised, with migrants given access to services;
- Migrants' health rights are respected, including in the context of labour;
- Excessive mortality rates within migrant populations are met with targeted interventions;
- Migration has as small a negative impact upon the health of migrants as possible.

Concretely, this can be achieved by (adapted from Bharadwaj and Huq, 2022):

- Incorporating the health and psychological effects of climate change into climate resilience plans, migration policies, and national health and development plans.
- Providing rights-based access to basic material, emotional and social needs. This can be provided through decentralised but enforced frameworks which integrate climate risks

into their design; ensuring the portability of social assistance for migrants (which will often require creating a national database or registry system); and assisting households in *choosing* migration as an agency-based opportunity, rather than as a desperate response to distress.

- Focusing on anticipatory action, with support provided through social protection *before* a disaster occurs.
- Assessing possible health issues faced by migrants moving across borders or into relief camps, with a particular focus on infectious diseases.
- Assessing the economic impacts of inaction and action in addressing issues in the relationship between climate-affected migration and health.
- Informing policy interventions with local research and evidence, rather than adopting one-size-fits-all approaches which may not give the best results.
- Aiming for holistic resilience rather than reactive disaster response or solely disaster risk reduction.
- Providing relief camps—where relevant—and migrant destination areas with adequate shelter, sanitation and drinking water access.

Mental health and climate-affected migration

Rural-urban migrants navigating climate-affected circumstances frequently face higher rates of mental health challenges. These factors are typically under-discussed (Vinke et al., 2022). Climate-affected migrants inhabiting informal settlements are frequently ‘invisible’ to the state, and are thus excluded from policy planning and unable to access necessary services, exacerbating traumas previously experienced (Parry et al., 2019).

In particular, climate-affected migrants often face disruption of identity and of social network connections (Torres and Casey, 2017). This can result in despair, compounding a sense of displacement which itself is reported to result in perceived loss of identity, honour, and sense of belonging (Ayeb-Karlsson et al., 2020). Extreme weather shocks, loss of livelihoods, and displacement to unwelcoming environments are likely to frequently result in post-traumatic stress disorder, depression, and anxiety, potentially leading to substance abuse (Cianconi et al, 2020). This may reduce survivors’ ability to seek and hold work (Clayton et al., 2017), with negative mental health effects in some cases lasting more than a year after an ‘event’ (Aponte, 2018). In Ghana, negative effects of environmental change, including undesired movement, are found to result in feelings of fear, anger, sadness, disappointment, and helplessness (Tschakert et al., 2013).

Even where migration is broadly adaptive, and successfully permits the sending of remittances to assist those remaining in difficult conditions in a climate-affected area of origin, mental health problems may still be experienced. In Kenya, Maasai reliant on livestock have increasingly found that food and water shortages threaten the health of herds, incentivising rural-urban migration

to make up the shortfall in income. Remittances are found to benefit the sending communities, but those who migrated faced increased mental health challenges, including stress, unhappiness, and loneliness due to social isolation, and barriers to necessary healthcare (Heaney and Winter, 2016). Many Maasai in urban areas were found to only access healthcare as a last resort, possibly due to a lack of knowledge of access options, or through stigmatisation of help-seeking activity—especially with regard to mental health—within Maasai networks. This illustrates the importance of ensuring that migrants are aware of their rights, and of targeting information campaigns according to the perceptions of migrant communities.

Responding to mental health difficulties in the context of climate-affected migration is difficult. Migrants are often moving to informal settlements to work in informal industries; governance actors in areas of destination often have limited information and reduced capacity. It is possible that in the future these mental health challenges could be regarded as a form of non-economic loss and damage, for which compensation could be mobilised (Bharadwaj et al., 2023). This could be used to increase state capacity to respond to these challenges. In the absence of further funding, state actors should seek to support community groups able to provide a continued sense of identity and hope, and to provide basic services. Where possible, information campaigns should be used to destigmatise seeking help for mental health challenges, targeted towards networks or locations with higher proportions of climate-affected migrants.

Climate change, and climate-affected mobility, can significantly affect individuals' mental health. Policymakers should be aware of this and offer support where possible.

Health and informal settlements

In informal settlements migrants may face heightened health risks, such that the urban health premium may be significantly eroded or even replaced by an “urban mortality penalty” (Günther and Harttgen, 2012: 482; Satterthwaite et al., 2019). In a study of informal settlements in Khulna City in Bangladesh, inhabitants of urban informal settlements—often rural-urban migrants from areas of high climate vulnerability—are found to lack access to basic urban services, in particular basic services including water and sanitation, and are thus more frequently exposed to waterborne diseases (Rahaman et al., 2018). In Dhaka City, over-exposure to unsafe water sources is found to be in part due to a lack of health knowledge among rural-urban migrants, who may not know that city water needs to be purified (Adri and Simon, 2018).

Migration to cities, while potentially adaptive, risks overburdening stretched healthcare systems. Where population growth occurs primarily in informal settlements, service provision may often not match increasing need (Gilbert, 2012). Where neighbourhoods are already in vulnerable areas, such as low-lying areas prone to increased flooding, unstable slopes, and drylands, the direct impacts

of climate change may cause increased morbidity due to rising hazards endangering dwellings (McMichael, 2012). For example:

- In the low-lying atoll states of Kiribati and Tuvalu, accelerated urbanisation into informal settlements is associated with increased stress on local health facilities and a decline in human development indicators (Locke, 2009).
- In Ho Chi Minh City, the small rental housing complexes used by climate-affected rural-urban migrants are found to be more exposed to water-borne diseases and mosquitoes; to be vulnerable to heat stress; to be prone to flooding, with attendant health effects; and to have poor ventilation (Ngo et al., 2022).
- In Kampala, migrants are noted to be among the vulnerable groups inhabiting the most disadvantaged parts of the city, with increased exposure to contaminated sites and air pollution (Avis et al., 2018).

Rural-urban climate-affected migrants face many of the same health challenges in urban areas as other disadvantaged populations. With fewer assets, however, and in some cases higher levels of desperation, they may be more exposed to health challenges. Migrants are very likely, for example, to be exposed to air pollution in informal settlements. Around 2.4 billion people worldwide use kerosene, charcoal, wood, or synthetic products for cooking, lighting, and heating (WHO, 2022). Approximately 3.2 million people die prematurely due to illnesses attributable to household air pollution each year. In informal settlements, where dwellings are typically cramped and poorly ventilated, the effect on health is amplified. This has an especially large effect upon child health (West et al., 2021). Inhabitants of informal settlements, of whom a disproportionate number are migrants (Gemene, 2022), are also often more vulnerable to communicable and non-communicable, including water-borne, diseases; undernourishment; early infant mortality; and poor sanitary conditions (Zerbo et al., 2020; Andersen et al., 2023). New non-communicable diseases may become more prevalent as a result of climate change, changing environmental practices, and urbanisation (Frumkin and Haines, 2019). Without preparations for improvement, the adaptive impact of migration will be limited.

Successive IPCC Assessment Reports have highlighted the importance of preparations for climate adaptation and migrant hosting in urban areas, and have noted the health impacts climate change will have (Dodman et al., 2019). At present, however, there is limited detailed data on health and disaster risks in many cities highly exposed to hazards (Satterthwaite et al., 2019; Borg et al., 2021). Health data shortfalls may hide the extent to which premature death, serious illness, and injury occur, especially in informal settlements. Improvements to data collection systems will therefore be important in preparing responses. This will require both the provision of greater resources to city-level actors (discussed in the section 'Unlocking funding for urban action') and collaborative actions between state governance actors, NGOs, and CSOs (Kallergis, 2022). More research into the impact of climate change upon known and new health hazards, and increased sharing of best practices between cities and across countries, is also required (Borg et al., 2021).

Living conditions in informal settlements, where most rural urban migrants moving in the context of climate change come to live, can be detrimental to migrants' health. Improved service provision can alleviate some negative effects. This requires better data; increased resources for city-level actors; further research and sharing of best practices; and collaborative implementation.

Health and planned relocation

Where planned relocation is undertaken, it should not be at the expense of migrants' health. State-supported relocation has in the past been associated with decreased mental health; increased food insecurity; unsafe water supply; poor waste management; and increased exposure to infectious diseases (McMichael et al., 2012). Relocation programmes conducted in Ethiopia in the mid-1980s, for example, resulted in populations facing increased exposure to malaria and other diseases (Kloos, 1990).

This is not inevitable, however, and relocation is likely to both increase some risks and offer the potential for health dividends. In the case of relocation from the small village of Vunidogola, Fiji, undertaken in 2014, residents came to enjoy overall health benefits. Where previously they were exposed to regular sea floods, the village's population—relocated with the assistance of the government—now have homes with improved sanitation systems; greater access to health and educational services; and greater access to farmland where they can grow larger crops, compared to kitchen gardens impoverished by salination in the former location. Villagers also note, however, that the relocation resulted in some risks to health due to diet alterations, disrupted social networks, and disrupted place attachment (McMichael et al., 2023).

Where planned relocation must be undertaken, governance actors should ensure that affected populations enjoy safe living environments in the area of destination, and that they have adequate access to healthcare provision; livelihoods; and nutrition. Relocations should take place in consultation with affected populations. Healthcare considerations, including risks and benefits, should be analysed by state actors and discussed with relocated communities. Where disease exposure is a factor, whether through the potential carrying of diseases by migrants from areas of origin to areas of destination or through the exposure of migrants to new diseases following relocation, treatment should be made available. Where possible and useful, disease distribution should be analysed in advance to prepare responses in the case of an increased risk of occurrence due to relocation.

Planned relocation in the context of climate change can pose health risks to those being relocated. This should be taken into account when considering relocation.

The role of knowledge in accessing healthcare

Migrants arriving in urban areas frequently lack the knowledge to successfully navigate healthcare systems, and may not have access to contacts able to explain their rights to them. This can lead to worsened healthcare outcomes, increased vulnerability, and lower remittances to communities of origin.

In Dhaka, for example, healthcare challenges in the city's informal settlements are expected to grow as the climate continues to change. A global temperature increase of 1°C could see dengue transmission rates double in Dhaka, and a 2°C increase could see it rise by seven times (Banu et al., 2014). In a study of climate-affected migration to Dhaka, rural-urban migrants are found to struggle to navigate a landscape of exchangeable health and socio-economic risks. Migrants would prefer to live in their area of origin, but recognise this to be impossible; the urban area is considered potentially economically superior, but to hold numerous risks with regard to social capital; water, sanitation, and hygiene; and shelter security. Bhola Slum, named after Bhola Island from which many climate-affected migrants moved, holds 43,000 migrants, and has only 7.4 skilled health workers per 100,000 people (Schwerdtle et al., 2021). The healthcare system is non-transparent and corrupt, with poor oversight mechanisms endangering patient care. Navigating the Dhaka healthcare system is found to require a high level of “health literacy” (13), making it harder for migrants with limited connections to access necessary care.

Where health systems can be strengthened and made more explicitly responsive to the health needs of migrant populations, the changes are likely to dovetail well with general goals of healthcare system strengthening, especially with regard to limiting the spread of infectious diseases (Schwerdtle et al., 2020). In the case of Bhola Slum, for example, the development of programmes—using social workers or information campaigns—advising migrant populations on how to navigate the social protection system and obtain healthcare, could improve migrants' outcomes and reduce the spread of dengue within the city.

Migrant populations frequently have inadequate knowledge of healthcare systems and of their rights to healthcare. Service providers may also have inadequate knowledge of migrants' rights. This should be taken into account by policymakers, and can be mitigated through targeted information and advice campaigns.

Health and labour

While it varies according to context, migrants are frequently at greater risk of exploitation than other workers. This poses hazards to health. In a study of Nepali migrant workers working in construction in Qatar from 2009 to 2017, excessive heat exposure—above 31°C—is found to have resulted in higher death rates through cardiovascular disease caused by serious heat stroke (Pradhan, 2019).

High-heat days are likely to be a significant health factor for labourers working in manual roles in urban areas. In a study of eighteen workplaces in India, over 64 percent of labourers are found to be exposed to excessive heat stress, leading to a range of health issues; extended work hours due to lowered productivity; exhaustion; sickness or hospitalisation; and lost wages (Venugopal et al., 2016). Few studies, however, analyse heat-related mortality in LMICs, where there is a lack of data. Over half of existing studies of heat-related mortality in LMICs are from China (56 percent) or other Asian countries (14 percent) (Ebi et al., 2021). This is a significant research gap. LMICs have lower adaptive capacity with which to respond to high heat. Where high-heat days become more prevalent, indoor air conditioning—such as in factories—is likely to be one of the only ways in which urban areas can adapt. This is often expensive, however, and thus inaccessible to the most vulnerable. It is also energy intensive, raising the risk of power failures, and emits waste heat into the urban environment.

Those working in the informal economy are especially likely to be vulnerable to increased health risks associated with climate change. ‘Informal employment’ comprises livelihoods without adequate legal or social protections, across formal and informal enterprises and household work settings. A 2018 survey (ILO, 2018) suggested that approximately 2 billion workers (61.2 percent of the world’s employed population) are in informal employment, and some 88 percent of workers in sub-Saharan Africa and South Asia. In Ghana, informal workers are found to endure temperatures of over 35 degrees Celsius, and up to 61 degrees, in their places of work, with “dire consequences” for their daily lives, health, and income-generating activities (Gough et al., 2019: 172). This suggests that authorities will need to pay far greater attention to the workplace conditions of informal workers, improving building designs and introducing workplace ventilation to reduce indoor temperatures, if productivity is not to fall and the adaptive role of migration is not to be reduced.

Given the vulnerability of informal workers to climate-related negative health impacts, it is important that social protection systems expand to consider them and provide coverage. Social protection schemes can cushion income shocks caused by heat stress or other climate-related harms, allowing households to maintain their nutrition intake and wider wellbeing (Dodman et al., 2023). In many places this is challenging, due for example to (Dodman et al., 2023; Agarwal et al., 2022):

- Low visibility of the informal sector to the state;
- Informal workers’ fear of punishment;
- Low education levels among informal workers, including with regard to their rights; and
- Potentially low access to identity documents or other necessary tools.

Inclusion in social protection systems can initially be undertaken through grassroots community-based organisations, which will often have existing knowledge and informal support structures.

Outside of the direct effects of climate change upon working conditions, climate-affected rural-urban migrants also often face exploitative working conditions with high health risks. In two

regions of India, for example, climate-affected migrants are found to be forced to overwork, and to be exposed to polluting working conditions without safety equipment. Migrants forced to work long hours in brick kilns often return with lung disease; because they are typically on informal contracts, they moreover have limited or no accident or insurance cover (Bharadwaj et al., 2021b).

Climate-affected rural-urban migrants often work manual jobs in the informal sector. These can often pose health risks; in the context of more frequent high-heat days and higher humidity, these risks can become very high. More research on labour health risks in climate-affected areas is required. Informal workers should be brought into social protection systems. Schemes allowing workers in dangerous conditions to alert authorities to their conditions should be trialled.

Infectious disease and climate-affected migration

Climate-affected migration is likely to have epidemiological consequences for sending and receiving communities and for migrants themselves. Migrants moving into or through areas with endemic diseases—such as malaria—to which they have previously had limited exposure are at higher risk of infection than other populations, and may carry infections to urban areas, or from urban areas to their rural communities of origin (McMichael, 2015; Vinke et al., 2020).

Increased movement between communities, in an era of higher and wider prevalence of vector-borne pathogens, will see increase transmission of diseases (McMichael, 2012). Dengue fever in Rio de Janeiro, for example, has been linked to rural-urban migration, and schistosomiasis is spread through population movement, especially in contexts of increased rainfall and flooding (Carballo et al., 2008). Where migration is informal and unregularized, and—as is often the case with regard to internal migration—not tracked, with migrants working in informal industries, it will be challenging to screen individuals. Instead, it may be sensible—as Carballo et al. (2008) suggest—to map the epidemiological profiles of areas likely to send migrants, and those likely to receive them, to understand whether diseases to which areas do not have population-level immunity are likely to be cross-transmitted. In some areas this will require a reallocation of public health resources.

Given the higher likelihood of exposure to infectious diseases, especially in climate-affected circumstances of higher disease prevalence and circulation, it is in the best interests of both migrants and host communities to, where possible, screen migrants for disease. Where resources are stretched screening could be targeted towards migrants coming from areas identified as having dangerous epidemiological profiles.

The European Centre for Disease Prevention and Control (2018) notes that screening migrants for active and latent tuberculosis; HIV; hepatitis B and C; strongyloidiasis; and schistosomiasis, with clear benefits to enrolling migrants in vaccination programmes and providing catch-up vaccination

according to disease exposure in countries of origin and during the journey. This refers to migration into Europe, but similar needs are likely to be present in many cases of rural-urban movement, especially where rural inhabitants are moving from areas less well-resourced than cities, and may not have received all necessary vaccinations. Where cost-effective vaccination is feasible, implementation should ensure that:

- All vaccination is voluntary, non-stigmatising, and confidential;
- Screening, referral, and linkage to care and treatment is provided for all individuals requiring it;
- Individual, community, and health system barriers limiting migrants' access to vaccination, such as disease-related stigma and linguistic barriers, should be addressed;
- Care drop-out is reduced and post-treatment follow-up occurs, by considering the unique needs of individual migrants.

Climate change is anticipated to result in a rise in infectious disease prevalence. Climate-affected migration may result in diseases being carried to populations that were not previously exposed. Epidemiological profiling, screening, and treatment should all be anticipated to be necessary.

Health and the community of origin

Those who do not migrate, but instead remain immobile, may also be exposed to significant health risks in increasingly vulnerable contexts. These include increased exposure to diseases; flooding and saltwater intrusion causing malnutrition; the psychosocial impacts of disrupted livelihoods and loss of hope; dehydration; and heatstroke (McMichael, 2020). Where workers are absent for extended periods of time, this may also increase the burden of work upon those who remain in situ, with possible health risks; and may have negative consequences for mental health, especially of women in hazardous social settings, or of children (Bharadwaj and Huq, 2022). (See the subsequent section on the need to pay attention to migration's impacts on areas of origin for more details).

Migrants returning to the area of origin may also carry illnesses. In the case of seasonal rural-urban migration from the village of Bourasso in Burkina Faso, for example, resilience was built through remittances invested in sustainable agriculture, but simultaneously reduced through increased exposure to infectious diseases during the migration (Vinke et al., 2022).

The community of origin may see negative health consequences of migration due to new exposure to disease, or to increased responsibilities or hazards in the absence of a household member. This is not inevitable, however, and positive results can also be enjoyed.

Positive interactions between health and climate-affected migration

While much of the focus is on mitigating negative interactions between migration and health in the context of climate change, it is also worth noting that climate-affected migration frequently has positive consequences.

While the ways in which climate-affected health issues may spur migration have been little researched (McMichael, 2020), it is recognisable that the most basic impulses behind migration in the context of climate change—namely, food shortages and the risk of serious injury—are essentially health-oriented (Schütte et al., 2018). While migrants may face higher health risks in areas of destination, migrants leaving areas of high poverty may also come to enjoy better access to healthcare, improved diets, greater economic security, a cleaner environment, and increased social mobility in areas of destination (McMichael, 2015).

In the six countries covered by the MECLEP project—the Dominican Republic; Haiti; Kenya; Mauritius; Papua New Guinea; and Viet Nam—households sending temporary rural-urban migrants often considered migration to be beneficial to their health (Melde et al., 2017). In these cases, migration enabled households to access better healthcare, enjoy an improved diet, and gain more knowledge of good health-related practices.

Permanent migration from poor rural areas to wealthier urban areas can allow health improvements. Remittances can also be used to fund health-improving measures in the area of origin.

14. Facilitating internal adaptive migration

The information gap

Labour market access is one of the primary motivators of migration. Internal migration occurs in large part as a response to labour market opportunities' variance across space. Rural-urban migration thus responds to the location of higher incomes in cities (Selod and Shilpi, 2021).

Knowledge of labour market opportunities among potential migrant populations is not perfect. This can cause problems. Access to information about migration shapes whether an individual perceives it to be a valid way to fulfil aspirations (Czaika et al., 2021). If information access is limited, or information is inaccurate, a potential migrant may falsely perceive migration to a given destination to be a valid way of fulfilling aspirations (resulting in disappointment, such as through unexpectedly low earnings; exploitation; health problems; etc.) or may falsely perceive it to be an inadequate way of achieving aims (resulting in a missed opportunity to improve a community's circumstances). In studies of international migration, most migrants' expectations are found to be misaligned with actual

outcomes. Potential irregular migrants to Europe from Gambia, for example, overestimate both their likelihood of mortality and their chance of obtaining legal residency status (Bah and Batista, 2018).

Programmes or coincidences providing potential migrants with information about the expected economic outcomes of migration has the potential to affect actual migration decisions. For example:

- Potential migrants from Nepal to Gulf countries substantially overestimate migrant mortality, and are more likely to migrate when these misconceptions are corrected (Shrestha, 2017).
- In a study of Brazil, the wider rollout of broadband internet allowed workers to make better mobility choices, reducing migration flows by 1.2 percent. The cost of collecting information to decide where to move is found to be almost as great as that of actually moving. Regions with better and earlier internet access see greater wellbeing increases than those with later and slower access, resulting from better-connected agents' greater ability to move quickly to access higher wage opportunities and to avoid migrating to those areas with less connection (Porcher, 2022).
- In an experiment in Kenya, Baseler (2021) finds that providing residents of randomly selected villages with either information about wages and food prices in Nairobi and other urban areas or information about migrant families' incomes and savings increases expectations of urban earnings, increasing migration to Nairobi by 40 percent. These increased migration rates are found to remain higher than non-treatment groups' rates two years after the intervention, with migrants reporting higher average subjective wellbeing.
- In Ghana and Uganda, Frohnweiler et al. (2022) find that improved information access regarding regional income differentials affect decisions about *where* potential migrants will choose to move to, but do not greatly change the choice of *whether* to move.

Such findings are context-specific. In a study in Bangladesh, for example, information provision is found to have little impact on migration decisions (Bryan et al., 2014). Where policymakers seek to assist migrants in accessing information needed for migration, context specificities must be considered. It is evident however that greater access to knowledge does benefit populations, either allowing them to choose to migrate where otherwise they would not have known to, or by allowing them to make better decisions regarding migration destinations. Providing increased information requires obtaining better knowledge of labour market gaps, and better transmission of this knowledge to potential migrant populations, targeting especially those whose communities would most benefit from access to migration to allow adaptation to climate change.

A lack of access to information may be a key reason for non-migration; it may also contribute to questionable migration choices, leading to worse outcomes. Where migration would benefit climate-affected rural populations, therefore, information of opportunities in urban or other areas, and of how to migrate to them, could facilitate mobility.

BOX 10. Information perceptions, the status quo, and migration choices

Policymakers often assume that migrants follow rational choice theory. This is not the case. Instead, policymakers must keep in mind that when deciding how to act upon information of possible gains and risks, migrants are not making choices by cold-bloodedly assessing all available inputs (see e.g., Harris and Todaro, 1970). Instead, decision-makers must compare and convert anticipated absolute outcomes into outcomes framed as gains or losses against a reference point—often their own status quo (Czaika et al., 2021; Czaika, 2015). This is the lesson of prospect theory (see Tversky and Kahneman, 1991). It suggests that individuals have principally an aversion to losses, which can see different decisions made in different contexts.

The status quo perceived by potential migrants, and against which the anticipated consequences of decisions of stay or move are evaluated, is inevitably strongly associated with numerous non-economic factors. In Chilean Patagonia, for example, villagers at increasing risk of mudslides are found to prioritise “ontological security” in their community of origin over movement to a place that may potentially be safer (Weigel et al., 2021): to move would risk dipping below the baseline of wellbeing due to the loss of community networks. The status quo used as a baseline may also be in reference to the known levels of wealth in the migrant’s community and wider area. *Relative deprivation*, referring to relatively lower wealth compared to other members of a household’s community, is found to be positively associated with migration in Tanzania, Ethiopia, Malawi, Nigeria, and Uganda. The likelihood of migration furthermore increases with a rise in absolute wealth: perceiving oneself to be relatively poorer than other members of one’s community increases aspirations to migrate, while higher asset levels increase capabilities (Kafle et al., 2018). Where individuals’ sense of their ‘community’ is expanded through social media access to living standards elsewhere, this may be still more the case, and individuals’ aspiration to migrate may increase due to increased knowledge of relative poverty and opportunity differentials (Dekker and Engbersen, 2014; Grubanov-Boskovic et al., 2021).

The findings regarding relative deprivation suggest that where policymakers wish to decrease rural-urban migration in the context of climate change, policies should not simply target aggregate incomes. Instead, local income and wealth distribution should be smoothed to reduce social inequality and prevent relative deprivation from leading to increased migration aspirations. This is a functional reason—if reducing out-migration is of interest—for focusing on equitable approaches to climate adaptation in vulnerable communities.

The skill gap: training migrants

When categorising the adaptive capacity of migration in the context of climate change, Warner and Afifi (2014) note that when rural-urban migration results in unskilled roles in urban areas—especially when the migrant is the head of the household—it is less likely to be successfully adaptive. Low levels of training in desired skills are however frequently a hindrance to the best outcomes in climate-responsive migration.

There is frequently a skill mismatch between migrants coming from rural areas, and the jobs available in urban areas. This makes it harder for rural people to improve their lives through movement (Bharadwaj et al., 2021b). In India, 8.1 million farmers are estimated to have left agriculture between 2001 and 2011, driven by a combination of policy shifts, rural debt, climate variability, and local environmental changes. Without skills beyond farming, however, upward mobility is difficult to attain, and they have largely moved laterally from rural to urban poverty (Singh and Basu, 2020).

Many migrants moreover do not have certifications to prove their skill levels. Even when they have a level of education that could qualify them for better jobs and wages, they thus may struggle to obtain them (Bharadwaj et al., 2021b). This could be addressed by:

- Mapping common migration pathways;
- Mapping skill requirements in destination areas;
- Training people in areas with high out-migration for work in the destination locations, providing certification and assistance in finding jobs; and
- Training migrants in areas of destination.

Such programmes appear to have high attractiveness to potential migrants, or even to ‘produce’ potential migrants where people would otherwise have expected to remain in situ. In a review of the literature on the relationship between Technical and Vocational Education and Training (TVET) and migration, Hennessy and Hagen-Zanker (2021) find that TVET programmes frequently—although not always—encourage migration, especially if the local labour market does not have room for the skills trained. A key factor lies in whether training qualifies an individual for a new profession: if it does not, they are unlikely to change their livelihood or seek to migrate. This points to the need for adequate training programmes, and—as Bharadwaj et al. (2021b) note—to the importance of portable qualifications.

In EU-funded TVET programmes in the Horn of Africa, surveyed participants in Ethiopia, Uganda, and South Sudan frequently reported that they planned to move internally or regionally to seek job opportunities after receiving training. Increased migration aspirations were frequently reactive, gained during or after receiving training rather than serving as a motivation for undertaking training in the first place (Bakewell and Sturridge, 2019). An explicit linkage between skills gained through TVET programmes and higher earning opportunities in other areas could see participation increase in some contexts.

Linking training in the area of origin with labour opportunities in better-paying areas of destination requires improved labour market knowledge in areas of destination, coordination between municipal and rural authorities, and in all likelihood significant funding for actors providing training. Knowledge of the labour market with which to inform preparatory interventions is however made more challenging to obtain by the prevalence of the informal sector. Most low- and

middle-income countries have large informal sectors, which may account for 30–70 percent of GDP and 20–80 percent of the labour force (Ulyssea et al., 2023).

BOX 11. The World Bank’s pre-migration training project in China

Few development interventions appear to have attempted to train rural workers ahead of rural-urban labour migration. This may be due to governments’ preference to reduce rural-urban migration.

The World Bank-funded ‘Rural Migrant Skills Development and Employment Project’, which ran from 2009–2014 and had a budget of US\$83.52 million, is an exception. Implemented in three provinces in China, the project provided skills training for over 520,000 young people, working with 23 technical and vocational schools to prepare rural workers for urban migration to obtain better incomes. This responded to the low skill levels and earnings of the more than 130 million rural-urban migrant workers at the project’s start (World Bank, 2016a), and the one-to-three rural-urban wage disparity (World Bank, 2015). The project aimed to assist rural workers in accessing better employment opportunities in urban areas by:

- Improving access to skill development opportunities. This included mobile training centres used to access rural communities, targeted modular programmes, and improved certification measures;
- Reducing the cost of migrants’ job search through access to employment services. This included the establishment and extension of labour market information systems to better understand employer labour needs, and the establishment of one-stop-shops in rural areas; and
- Strengthening worker protections in urban areas. This included efforts to improve contract coverage and terms, and awareness-building regarding migrants’ rights.

The project was considered to be a success. Training had a very large impact on the success of migrants in finding jobs; the employment services supported saw greatly increased use; and wages obtained by trained rural-urban migrants roughly tripled versus original baselines. The project did however have some limitations. Notably, the training initiatives were often supply-driven, often not adequately taking into account demand from private sector employers in urban areas of migrant destination. This was improved over the course of the project but initially reduced the usefulness of training, and offers a lesson to future initiatives. Some success was found in improving the working conditions of migrants in areas of destination: with increased information and support, the number of migrants seeking legal aid in contesting non-payment dramatically increased (World Bank, 2015). This is perhaps an issue typically out of the scope of a pre-migration training project. This is also a challenge likely to be encountered in many contexts, given the informality of many labour markets, and is likely to both reduce the effectiveness of rural-urban migration, and challenge the possibilities in development interventions.

Alternatively, internal rural-urban migrants could also be provided with training in urban areas of destination, either before migrants commence work or through on-the-job training programmes (Hoffmann and Muttarak, 2021). In Karamoja, Uganda, migrants are noted to have opportunities to open small businesses, but to be constrained by a lack of access to credit. Expanded financial services through microfinance delivery; training for officials; support in developing business plans; and capacity-building for public and private sector actors in the area, could all increase migrants' access to decent and productive entrepreneurial activities. Migrants themselves could also often benefit from training: many have entrepreneurial drive but limited financial literacy, or could become more employable if they received context-targeted vocational training (Stites et al., 2014). This can allow better access to urban jobs, without requiring potentially challenging coordination between urban and rural authorities. By concentrating training in the city, it may also be more economical and efficient. Training could allow earnings and remittances to increase, allowing greater adaptation options in the area of origin.

Training rural workers in the skills needed to obtain employment in areas with better wages can increase migration aspirations and open doors to higher earnings and larger remittances, potentially increasing resilience to climate hazards. To facilitate this, better knowledge of labour market needs may be necessary. Training could be conducted in the area of origin, or in destination areas. Qualification portability is crucial.

15. Employment: barriers to adaptive remittance-earning

Migrants from climate-affected rural areas to cities can enjoy far more employment opportunities than peers who remaining in the area of origin. However, this work is frequently informal; may have limited protections and oversight; and may have higher risk of unsafe working conditions or exploitation. Closer engagement with community networks in which migrants form a high proportion, and the creation of an ombudsman process by which internal migrants can complain of exploitation, could reduce the prevalence of abuse by employers.

Difficulty finding decent work

Migrants frequently struggle to find work in cities. This is in part due to a lack of information, and in part due to the cost of searching for a job. Time spent searching for a job equates to earning time lost, in addition to the expenses of accommodation, food, and transport while searching. It is also due to a lack of network connections. Some policy options are available to assist migrants to find work.

In an intervention in Addis Ababa, job application workshops and subsidised urban transport increased the speed with which young migrants were hired. Those who attended an application workshop, where they were told about job opportunities and instructed in how best to present themselves to employers, were nearly 40 percent more likely than the control group to find

permanent employment, and nearly 25 percent more likely to find formal employment. Those who received subsidised transport within the city, allowing a more intensive search, were 25 percent more likely to be in formal employment. These effects were stronger for women and those with less education (Abebe et al., 2016). Research from Bogotá, Colombia, suggests a similarly important role for both information and transport in job-seeking. The construction of a new transit network in Bogotá in the 1990s is found to increase access to well-paying jobs for those previously living too far from them: reducing the cost of transport increased employment, raising welfare (Tsivanidis, 2022).

Migrants affected by climate change, with fewer options and less knowledge, may be in particular need of assistance. In a study comparing employment outcomes of ‘climate-induced’ versus ‘non-climate-induced’ migrants to Dhaka, ‘climate-induced’ migrants are found to be far more likely to be unable to find employment (21.2 percent versus 0 percent). They are also far more likely to be employed in low-paid menial jobs. Inability to find a job may be due to lack of network connectivity, and over-employment in low-skilled jobs may be due to desperation, forcing climate-induced migrants to accept the first job they can find, or to the lower levels of education. These climate-affected migrants, moving out of relative desperation, have on average roughly half the years of schooling of migrants whose movement is not motivated by climate-related factors (Adri and Simon, 2018).

In addition to urban job application workshops and transport assistance, training before or during migration can also—as above—assist migrants in finding decent work. Where these programmes are combined with approaches facilitating the finding of work in urban areas, migrants’ vulnerability to exploitation may go down. For example, potential migrants could be provided with a mobile app listing opportunities for workers in industry or government projects outside their area of origin. This could allow migrants to assess their skills against the jobs available; pursue training options where available; and secure a job opportunity even before leaving the village, without exposure to intermediaries and recruitment agents (Bharadwaj et al., 2022d).

Climate-affected migrants may struggle to find work in areas of destination. This reduces the adaptive potential of migration, and may increase their vulnerability to exploitation. Support with job seeking, such as the use of apps linking migrants to employers; regulated intermediaries; job search support; and subsidised urban transport, may improve outcomes.

Exploitation and dangerous working conditions

Climate-affected migrant are at a high risk of being exploited or abused by employers in poorly regulated informal sectors. Most low- and middle-income countries have large informal sectors, which may account for 30–70 percent of GDP and 20–80 percent of the labour force (Ulyssea et al., 2023). Many migrant workers in informal work are subject to abuses by employers: in Ghana, for

example, young internal migrants in urban areas are found to be frequently exploited or abused due to their vulnerable situations (Assan and Kharisma, 2022).

Migrants moving in the context of climate change are more likely to be vulnerable than many other groups. They are frequently migrating in situations of desperation, due to high levels of debt or an urgent need to find money for food for their household. This makes them more likely to accept the first work they find, without the ability to discriminate between employers. It also makes them less able to leave an employer once located.

Climate-affected migrants are frequently exposed to dangerous working conditions, including manual labourers to conditions of high heat and humidity for long hours. For example:

- In India, labour and workplace safety laws for migrants in informal work are frequently disregarded. Migrants are often badly exploited; forced to work illegally long hours; paid less than agreed; and exposed to dangerous working conditions. Migrants are often on informal contracts and engaged through middlemen, leaving them exposed to exploitation and without employment security. They are moreover frequently without insurance cover (Bharadwaj et al., 2022b).
- In Ho Chi Minh City, rural-urban climate-affected migrants report often being unpaid for work undertaken in the informal labour market. Work is also noted to frequently be physically challenging, with negative health effects including heat stress and exhaustion due to prolonged heat exposure. In many areas, these effects will be exacerbated by further temperature increases (Ngo et al., 2022).
- In Burkina Faso, migrants from a drought-stricken and very rural community in northern Burkina Faso travelled to Abidjan, the capital of Côte d'Ivoire, to work. This required a long journey across state borders but remaining within the ECOWAS free movement area. Working in Abidjan allowed them to remit US\$200–300 every six months, allowing greatly increased resilience in their home village. However, the work itself involved extremely long hours, working nearly twenty-four hours a day, and living in very cramped conditions at the place of work (Østergaard Nielsen and Reenberg, 2010).
- In Bangladesh, rural-urban migrants almost always undertake unskilled manual labour, such as rickshaw-pulling or construction work. This is physically challenging, and cannot be sustained for long periods without a break. Better work is frequently only accessible for those with skills or personal contacts, however, which migrants often lack. Inability to access better work opportunities leads to migrant ill-health and to reduced remittance-sending opportunities (Penning-Rowsell et al., 2013).

Migrants may also have very low job security. In a study of Bengaluru, India, participation in the platform economy (such as working for Uber or Ola, ride-sharing apps) is found to provide people who have moved in the aftermath of climate shocks with alternatives to the informal economy, and

with a way of circumventing low social capital. This work allows migrants to supplement precarious agricultural incomes, offering a coping strategy, but is not considered by workers in the sector to be a “long-term livelihood option” due to its low wages and high level of precarity (Surie and Sharma, 2019: 135).

Recruitment agents and other intermediaries play a significant role in the exploitation of climate-affected migrants. Agents in India are found to often place unnamed workers on employment registers, avoiding responsibility for workers’ welfare and safety at worksites (Bharadwaj et al., 2022d). Their role in movement may provide them with increased control over migrants, opening workers to exploitation. For example, where middlemen offer migrants a high upfront loan in order to facilitate movement, they can lose the ability to leave their employer or return to their area of origin (Bharadwaj et al., 2021b). Migrants can thus become trapped in areas of destination, not earning enough to remit money, but unable to leave their employer. In these cases the migration undertaken is extremely maladaptive, resulting in abuses of human rights and reduced resilience in rural areas of origin (Vinke et al., 2022).

In a study of migrants from Kendrapara and Palamu in India, respondents reported that inter-state migrant workers would often come to work opportunities through agents, who would access potential migrants in villages, and offer advance payments; the facilitation of the migration process; free travel to areas of work; and free accommodation near the offered job. Such agents can be exploitative, extorting migrants, withholding wages, and requiring unsafe working practices. In the Kendrapara and Palamu cases, many migrants received lower wages than had been agreed (in some cases, up to 70 percent less); employers also often arbitrarily deducted wages for the purchase of workers’ liquor and food. Most migrants furthermore did not have adequate housing, instead having to sleep at the worksite (Bharadwaj et al., 2022b).

Government actors and NGOs should seek to reduce exploitation of climate-affected migrant workers wherever possible. This is a priority not only because exploitation entails human rights abuses against the individual in question, but also because, given the nature of translocal climate resilience, exploitation has spillover effects harming other vulnerable populations relying on remittances in the area of origin.

Exploitation can be reduced by reducing the exploitation capacities of middlemen; by substituting government-managed or -aligned systems for irregular intermediaries; or by improving conditions in the area of destination, through greater enforcement of regulations and through the provision of alternative options (Agunias, 2009; Bharadwaj, 2022b). This can be undertaken by:

- Putting systems in place to allow migrants and employers to connect directly with each other. This could be implemented through a mobile app.
- Using trusted and regulated intermediaries, such as a government programme or licensed recruiters with enforced codes of operation.

In areas of destination, the exploitation of climate-affected migrants can be reduced by:

- Informing migrant workers of their rights, such as through NGO engagements; communications campaigns; and liaison with community networks with high migrant population engagement.
- Establishing and disseminating knowledge of helplines through which migrants could request information about rights and report abuses.
- Providing bridge support for migrants leaving exploitative employers, such as subsidised travel to their area of origin; a grant or no-interest loan allowing migrants the time to seek work after leaving their employer; or accommodation and job search assistance.

Climate-affected migrants, especially those moving in more difficult circumstances, may find it harder to obtain decent jobs. They are at higher risk of exploitation by employers, abusing their rights and harming translocal resilience. The role of intermediaries is particularly important.

Trafficking

People moving in the context of climate change are more likely to be trafficked than those moving in other contexts. Households affected by climate change-related shocks suffer greater asset losses; they are more likely to have a need to obtain money to repay debts, buy food, or pay for other essential purchases; and timeframes for relief are constrained, forcing unpleasant or dangerous choices. Economic hardships and other hazards increase the risk of being trafficked due to the above factors, and also increases the incentives for other actors to engage in trafficking activities (UNODC, 2022).

In climate-affected contexts the likelihood of ‘distress’ or ‘desperation’ migration increases. ‘Distress migration’ is typically internal movement characterised by:

- Food insecurity;
- Low state capacity;
- Climate shocks; and
- Ongoing marginalisation, including lack of access to land and other resources.

These factors compound to lead to “psychological distress, loss of dignity and self-worth” (Avis, 2017: 19). The difficult circumstances behind the movement, and the lack of alternative options, means that this form of migration is not the result of “an informed and voluntary choice”, but is instead “the only perceived option for improving [migrants’] employment and life prospects and meeting their particular aspirations and needs” (FAO, 2016: 1).

In these contexts the risk of direct trafficking, or high-vulnerability migration that ultimately becomes trafficking, is heightened. For example:

- In Cambodia, debts taken on due to the effects on agriculture of the increasingly unpredictable climate lead to debt bondage labour in brick kilns. Migrants enter contracts with kiln owners in which all their debts are paid, in exchange for single-employer work until the new debt is repaid. Workers spend an average of almost 8 years working in the kilns; sometimes, however, the bondage can span generations, lasting multiple decades (Parsons and Chann, 2019).
- In India, migrants moving to respond to climate shocks can find themselves employed by intermediary agents and end up in debt bondage from which they cannot escape, heightening their exploitation and eliminating any adaptive benefits of movement. Those from low castes, with less social capital and fewer options, are more vulnerable; as are women, who risk being sold by agents to illegal placement agencies and then re-sold to work as domestic help or forced labour, or into marriage (Bharadwaj et al., 2022b).
- In Burkina Faso, migrant men migrating from to urban or peri-urban areas risk becoming trapped in the areas of destination, not earning enough money to pay for their return to their area of origin or entering situations of debt bondage (Vinke et al., 2022).
- In Ghana, young women and children leave northern farming communities devastated by droughts and floods, moving to urban areas in the south. There they can become dependent on low-paid and commission-based jobs to meet basic needs, which they find with the help of agents. Agents may ultimately never pay them, but can instead increase their debt indefinitely, trapping them in bondage (Bharadwaj et al., 2021a).

Policymakers should:

- Seek to reduce vulnerability in the area of origin, reducing the drivers of ‘distress migration’;
- Recognise that slavery and human trafficking is a high-risk and, in some contexts, major component of migration in the context of climate change;
- Incorporate human trafficking issues into climate and development planning;
- Work with community groups to identify migration pathways that have a higher likelihood of resulting in exploitation;
- Seek to identify and punish intermediaries who enslave climate-affected migrants;
- Provide alternative migration pathways, through training and facilitated placement of workers;
- Seek to identify and assist migrant workers in situations of bondage;
- Work to make migrant-sending populations more aware of migrants’ rights and of methods of recourse.

Climate-affected migrants are at higher risk of trafficking. This is under-considered by research and policy, and can lead to grave human rights abuses and loss of resilience in areas of origin.

16. The funding gap

In migrant decision-making, the perceived cost of migration is an important determinant of whether it is ultimately undertaken. Costs may be both *functional* (concerning for example money and time) and *cognitive* (concerning feelings associated with the migration: whether it is enjoyable or difficult, safe or dangerous, etc.) (Czaika et al., 2021). Cognitive costs may be challenging to address, although interventions informing potential migrants of higher earnings opportunities can change decisions. Functional costs are more obviously mitigable. The functional costs of migration include information-gathering, as above; transport; and purchases—such as accommodation and food—in the area of destination. Grants and no- or low-interest loans may allow access to migration where populations would otherwise be forced to remain in their area of origin.

Travel costs

Travel costs can be prohibitive to migration. Households that are less connected in their area of origin face greater challenges in both accessing migration and in adapting to the effects of climate change. Distance and a lack of connection and integration reduces access to migration. This may be due to higher risks, and lower asset levels (Lucas, 2015). For example:

- In the Hindu Kush Himalayas, an increase in distance to a motorable road by one kilometre is found to decrease the likelihood of adaptation being undertaken by three percent (Maharjan et al., 2021). This is probably due to the correlations between distance and a wider set of factors: more isolated areas are less well integrated into trade networks, and may suffer from underinvestment in state services.
- In Brazil, investments in road quality are found to increase welfare primarily through the stimulation of trade (95 percent), with improvements to wellbeing little affected (only 5 percent) by increased migration (Morten and Oliveira, 2018).
- In Bangladesh, interventions to reduce rural-urban transport costs can lead to an increase in migration (Bryan et al., 2014).

The precise mechanisms through which distance from destination areas affects movement choices are not fully understood. Prominently, the cost of transport may be a factor in dissuading movement. While in many contexts the transport costs incurred in internal migration are not prohibitive even

when travelling relatively long distances, it is likely (Lucas, 2000; Selod and Shilpi, 2021) that in climate-affected contexts travel will be a larger than normal constraint:

- Where households are considering migration as an insurance option following slow-onset or multiple sudden-onset shocks, savings are likely to have been exhausted.
- In shock-hit agricultural areas, productive opportunities through which to earn enough to save for migration are likely to be limited.
- Very poor households in climate-affected areas often have constrained credit. In these cases, the cost of a return ticket may be unobtainable even when anticipating higher wages in the area of destination.
- Where migration would also require a lengthy job search due to lack of information, in addition, time spent looking for options would also represent a cost in the form of foregone earnings.

The effects of increased distance to urban areas or usable roads do however vary according to the wealth of affected populations. Wealthier populations, with more flexibility, are less affected by the extra costs a greater distance imposes (Selod and Shilpi, 2021).

This suggests that *migration subsidies* may be a valuable tool in assisting populations in accessing alternative labour markets. Lagakos et al. (2018), replicating the results of Bryan et al. (2014)'s experiment in Bangladesh (see Annex III.B) find that while those moving from rural areas to cities do not exhibit a permanent increase in productivity, the marginal difference in earnings between rural and urban areas is nonetheless substantial. This means that even where workers are not highly productive in cities, the marginal benefit from the move is important to welfare outcomes. Migration subsidies are thus valuable when the marginal utility of consumption is very high, and when poor populations have need to smooth adverse income shocks. The welfare gains from a migration subsidy in the Bangladesh context are found to be a little better than those from a cash transfer intervention—especially for the poorest households—and considerably better than those from rural workfare programmes such as MGNREGS.

The cost of movement can prevent climate-affected populations from being able to access migration for adaptation purposes. Subsidised travel, grants, or no-/low-interest loans may bridge the gap (see Annex III.B on an experiment in Bangladesh).

Funding constraints and trapped populations

For many, the effects of climate change upon asset access means that migration will become increasingly unattainable. With fewer resources following poor harvests, and constricted local markets in which to sell resources, access to migration could diminish, resulting in poverty traps and reduced resilience (Adger et al., 2015; Wilkinson et al., 2016).

Trapped populations are *involuntarily* immobile, unable to support themselves through conventional livelihoods in their area of origin, nor to undertake adaptive movement (Tebboth et al., 2019). DeWaard et al. (2022: 3) define ‘trapped populations’ as “actors who are exposed to [climate and environmental stressors], but, given insufficient resources, lack the capacity to adapt to these stressors by migrating despite their intention to relocate.” Not all populations who are immobile are trapped, however, and differentiating between those who are content to remain in situ from those who would prefer to move is difficult from a distance (Jónsson, 2011); Schewel (2019) suggests that this represents a separate conceptual category of ‘acquiescent immobility’, posing a challenge to policymakers.

The relationship between funds and migration is relatively well understood. As a general rule, migration increases and then falls as incomes rise, in an inverted-U curve forming a rough ‘hump’ (de Haas, 2010; Clemens, 2014). This is the case at the international and local levels. Cash transfers, for example, provide recipients with the assets necessary for movement, allowing migration to increase (Clemens, 2022a). Where incomes increase, similarly, migration frequently rises (e.g., Guriev and Vakulenko, 2015). Development can thus allow out-migration (Clemens, 2014).

Climate change, by contrast, will slow development, and in many places will push people into poverty (Rozenberg and Hallegatte, 2015). Where income is reduced, populations are moved to the left of the inverted-U curve, reducing their ability to migrate (Šedová et al., 2021; Foresight, 2011). ‘Trapped’ populations will need support in order to have adaptive access to migration. There is the possibility, however, that climate-affected populations who lose the belief that their area of origin can support them may ultimately move despite destitution, including pre-emptively (Bermeo, 2021)—see the section on development’s impact on out-migration for further discussion of this hypothesis. It is also important to remember (as is noted in the summary of ‘acquiescent’ immobility) that many populations will *choose* to remain in situ despite reductions in living standard (Schewel, 2019; Adams and Kay, 2019).

Populations pushed into poverty by climate change may not have the assets to move, and may become ‘trapped’. These populations may be hard to identify from a distance, but will need support to access movement.

For a discussion of the effects of reducing migration costs drawing on evidence from Bangladesh, see Annex III.B.

Debt in climate-affected migration: opportunities and dangers

In the context of climate change, debt can be highly important. Debt can offer opportunities to adapt, but also frequently reduces populations’ adaptive capacity. It can allow migration to occur, but may also be a driver of ‘distress’ migration, and can harm migration outcomes. With regard to migration,

debt affects outcomes in four spheres (Bylander, 2019), with the potential to have positive or negative consequences in each:

1. In migration decision-making;
2. In financing migration;
3. In the migration experience;
4. In migrant return.

Climate-related debt driving distress migration

Indebtedness, and especially the threat of the loss of a home or land, can cause households to make difficult and even dangerous decisions. Where climate change leads to increased agricultural unpredictability and therefore the taking on of more debt, it may lead to greater out-migration. Migrants moving in a debt-constrained context are also more susceptible to exploitation, and may move in ways, and at times, less likely to lead to adaptive outcomes.

Migrants from debt-burdened households have less agency than those without debt. In these situations, they have less margin for jobless periods, less money for accommodation, and are consequently at greater risk of exploitation. They are thus more likely to undertake ‘distress’ migration, which is less likely to be optimal (Avis, 2017).

Debt is typically a major factor in contexts where it has either been taken on in order to fund subsistence needs when agricultural yields have been unexpectedly low (including due to climate shocks), or where it has been poorly invested in unsustainable practices or low-yielding enterprises (Kandikuppa and Gray, 2022). In parts of India, for example, farmers take high-interest loans to drill borewells with which to irrigate water-intensive cash crops. With many farmers drilling loan-fuelled borewells, water levels fall, obligating ‘competitive digging’ paid for by more loans in a spiral that ultimately collapses. When this occurs, migration is often turned to in order to pay off the loans (Rao et al., 2019).

Where migration is undertaken to service debt, it may allow migrant households to avoid extreme forms of dependency, but is unlikely to improve livelihoods, savings, or wellbeing above the no-debt baseline. In scenarios in which migrant earnings are predominantly used to repay debts, migration may yield few development or adaptation gains, or have negative consequences if the debts repaid were taken out in order to finance the migration itself (Bylander, 2019). When labour migration is exploitative, such as in cases where wages are withheld, households may need to borrow further after migration (Carswell et al., 2020). This can lead to debt spirals and chronic vulnerability to subsequent shocks.

Where debt becomes intolerable and results in migration, the combination can restrict the ability to pursue other opportunities for resilience, with direct consequences for the indebted household and, in some cases, indirect consequences for other members of wider networks. For example:

- In Dhaka City, 55 percent of climate-affected migrants have personal debt, compared with only 17.5 percent of those considered not to be moving under climate-affected circumstances. Where opportunities for resilience-building, such as cash transfers, were supplied by NGOs, the assistance was used to repay onerous private debts rather than invested in productive enterprise (Adri and Simon, 2018).
- In India, unpredictability in agriculture leads to increased debt. Debt constraints result in reduced resources for hiring rural labour, leading to rural out-migration following the decline of rural wage work (Kandikuppa and Gray, 2022).
- In North-West Cambodia, climate variability has led to increased debt, prompting migration as a response. Migration often occurs during crucial periods, such as the harvest and sowing seasons, and the loss of labour harms yields and resilience. Around 40 percent of remittances are used to repay debt. This is an example of the climate-debt-migration relationship becoming a chronic spiral of vulnerability (Jacobson et al., 2019).

Debt interacts with climate and other factors, such as social positions and land holdings. In Palamu, in India, marginalised members of Scheduled Castes—those considered highly under-developed by the Government of India—have faced gradual land expropriation by local elites. When agricultural yields suffer due to climate shocks, desperation to adapt reduces migrants' bargaining power, making trafficking more attractive and likely (Bharadwaj et al., 2022b).

For a discussion of climate-related debt traps drawing on evidence from Cambodia, see Annex III.C.

Debt facilitating climate-affected migration

Debt-financed migration can be exploitative, but is not inherently negative. As in any case of movement, debt-financed migration may be undertaken fully voluntarily, chosen in order to further the aspirations of the migrant, or may be undertaken in circumstances of reduced agency. Debt in the context of migration can offer the opportunity to achieve life-goals; in climate-affected contexts, it can finance adaptation—including through migration—and smooth risk (Maharjan et al., 2021). For example:

- In Tamil Nadu in India, migrant sugar-cane harvesters are found to perceive debt as a means by which to obtain greater economic freedom, despite the risks involved (Marius-Gnanou, 2008).
- In China, the arrival of a rural microfinance programme is found to increase seasonal rural-urban migration for loan-receiving households: migration is seen to be a productive investment for which debt is justifiable (Cai, 2020).

The success of borrowing for adaptation or for migration depends on the manner in which it is undertaken. Debt can have a positive role (Bylander, 2019) where it is:

- Taken up proactively;
- Has fair and transparent terms;
- Is used for productive investment or movement to decent work;
- On the basis of accessible information; and
- With labour rights and freedom of movement.

Borrowing for migration can have negative results, worsening existing vulnerabilities or creating new risks, where:

- It is a coping strategy or last resort;
- Loans require high interest rates or excessive collateralisation;
- Labour rights abuses occur;
- Information is unavailable; and
- Freedoms are constrained.

Where debt is used to finance migration, it is generally used in two ways.

Firstly, a migrant may accept wage deductions in return for the employer or agent paying for their travel. In these cases, wages are directly used to repay migration costs. For security, the employer or broker often holds the indebted worker's documents until the debt is repaid. This prevents the worker from changing jobs, leaving few options in the case of abuse or exploitation, or if urgent return to the home area is needed. In South-East Asia, debts owed to informal migration brokers very frequently lead to labour exploitation, as is also found in India and elsewhere (Meyer et al., 2014; Bharadwaj et al., 2022b; Andrees et al., 2015). This is not inevitable, however.

Secondly, the migrant may take on debt before leaving their area of origin in order to afford the up-front cost of moving. In these cases, indebted migrant worker may have greater urgency in seeking employment; may be less able to negotiate better terms with employers; and may be more willing to enter exploitative working relationships, in order to meet debt repayment deadlines (Bylander, 2019). As is noted above (see the section on Trafficking), this can have serious consequences. In India, debt-migration involving large advance cash payments which migrants afterwards can only repay through long contracts has been likened to slavery (Deshingkar, 2022). At the same time, these migration pathways are often still sought after, and can be a route to greater wellbeing in the long-term. Debt-financed migration is not only a "poverty trap"; while it is risky and can be abused, it can also "bring the kind of change that migrants and their families value" (Deshingkar, 2022: 18).

Debt-financed migration can occur under state-sponsored regimes as well as through informal channels. Migrant-debtors may face exploitation and reduced agency in legal as well as in irregular systems (O'Connell Davidson, 2013; Bylander, 2019). This can occur in international as well as internal cases of migration. For example:

- The UK has seen debt bondage emerge as a recurring issue in its temporary (international) labour migration programmes (FLEX, 2019; Dugan, 2022a; 2022b).
- In Singapore, guest worker programmes tie workers to a single employer, leaving them with low bargaining power in negotiations with employers, and potentially at risk of exploitation (Baey and Yeoh, 2015).

In the case of international migration, the risk of exploitation of indebted migrants can be reduced by facilitating access to legal work. Exploitative contracts imposed by intermediaries financing movement are easier to enforce in the informal sector than in regulated sectors. Where irregular migrants have limited access to formal work, migrants are less able to escape their exploitation (Friebel and Guriev, 2006). This suggests that in countries known to be receiving high numbers of climate-affected migrants likely to be relying on migration brokers, programmes assisting them in transitioning to the formal sector may be beneficial.

Debt is frequently used to facilitate migration. This can be beneficial, allowing households to obtain their ends, or can lead to exploitation. Assistance should be provided to allow migrants to transition to the formal sector.

Approaches to debt challenges

The problem of migrant debt requires further attention. Solutions will need to be context-informed, recognising varying levels of state and private sector capacity, and responding to existing vulnerabilities. Responses fall into three categories (Bylander, 2019):

1. Reducing the costs of migration to the migrant;
2. Increasing the financial literacy of migrant workers; and
3. Creating more responsible and lower-cost lending programmes accessible by migrant workers and their families.

A fourth category could be added, discussed below:

4. Providing access to insurance or pre-emptive funding.

Responses to harmful debt levels in climate-affected areas, and to its negative roles in migration, should focus on:

- Supporting rural livelihoods, especially through social protection, in order to reduce the need to use loans for consumption purposes;
- Providing financial literacy training to populations at risk of excessive debt;
- Setting enforced caps on local interest rates and collateralisation;
- Reducing where possible the costs of migration, including potentially through the provision of low-/no-interest loans or of grants;
- Providing alternatives to debt, through insurance mechanisms, anticipatory financing, or other safety nets;
- Increasing job mobility and collective bargaining power in migrant-receiving areas; and
- Regulating migrant labour and recruitment in migrant-sending and migrant-receiving areas.

Reducing the costs of migration

The first option, *reducing the costs of migration to the migrant*, is one of the breakdown indicators for SDG Target 10.7 (the reduction of worker-borne recruitment costs as a percentage of the worker's annual income). High costs of movement are one of the leading reasons for increased migrant indebtedness for both internal and international mobility (Tacoli et al., 2015). Solutions could see the employer assume more costs. This is possible, and in some contexts is already expected: for highly-skilled workers, employers frequently expect to pay for different costs, such as relocation or visa documentation. In international settings, costs frequently nonetheless remain even in the presence of international agreements (ILO, 2020b).

As in the case of Bryan et al. (2014)'s experiment in Bangladesh, transport costs can be reduced by providing subsidised travel, small grants, or low-/no-interest loans. Increased access to information could also reduce the costs of preparing to migrate and of finding work upon arrival. Caps on recruitment fees could also be established, limiting the ability of migration brokers to demand amounts that would seriously harm the migration experience, remittance-sending capacity, and the usefulness of migration for climate adaptation. Importantly, however, these measures would require stringent enforcement. Several efforts to reduce costs through regulation have seen actors nonetheless skirt obligations. Government actors at multiple levels need to be empowered to monitor, scrutinise, and penalise actors continuing to exploit both internal and international migrants. Watchdogs and publicised hotlines should be developed, with reports of migrant exploitation acted upon.

Reducing the cost of migration can increase access to other sources of income, helping households to adapt to income shocks. This could be accomplished through caps on recruitment fees; subsidised travel; and greater access to information.

Increasing migrants' financial literacy

The second option, *financial literacy* for those responding to climate change or considering migration, is still in its relative infancy. Financial literacy interventions aim to ensure that those considering using loans have adequate understanding of their obligations and the likelihood of risks.

This approach assumes, however, that over-indebtedness is due to a lack of knowledge and a lack of understanding of possible consequences, leading to unwise investments. This is not necessarily the case. Where problems are structural, and difficulties (related to climate shocks or the wider socio-economic context) are too great, debt may be seen as the only possible response (Parsons and Chann, 2019). In many cases, borrowing or migration are alternatives to reducing nutrition. In Ethiopia, households worried about food supply are found to be more likely to send a migrant (Regassa and Stoecker, 2011). In India, adaptation strategies alternative to debt or debt-financed migration included reducing food consumption or taking a child out of school (Bharadwaj et al., 2022b).

For many, vulnerability-increasing debt is not the result of financial illiteracy: it is the result of a lack of adaptation options. Furthermore, it is uncertain whether financial literacy training does change behaviour concerning credit and debt use. Among low-income populations, it may be less effective (Kaiser and Menkhoff, 2017), and there is limited evidence so far of positive impact (Bylander, 2019).

Debt may be taken on by households without sufficient financial literacy. Training may help them to avoid unproductive debt. It is however uncertain how effective these approaches are.

Creating more responsible lending programmes

The third option concerns the *formalisation of loans*. These have not yet been widely explored, but may hold potential in some contexts.

In contexts where loans demand high interest rates, the effects can be very harmful for adaptation (e.g., Bharadwaj et al., 2022b; Jacobson et al., 2019). High interest rates can be more likely to occur in contexts affected by climate shocks. In these contexts the demand for credit may rise, pushing local interest rates up to respond to heightened demand (Yang and Choi, 2007). In Palamu, India, for example, informal moneylenders can charge climate-affected poor households interest rates of around 120 percent (Bharadwaj et al., 2022b). Finally, lending rates may also rise in response to tighter fiscal policy (Hassan and Holmes, 2018), reducing both access to credit for consumption smoothing and adaptation, and either forcing desperation/distress migration or cutting off access to debt-financed migration.

The effects of both climate change, especially through sudden shocks, and of economy-wide mitigation upon fiscal policy are hard to predict. It is however possible that low-interest loans may be less available in coming decades (Baur et al., 2021), leaving the poorest struggling to access affordable credit.

Low-interest credit interventions, especially when responding to seasonal fluctuations in vulnerability, can be of great benefit. Reliable, subsidised credit at low interest rates may provide a bridge to urban areas in which rural communities struggling to adapt to climate change can obtain necessary resources. These have already been attempted in some contexts. BRAC, among the world's largest NGOs and microcredit providers, has run programmes providing loans to potential international migrants in Bangladesh for several years; similar programmes have been run in Indonesia, Nepal, Sri Lanka and Viet Nam. BRAC's loans are larger than recommended and remain relatively high-interest, however, at 27 percent per year; while the debt is formalised, it thus nonetheless does little to alleviate migrant vulnerability (Bylander, 2019). For migrants' welfare to be improved, debt-related efforts must accompany other interventions, such as oversight of recruitment agencies and reduction of broader migration costs.

State or regulated loan programmes could provide an alternative to exploitative moneylenders, keeping households from becoming trapped in cycles of vulnerability.

Providing alternatives to debt

For many households affected by climate change, the value of migration lies in its non-correlation with circumstances in the area of origin (Yang and Choi, 2007; Nawrotzki et al., 2015). While a shock can badly affect markets in the area of origin, households able to send a migrant can access a market which is not badly affected, and the remittances generated can allow them to subsist. It can thus serve as a form of informal insurance, acting as an adaptive mechanism (Lagakos et al., 2018). Formal insurance, and pre-disaster anticipatory financing, may allow households to avoid the worst shocks. This could reduce exposure to debt and the risk of distress migration.

Migration is of most use where other market processes, such as capital and insurance markets, fail disaster-struck populations (Maharjan et al., 2021). In Vietnam, rural households without access to adequate formal safety nets use remittances and loans as informal insurance. Where loans are not exploitative and are used well, they can shorten recovery times for losses and damages to farms and homes. Migration is thus one of several options available to Vietnamese households in the absence of disaster insurance and adequate public support systems (Simelton et al., 2021). Where debts are excessively onerous, or further debt is taken on to fund migration which ultimately yields less than expected, the results will of course be poor.

Access to insurance

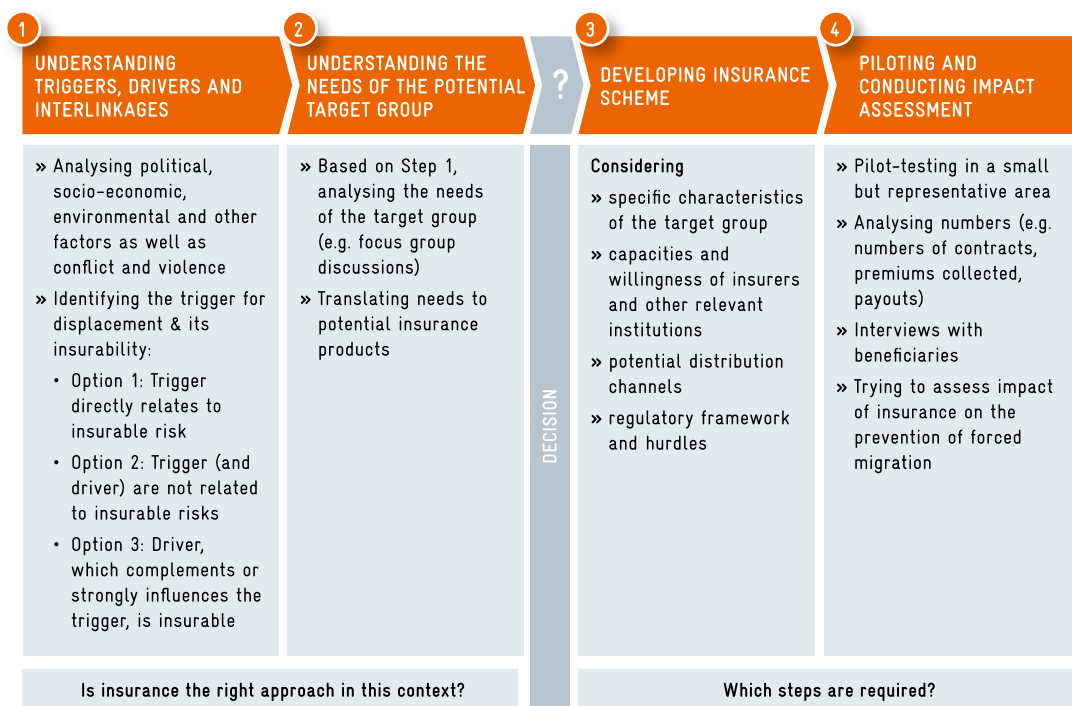
The most vulnerable to the impacts of climate change are less likely to have access to disaster insurance (Thomas et al., 2019). This is especially the case in rural areas (Gray and Mueller, 2012). In its absence, vulnerable smallholder farmers are more likely to rely on sociocultural ties and community networks to spread risks. These informal mechanisms can work well when risks are locally constrained and idiosyncratic, but fail when a shock affects a larger area and all actors within the network are harmed.

Greater access to insurance mechanisms may assist vulnerable smallholder farmers who would otherwise risk falling into onerous debts and subsequent migration and exploitation. Wider-spread pervasive covariate risks can be addressed through index insurance mechanisms, which tie insurance payments to regional agricultural conditions rather than to direct measurements of production losses on participants (Cohn et al., 2017). This is the preferred form of microinsurance in developing countries, and allows a pre-determined pay-out when predefined parameters and thresholds are met. This could allow payments to be disbursed in advance of a hazard becoming a disaster, allowing anticipatory movement or alternative adaptation approaches (Tänzler and Bernstein, 2022). For index insurance to work (Müller et al., 2018):

- The pay-out must be subject to a clear and verifiable trigger based on the insured risk;
- The insured person must be unable to influence the trigger; and
- The risk of policy holders within a portfolio must not be strongly correlated (a covariate risk).

In rural areas with limited accessibility for insuring actors, index insurance may be more operationally straightforward: triggers can be set which can be assessed from a distance, such as using satellite data of greenery coverage to assess drought intensity. The approach can be hindered, however, by “intolerably high uncertainty about risk” where climate data is lacking and where crops’ sensitivity to climate change is poorly understood (Cohn et al., 2017: 360). Where climate data is better, the pairing of index-based insurance with early-warning systems to provide compensation in advance of disaster becomes more possible (Fayolle et al., 2016). Müller et al. (2018) provide a four-step process for assessing the usefulness of insurance in contexts of potential climate-affected displacement and piloting a scheme if viable (Figure 9).

FIGURE 9. Four steps for analysing the role of insurance before displacement



Source: Müller et al. (2018: 5).

Insurance may be less useful in cases of slow-onset disaster, and micro-insurance schemes (in which the individual is the policyholder) may be less accessible to the very poorest and more vulnerable populations, due to issues of affordability, marginalisation, or lack of information (Hillier, 2018). Insurance is however clearly desired by populations who may otherwise migrate in the context of climate risks: households sending migrants are more likely to, as a result, take out insurance policies, both because their knowledge increases and due to greater financial access (Maharjan et al., 2021; Jha et al., 2017). No studies have yet assessed in depth the impact of insurance coverage upon displacement in the context of climate change, however, and this is an area for further research.

Insurance is furthermore far from a silver bullet. It may in some cases reduce adaptive capacity. Where smallholders spend limited disposable income on, for example, a drought risk policy, inadequate funds may remain for other key needs. Where a shock triggering a pay-out does not arrive, the money invested represents an opportunity cost. Moreover, if a different form of shock—such as a flood—occurs instead, the farmer paying the premium may have less adaptive capacity than a neighbour who did not buy a drought policy (Fayolle et al., 2016). The unpredictable nature of shocks may make it hard to persuade vulnerable populations to purchase insurance coverage. When seeking to provide insurance the vulnerability of recipients should be considered, with subsidies provided to especially vulnerable households (Müller et al, 2018). Improving access to equitable insurance requires (Fayolle et al., 2016; Hallegatte et al., 2016):

- Removing regulatory barriers hindering the growth of the financial services sector;
- Reducing costs and improving trust in the banking system, especially among those without bank accounts;
- Creating collateral registries;
- Improving physical access to financial instruments for the most vulnerable, such as through the use of insurance apps on phones;
- Enhancing fair competition between providers;
- Providing protections to consumers, including against fraudulent actors exploiting new mobile app opportunities;
- Supporting the development of early warning systems tied to weather index and micro-insurance schemes;
- Improving the financial literacy of vulnerable populations who may benefit.

Those most vulnerable to climate change are less likely to have access to insurance. This may increase the likelihood of requiring debt to smooth shocks, and of subsequent distress migration. Insurance is however not a silver bullet and requires accompanying interventions.

Anticipatory-risk financing

Anticipatory financing, such as through government-managed social safety nets, can also reduce the pressure to take out exploitative debt or undertake distress migration of the sort that occurs in Cambodia. This can be used either in anticipation of direct disasters, or in response to growing vulnerability during ‘famine seasons’ which could prompt onerous debts or distress migration. Such an approach requires either accurate weather forecasting, or accurate and up-to-date knowledge of economic conditions among vulnerable populations (Pople et al., 2021; MacLeod et al., 2021).

Deepening understandings of intersecting and compounding risks, and preparing comprehensive climate risk management pathways (Bharadwaj and Mitchell, 2022). This requires:

- Cross-government collaboration: different departments have different understandings of risk, and have different response mechanisms;
- Thought on the hazards whose risk anticipatory financing can most effectively reduce, and the thresholds at which funds would be released.

Developing models for integrating anticipatory risk analytics into existing planning and budgeting systems. This requires:

- Governments to assess the risks and possible costs of risk financing packages, in terms of the number of households who could require simultaneous assistance;
- Space for anticipatory financing mechanisms in budgets;

- Strengthened delivery mechanisms; and
- Preparations for work across government siloes.

Ensuring that delivery approaches are equitable and reach marginalised populations. This requires:

- Focusing on marginalised groups in planning, including through targeting criteria prioritising particularly vulnerable groups;
- Decentralised implementation following a rights-based framework, with robust management structures to ensure that rights are maintained and delivery is adequate;
- Crucially, with regard to delivery approaches, portable access to anticipatory financing. Migrants, and their families left behind, must have access to the anticipatory safety nets.

Assisting decision-makers in integrating climate information and risk management approaches into planning and local-level decisions. Climate information is often not currently available to decentralised decision-makers responsible for anticipatory finance delivery systems. For the systems to work, they need access to short- and medium-range forecasts to plan and prepare for imminent shocks (Bharadwaj and Mitchell, 2022). Planning requires:

- The sharing of climate information with those responsible for delivery;
- High frequency and resolution of climate information;
- Information in a format accessible for affected communities;
- Support to policymakers in understanding, interpreting, analysing and using climate information for planning and delivery of risk anticipation mechanisms.

Anticipatory-risk financing can respond to heightened vulnerability before it reaches a peak, allowing households to avoid chronic climate-related debt and maladaptive distress migration.

17. Supporting the ‘left-behind’

Migration can be enormously beneficial, transforming the climate resilience of households and communities of origin. Tacoli (2011: 17) notes that in fieldwork in Bolivia, Tanzania and Senegal, “the most vulnerable households were unanimously identified [by communities] as those not receiving remittances from migrant relatives.”

Local community officials should nonetheless pay attention to the wellbeing of migrant-sending households. Where organised migration programmes are undertaken, the ‘left-behind’ should be considered in programme design and in impact assessments.

Those who remain behind are not necessarily unhappy. As Jónsson (2011) notes, to remain can also be a privilege, made possible by the migration of another. In these cases, migration is a means to an end, aiming to allow the household to remain situ. In these cases, being ‘left behind’ is a relative success,

and migration may be facilitating non-migration, enabling people to stay in circumstances that would otherwise be too challenging. This is noted to be the case in Somalia, where partial-household migration allows most of the household to stay in situ (Manji, 2020). They may however—especially when household members have migrated but not yet begun sending back remittances—face increased challenges.

Increased labour burdens

Those who remain behind when household members move may become more vulnerable—even if temporarily—as a result of the act of migration. Rural villages lose working-age adults, which can harm the local economy (Dasgupta et al., 2014).

While migration represents an investment through which households can obtain better opportunities through connection with a better-compensated labour market (Clemens et al., 2014), there can be lag periods in which labour lost has not yet been compensated for through remittances. If migration is being undertaken in circumstances of desperation, such as in situations of climate-induced debt, the labour being sent may be far from surplus and may be sorely missed (Jacobson et al., 2019). In Ghana, for example, the migration of young men from climate-affected areas is found to result in labour shortages during the peak farming season, harming food security (Antwi-Agyei et al., 2018). If remittances sent back are adequate to meet needs, they are often then spent replacing the lost labour at cheaper prices. This can relieve the increased pressure on household members remaining behind, and can stimulate local rural-rural migration as workers move to fill new labour market gaps (Tacoli et al., 2015). In some cases this may be very beneficial. Where overpopulation in the area of origin strains resources and competition for limited jobs is too great, the opening up of new local opportunities by migration can be very positive for the wider community (Gemenne, 2022; Scheffran et al., 2012).

Temporary labour migrants are frequently men, leaving women remaining in areas of origin as solo parents. This creates additional pressures, especially if children or the elderly face sickness, and imposes emotional burdens upon both the women and the children. Women may also be required to take on additional responsibilities, including those traditionally left to the men. In an assessment of the effects of New Zealand's Registered Seasonal Employer scheme (Bedford et al., 2020), women left behind were found to take on:

- Care for family members;
- Increased food production responsibilities, for consumption or sale;
- Establishment and management of new businesses using remitted money;
- Household financial management, often a challenge for those who did not have prior experience;
- Community responsibilities previously allocated to the migrant husband.

Pressures upon those who remain in situ are likely to be greatest when they are alone but remittances have not yet begun to flow. Benin's National Adaptation Plan references this as a specific situation of which policymakers need to be aware, but without proposing policy solutions (Ministry of the Environment and Sustainable Development of Benin, 2022). Even when remittances are flowing successfully, women remaining behind may be very conscious that they are relying principally on money from afar. This may feel insecure and stressful, and may constrain their status within the community (Archambault, 2010).

In the absence of a household member, the labour burdens on those left behind increases. This is likely to be felt most acutely by women (the majority of migrants being male). When remittances begin flowing, households often hire labour support.

Effects on norms and psychological impacts

The effects of the migration of a male household member are not inevitably negative for women remaining behind. Studies often find that while women can suffer increased workload and reduced opportunities to undertake gainful work, they can also gain decision-making power in the absence of the husband (Simelton et al., 2021). These effects are affected by context. For example:

- In the case of participation in New Zealand's Recognised Seasonal Employer programme, Pacific Island women reported a welcome increase in their autonomy, with more decision-making power in their husband's absence. The departure of the husband for up to nine months at a time was also reported to have negative effects on marriages (Bedford et al., 2020).
- In Kenya, women's decision-making power in patriarchal societies of origin could decrease without the support of her husband (Nyaoro et al., 2016).
- In Bangladesh, migration is found to have varying effects on social norms and practices. In the late 20th century, migration from Bangladesh often led to the dissolution of left-behind households. Currently, migration in Bangladesh is frequently undertaken by female migrants able to find jobs in the garments sector; in their absence, men are having to abandon traditional gender norms and undertake housework. In these cases, the effects of migration may be significant in left-behind communities, but are neither inherently good nor bad (Gavonel et al., 2021).

In some cases, the security of women left behind may decrease. Children are also noted to suffer due to parental absence, and are more likely to develop psychological disorders such as depression and anxiety (Janson, 2014). They may also be obliged to take on new responsibilities (de la Garza, 2010). They are also more likely to withdraw from education. Participant households in the RSE are found to be more likely to drop out of school (Bedford et al., 2020). In the Philippines, the children of migrant

mothers—more than migrant fathers—are found to be more likely to lag behind in school, with the effect of the mother’s absence not compensated for by remittances (Cortes, 2014).

The impact study of the RSE scheme concludes that while the programme’s design had adequately considered its impact at the macro and micro levels, it did not fully understand the meso level (Bedford et al., 2020). The absence of migrants can have significant effects upon participating communities, including labour loss impacts and—in some cases—the degradation of community structures, such as ceremonial activities and collectivist attitudes. Where these impacts are severe, labour migration could be a form of maladaptation (Farbotko et al., 2022). Tonga’s National Adaptation Plan, while welcoming international labour migration and the value of remittances, warns that the social impacts of extended labour migration can be under-considered (Government of Tonga, 2018). Despite this, surveys of both Pacific migrants and the migrant-sending communities indicate that they welcome access to labour migration, and wish that more opportunities were available (Edwards, 2022).

Climate-affected migration can affect community norms, including with regard to gender roles. This is however context-specific. Programmes intervening in the climate/migration space should consider their impacts upon meso-level factors, including community norms.

Responding to the needs of the ‘left-behind’

Many of the possible domestic policy responses to the problems faced by migrant-sending (“left-behind”) communities would also be applicable were they not sending migrants. The areas that would most benefit from the remittances returned by migrants are often areas that have inadequate social safety nets, in particular in rural areas.

Supportive institutions helping migrant-sending households during initial migration periods, and especially before remittances begin to arrive, could assist in adapting to the loss of an economically active member or caregiver. This is often not yet undertaken. ‘Female-headed households’ frequently receive particular focus, but households which are female-headed for part but not all of the year may fall through the cracks. As IFAD (2022: 34) notes, “there are likely to be many more *de facto* [female-headed households] than *de jure*, with many women effectively having to manage households for most of the year due to out-migration or abandonment without legal proof of their status.” This suggests that a different definition of ‘female-headed household’ would be useful for the targeting of government policies and development intervention where this is the case. A female-headed household could, for example, be defined as a household managed by a woman for eight months or more of the year due to the absence of the senior male family member. This could make it less likely that vulnerable households are overlooked.

Labour market interventions by local government, such as assisting in pairing migrant households with unemployed labourers to offset the loss of work capacity, could allow the benefits of remittances to be more widely distributed within the community and maintain the household's production. This is often undertaken as a matter of course (e.g., Porst and Sakdapolrak, 2020; Tacoli, 2011), but this is not always the case. In India, migrant-sending households frequently do not replace lost labour with hired workers, leading to sharp declines in crop production (Madhok et al., 2022). Over the longer term, this could contribute to out-migration cycles: food prices could rise due to reduced local production. Programmes facilitating labour hiring may therefore have multiple benefits. This could be undertaken by advancing low-/no-interest credit to migrant-sending households, allowing them to pay hired labour and repay the loan when remittances began to arrive.

Increasing access to education for the children of migrant workers, and targeting them to ensure continued enrolment, could also give better outcomes (Démurger, 2015). This is however challenging in areas with under-developed education systems. For policymakers organising intentional labour migration programmes, the possible negative effects felt by communities of origin should be considered when targeting areas for migration pathways, as the evaluation of the RSE recommends (Bedford et al., 2020). In the case of longer-term (e.g., 6–9 month) mobility programmes, for example, it would be useful to consider how many participants can be accepted from a given community before possible harms outweigh benefits. Where migration programmes are established intending to assist vulnerable communities, evaluations should include the effect of the programme on communities of origin, to ensure that negative effects are understood and action is taken to mitigate them.

Many interventions to support the 'left-behind' are most pertinent during the period in which labour has been lost but remittances have not yet started to arrive. Migrant-sending households may need targeted local support during this period, and may benefit from targeted education assistance subsequently. A better definition of 'female-headed household', recognising that many migrant-sending households are female-headed for long periods but are overlooked, could in some contexts improve targeting.

18. Climate change and displaced populations

The interactions between climate change and displaced populations are seldom considered, and have been little researched. They will nonetheless be important for both the populations themselves; their prospects of return; the hosting communities; and international organisations' support requirements.

Displaced populations and their impact on the local environment

Many refugees are located in states which will be at high risk of climate change impacts, and which may see increased levels of climate mobility (see Figures 10 and 11). With rights often de jure or de facto reduced (Blair et al., 2021; Ginn et al., 2022), refugees are a category of persons with relatively limited in situ adaptation opportunities. Displaced populations in camp settings are often at least partially reliant on their surrounding environment for survival (UNHCR, 2015). This can contribute to land and wider environmental degradation, harming long-term livelihoods and increasing climate vulnerability (Tafere, 2018; Sturridge and Holloway, 2022).

A significant factor in degradation by displaced populations lies in the fact that they are frequently deprived of reliable access to energy sources. 80 percent of those living in camps have “absolutely minimal access to energy” (Lahn and Grafham, 2015: ix). This lack of access forces displaced populations to rely on inefficient and high-emission fuels including biomass, which has a negative effect on both the wider environment and on the health of local affected persons. Reliance on biomass has a particularly harmful effect on women and girls, to whom the—frequently unsafe—responsibility for gathering fuel typically falls (Bharadwaj and Huq, 2022). Where humanitarian agencies supply fuel, the financial and CO₂ costs are high. Agencies are estimated to spend US\$108 million on fuel for people in displacement contexts each year, emitting around 194,000 tonnes of CO₂ (Sandwell et al., 2021).

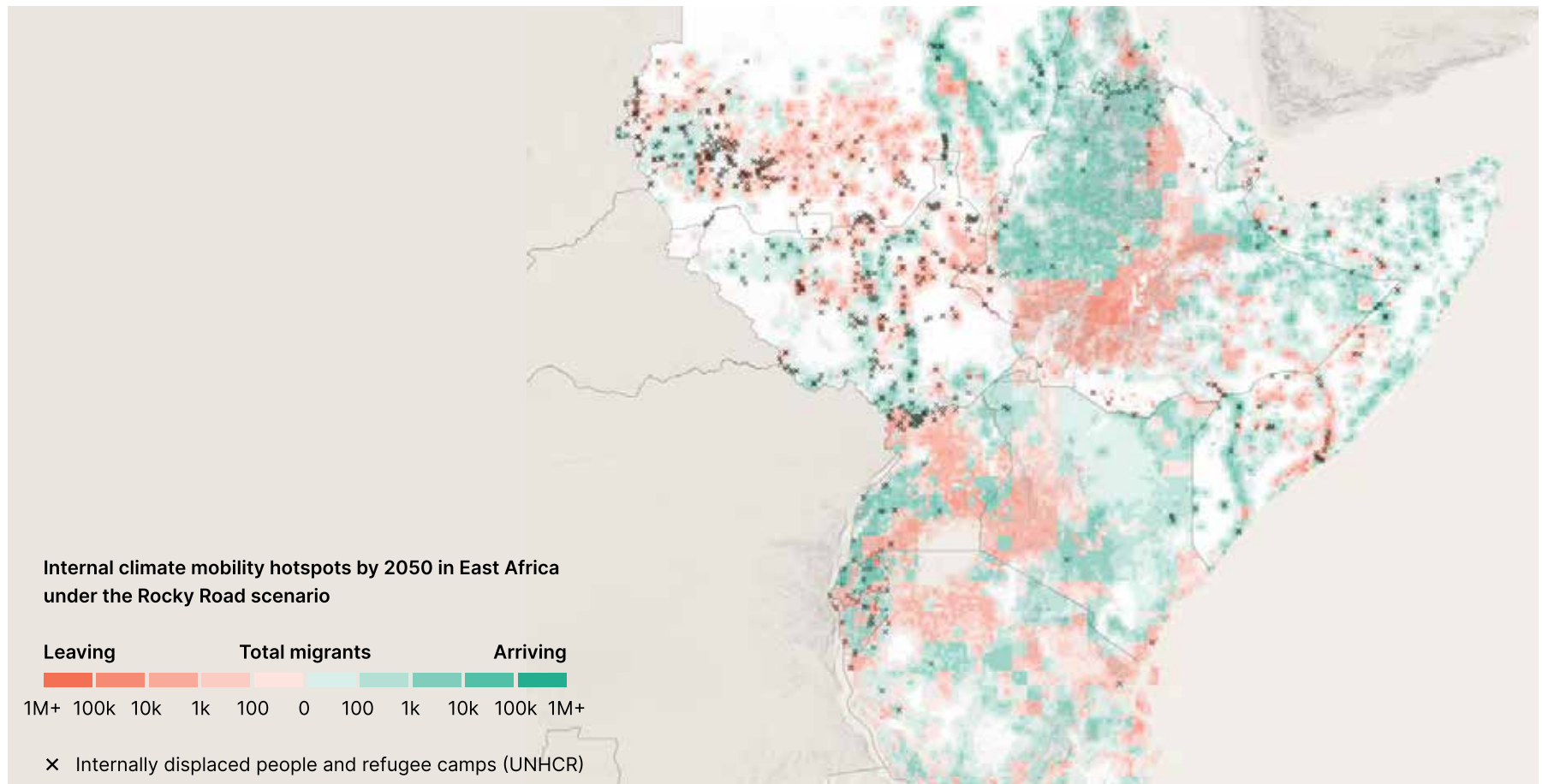
Alternative approaches are often difficult, given the challenging contexts within which displaced persons camps are frequently operated. Tafere (2018) suggests some options:

- Host countries should incorporate issues relating to displaced populations into environmental policies, and should monitor camps’ effects upon their local biodiversity and environment.
- Displaced populations could be supported in undertaking environmental restoration projects around camp contexts. These interventions could be funded by carbon markets to provide both mitigation or offset benefits, and as adaptation measures.

Given the difficulties of camp settings the challenge of climate change may also make it more sensible to look beyond protracted camp-based solutions and provide refugees with the right to move, work, and live in other areas. This would allow them access to a greater range of adaptive options. In many settings, however, this may not be politically acceptable.

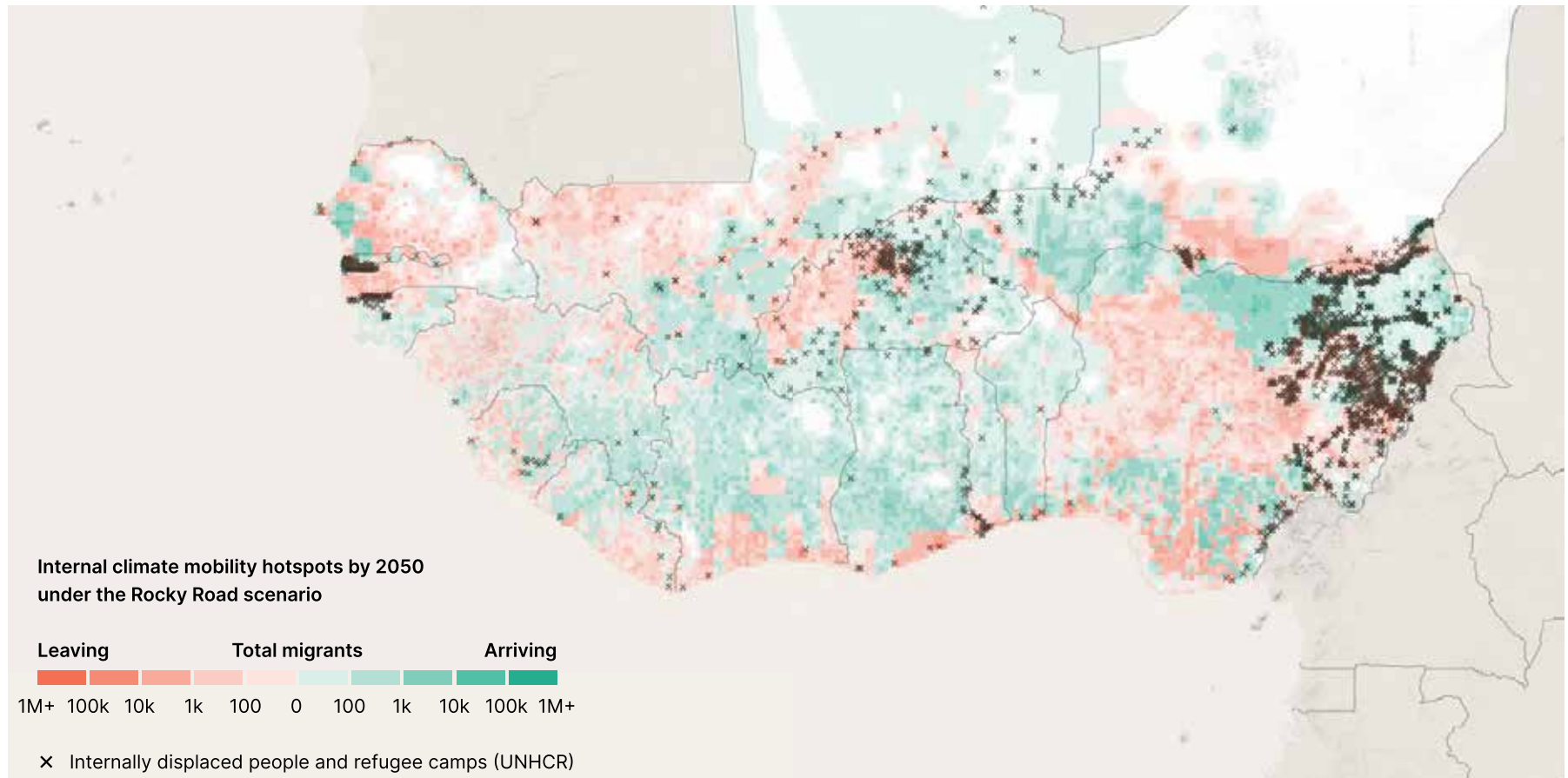
Displaced populations can have negative effects on their local environment. The provision of improved energy sources, and support to environmentally neutral or positive livelihoods in camp settings, can reduce the negative impact of camps.

FIGURE 10. Projected internal climate mobility hotspots areas in East Africa showing also current locations of refugee and IDP camps



Source: Amakrane et al. (2023: 103).

FIGURE 11. Projected internal climate mobility hotspots areas in West Africa showing also current locations of refugee and IDP camps



Source: Amakrane et al. (2023:104).

Climate impacts and risks for displaced populations

The effects of climate change are very likely to continue to stress existing refugee hosting capacities in numerous locations, challenging the ability of international organisations and hosting governments to source and distribute adequate food; provide water; and prevent disease outbreaks. With changing weather patterns, more attention will need to be paid to the location of refugee camps—for example, avoiding lowlands which could be dangerously inundated by unusual precipitation—and to logistical operations, which may be made increasingly difficult.

Considerations of current and future climate risks must begin to be incorporated into planning of refugee management. This is especially relevant to initial planning of hosting, and the selection of camp location, which is often undertaken with little prior research and “with haste” to respond to evolving crises (Tafere, 2018: 196). Camp settings are established in humanitarian emergencies, responding to rapidly developing crises. Decisions made during crises can however establish long-term path dependencies with immense negative effects for subsequent decades. Given that those in camps may end up remaining in them for between 10 and 26 years (Devictor and Do, 2016; UNHCR, 2017), significant harms can be experienced over extended periods. It is worth noting that crisis decisions regarding the location of camps are however often outside of the control of humanitarian actors; instead, they are frequently taken by political actors with their own interests and priorities (Camarena, 2022).

Where possible, actors considering the location and establishment of camps for displaced persons should consider (Easton-Calabria et al., 2022):

- The availability of resources near the camp, such as water;
- The possibility of tensions related to resource governance arising between camp-based persons and local populations;
- Aspects relating to the provision of necessary goods, e.g., to supply chains during possible weather shocks made worse by climate change;
- The impact of camp inhabitants upon their local environment, and ways to mitigate this; and
- The exposure of the camp to weather hazards, and the extent to which dwellings need to be durable.

As is the case for all populations, the impacts of climate change are felt by refugees and displaced persons through mediating factors. For example:

- In Cox’s Bazaar, where Rohingya in Bangladesh are housed following their displacement from Myanmar, increased risks of flooding and landslides are experienced during Bangladesh’s monsoon season. The land on which refugees are hosted is unsuitable, and the area is at risk of cyclones and storm surges. These conditions have been worsened by deforestation and soil erosion by refugee populations requiring firewood (Sturridge and Holloway, 2022).

- In Syria, IDP camps are exposed to heavy rains in winter. Three-quarters of IDP camps have inadequate drainage infrastructure, increasing IDPs' vulnerability to flooding. During summer months, by contrast, drought leaves the same sites facing drinking water shortages (Easton-Calabria et al., 2022).
- In Rwanda, 127,000 refugees located in camps lack access to sustainable livelihoods. Due to land availability constraints, camps are located in remote communities and in areas more likely to be affected by extreme weather events (Dampaha et al., 2022).
- In Sudan, where tens of thousands of refugees from northern Ethiopia have been hosted since 2020 due to the war in Tigray, severe weather conditions including heavy rains, large floods, storms, and heat waves, have seen over half of all shelters destroyed and belongings lost. In Gedaref state in East Sudan two thousand camp latrines were destroyed in floods, exacerbating an outbreak of Hepatitis E virus (Ahmed et al., 2021a).

Few states hosting displaced persons currently adequately consider the hazards and effects of environmental factors in their planning. In a study of five countries in East Africa—Kenya, Ethiopia, Uganda, Sudan, and Rwanda—none of the five countries are found to have mentioned forced displacement as a concern potentially related to environmental hazards, despite the large numbers of refugees and IDPs hosted, and the fact that all countries had signed the major environmental agreements (Tafere, 2018).

Adequate data must furthermore be gathered to provide early warning of local hazards, allowing proactive responses to danger to avoid the loss of life and property. The UN's Early Warnings For All initiative, which aims to ensure that by 2027 everyone in the world is covered by an early warning system (WMO, 2022b), should include measures to specifically target displaced populations, who may in some contexts have less access to knowledge or to digital communications devices (see e.g., McVeigh, 2019). Anticipatory warning can allow populations to take actions to protect their belongings and family members, and can allow governance actors to prepare to provide key assistance. Assistance can also be given in advance, such as through cash transfers allowing displaced persons to prepare their shelters or stock up on provisions ahead of the shock (Easton-Calabria et al., 2022).

At the most basic level, types of response to climate-related hazards are divided (Dampaha et al., 2022) between three main categories:

- Green infrastructure solutions to reduce flood and landslide risks;
- Hard infrastructure options such as the deepening of canals or the construction of floodways; or
- Community-based solutions such as the creation of contingency plans with potentially affected communities.

Some community-based solutions may be more challenging for refugee populations than for other groups, such as IDPs. Refugees often face legal restrictions of their right to movement, and are therefore confined to camps. In the face of climate-related shocks—such as heavy precipitation causing flash floods—they may therefore not be able to undertake adaptive action, such as moving to higher ground (Easton-Calabria et al., 2022). Where this is the case, actors seeking to increase the resilience of displaced populations will need to use hard or green infrastructure solutions to reduce the likelihood of a hazard developing—such as through the installation of drainage systems. In many settings, however, the optimal response will be to assist refugees and displaced populations in leaving camp settings, allowing access to a wider range of adaptive options and safer locales.

Displaced populations may have greater exposure to climate hazards, and have lower adaptive capacity. The location of displaced populations should be managed with consideration to climate hazards, and vulnerabilities should be reduced where possible.

Climate-affected displacement into camp settings

While most people moving in the context of climate change move to stay with friends or other connections, often into informal settlements in urban areas, a smaller part of the group are known to move into camp settings for support (Bharadwaj and Huq, 2022).

This is especially the case for pastoralists, whose livelihoods depend on movement following land productivity cycles. When these seasonal cycles are disrupted by climate or environmental change, these ways of life are disrupted, and many find themselves seeking refuge in IDP or refugee camps (IOM, 2020). Displacement into camps is not limited to pastoralists, however. For example:

- In Uganda, floods in Kasese have led to large-scale displacement, increasing overcrowding in camps (Bharadwaj and Huq, 2022).
- Over 80,000 Somalis fleeing long-lasting droughts have migrated across the border to the Dadaab refugee camps in Kenya. This often takes the form of circular migration, allowing them to diversify their livelihoods and gain resources to send back to Somalia (Manji, 2020). Resources to receive them in the camps are however over-stretched. The camp's overpopulation is exceeding UNHCR's ability to respond, and contributing to the spread of cholera (Hujale, 2022b).

In some contexts, climate change may lead to increased numbers of people entering displacement camps. This may be out of an urgent need to escape harm, or as a way of diversifying livelihoods.

Resettlement needs

65 percent of refugee camps are in climate ‘hotspots’, areas especially exposed to climate-related hazards (Yasmin et al., 2022). The effects of climate change must be taken into account when considering the protection of displaced persons. Refugees in climate-affected contexts are not always more vulnerable than poor or marginalised non-refugee populations, but they may require different policy responses due to differently constrained options. Similarly, existing mobility options with regard to refugees, such as resettlement programmes, may need to be altered to reflect changing urgencies.

In 2022 the United High Commission for Refugees estimated that nearly 1.5 million refugees were in need of resettlement, potentially rising to over 2 million in 2023 (UNHCR, 2022a; 2022c). In the five years to 2022, however, only 405,335 submissions for resettlement were completed (UNHCR, 2022b). Many refugees wait around two decades for repatriation, resettlement, or full integration into host communities (Yasmin et al., 2022). Where climate change increases the difficulties of life in camps—even to the point of posing danger to life—such long waits could lead to significantly increased harms.

An approach taken by the EU could in the future hold promise for the resettlement of climate-affected populations in camps or outside them. Within the EU, a specific framework for resettlement was confirmed in 2016. “Resettlement” is defined as “the admission of third-country nationals and stateless persons in need of international protection from a third country to which or within which they have been displaced to the territory of the Member States with a view to granting them international protection” (European Parliament, 2016: Art. 2). The document does not contain any reference to climate change or disaster-related displacement. It does however specify that those eligible for resettlement include “vulnerable persons” such as “persons with... physical protection needs” and “persons with socio-economic vulnerability” (2016: Art. 5(b.i)).

Such concepts as vulnerability are always legally challenging (Leboeuf, 2022), and further work would be required to clarify what is meant and establish how vulnerability is to be assessed and how especially vulnerable populations are to be prioritised. Refugees located in third countries highly vulnerable to the effects of climate change—such as through sea-level rise—could however in theory come to be prioritised for resettlement under these provisions.

Climate-related increases to the dangers faced by populations in camps may require accelerated resettlement of refugees, with resettlement routes prioritised for those in camps at especially high vulnerability to climate hazards.

Annex III.A. Summary of human mobility inclusion in 36 National Adaptation Plans, as of March 2023⁴

| Country (Year of NAP Submission) | Mobility Type Mentioned | | | | | | Additional Details |
|--|-------------------------|---------------------------------|--------------------------|---------------------------------|-----------------------|---------------------------------|--|
| | Migration | With Concrete Provisions? | Disaster Displacement | With Concrete Provisions? | Planned Relocation | With Concrete Provisions? | |
| Bangladesh | Yes | Yes | Yes | Yes | Yes | Yes | Mobility addressed as an adverse impact and as an adaptive strategy. Suggests that Bangladesh may see as many as 19.9 million ‘climate migrants’ by 2050. Mentions: seasonal migration due to flash floods; rural-urban migration due to rural livelihood breakdowns; high vulnerability of rural-urban migrants; distress migration from coastal areas; displacement due to sudden-onset shocks; the need for climate-aware land zoning and planned resettlement. Commits to: targeted and gender-/disability-aware programmes for protection and resilience-building of ‘climate migrants’; inclusion of climate and migration in short-, medium- and long-term urban development plans, with implementation mechanisms and financing modalities; improved data collection regarding climate/migration; livelihood and job support for climate-affected persons; planned internal management of climate-affected rural-urban migration; in situ livelihoods training for adaptation against mobility; parametric insurance for potential climate-affected migrants; financial support for climate-affected migrants; planned relocation of high-risk settlements. ⁵ |
| Benin (2022) | Yes | Yes | Yes | Yes | Yes | Yes | Mobility addressed as an adverse impact and adaptation strategy. Mentions: heightened vulnerability of women waiting for male migrants’ remittances; rural-urban migration. Commits to: collecting data on climate/migration; developing policies regarding climate-affected migration and relocation; promoting livelihood diversification to reduce rural-urban migration; assisting displaced persons; mainstreaming climate-affected migration across policy areas; relocating people away from high-risk areas. ⁶ |

4 Partially adapted from SLYCAN Trust (2023). NAPs not included are either not known to the authors (having not been submitted to the UNFCCC NAP Central by March 2023 or encountered elsewhere) or do not mention migration.

5 Ministry of Environment, Forest and Climate Change of Bangladesh (2022).

6 Ministry of the Environment and Sustainable Development of Benin (2022).

| Country (Year of NAP Submission) | Mobility Type Mentioned | | | | | | Additional Details |
|--|-------------------------|---------------------------------|--------------------------|---------------------------------|-----------------------|---------------------------------|--|
| | Migration | With Concrete Provisions? | Disaster Displacement | With Concrete Provisions? | Planned Relocation | With Concrete Provisions? | |
| Brazil (2016) | Yes | No | Yes | No | Yes | Yes | Mobility addressed as an adverse impact and as an adaptive strategy. Recognises the multidimensional nature of climate vulnerability, especially for indigenous populations. Mentions relocation of people and businesses as an adaptive measure; mentions risk of infectious disease spread due to new migration flows. Commits to: preparing relocation and protection plans. ⁷ |
| Burkina Faso (2015) | Yes | No | Yes | Yes | Yes | Yes | Mobility addressed as an adverse impact. Commits to: planned relocation from flood-exposed areas; incorporation of migration and adaptation into other policy areas. ⁸ |
| Cameroon (2015) | Yes | Yes | Yes | Yes | Yes | Yes | Mobility addressed as an adverse impact. Mentions: health effects of climate-affected migration; the need to increase the capacity to predict weather shocks and their migration effects; possible conflicts due to drought-linked community displacement. Commits to: building anticipatory capacities; providing medical care to displaced persons; and relocating infrastructure and dwellings away from flood-prone areas. ⁹ |
| Central African Republic (2022) | Yes | No | Yes | Yes | No | No | Mobility addressed as an adverse impact and also as an adaptation strategy. Mentions: displacement due to flash floods; seasonal migration due to increased climatic variability. Commits to: developing a vulnerability assessment methodology for displaced persons. ¹⁰ |
| Chad (2022) | Yes | No | Yes | Yes | No | No | Mobility addressed as an adverse impact. Mentions: provision of food/livelihoods to displaced persons; the integration of displacement into adaptation planning and water management; the hope that the Great Green Wall Initiative will reverse migration flows towards restored areas; the nexus between climate, conflict, and previously displaced populations; and livelihoods/land pressure caused by in-migration. Commits to: incorporating migration into water-relevant adaptation planning. ¹¹ |

7 Ministry of the Environment of Brazil (2016).

8 Ministry of Environment and Fishery Resources, Burkina Faso (2015).

9 Republic of Cameroon (2015).

10 Ministry of the Environment and Sustainable Development of the Central African Republic (2022).

11 Republic of Chad (2022).

| Country (Year of NAP Submission) | Mobility Type Mentioned | | | | | | Additional Details |
|---|-------------------------|---------------------------------|--------------------------|---------------------------------|-----------------------|---------------------------------|--|
| | Migration | With Concrete Provisions? | Disaster Displacement | With Concrete Provisions? | Planned Relocation | With Concrete Provisions? | |
| Chile (2017) | Yes | Yes | No | No | Yes | Yes | Mobility very little mentioned. Commits to: developing long-term plans for adaptation, including migration; identifying areas for planned relocation. ¹² |
| Costa Rica (2022) | Yes | Yes | Yes | No | No | No | Mobility addressed as an adverse impact. Mentions: data for relocation and integration. Commits to: annual studies regarding the climate risk exposure of irregular migrant populations; the inclusion of migrant populations in studies and a comprehensive strategy on climate vulnerability; training 100 communities to host migrant populations. ¹³ |
| Democratic Republic of the Congo (2022) | No | No | Yes | Yes | No | No | Mobility addressed as an adverse impact and an adaptation strategy. Mentions: displacement risk. Commits to: preparing contingency plans; preparing resilient development plans; enhancing risk management. ¹⁴ |
| Ethiopia (2019) | Yes | Yes | Yes | No | Yes | Yes | Mobility addressed as an adverse impact and an adaptation strategy. Mentions: increased rural-urban migration; potentially increased vulnerability of migrant populations; circular migration for adaptation; the need for social protection for migrant populations; displacement due to floods. Commits to: planned relocation; assisted migration; assisted livelihoods; expanded social protection systems. ¹⁵ |
| Fiji (2018) | Yes | Yes | Yes | Yes | Yes | Yes | Mobility addressed as an adverse impact and an adaptation strategy. Mentions: stresses caused by rural-urban migration, including informal settlements, heightening vulnerability. Commits to: integration of mobility into sub-national development planning; provision of affordable serviced land; development of a comprehensive approach to planned relocation, including vulnerability mapping and financing options; enforcement of building setback zones. ¹⁶ |

12 Ministry of the Environment of Chile (2015).

13 Ministry of the Environment and Energy of Costa Rica (2022).

14 Democratic Republic of the Congo (2021).

15 Federal Democratic Republic of Ethiopia (2019).

16 Government of the Republic of Fiji (2018).

| Country (Year of NAP Submission) | Mobility Type Mentioned | | | | | | Additional Details |
|--|-------------------------|---------------------------------|--------------------------|---------------------------------|-----------------------|---------------------------------|--|
| | Migration | With Concrete Provisions? | Disaster Displacement | With Concrete Provisions? | Planned Relocation | With Concrete Provisions? | |
| Grenada (2019) | No | No | Yes | No | Yes | No | Little reference to human mobility. Displacement mentioned as an adverse impact. Mentions one case of planned relocation. ¹⁷ |
| Guatemala (2019) | Yes | Yes | Yes | Yes | Yes | Yes | Mobility addressed as an adverse impact and as an adaptive strategy. Includes a short chapter providing high-level summary of the climate/migration nexus. Commits to: supporting relocation; improving collection of disaggregated data; mainstreaming climate/migration in other policy areas. Links its NAP to other frameworks, including the Sendai Framework and the Paris Agreement. ¹⁸ |
| Haiti (2023) | Yes | No | No | No | No | No | Briefly mentions 'climate migration' as a possible adverse effect of climate change. ¹⁹ |
| Kenya (2017) | Yes | Yes | Yes | No | No | No | Mobility addressed as an adverse impact. Commits to: livelihood diversification to reduce rural-urban migration; strengthening the adaptive capacity of displaced populations. ²⁰ |
| Kiribati (2020) | No | No | Yes | No | Yes | Yes | Mobility addressed as an adverse impact. Commits to: vulnerability assessments of key services; retrofitting or planned relocation of key services. ²¹ |
| Liberia (2021) | Yes | No | Yes | No | No | No | Mobility addressed as an adverse impact. Mentions: security risks associated with migration following coastal flooding/erosion. ²² |
| Madagascar (2022) | Yes | Yes | Yes | Yes | No | No | Mobility addressed as an adverse impact. Mentions: risk of conflict with host communities. Commits to: assisting farmers and maintaining rural food security to reduce rural-urban migration; supporting infrastructure and amenities to prevent displacement; creation of a 'green belt' to reduce desertification and consequent displacement; strengthen early warning systems and displacement tracking matrices for better targeting of humanitarian aid. ²³ |

17 Government of Grenada (2017).

18 Government of Guatemala (2018).

19 Republic of Haiti (2023).

20 Republic of Kenya, Ministry of Environment and Natural Resources (2016).

21 Government of Kiribati (2019).

22 Environmental Protection Agency of Liberia (2020).

23 Ministry of the Environment and Sustainable Development, Madagascar (2021).

| Country (Year of NAP Submission) | Mobility Type Mentioned | | | | | | Additional Details |
|--|-------------------------|---------------------------------|--------------------------|---------------------------------|-----------------------|---------------------------------|---|
| | Migration | With Concrete Provisions? | Disaster Displacement | With Concrete Provisions? | Planned Relocation | With Concrete Provisions? | |
| Nepal (2021) | Yes | No | Yes | Yes | Yes | Yes | Mobility addressed as an adverse impact. Mentions: non-economic losses; rural-urban migration due to habitat fragmentation; displacement due to climate hazards; vulnerability in informal settlements following rural-urban migration; increasing 'feminisation' of the rural workforce due to male out-migration. Commits to: strengthened social protection; improved disaster risk management; planned relocation programmes; strengthen early warning systems; map rural vulnerabilities; strengthen disaster risk reduction efforts to reduce displacement. ²⁴ |
| New Zealand (N/A) | Yes | Yes | Yes | Yes | Yes | Yes | Migration is addressed in terms of international migration from the Pacific to New Zealand, allowing adaptation. Displacement and relocation are addressed in internal terms. Mentions: risks to social cohesion after displacements; possible need to support international relocation. Commits to: supporting Pacific Island countries in adapting, to reduce migration pressures; supporting a regional approach to climate mobility; supporting displaced communities; supporting planned relocation; passing legislation to enable relocation and reduce habitation of hazard-exposed areas. ²⁵ |
| Niger (2022) | Yes | Yes | Yes | Yes | No | No | Mobility addressed as an adverse impact and as an adaptive strategy. Mentions: particular vulnerability of pastoralists; negative effects of migration upon women remaining behind; exploitation of circular migrants. Commits to: building capacities of migrants/displaced persons in sustainable land management and agroforestry; improve access to climate forecasting; better integrate displaced populations into adaptation planning. ²⁶ |
| Paraguay (2020/2022) | Yes | No | No | No | No | No | Mobility briefly addressed as an adverse impact and as an adaptive strategy. Recognises that migration in the context of climate change is not inherently positive or negative. ²⁷ |

24 Government of Nepal (2021).

25 New Zealand Government (2022).

26 Office of the Prime Minister/National Council for Sustainable Development, Niger (2022).

27 Ministry of the Environment and Sustainable Development of Paraguay (2022).

| Country (Year of NAP Submission) | Mobility Type Mentioned | | | | | | Additional Details |
|---|-------------------------|---------------------------------|--------------------------|---------------------------------|-----------------------|---------------------------------|---|
| | Migration | With Concrete Provisions? | Disaster Displacement | With Concrete Provisions? | Planned Relocation | With Concrete Provisions? | |
| Peru (2021) | Yes | Yes | Yes | No | No | No | Mobility addressed as an adverse impact and as an adaptive strategy. Commits to: developing a national action plan regarding climate-affected mobility, in particular regarding coastal flooding and urban reception. ²⁸ |
| Saint Lucia (2018) | Yes | Yes | Yes | Yes | Yes | Yes | Mobility addressed as an adverse impact. Migration explicitly not considered an acceptable adaptation strategy. Mentions: land use change after movement away from coasts; rural-urban migration; coastal infrastructure loss; relocation of critical infrastructure, production, and communities. The NAP suggests, but does not commit, to: developing policies to support migration; providing support to IDPs; supporting preservation or regaining of non-economic loss and damages. ²⁹ |
| St Vincent and the Grenadines (2019) | No | No | No | No | Yes | Yes | Migration addressed as an adverse impact. Mentions: relocation of coastal communities and enforcement of setback zones; relocation of coastal infrastructure. ³⁰ |
| Sierra Leone (2022) | Yes | No | No | No | Yes | Yes | Migration addressed as an adverse impact. Commits to: developing a planned relocation policy. ³¹ |
| South Africa (2021) | Yes | Yes | Yes | Yes | Yes | Yes | Commits to: developing a research roadmap for climate change adaptation, including rural-urban migration; encouraging businesses' relocation from hazardous areas; developing adaptation strategies for populations displaced by climate change. ³² |

28 Ministry of the Environment, Government of Peru (2021).

29 Government of Saint Lucia (2018).

30 Government of St. Vincent and the Grenadines (2019).

31 Government of Sierra Leone (2021).

32 Department of Forestry, Fisheries and the Environment, Government of South Africa (2020).

| Country (Year of NAP Submission) | Mobility Type Mentioned | | | | | | Additional Details |
|--|-------------------------|---------------------------------|--------------------------|---------------------------------|-----------------------|---------------------------------|--|
| | Migration | With Concrete Provisions? | Disaster Displacement | With Concrete Provisions? | Planned Relocation | With Concrete Provisions? | |
| South Sudan (2021) | Yes | Yes | Yes | Yes | Yes | Yes | Migration addressed as an adverse impact and an adaptation strategy. Stresses need to better understand climate-migration nexus. Anticipates intra-regional challenges due to cross-border climate-affected migration, and stresses importance of regional collaboration. Mentions: preparations for rural-urban migration. Commits to: developing a long-term research plan with tracking indicators and funding regarding the climate-migration-conflict nexus; preparation of scenario-based plans; ensuring IDPs are integrated into adaptation plans; relocating populations from vulnerable areas and enforcing setback zones. ³³ |
| Sri Lanka (2016) | No | No | Yes | No | Yes | Yes | Migration addressed as an adverse impact. Mentions: need to enhance settlements' resilience to reduce displacement; improve disaster risk reduction; increase in informal settlements. Commits to: preparing contingency plans for relocation or alternative approaches. ³⁴ |
| State of Palestine (2016) | No | No | Yes | No | No | No | Migration addressed as an adverse impact. Mentions: displacement due to extreme weather events. ³⁵ |
| Sudan (2016) | Yes | Yes | Yes | Yes | Yes | No | Migration addressed as an adverse impact and an adaptation strategy. Mentions: pastoralist migration due to water decline; rural-urban migration due to increased climate variability; conflicts resulting from mobility; risk of infectious disease spread due to new migration flows; displacement due to flooding and droughts. Commits to: numerous regionally targeted adaptation measures. ³⁶ |

33 South Sudan Ministry of Environment and Forestry (2021).

34 Ministry of Mahaweli Development Environment, Sri Lanka (2016).

35 Environment Quality Authority, State of Palestine (2016).

36 Ministry of Environment, Natural Resources and Physical Development, Republic of the Sudan (2016).

| Country (Year of NAP Submission) | Mobility Type Mentioned | | | | | | Additional Details |
|--|-------------------------|---------------------------------|--------------------------|---------------------------------|-----------------------|---------------------------------|---|
| | Migration | With Concrete Provisions? | Disaster Displacement | With Concrete Provisions? | Planned Relocation | With Concrete Provisions? | |
| Timor-Leste (2021) | Yes | No | Yes | No | Yes | No | Migration addressed as an adverse impact. Mentions: rural-urban migration argued to reduce resilience of communities of origin. Displacement only mentioned briefly in the foreword. Recommends, but does not commit, to: conducting research on the climate-displacement/-relocation relationship. ³⁷ |
| Togo (2018) | No | No | Yes | No | No | No | Refers to displacement due to coastal erosion. Mentions: overcrowding in host communities as a result; proliferation of informal settlements in flood-risk zones; conflicts regarding land rights after displacement. ³⁸ |
| Tonga (2021) | Yes | No | Yes | No | Yes | Yes | Migration addressed as an adverse impact and an adaptation strategy. Mentions: increased habitation of flood-prone land after migration. Commits to preparing a study of relocation options, aiming to create a coherent national approach; and improving community-level climate literacy. ³⁹ |

37 Secretariat of State for Environment, Democratic Republic of Timor-Leste (2021).

38 Republic of Togo/GIZ (2017).

39 Government of Tonga (2018).

Annex III.B. The effects of reducing migration costs: evidence from Bangladesh

Reducing the perceived risk of migration can make it far more attractive. In Bangladesh there is a ‘famine season’ each year during the period before the next harvest. During this period incomes decrease by 50–60 percent and food expenditure decreases by 10–25 percent. With low asset availability, migration can be beneficial but is very difficult to access.

In an experimental intervention, Bryan et al. (2014) investigated the effects of increasing migration’s accessibility. In an RCT, residents of villages were provided with:

- Information;
- Information and cash; or
- Information and zero-interest credit.

The cash given amounted to slightly more than the round trip to a nearby urban area, and was conditional on migration being undertaken. Information alone is found—in the Bangladeshi context—to have little effect upon migration decisions. Cash and credit, however, are found to increase the likelihood of movement by 22 percent.

Households that sent a migrant increased food and non-food expenditure by 30–35 percent, and improved their caloric intake by 550–700 calories per person per day. For these households, this single seasonal movement addressed food insecurity concerns. It also lowered the costs associated with migration. Even after the incentive was removed, participating households had a member that was more likely to re-migrate to the city, having reduced the initial risks of migration by acquiring information on the urban labour market and employers. Even three years later, households that had received a grant were eight to ten percent more likely to continue sending a seasonal migrant.

These findings suggest that a poverty trap emerges in which households close to meeting subsistence needs face a small but inhibiting risk that migration will have negative effects, reducing willingness to migrate and leaving household consumption below subsistence levels.

The programme was highly effective. The cash and credit interventions used were cheaper than Government of Bangladesh food subsidies, and were of high use to recipient migrant-sending households.

In a 2017 effort to scale up the programme to 150,000 households, however, the effects observed were negligible. This may have been because the interest-free loans were for convenience directed by implementers towards households already intending to migrate, therefore not reaching those who needed support to undertake migration (Lagakos et al., 2018). The intervention was ultimately abandoned due to observed corruption by implementation partners.

Despite the lack of success in the scale-up, migration subsidies are an intervention that could be usefully implemented elsewhere. They are most useful in cases where very poor rural workers have suffered a slew of bad shocks, and need to move to a better labour market temporarily in order to gain ‘insurance’ against poor local prospects. The timing of the migration—such as during a ‘famine season’—is likely to play a role in determining its effectiveness.

In these circumstances, travel costs act as a crucial constraint: savings have already been exhausted, and without outside help they are ‘trapped’. The marginal utility of consumption is thus very high. Even if the migrants are not highly productive when in the city, their benefit is very large, especially for those with very poor productive opportunities in their area of origin (Lagakos et al., 2018). This kind of programme may also be highly administratively effective:

- Cash transfers conditional upon migration do not require an assessment of household assets;
- They are opt-in;
- They have an in-built targeting mechanism: those most likely to opt in are households that have suffered negative income shocks and need an insurance option.

Subsidised-migration programmes may thus be less operationally demanding than alternative options such as rural public works programmes. By allowing migrants to avoid taking on debt from middlemen, they may also help to reduce trafficking and exploitation.

In Bangladesh, subsidised-migration programmes were cheap and effective, allowing households below subsistence level during the ‘famine season’ access to a key insurance mechanism. Similar programmes could be considered elsewhere.

Annex III.C. Climate-related debt traps: the case of Cambodia

In Cambodia, a country highly affected by climate change, microfinance debt has become a serious problem for many farmers. This has a knock-on effect on migration, which is as a result more likely to be ‘distress’ migration, and more likely to be maladaptive.

Many Cambodian farmers are vulnerable to climate shocks. As shocks have become more frequent and greater in magnitude, rice farming has become more expensive and less predictable. Farmers often turn to microfinance debt in order to smooth income cycles and to obtain capital in the hope of improving their prospects. Between 2000 and 2020, the number of microfinance borrowers in Cambodia increased from 175,000 to 2.6 million people. The average size of a microfinance loan is now roughly twice GDP per capita, at US\$4,213 (Guermond et al., 2022).

Loans by lenders are frequently undertaken without due diligence. In an over-saturated market, lenders accept land as collateral without assessing the validity of business proposals. Interest rates are frequently high, circumventing rate caps by introducing new fees and charges (Natajara et al., 2021). This leaves farmers struggling or unable to maintain their livelihoods after investments and agricultural yields return less than expected (Guermond et al., 2022).

These debts are often a catalyst for harmful coping strategies. High interest rates cannot be met by revenues faltering under crop-yield challenges. As a result, farmers are forced (Guermond et al., 2022) to:

- Sell land;
- Work more;
- Erode and sell assets;
- Take on new debt to repay previous loans; and, ultimately,
- Quit farming.

With off-farm work in their regions of origin frequently unavailable, these farmers frequently must migrate. Domestic migration is sometimes risky—involving, for instance, bonded labour—and may not be sufficient. Where this is the case, risky international migration may become unavoidable. In both internal and international migration, overindebted families rely on remittances sent by migrant workers who are more vulnerable than most to unstable urban markets or to the revocation of visas (Green and Estes, 2022).

This migration is undertaken out of desperation rather than a desire to diversify. In some cases, households are aware that the migration will itself have negative consequences—such as when it is undertaken during the harvest or planting seasons—but must meet debt obligations (Jacobson et al., 2019). These deeply negative forms of labour migration can include long-term indentured service (Parsons and Chann, 2019). This is maladaptive migration at its most stark.

The problems faced by Cambodian farmers are in large part due to climate, but these are not the sole factors. Climate factors always interact with other pressures. Vigil (2022) finds that while climate-related indebtedness played a role in decisions by cassava farmers to quit farming and migrate, farmers' migration was also triggered following a downturn in the global cassava market. Indebtedness is aggravated by climate-related factors, but also leaves households more vulnerable to the effects of climate change, and less able to benefit optimally from migration.

The climate-debt-migration relationship is prominent in Cambodia, and offers a warning against over-reliance on microfinance elsewhere. Debt-driven migration in Cambodia is frequently maladaptive.

Part IV. Regional migration

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Climate-affected migration has a strong regional character. Mobility in different regions has particular characteristics. In the Caribbean or Pacific, for example, temporary cross-border movement is possible and does occur, but is challenging due to the island-based geography. Climate-affected regional movement in this context is more likely to take place through longer-term migration, with less emphasis upon return. In much of Africa, by contrast, regional circular migration has long been an accepted way of adapting to climatic variation, including through pastoralist movement and trade within borderlands (Ademoju, 2009). Globally, intra-regional movement is the preferred form of migration in the context of environmental stressors for low-skilled rural inhabitants (Bekaert et al., 2021). Migration beyond the region can be prohibitively expensive (Waldinger, 2015), and potential migrants are less likely to have connections to assist in movement in places further afield.

In this context, regional free movement (RFM), allowing citizens of a regional bloc greater flexibility in mobility responses to climate change, is promising for multiple reasons. Unlike more sweeping arrangements, RFM agreements (Ferris and Bergmann, 2017):

- Are politically feasible;
- Balance the distribution of benefits more equitably between sending and receiving states; and,
- Importantly, do not require countries to assess whether climate-affected migrants meet necessary criteria to be admitted.

This allows movement regardless of causality, greatly increasing access to regular migration, including to pre-emptive movement ahead of sudden- and slow-onset disasters, and to temporary or circular movement to allow greater earnings and the sending of remittances to support adaptation (Wood, 2022). They thus present a high-potential policy response to cross-border climate-affected mobility, allowing a flexible range of adaptive options which offer affected persons high levels of agency (Kälin and Weerasinghe, 2017).

“Regular channels... facilitating migration with dignity”, as the Nansen Initiative (2015: 47) argues, can allow climate-affected individuals and groups to adapt to changing and difficult circumstances. Wood (2019: 16) outlines three “core protection needs” faced by persons displaced by disasters.

These are:

- Access to territory in which they can be safe;
- Rights when in a foreign country, including protection from *refoulement*; and
- “Opportunities for lasting solutions” through integration in third countries or voluntary regular return to safety in countries of origin.

RFM regimes have the potential to provide greater access to all three of these core needs. Their three primary advantages are (Wood, 2019a):

- Broad eligibility;
- Opportunities for access to employment or other livelihoods, and possibly to social protection programmes; and
- Scalability.

The GCM recognises the importance of regional initiatives, noting (UN, 2018a: 3) that “safe, orderly and regular migration” is most possible when states cooperate and the costs of crossing borders are low. The GCR similarly describes regional organisations as key actors capable of contributing to “predictable and equitable burden- and responsibility-sharing” (UN, 2018b: 1). Neither Compact, however, is binding upon states. Regional migration arrangements, and especially RFM regimes, are increasingly suggested as an approach useful for multiple aspects of migration management, offering a “soft law” basis on which to build (Ferris and Bergmann, 2017: 6).

Migration in the context of climate change will be regional in nature far more often than it will be long-distance international. Regional free movement agreements increase access to migration, allowing adaptive mobility.

19. Establishing and implementing regional free movement agreements

Despite their benefits, RFM agreements are not always easy to establish. Reluctance to embrace RFM lies in the fact that while states' desiderata are more likely to be aligned *within* regions than they are *between* regions, this is not always the case. Asymmetries of preference can hinder the development, let alone implementation, of regional regimes (Lahav and Lavenex, 2013). Börzel and Risse (2019) argue that there are three main drivers of regional integration, including RFM:

- Functional demands: practical incentives originating mainly from security interdependence and efforts to ensure regime stability.
- Elite efforts: regional identity construction by elites resonates with mass public opinion, allowing accelerated integration.
- Diffusion: international liberal designs, such as those present in the EU, are diffused across regions.

In the case of ECOWAS, for example, elite actors' Pan-African ideals cohered with economic and political goals to encourage the development of a regional bloc with high aspirations for intra-regional mobility (Zanker et al., 2020). In the case of IGAD, EU efforts to diffuse governance norms; the example of ECOWAS; and the close proximity and overlap with the neighbouring

East African Community combined with functional demands to incentivise close integration (Dick and Schraven, 2019b; Castillejo, 2019). Without these three drivers, there is a danger that regionalism and free movement either does not begin, or remains isomorphic with “rhetorical support” but not “correct implementation” (Gartland et al., 2017: 433).

Regional migration governance has thus far occurred through three main institutional arrangements (Lavenex, 2019):

- Human rights instruments, including refugee-specific agreements;
- Informal RCPs, which may in some cases come to be closely related with RECs or even embedded within them;
- Economic mobility regimes, which may subsequently develop into deeper arrangements.

At the regional level, the presence of an engaged hegemon can make a significant difference. Active efforts by one or more states interested in driving the integration process can make a crucial difference in the success of regionalism. In the EU, France and Germany have been central drivers in deepening integration; in MERCOSUR, Brazil and Argentina play lynchpin roles, although they have been criticised for insufficient leadership (Börzel, 2011). In Asia, by contrast, the absence of a regional or external hegemon may play a role in the relative shallowness of integration (Hemmer and Katzenstein, 2002); in the Pacific Islands Forum, Australia has resisted regional free movement (Gartland et al., 2017); and in the cases of ECOWAS and IGAD, difficulties concerning hegemon roles—respectively Nigeria and one of the jostling pair of Kenya and Ethiopia—have been suggested to have slowed integration (Krampe et al., 2018; Henneberg and Stapel, 2021).

Where states are unwilling to formalise regional migration governance regimes, Regional Consultative Processes (RCPs) may take on a significant role. RCPs are informal and discreet, allowing ‘soft’ modes of interaction including dialogue and capacity-building, without extending to rule-making (Betts, 2011). RCPs can play an important role in migration governance: they build trust and consensus, maintain links between stakeholders, and allow the sharing of good practices to improve migration management capacities (Betts, 2011). RCPs are unusual in being (Kainz and Betts, 2021):

- Informal;
- Non-binding;
- Established as processes rather than one-off events; and
- Not associated with formal regional institutions. (ECOWAS is unusual in having integrated MIDWA, the region’s RCP, into its formal governance structure.)

In the harmonisation of regional governance responses to the climate-migration nexus, RCPs may be among the regional and intergovernmental processes most likely to play an important role (Kälin and Weerasinghe, 2017).

A widespread feature of regional arrangements is their overlapping and incongruent memberships (Lavenex, 2019). This can in some cases present a problem, making effective governance more challenging due to the possibility of forum-shopping between regional economic communities (Betts, 2011). In other cases, overlaps may be useful. In the case of IGAD, for example, overlaps with the EAC mean that many of the states currently preparing to implement the new RFM already have experience within the EAC's movement framework.

Establishing and implementing a free movement agreement is considerably easier than establishing a global agreement, but nonetheless challenging. Deep regionalism rests upon multiple factors, including elite buy-in; support from international actors; and expected practical benefits.

20. West Africa: Free movement and climate change in ECOWAS

The Economic Community of West African States (ECOWAS) comprises fifteen countries, with a population of around 350 million (Figure 12). The region is predicted to be heavily affected by climate change. Agriculture is projected to be severely impacted, creating significant risks for food security, employment, and health (Serdeczny et al., 2017). Numerous countries, including Mali, Senegal, Niger, and Burkina Faso, have already exhibited declines in short-term yield from climate-sensitive crops such as sorghum, millet and maize (Schraven et al., 2020). Food shortages, accompanied by growing populations and a rise in non-state violent actors, pose risks to the stability of the region (Läderach et al., 2021). While climate change is never the sole factor, in areas such as northern Niger increased food sensitivity to climate shifts is contributing to growing tensions between pastoralists and static farmers (Snorek et al., 2014), a pattern replicated elsewhere. Responding to drought and desertification, ECOWAS has for several decades been providing pastoralists with transhumance certificates, allowing them free movement within livestock corridors crossing member state borders at designated entry points. This allows pastoralists to access better grazing pastures following the seasons, adapting to changing resource availability (UNFCCC, 2012). The issue's importance was underlined during a 2010 ECOWAS summit; efforts to establish policy responses, however, have been undermined by limited implementation (Krampe, Scassa, and Mitrotta, 2018).

FIGURE 12. Map of ECOWAS



Source: Erasmus et al. (2013: 69).

West Africa has historically been perceived as an area of free movement by migrants, in which goods, services and people have circulated across porous borders often ignored as arbitrary (Adepoju, 2009). Following wider trends of African migrants preferring intra-regional migration (Sanny et al., 2019), ECOWAS has an intra-regional migrant proportion of 65 percent, compared with 52 percent across Africa. Most intra-regional movement is for labour and economic reasons (Dick and Schraven, 2019a). Regional economies powered by natural resources, such as Ghana and Côte d'Ivoire, have historically attracted the region's migrants, while Benin, Cape Verde, Ghana, Mali, and Togo, with smaller economies, have historically been sending states (Fioramonti and Nshimbi, 2016). Senegal has increasingly served as a transit country for migrants heading to the EU (Faye et al., 2019), as has Niger, whose economy has historically relied on intra-regional migration, including pastoralism (Fine et al., 2019). Remittances are of crucial importance to many West African states, such as Mali (Trauner and Deimel, 2013).

Regional free movement within ECOWAS

ECOWAS' RFM policy has long been regarded as a “pacesetter” and “role model” among African Regional Economic Communities (Adepoju, 2009: 18; Zanker, 2019: 12). The ECOWAS Treaty of 1975 (Article 59) stipulated that “Citizens of the community shall have the right of entry, residence and establishment”, establishing free movement as an integration cornerstone. This was enacted by the 1979 Protocol on Free Movement of Persons, Residence and Establishment, which envisaged implementation in three phases over fifteen years (Urso and Hakami, 2018). Right of entry was introduced for all member state citizens from 1980–1985, with visa requirements eliminated for 90 days. From 1985–1990, the right of residence and employment was to be established; and from 1990–1995, the right of establishment (ECOWAS, 1979: Article 2). Four Supplementary Protocols subsequently clarified implementation and policy.

While the ECOWAS Treaty and the subsequent Protocols were not designed as refugee instruments or to incorporate general protection of displaced persons, they did promote aims beyond economic integration. These include “good neighbourliness”, and the “promotion and protection of human and peoples' rights” (Adepoju et al., 2010: 137–8). Significant challenges to the full and robust implementation of ECOWAS' RFM policies remain. The policies themselves, however, offer a basis through which to address a wide range of mobilities. This was recognised by the ECOWAS Commission in 2008, when it introduced refugee management to the free movement policy (ECOWAS, 2008).

The usefulness of ECOWAS' RFM provisions

ECOWAS' Regional Free Movement Protocol holds several major advantages. All ECOWAS citizens hold *de jure* rights of entry to member states; free movement within member states; and exit, for an initial period of 90 days subject to permission for extension of stay. This period of ninety days offers significant benefits for those adapting temporarily to sudden-onset climate disasters, but may be impractical for migrants needing to stay longer in host countries.

The Protocol also allows migrants residence and labour, and a pathway to permanent establishment. This allows citizens high agency in adapting to climate-affected circumstances through mobility, and fulfils Wood (2019)'s three key requirements. The ECOWAS Protocol also allows regularisation of irregular migrants, an issue particularly pertinent in cases of adaptation to sudden-onset climate change and specified as a GCM target (UN, 2018a), although importantly stipulates that this is subject to considerations of political acceptability. The Protocol also stipulates that migrants will enjoy the rights outlined in the Universal Declaration of Human Rights, with migrant workers protected under the ILO Conventions.

ECOWAS' Protocol provides migrants with significant mobility options, and has the potential to be highly useful in the context of climate change.

Risks to usefulness

Several significant potential policy-level limitations to its usefulness exist, however.

Firstly, states retain the right to suspend Protocol obligations. Although these provisions are with regard to security threats (ECOWAS, 1985: Article 8(1)), they could also be used to prevent access and residence if migrants come to be presented as threats. The Protocol was unilaterally suspended by several countries during the Covid-19 pandemic, comprising 66 percent of the 352 denominated points of entry within the ECOWAS free movement space (Hamadou, 2020). This may have deepened anti-migration nationalism (Aniche et al., 2022), and Hamadou (2020: 338) argues that Covid-19-related border closures “have led to a progressive disintegration of the legal regime of free movement of persons.”

Secondly, border crossings require documentation (ECOWAS, 1979: Article 3), which some migrants cannot easily access, especially in contexts of poverty or sudden-onset disaster (Arhin-Sam et al., 2022). Some member states (Senegal and Niger) also require vaccinations (Adepoju et al., 2007).

Thirdly, member states' prerogative to declare inadmissibility (ECOWAS, 1979: Article 4) means that, in extremis, particular groups of migrants could be refused mobility rights conferred by the Protocols (Collett et al., 2016). Some states have very broad provisions permitting exclusion or expulsion: Liberia, for example, permits the state to declare inadmissibility to “[the] feeble-minded” and “paupers” (Adepoju et al., 2007: 10). In recent years, this prerogative has been invoked “so often that a number of states now apply it practically as a matter of routine” (Hamadou, 2020: 338). It is especially likely to be used during economic downturns (Arhin-Sam et al., 2022). Where economic downturns are caused by or coincide with climate shocks, migration may thus be less likely to be made accessible by member states.

Fourthly, while ECOWAS member states officially do not charge fees for entry within the 90-day window, fees for documents allowing labour and establishment rights are commonplace (Adepoju, 2009). This could in some cases inhibit movement by vulnerable populations, especially where the fees are corruptly inflated and accompanied by harassment (Arhin-Sam et al., 2022).

Wood (2019) notes several further limitations ubiquitous to African RFM protocols:

- In addition to *groups* being barred from entry to a Member State, individual disaster-displaced persons could also be excluded;
- Disaster-displaced persons may be unable to regularise their status in a host country following irregular entry, if their regularisation is deemed to be politically unacceptable;
- Disaster-displaced persons who are stateless due to a lack of citizenship in a Member State party to an RFM protocol may be excluded;
- Disaster-displaced persons eligible for refugee status may be excluded;
- Disaster-displaced persons may have limited protection of their human rights;

- Disaster-displaced persons may be unable to obtain residence or establishment permits, and thus be unable to work;
- There is limited protection against forcible return of disaster-displaced persons (see Table 3);
- Disaster-displaced persons may be excluded from permanent residence, especially if their host state or state of origin prohibits dual nationality;
- States may place limitations on the number of entries by disaster-displaced persons, and/or may limit the duration of their stay.

Absent such steps being taken, however, and recognising furthermore that it is unlikely that states would abrogate their access to such actions, ECOWAS' RFM framework appears to offer a strong *de jure* basis for mobility responses to climate-affected circumstances. Table 3 summarises key policy sub-areas with regard to climate-affected mobility.

ECOWAS' Protocol is de jure highly useful in allowing populations affected by climate change access to movement. However, states retain the ability to restrict future movement. In extremis, such as a situation in which climate-affected migrants were demonised by politicians, access to mobility could easily be cut off.

TABLE 3. Key policy sub-areas related to climate-affected migration in ECOWAS' free movement protocol

| Key Policy Sub-Areas | ECOWAS Free Movement Protocols (1979; 1985; 1986; 1989; 1990) |
|----------------------------------|--|
| 1.1: Eligibility | Free movement accessible to all citizens of ECOWAS Member States. ⁴⁰ |
| 1.2: State discretion to exclude | Member States may refuse access to 'inadmissible immigrants under its laws' (1979, Art. 4). ⁴¹ In some states, this excludes 'undesirable persons' or those unable to support themselves financially. ⁴² Mass expulsions are prohibited. ⁴³ |
| 1.3: State discretion to suspend | Member States may suspend Protocol adherence to protect internal security. ⁴⁴ |
| 1.4: Documentation requirements | Citizens must carry a valid travel document (e.g., passport or ECOWAS travel certificate), and a health certificate. ⁴⁵ |
| 1.5: Financial requirements | Most states de facto charge 'symbolic' entry fees of between \$10 and \$500. ⁴⁶ |

40 ECOWAS, 1979: Art. 2.

41 ECOWAS, 1979: Art. 4.

42 Adepoju, Boulton, and Levin, 2007.

43 ECOWAS, 1985: Art. 13.

44 ECOWAS, 1985: Art. 8(1).

45 ECOWAS, 1979: Art. 3.

46 Adepoju, 2009.

TABLE 3. (Continued)

| Key Policy Sub-Areas | ECOWAS Free Movement Protocols (1979; 1985; 1986; 1989; 1990) |
|---|--|
| 1.6: Irregular movement | 'Measures shall be taken to guarantee that illegal immigrants enjoy and exercise their fundamental human rights. ⁴⁷ Member States are obliged to assist irregular migrants in regularising themselves <i>if considered politically acceptable</i> , and to respect migrants' human rights. ⁴⁸ Member states are encouraged to sanction employers of irregular workers. ⁴⁹ |
| 1.7: Refugee protection | Not originally addressed in the Protocols, but included through a non-binding 2008 Commission statement. ⁵⁰ |
| 2.1: Rights during stay | Rights are accorded following the Universal Declaration of Human Rights, and worker rights under the ILO Conventions. ⁵¹ In the event of expulsion, security and property rights are guaranteed. ⁵² |
| 2.2: Right to work and conduct business | Migrants are permitted to apply for and hold jobs in other Member States. ⁵³ Border, seasonal and itinerant workers are afforded all rights granted in their state of origin, excepting residence. ⁵⁴ All regular migrant workers shall enjoy equal treatment with host Member State citizens in key respects (e.g., access to social care, and security of employment). ⁵⁵ |
| 2.3: Protection against return | Expulsion is prohibited when it would result in the 'violation of fundamental human rights'. Any expulsion must be conducted 'in a humane manner'. ⁵⁶ Migrant workers' fundamental rights must be respected as per the ILO Conventions. ⁵⁷ |
| 3.1: Pathways to permanent residence | Residence for the purpose of working is to be granted to all ECOWAS citizens. ⁵⁸ The right of establishment is to be granted 'under conditions defined by the legislation of the host Member State'. ⁵⁹ In many Member States, national law prohibits dual nationality. ⁶⁰ |
| 3.2: Circular and temporary movement | Border, seasonal and itinerant workers 'shall enjoy the right to choose their employment freely within the limits of any restrictions imposed by the host Member State', excepting rights relating to residence (still being considered resident in their states of origin). ⁶¹ |

47 ECOWAS, 1985: Art. 3.

48 ECOWAS, 1985: Art. 5; Art. 3.

49 ECOWAS, 1985: Art. 22.

50 ECOWAS Commission, 2008.

51 Wood, 2019a.

52 ECOWAS, 1979: Art. 11.

53 ECOWAS, 1986: Art. 3.

54 ECOWAS, 1986: Arts. 10–12.

55 ECOWAS, 1986: Art. 23.

56 ECOWAS, 1985: Art. 3(4; 2).

57 ECOWAS: 1986, Art. 1(1).

58 ECOWAS, 1986: Arts. 2–3.

59 ECOWAS, 1985: Ch. I.

60 Adepaju, Boulton and Levin, 2007.

61 ECOWAS, 1986: Arts. 10–12.

Constraints on RFM implementation

ECOWAS' free movement protocols "have never been fully implemented" (Arhin-Sam et al., 2022), and have been described as "far more idealistic than realistic" (Bolarinwa, 2015: 166). The implementation of ECOWAS' RFM occurs in a difficult context. They entered implementation in 1980, but the intended 1995 completion date has been far overshoot (Schneiderheinze et al., 2018).

Harmonising ECOWAS policy and member state law

The ECOWAS Protocols require member states' adherence and commitment for implementation. This has however been lacking. ECOWAS states were in 1979 expected to 'progressively establish' (Article 2(2)) the three phases of rights from 1980–95, and to cooperate with each other in sharing information (Article 9). The Supplementary Protocols clarified further state obligations. States must:

- Provide citizens with valid travel documents;
- Ensure that their administrative services are adequate for receiving migrants legally; and
- Ensure that officials' knowledge is harmonised (1985, Article 2).

States are also expected to:

- Cooperate to combat irregular immigration and smuggling (1985, Article 6);
- Act against irregular labour (1986, Article 22); and
- Harmonise laws to expand protections to all Community citizens (1985, Article 7).

By 1981, states were expected to have harmonised their policies to establish a joint ECOWAS Residence Card (1986, Article 9). States are expected to closely cooperate with each other and with the ECOWAS Secretariat (now Commission) in order to share information and harmonise labour migration policies (1986, Article 18), establishing authorities to manage this (1986, Article 20). Ultimately, 'Member States shall take all necessary legislative and other measures for the implementation of the provisions of this Protocol.' (1986, Article 27).

All ECOWAS member states have ratified the Free Movement Protocol, but not all laws at the national level have been harmonised. This is especially challenging with regard to national processes for regularisation of irregular migrants (Garba and Yeboah, 2022). The ECOWAS Common Approach to migration also requires comprehensive national migration policies aligned with ECOWAS norms. As of 2019 (Bisong, 2019b) four countries (Nigeria, Niger, Ghana, and Mali) had revised comprehensive migration policies, and three (Togo, Burkina Faso, and Liberia) were in the process of developing them; it is uncertain how committed states are to their development and implementation, however.

ECOWAS' Protocol has been ratified by all member states, but not all national laws have been harmonised.

ECOWAS enforcement and implementation capacity

As a Regional Economic Community, ECOWAS lack powers of enforcement and monitoring. As an institution, furthermore, it is fragmented due to internal divisions between Anglophone and Francophone members, and competing national interests (Sam-Arhin et al., 2022). This, and inadequate ECOWAS capacity and financing, hinder implementation (Nita, 2013). Only the first phase of the ECOWAS framework for regional integration—visa-free entry for 90 days—has been implemented by all member states (DFAT, 2020). ECOWAS has a severe staff shortage, impeding its ability to run its programmes (DFAT, 2020); this is particularly acute for the Free Movement of Persons Directorate, which is intended to push MS implementation of RFM (Castillejo, 2019).

Inadequate institutional capacity

ECOWAS' *de jure* powers have significantly expanded over time, and in 2007 its Secretariat was transformed into a Commission with the aim of increasing its policies' legal enforceability (Bisong, 2019b); the Commission, however, lacks the funding to support its expanded mandate (Castillejo, 2019). ECOWAS' Community Court of Justice is intended to settle intra-Community disputes, but it cannot enforce decisions, making compliance with judgements doubtful (Börzel et al., 2013). By and large, ECOWAS is not the implementing agent of the Free Movement Protocol; instead, it is dependent on member states (Zanker, 2019). As elsewhere in the African Union, while ECOWAS has established *norms*, however, it has struggled to drive ratification and implementation (Geddes and Maru, 2020). The regional body thus pursues sustainable migration strategies, but member states undertake governance; this leads to a construction of parallel systems, in which the formal migration governance systems, nominally embraced, are subordinate to an informal system (Koff, 2020).

Despite large sums of external funding, ECOWAS lacks the capacity to develop its own projects (Krampe et al., 2018). Castillejo (2019) notes that the Commission has previously approached the German embassy seeking funds to act on requests by heads of member states to develop migration policy. Castillejo (2019: 24) suggests that migration policy is “to a large extent an EU priority imposed on ECOWAS”, explaining why member states were not willing to fund policy development themselves. Instead, policy is funded by EU assistance “from policy conception to decision-making” (Bisong, 2019b: 1306).

Moving forwards

As a Regional Economic Community, ECOWAS could thus serve as a forum for developing common messaging and high-level policy priorities, attempting to reduce polarisation around migration exhibited during the GCM negotiation process (Castillejo, 2019). For this to be most effective, data-gathering and -sharing practices need to be improved. The President of the ECOWAS Commission called in 2017 for the creation of a regional migration data sharing mechanism, recognising that this is a key problem (Urso and Hakami, 2018). ECOWAS hosts an active Regional Consultative Process established in 2000 to facilitate information-sharing (IOM, 2008), which is considered to have

played an important role in data-gathering and circulation of good practices. Lack of connectivity between MSs, and inadequate identification of focal institutions, nonetheless hinders more effective cooperation within ECOWAS (Carciotto and Agyeman, 2017).

As a Regional Economic Community, ECOWAS lacks the institutional mandate and capacity to enforce the Free Movement Protocol. It sets norms, but relies on under-motivated states to implement.

State capacity constraints and low prioritisation

Some progress has been made in implementing ECOWAS' Free Movement Protocol, despite limited enforcement by the Commission. The revision of states' comprehensive national migration policies is arguably promising (Bisong, 2019b), even if it is uncertain how much this is being driven by real buy-in rather than external pressure (Castillejo, 2019).

Moving from alignment to on-the-ground implementation is far more challenging. ECOWAS contains the highest concentration of fragile states in Africa (Vanheukelom, 2017), and a chain of coups in recent years have increased tensions and challenged ECOWAS' governance systems. For many governments, domestic developmental and political incentives favour the prioritisation of security, or of socio-economic areas such as education, health, or employment, rather than migration (Adam et al., 2020).

Migration thus receives "meagre levels of resource allocation" (Geddes and Maru, 2020: 14), posing a significant challenge to RFM implementation. ECOWAS' RFM protocols, for example, specify that all member states should provide citizens with travel documents (ECOWAS, 1986); few citizens possess these, however, and acquiring them is often difficult and expensive (DFAT, 2020). For those who do, a multiplicity of documents in circulation makes verification assessments challenging (Lloyd and Nwafor, 2019). At many borders—such as those of Cote d'Ivoire, Togo, Benin and Nigeria—different documents will be demanded (DFAT, 2020). A combination of border governance unpredictability, citizens' lack of documents, and citizens' lack of knowledge of permit rights, leads to visa overstays without solicitation of permits (Carciotto and Agyeman, 2017; Kabbanji, 2017).

This may be in large part due to the fact that member states, particularly those in the Sahel, "may not behave like states in a Weberian sense", but operate rather through hybrid governance, especially in peripheral areas (Bøås and Strazzari, 2020:3). In Sierra Leone, for example, only 33 of over 400 border points are formally controlled (DFAT, 2020). As Simmons (1998) notes, such failures to adhere to agreed policy may be the result of incapacity, or of unwillingness—or, indeed, both. Mali has been described as a 'Potemkin state' (Craven-Matthews and Englebert, 2018); even where the state is present, mid-level officials may have illicit interests in border mismanagement (Bøås, 2019), resulting in a lack of both capacity and functional desire to comply.

Local-level border mismanagement is rife throughout ECOWAS. Corruption is widespread, and harassment and extortion of migrants is an everyday occurrence: despite a 1995 ECOWAS agreement that checkpoints be consolidated and streamlined, the Lagos-Seme road nonetheless held forty checkpoints in 2012, generating rent for officials (Kabbanji, 2017; Okom and Udoaka, 2012). These practices incentivise irregular crossings for migrants (Di Cortemiglia et al., 2018), posing a serious threat to RFM functionality and the ability of climate-affected persons to use mobility for adaptive purposes.

Migration, and free movement, is de-prioritised at the national level. At the local level, low state capacity, corruption, and insecurity inhibit implementation.

Security concerns and regional free movement

Many ECOWAS states view regional free movement as a security risk (Castillejo, 2019). This has serious risks for RFM prioritisation and implementation, endangering access to mobility for climate-affected populations for whom it would be beneficial.

In all states, security interests and activities countering smuggling and trafficking must be balanced (Jegen, 2020; Carciotto and Agyeman, 2017; Adam et al., 2020). In ECOWAS, however, the embrace of border securitisation, favoured by member states for domestic security and state-building reasons and by outside actors (especially the EU) for border externalisation reasons, is often incoherent with regional integration aspirations (Mouthaan, 2022). Depending on how the discourse regarding border securitisation and sovereignty develops, it may come to reduce the effectiveness of regional free movement policies for climate adaptation. Even if securitisation is fully embraced, however, low state capacity and the prevalence of informality may allow movement to continue—as has occurred so far (Arhin-Sam et al., 2022).

Seeking EU funding, many states have increasingly adopted a security rhetoric regarding mobility (Zanker, 2019). Borderlands are a key locus of violence within the region. 25 percent of all violence across 21 West African states occurs within 50km of a border (Radil et al., 2022). Niger-Nigeria pastoralist migration during droughts has become contentious due to Nigerian farmers' claims that it resulted in property insecurity and agriculture disruption (Urso and Hakami, 2018). This is a problem that has worsened due to desertification and a wider availability of small arms (Krampe et al., 2018), and which occurs in multiple ECOWAS states. During crises, scrutiny of migrants' documentation typically increases; given that few migrants have easy access to documentation, especially when moving under crisis conditions (Wood, 2019a), this is likely to lead to irregular movement or to inhibit movement (DFAT, 2020), undermining RFM's success.

RFM—in combination with inadequate border management—is also partly blamed for a rise in human trafficking (Sowale, 2018), which has consequently risen up the agenda (Adam et al., 2020). This is especially prominent in transit states such as Mali, where cross-border trafficking and smuggling networks are presented as a key challenge to security (Bøås, 2019).

Insecurity, and a focus on border securitisation—prompted notably by EU externalisation—hinders RFM, and may reduce access to mobility in the context of climate change.

Migration's domestic salience

While migration is generally not regarded as a cultural or economic threat in most African countries (Maru, 2021), there are strong examples of the potential for these fears to become dangerously salient in ECOWAS. This risks political restrictions on regional free movement implementation; may lead to more border securitisation (Mouthaan, 2022); and reduces access to mobility for climate-affected persons.

ECOWAS has previously seen multiple mass expulsions contravene the RFM Protocols, including up to 4 million migrants expelled from Cote d'Ivoire in 1999, and over 1 million from Nigeria in 1983–5 (Okom and Udoaka, 2012). This is a worst-case scenario to be avoided.

Coastal countries resist herders' free movement in part due to identity-political agendas. Fears of Nigerian domination of host economies—given its larger GDP and workforce—have also slowed the introduction of the residence and establishment phases of the Protocol (Castillejo, 2019). This has most prominently manifested itself in tensions between Ghana and Nigeria, ECOWAS' two largest economies. The 1994 Ghana Investment Act diverged from ECOWAS' Protocols in prohibiting non-Ghanaians from conducting several economic activities, including petty trading. Ghanaian traders' pressure groups campaigned for the Act to be more stringently upheld (Kufuor, 2013), leading to at least one Nigerian business threatening to leave Ghana in 2010 (Okom and Udoaka, 2012). Domestic Nigerian pressure groups mobilised to protest the Ghanaian government's discrimination (Bisong, 2019a). ECOWAS relied on soft power to facilitate bilateral meetings between the states, but with limited success (Zanker et al., 2020).

Pro-migrant CSOs

Just as trade groups militate against migration, it is also possible that increased domestic pressure for free movement could encourage states to adhere to the Protocol, increasing the policy's robustness and migrants' rights. If this occurred, greater access to mobility and greater protection of rights would be afforded to populations affected by climate change.

In Niger, for example, civil society organisations (CSOs) have played a role in drawing government attention to its failures to adhere to RFM obligations. In Nigeria, Ghana, Senegal and Niger, CSOs are formally involved in migration policymaking; engagement and subsequent action, however, is subject to governments' political will (Bisong, 2019a), and in Niger CSO pressure has had little effect. In Senegal, similarly, government actors' interests are reported to focus on some topics in particular—such as the economic gains to be obtained from the diaspora—and less on the protection of the rights of migrants in Senegal, despite civil society pressure (Mouthaan, 2022).

A growth in the number and voice of CSOs focused on pushing for RFM implementation and migrants' rights could incentivise governments to act. For this to occur, greater popular knowledge of RFM and its significant economic benefits (see Garba and Yeboah, 2022) would be required. This would potentially contribute significantly to RFM's robustness, by bolstering pro-mobility domestic constituencies and thereby shaping politicians' interests. External support for CSOs working in the area of migration policy accountability could be useful.

A history of expulsions, and states' slow implementation of the residence and establishment phases of ECOWAS' Protocol, suggests however that domestic pressure is more likely to militate against mobility. Importantly, sending and transit states—such as Niger—exhibit greater domestic support for RFM, while richer receiving states—such as Ghana, Nigeria and Kenya—exhibit more frequent anti-mobility domestic movements.

Where the domestic salience of migration increases, free movement may become shakier—as ECOWAS' history demonstrates. Supporting pro-migrant CSOs, and increasing popular knowledge of the benefits, could increase RFM's durability.

External influence and policy incoherence in regional free movement

“Access to finance and hard currency play critical, if not the most fundamental, role in the formulation of African migration policies” (Maru, 2021: 4). The EU is one of the most significant funding actors in the migration space; its policy can make or break access to mobility for climate-affected populations in West Africa.

Publicly, the EU supports regional free movement in ECOWAS. Until 2015, it supported the Community in promoting intra-regional mobility and managing implementation (Bisong, 2020). Following the 2015 ‘refugee crisis’, however, immigration became a high-salience issue in EU domestic politics (Geddes, 2018). Migrant-receiving states such as Italy demanded a way of visibly reducing immigration (Knoll and Veron, 2019), presaging a new focus on development work to ‘address the root causes of migration’, increasingly viewing migration as a problem to be reduced (Fine et al., 2019). RFM was deprioritised in EU discussions (Castillejo, 2019), and multiple ECOWAS and IGAD countries—including Niger, Mali, and Ethiopia—were identified as key targets for mobility reduction (Geddes and Maru, 2020). The EUR 5 billion EU Emergency Trust Fund for Africa (EUTF) was created to achieve this (Maru, 2021). While the ‘root causes’ goal is conceptually vague, ‘migration management’ projects are allocated 22 percent of EUTF funding (Zanker, 2019). This level of funding is of great significance to recipient states, which are often in need of foreign currency. This is especially the case given that EU development funding is increasingly contingent on adherence to EU migration policy demands (Tagliapietra, 2019).

EU-demanded policies focus on legislation-based border control to counter irregular migration (Geddes and Maru, 2020). Countries are persuaded to participate by the ‘issue-blurring’ of migration policy and development. Niger has become a prominent EU partner due to then-President Issoufou’s

belief that development projects would be well-received domestically, and the country's great need for foreign currency (Müller, 2018; Tagliapietra, 2019); one of ECOWAS' poorest states—and, importantly, a key transit state—Niger received approximately EUR 1.6 billion from 2016–2020. In return, it has securitised its borders, including rendering illegal any migration north of Agadez, thus breaking ECOWAS' RFM policy (Tubiana et al., 2018).

Other states must also weigh their options between EU aid and commitment to free movement. Ghana and Senegal, Adam et al. (2020: 3104) observe, have “found themselves in a perpetual balancing act” between domestic interests accustomed to free movement and external demands and opportunities. Many ECOWAS states increasingly view RFM through the lens of irregular migration rather than that of regularising migration (Castillejo, 2019). In states lacking the capacities to adequately differentiate between ‘good’ and ‘bad’ mobility, this poses a threat to livelihoods reliant on mobility, and to RFM more widely (Geddes and Maru, 2020). In the Sahel, securitisation has in some cases (such as that of Niger) led to a broad criminalisation of all forms of migration (Schraven, 2019). In public and policy discourse, migration is increasingly portrayed as something inherently dangerous and criminal (Bisong, 2020). The RECs' mobility regimes are thus in danger of being dismantled in the name of security, even if it is also possible that much African cooperation with the EU is isomorphic (Zanker, 2019).

This is a dangerous trajectory. Addressing migration through an increasingly securitised frame of reference does not meet the real needs of the region's population, and risks reducing access to adaptive mobility during increasing climate instability. For the EU, too, greater support for regional free movement rather than movement suppression may better suit long-term goals. The EU's fear is that current low levels of development in migrant-sending states drive movement. This may be on shaky foundations given the inability of development to reduce migration (see e.g., Clemens, 2014; 2022). However, given the longstanding importance of migration in economic growth and in adaptation to climate change, supporting intra-regional mobility should be a key part of the EU's programme for development.

Regional free movement offers significant development benefits (Bisong, 2022), and significant benefits for the governance of climate-affected migration. If the EU is correct in assuming that lower standards of living drive South-North migration, it should also assume that inhibiting the development of regional free movement will have the same effect.

EU externalisation efforts in the ECOWAS region endanger the implementation of RFM. This restricts communities' access to climate-adaptive migration, and is incoherent with the EU's policy goals.

21. East Africa: IGAD's new free movement regime

The Inter-Governmental Authority on Development comprises eight countries in East Africa, the Horn, and the Great Lakes, with a total population of over 230 million (see Figure 13). The region is relatively highly vulnerable to climate change.

Nearly 80 percent of the region's population relies on rain-fed agriculture and pastoralism (Byiers, 2016). These livelihoods can be heavily affected by climate shocks and fluctuations, and households reliant on them have few ways of recovering between climate shocks (Hammerstad and Norrington-Davies, 2022). 70 percent of the region comprises arid and semi-arid lands, which receive less than 600mm rainfall annually (Tegebu, 2020). The main hazard in the region is drought, which has led to high risk of famine in parts of the Horn following consecutive missed rainy seasons (FEWS NET, 2022). Severe flooding can also cause challenges for populations and livelihoods, and sea level rise may pose a further problem in coastal areas in the future (Serdeczny et al., 2017; Schraven et al., 2020). Rising temperatures, and more frequent temperature extremes, will coincide with a significant population increase, and are likely to contribute to stress placed on water availability and crop productivity (Clement et al., 2021).

Historically, the IGAD region sees regular high levels of climate-related movement. In 2016, for example, 63 percent of all sudden-onset disaster displacement in Africa occurred in the East Africa region, with Ethiopia, Somalia, and the Sudans—all IGAD states—among the most affected (IDMC, 2017). Forced displacement levels are also high across most of the region (Carciotto and Agyeman, 2017).

FIGURE 13. Map of IGAD



Source: Erasmus et al. (2013: 92).

IGAD, like ECOWAS, sees a high proportion of migration (87 percent) occur intra-regionally (Dick and Schraven, 2019a). Intra-regional migration is high due to labour migration for national projects; the relatively small size of IGAD member states; and strong relationships between and within ethnic groups across the region. The top five destination economies for IGAD migrants are Sudan, South Sudan, Ethiopia, Kenya, and Uganda; remittance flows thus originate from within and outside the region, often sent informally. Remittances are crucial within IGAD, including in allowing communities to adapt to climate-related shocks (Hammerstad and Norrington-Davies, 2022). In the fourth quarter of 2021, remittances totalled US\$8.8 billion, equalling 4 percent of the region's GDP (UNCDF, 2022).

The usefulness of IGAD's RFM provisions

IGAD's Protocol on Free Movement of Persons (IGAD, 2020b) is highly useful in the context of climate change, and provides member state citizens with a wide range of mobility possibilities. All member state citizens are accorded rights of entry, free movement, and exit, to and from other non-origin member states; the right to be employed; and the ability to 'progressively realise the right of establishment' (Article 3).

These rights, following ECOWAS' lead, are to be implemented in four phases (Article 4), a process intended to be completed in 2037 (IGAD, 2020c). The Protocol waives the requirement of a visa for a period of 90 days (Article 5), but does require the presentation of 'a recognised, valid travel document' (Article 6). As in the case of ECOWAS, member states retain the right to prohibit entry for 'the protection of public security, public policy, public order or public health' (Article 7(c)). Establishment (Article 8) is permitted, as is the right to employment and access to member states' labour protection laws (Article 9). To permit this, mutual recognition of qualifications and harmonisation of education is also stipulated (Article 10). At all points, migrants are to enjoy the protection of host member states, with equal treatment with host state citizens (Article 12).

With regard to the facilitation of climate-affected migration, two Articles are particularly pertinent. The first is Article 15, establishing that residents of border communities are to have easy access to mobility. This provides those most likely to benefit from cross-border migratory adaptation to climate-related challenges with easy recourse to movement. The second, of greatest significance, is Article 16. This establishes firstly that:

'Member States shall allow citizens of another Member State who are moving in anticipation of, during or in the aftermath of disaster to enter into their territory provided that upon arrival they shall be registered in accordance with national law.'

And, secondly, that:

'Member States shall take measures to facilitate the extension of stay or the exercise of other rights by citizens of other Member States who are affected by disaster in accordance with the provisions of this Protocol when return to their state of origin is not possible or reasonable.'

Article 16 is unique among Free Movement Protocols, and reflects IGAD's strong interest in climate-affected mobility and the climate-aware guidance received from the Platform for Disaster Displacement, the IOM, and other expert bodies during the drafting process. Article 16 renders the IGAD Protocol a still more suitable instrument for the governance of climate-affected migration. IGAD citizens are explicitly given the right to *anticipatorily* adapt to the effects of climate change through mobility. They are assured right of entry, of residence, of establishment and labour, and of protection. The Protocol thus fulfils the basic needs of displaced persons as outlined by Wood (2019).

IGAD's Protocol on Free Movement of Persons is unprecedentedly explicit in providing mobility options to climate-affected persons. Other regions preparing regional frameworks could consider adopting provisions similar to Article 16.

Risks to usefulness

As in the case of ECOWAS, however, the IGAD Protocol also offers member states some interpretative leeway through which the instrument's suitability could be compromised.

Firstly, Articles 7 and 20 permit respectively the non-admittance and expulsion of persons for "specific reasons of public policy, public security, public order or public health". In cases where migration obtains high domestic political salience, populist member state actors could be motivated to interpret these provisions against the interests of those moving in response to climate change. As is noted in Box 4, 'public order' is a term with significant flexibility.

Secondly, Article 33 provides for the suspension of the Protocol's implementation, or withdrawal from the Protocol, 'in case of grave threats to public security, public order or public health'. This provision could, similarly, be used to abnegate a MS's obligations under the Protocol to the detriment of mobility-based responses to climate change, as will be further discussed.

Thirdly, the requirement (Article 6) that migrants present travel documents, despite the fact that most border crossings occur without the use of formal travel documents (Bisong, 2020), may hinder regular movement for the most vulnerable. This is especially the case for those who do not have

legal proof of identity (Wood, 2019a) and those moving in crisis circumstances. Scalable bilateral arrangements could test options for easier mobility, such as reciprocal fee-waiving or simplification of travel documents.

Wood (2019) notes several further limitations ubiquitous to African RFM protocols:

- In addition to *groups* being barred from entry to a Member State, individual disaster-displaced persons could also be excluded;
- Disaster-displaced persons may be unable to regularise their status in a host country following irregular entry, if their regularisation is deemed to be politically unacceptable;
- Disaster-displaced persons who are stateless due to a lack of citizenship in a Member State party to an RFM protocol may be excluded;
- Disaster-displaced persons eligible for refugee status may be excluded;
- Disaster-displaced persons may have limited protection of their human rights;
- Disaster-displaced persons may be unable to obtain residence or establishment permits, and thus be unable to work;
- There is limited protection against forcible return of disaster-displaced persons (see Table 4), which can be required for a range of reasons;
- Disaster-displaced persons may be excluded from permanent residence, depending on the national laws of host states;
- States may place limitations on the number of entries by disaster-displaced persons, and/or may limit the duration of their stay.

The possibility of future expulsion of persons and the suspension of the Protocol could both in certain circumstances hinder the Protocol's usefulness for climate-affected mobility. The requirement that migrants present documents may also be challenging for vulnerable persons.

TABLE 4. Key policy sub-areas in IGAD’s free movement protocol

| Key Policy Sub-Areas | IGAD Free Movement of Persons Protocol (2020) |
|--|--|
| 1.1: Eligibility | Free movement accessible to all citizens of IGAD Member States. ⁶² |
| 1.2: State discretion to exclude | Member States may exclude those whose entry is prohibited by their laws on grounds of security; policy; order; or health. ⁶³ Mass expulsion is prohibited. ⁶⁴ |
| 1.3: State discretion to suspend | Member States may suspend Protocol adherence in the case of ‘grave threats’ to public security, order, or health. ⁶⁵ |
| 1.4: Documentation requirements | Citizens must carry ‘a recognised, valid travel document’ (e.g., a passport or national identity card). ⁶⁶ |
| 1.5: Financial requirements | Entry is to be governed according to the laws of host Member States; in some cases this may involve fees. ⁶⁷ |
| 1.6: Irregular movement | Not specifically referred to. |
| 1.7: Refugee protection | Refugee protection not referred to. Member State citizens may move in anticipation of, during, or after a disaster. ⁶⁸ |
| 2.1: Rights during stay | Citizens are granted equal treatment in host Member States with regard to rights protecting labour treatment, in addition to gender and child-sensitive rights to ‘education, health and other services.’ ⁶⁹ |
| 2.2: Right to work and conduct business | Migrants are permitted to engage in economic activities, and to participate in Member State social security schemes. ⁷⁰ ‘Fundamental rights at work’ are to be accorded to all IGAD citizens per Member State law. ⁷¹ |
| 2.3: Protection against return | Expulsion may be conducted when persons fail to fulfil residence/ establishment conditions; and when ‘reasons of national security, public order or public health of the host State so dictate.’ ⁷² ‘Fundamental principles in international law governing expulsion’ must be respected. No expulsions/ <i>refoulements</i> are to be conducted where there is a risk of ‘irreparable harm’, e.g., torture or death. Judicial review is to be accessible. ⁷³ |
| 3.1: Pathways to permanent residence | Initial entry allows 90 days without a visa. ⁷⁴ Residence and establishment are to be given ‘in accordance with the national policies and laws of the host Member State’, and subject to its limitations. ⁷⁵ |
| 3.2: Circular and temporary movement | Residents of border communities are to have free and easy access to movement, facilitated through bilateral or regional-level mechanisms. ⁷⁶ |

62 IGAD, 2020b: Art. 3.

63 IGAD, 2020b: Art. 7.

64 IGAD, 2020b: Art. 19.

65 IGAD, 2020b: Art. 32.

66 IGAD, 2020b: Art. 6.

67 IGAD, 2020b: Art. 5.

68 IGAD, 2020b: Art. 16.

69 IGAD, 2020b: Art. 3.

70 IGAD, 2020b: Art. 8.

71 IGAD, 2020b: Art. 9.

72 IGAD, 2020b: Art. 20.

73 IGAD, 2020b: Art. 21(4–6).

74 IGAD, 2020b: Art. 5.

75 IGAD, 2020b: Art. 11(1; 4).

76 IGAD, 2020b: Art. 15.

Constraints on RFM implementation

“The most binding constraint” facing IGAD, the REC’s 2015–2020 Migration Action Plan noted (Maru, 2014: 9), is “the gap between norms established in policies on the one hand, and their implementation on the other.” IGAD is considered by observers and partner organisations to have a competent but under-resourced migration unit within its secretariat. Member states, however, present many of the same challenges that are encountered in ECOWAS. IGAD does not have overarching decision-making authority on policy, and so can only give non-binding recommendations on migration management. Security and border externalisation problems, especially given the regional organisation’s dependence on development cooperation funding, are also likely to challenge implementation efforts (Dick and Schraven, 2019b).

Harmonising IGAD policy and member state law

Implementation requires member state buy-in, and the harmonisation of member state law with IGAD policy. Where resources are limited and migration is not a high state priority, this is more challenging. IGAD’s Free Movement Protocol was endorsed by State Ministers in 2020 (Pfefferle and Akumu, 2022). It was signed in December 2022 by the Foreign Ministers of four of the eight member states; Djibouti, Kenya, Somalia and Uganda did not sign (IGAD, 2022). Uganda’s *New Vision* newspaper (Matege, 2022) suggested that this indicates that “endorsement was the easy part”, and that obtaining member state signatures could be more challenging than anticipated. Stakeholders interviewed for an EU-commissioned report shared similar warnings against seeing endorsement as a real commitment (Davin et al., 2021).

The IGAD Protocol (2020) requires member states to harmonise their policies to align with the Protocol’s provisions, including the expanding of social security programmes to include citizens of other IGAD states (Article 27). States are required to ‘cooperate on the governance of their borders’ to facilitate ‘free, safe and orderly movement of persons’, through bilateral and regional cooperation, with capacity-building undertaken where necessary and information exchange where useful (Article 30). By 2028 all IGAD states are expected to have given all citizens valid travel documents; established and equipped border crossing points; and have harmonised laws in accordance with Article 16’s provisions regarding disaster-related movement. By 2031, harmonisation with regard to workers’ movement is expected to have been completed; by 2034, harmonisation with regard to residence, including the inclusion of IGAD citizens within social security systems; and by 2037, the right to establishment is to have been implemented (IGAD, 2020c). Each member state is required to designate a focal authority tasked with coordinating implementation of the Protocol, overseeing the incorporation of Protocol provisions into national policies, and the arrangement of administrative resources necessary to implement them (Article 31). The IGAD Secretariat is responsible for supporting member states’ implementation efforts, including through monitoring, capacity-building, and convening (Article 29).

Even where policy implementation is nominally undertaken, it risks being exploited in a “ritualised” (Söderbaum, 2004: 427) manner by autocratic leaders seeking legitimacy on the regional and international stage by being *seen* to be participating in regional activities and reforming their state. In Sudan, for example, the state has used government-affiliated militias to arrest migrants, claiming to be managing migration on Frontex’s behalf in a seeming bid to gain favour and win funding (Weber, 2018). Such behaviour is not inevitable, but may nonetheless occur. Several IGAD states—such as Sudan and Somalia—face severe internal challenges, and are governed by actors lacking domestic and international legitimacy. There is a risk, as in other policy areas, that claimed migration policy reforms do not occur in practice.

Initial signs suggest that IGAD may struggle to bring all states to ratification and harmonisation of laws.

IGAD enforcement and implementation capacity

IGAD’s Free Movement Protocol is not yet fully ratified, and has not begun implementation. The Protocol is very ambitious in light of the region’s limited governance capacities and currently low levels of integration.

The Secretariat will need to play a leading role in supporting member states in ratifying and implementing the Protocol, as Article 29 recognises. However, IGAD’s migration team—although often noted to be proficient (e.g., Davin et al., 2021)—has limited capacity for supporting and spurring member states (Castillejo, 2019). Furthermore, IGAD’s limited authority as an inter-governmental, rather than supranational, body reduces its authority to monitor and enforce adherence to agreed policies; non-compliance has few real costs for member states.

IGAD thus has relatively high legitimacy, and is taken seriously as a migration policy actor, but is institutionally weak (Davin et al., 2021). The Secretariat is however being supported by external actors, especially by the IOM and EU member state agencies such as the German Corporation for International Cooperation (GIZ). External support has been vital to the development of IGAD’s policies and capacities: Maru (2021: 25) observes that EU funding “enabled the resuscitation of the African free movement agenda... exemplified by the IGAD free movement protocol”. A Joint Programme coordinated by the IOM and comprising IGAD agencies and other international organisations was established in 2021, and has been supporting the Secretariat in preparing Standard Operating Procedures to be tested in limited cross-border areas (Brenn et al., 2022). It is intended that these SOPs will be increased and scaled to implement the Protocol in piecemeal fashion.

Data-sharing within IGAD is an area that has historically needed further development. Information deficits foment suspicion between member states of the better-integrated and overlapping East African Community, which has its own free movement protocol (Oucho and Odipo, 2017). The situation appears to be improving. New data-gathering and interpretation approaches are being supported by the Joint Programme, in particular with regards to disaggregated vulnerability levels (Brenn et al., 2022). The Climate Prediction and Applications Centre (ICPAC) of the IGAD Secretariat also now provides information on real-time slow-onset disaster to eleven East African states, informing decisions regarding disaster-affected mobility (Pfefferle and Akumu, 2022). In 2021, IGAD published its first Migration Statistics Report, with the assistance of external partners including GIZ, the ILO, and the IOM (Ogolla et al., 2021).

IGAD is an inter-governmental organisation with very low enforcement capabilities. Its migration team is considered highly competent, but the Secretariat relies on external funding and support. Standard Operating Procedures are being developed to allow the implementation of the Protocol to begin.

State capacity constraints and low prioritisation

Like other states in Africa, IGAD member states “have not tended to view migration as a priority issue”, instead placing it below domestic and regional conflict, terrorism, extreme poverty, and disaster risk reduction on the policy agenda (Geddes and Maru, 2020: 4).

As in ECOWAS, IGAD states lack the resources necessary to govern migration effectively (Maru, 2021). Civil registries are under-developed, and travel documents are not widely used, limiting access to regular migration in disaster circumstances (Davin et al., 2021). In an overview of Sudan’s migration governance, for example, the ILO (2020b) finds that:

- The state lacks a system for identifying labour market gaps;
- Labour migration policy was not coherently linked to the national migration policy, nor to other key areas;
- Policies to promote the protection of migrant workers were not in place; and
- No efforts were undertaken to support the integration of migrants, including attempting to match workers to skill gaps.

In a background paper for IGAD’s Regional Consultative Process (IGAD, 2019), similarly, multiple countries are noted to struggle to implement internal displacement policies due to:

- Lack of capacity;
- Low political will;
- Security challenges;

- Human capital constraints; and
- Low funding.

External support would be valuable to IGAD states as they prepare to implement RFM, and could increase internal and cross-border mobility options for climate-affected persons. Both state preferences for support in other areas (Maru, 2021), and donor fatigue, are however obstacles in this regard (Obila and Pop, 2020).

IGAD's states have limited implementation capacity as they prepare to implement RFM. Increased external financial and technical support could be valuable in preparing the REC for integration, with benefits for climate-affected populations.

Security concerns

As in ECOWAS, security concerns are of high significance in RFM implementation in IGAD.

Regional security threats make it difficult for IGAD member states to fully commit to opening borders (Carciotto and Agyeman, 2017). Kenya's 2022 Voluntary Review for the GCM (Government of Kenya, 2022: 31), for example, notes that "some view [migration] as a security threat, and some view it as a threat to their sovereignty while others view it as an opportunity for economic growth. Kenya is not exceptional." In its attitude to forced migration Kenya has increasingly been shifting away from integration and towards securitisation and encampment (Agwanda, 2022); in Kenya and elsewhere within the IGAD region, security concerns risk leading to increased border restrictions and lower access to mobility for climate-affected persons.

Kenya, for example, in 2016 threatened to opt out of regional and international agreements protecting migrant and refugee rights due to terrorism emanating from Somalia, and the broader Somali crisis has posed a major challenge for regional migration management (Urso and Hakami, 2018). Sudan's borders, similarly, are longstanding areas of conflict, with transnational armed groups retreating from one state to another across the Sudan-Libya-Chad zone (Weber, 2018).

In interviews in Kenya and Somalia, the NGO Climate Refugees (2022) found that the IGAD Free Movement Protocol is already thought to be assisting people in moving across borders, with migrants and displaced persons successfully receiving right of admission and pathways to citizenship in IGAD member states. They note however that insecurity is increasing in many areas with movement, due to increased contact between groups with historical rivalries and increased access to weapons flowing across borders from Sudan and South Sudan.

Security presents a challenge to the implementation of RFM in IGAD, and the issues faced indicate the importance of considering climate, security and migration holistically.

Migration's domestic salience

As in ECOWAS, migration is not typically of high salience as a domestic political issue, but its politicisation can nonetheless pose problems in the IGAD region. Should migration's salience increase, movement for climate-affected persons could be hindered. The politicisation of migration can manifest itself in local integration problems, and in macro-level policy or implementation changes. In Sudan, for example, Eritreans and South Sudanese migrants are treated poorly, whereas (non-IGAD) Syrian refugees 'are respected as "Arab brothers"', although increasingly considered 'unwelcome competition' (Weber, 2018: 49). Such tensions could be exploited by political entrepreneurs for domestic political gain (De Vries et al., 2021). As Castles (2004: 874) notes, migration policies "need to be fair and to be perceived as fair by all the groups involved" if they are to be effective. Where political challenges emerge domestically due to perceptions of migrant-related problems, compliance with regional norms may decrease (Weiffen, 2020; IOM, 2010), even where national representatives claim strong support.

Reports on domestic attitudes towards migration in the IGAD region suggest that while populations are generally tolerant of migrants, and even welcoming, there is still reason to pay attention to popular and political trends, and to support pro-migrant organisations and integration programmes. For example:

- Kenya's government has been positive regarding refugee and migrant welcoming on the international stage; domestic narratives have however been more negative, presenting migrants as threats to security in "us and them" rhetoric. Polling suggests that Kenyans are relatively tolerant of most migrant groups once they are in the country, but would prefer lower levels of migration (Hargrave et al., 2020a: 16). Social acceptance of cross-border 'environmental migrants' is found to be relatively high in urban areas (Spilker et al., 2020).
- In Ethiopia, polls indicate "relatively high levels of tolerance towards migrants, but also significant support for restrictive policy measures" (Hargrave, 2021: 3); support should be provided to actors responsible for migrant integration to ensure that tensions do not grow to the point that they can be exploited for reductions in rights.
- Uganda advances a welcoming narrative both internationally and domestically, a discourse echoed in the media and to an extent supported in integration efforts (Hargrave et al., 2020b).

Attitudes towards migrants, especially in a changing climate, must be borne in mind when considering the durability and usefulness of regional free movement for climate-affected persons. As in ECOWAS, support for CSOs favouring migration and demanding accountability in the upholding of migrants' rights could be a useful entry point for external actors.

Attitudes towards migrants in the IGAD region are generally tolerant and unlikely to significantly hinder the implementation of RFM. It is important however that these are monitored in case they do begin to become politically salient.

External influence and policy incoherence

As in ECOWAS, the role of the EU over IGAD regional migration policy is also significant. The EU's support for IGAD migration policy allowed the development of the Free Movement Protocol where it may otherwise have been impossible (Maru, 2021). Only 5–10 percent of IGAD's programme funding comes from member states, leaving it highly dependent on external funding sources, among which the EU is the most prominent (Krampe et al., 2018). Within IGAD as in ECOWAS, the EU's policy interests have since 2015 leaned increasingly towards border securitisation and efforts to counter irregular migration (Geddes and Maru, 2020), especially in Sudan, which borders Libya. Sudan has at points proactively sought EU partnership through the use of militia border guards, theatrically restraining migration in the hope of the lifting of international arrest warrants against then-President Bashir and others (Weber, 2018).

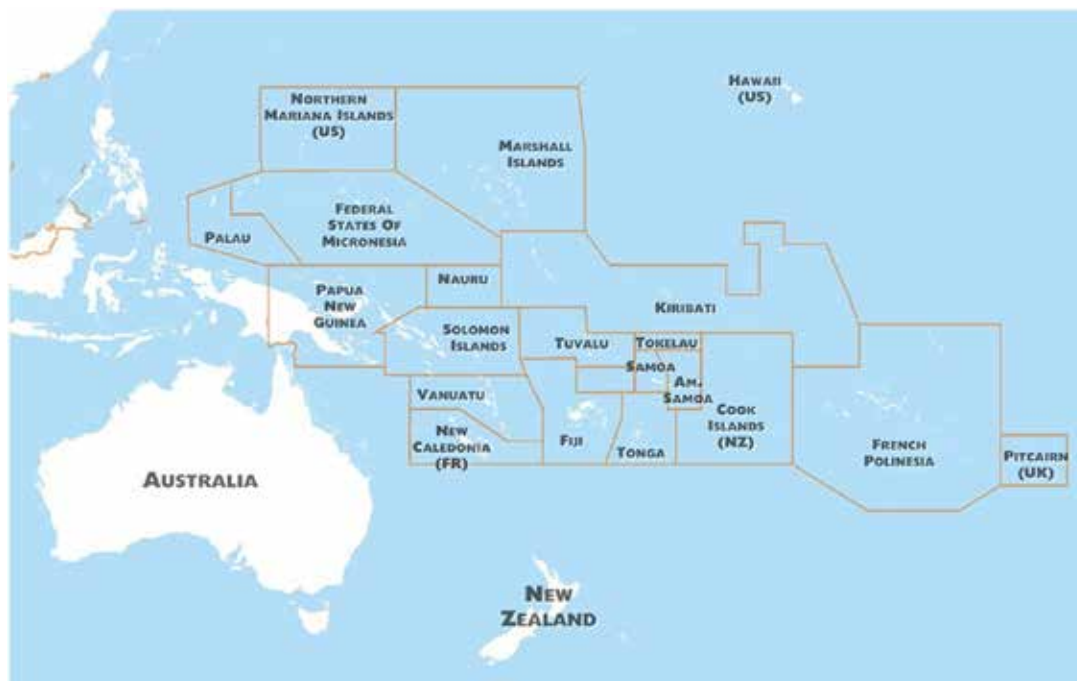
The effects of EU engagement in IGAD are less clear than in ECOWAS. In one study, no IGAD stakeholders shared fears that EU engagement was undermining regional integration, and IGAD staff reported that EU activities had helped to mobilise other actors to support RFM's development (Castillejo, 2019). However, in many border towns in the IGAD region new border restrictions prevent the free movement previously relied upon for income diversification and access to food during shortages (Geddes and Maru, 2020). While the IGAD Protocol has not yet begun implementation, this sets a precedent of migration reduction; disrupts important migration flows; and equates irregular migration—which predominates in areas with low state capacity and document access—with a security threat. Considerably less research has been undertaken into the effects of EU border externalisation in IGAD compared to that undertaken for ECOWAS. However, the same need is present to ensure that policy coherence is maintained; regional free movement in IGAD offers significant benefits to climate-affected communities, and the negative effects of border externalisation should be minimised.

External (EU) support for policy development in IGAD has been a crucial help. However, border securitisation trends risk having negative effects, and as in ECOWAS external actors must ensure that their engagement is not incoherent.

22. The Pacific

The Pacific Island Region contains 14 independent countries and 8 territories across 30 million km² of ocean, an area almost the size of Africa (see Figure 14). Excluding Papua New Guinea, 90 percent of the Pacific Island States' populations live within 5km of the coast (Andrew et al., 2019). Pacific Island leaders have declared that climate change represents an “existential threat” to their states (Pacific Islands Forum, 2022); the IPCC (2014) predicts that sea-level rise, storm surges, groundwater degradation, ecosystem degradation, and other effects of climate change will greatly challenge livelihoods. “Catastrophic forced migration” is often expected to be the result (Barnett and McMichael, 2018), and mobility issues have become salient within the region.

FIGURE 14. Map of the Pacific Island region



Source: Craig (2020: 2).

The geographical fragmentation of the Pacific Island States' makes managed migration in the context of slow-onset climate change a greater challenge than it can be elsewhere. Unlike in contexts of land borders, adaptive cross-border movement is less easily accessible. In the case of the sinking Carteret Islands in Papua New Guinea, for example, the desire to migrate increased as livelihoods became more and more constrained, but access to adaptive mobility remained very low, requiring government intervention (Connell, 2016). Three main discourses predominate in the climate/migration debate within the Pacific (Remling, 2020):

1. An argument that international labour migration is a key adaptation response to be promoted, driven in part by actors external to the region;
2. An argument that suggests that migration is of limited importance, and that it is more important to engage with socio-economic challenges leading to vulnerability in Pacific Island States;
3. An argument that out-migration from Pacific Island States is undesirable, but that relocation *within* countries may be necessary as hazards increase.

Limited regionalism

The Pacific region has been rapidly developing migration policies where previously there was a dearth (Thornton et al., 2021). A regional response for responding to climate-affected migration has not yet been developed, but discussions are ongoing (ILO, 2022).

Efforts are hindered by the absence of a regional integration body in the manner of the EU, AU, or Caribbean Community (Lavenex, 2019). Instead, a raft of political fora focused on different agendas offer space for regional and sub-regional cooperation. The most prominent among them is the Pacific Islands Forum (PIF), an inter-governmental organisation with 17 members (DFAT, 2022).

The PIF, with the Pacific Community (SPC), in 2016 published the *Framework for Resilient Development in the Pacific* (FRDP). This document calls for Pacific states to integrate human mobility into national policies, addressing disaster-related displacement; relocation; and labour migration (Lennartz et al., 2021). The FRDP and other documents have thus far served to confirm consensus, without resulting in joint policy approaches (Noorda, 2022). Australia, in particular, has largely been reluctant to open up access to its labour markets (Gartland et al., 2017). This may have changed since early 2022, when a draft regional framework on climate mobility for the Pacific began to be written under the auspices of the Pacific Climate Change Migration and Human Security programme led by the IOM (McAdam, 2022b). This was discussed at a High-Level Dialogue in June 2022, attended by representatives from sixteen Pacific Island countries (Neville, 2022), and in the end-of-year regional consultation in 2022 (PDD, 2022). It is hoped that this will ultimately be endorsed and implemented (McAdam, 2022b), but this appears to be some way off.

The development of regional climate-affected mobility policy is hindered in the Pacific by a low level of regional integration. There is consensus on the need for action, however, and discussions are ongoing.

Existing mobility arrangements in the Pacific

In the absence of regional arrangements, labour mobility arrangements are a key instrument for opening access to adaptive migration opportunities in the Pacific. These are often in the form of bilateral agreements. These allow islanders to gain alternative income sources; facilitate the transfer of knowledge, skills, and money; and reduce pressure on the environment due to overpopulation in areas of origin (UNDRR, 2019a).

The Pacific Island States fall into four mobility categories:

In the first category are the Republic of the Marshall Islands; the Federated States of Micronesia; and Palau. These countries have agreed Compacts of Free Association with the US following US administration under the UN trusteeship system, and therefore have largely free movement with the United States: citizens can enter, work and live in the US (Noorda, 2022).

In the second category are Samoa, Tonga and Fiji, which through historical ties and bilateral agreements have limited mobility access to New Zealand. New Zealand's Pacific Access Category (PAC) visa is a regionally specific visa intended to regulate economic migration. It is not based on

family ties, and does not explicitly mention climate change (Clemens, 2022c). It may serve to provide a pathway to movement for some whose livelihoods are rendered untenable by climate change, but is not expected to be adequate to meet all needs (UN ESCAP, 2014). Through a ballot system, the PAC offers permanent residency visas to 250 citizens of Fiji and Tonga, and 75 citizens of Tuvalu and Kiribati (Noorda, 2022).

In the third category are Papua New Guinea, Vanuatu, and the Solomon Islands, which have low access to mobility and restricted access to foreign labour markets. This is in part due to weaker historical ties with other countries, and to a low stock of human capital (World Bank, 2019b). Citizens of these countries are not eligible for PAC. However, countries in this category do participate in several other temporary labour mobility schemes (the latter two schemes are discussed in more detail later in the paper):

- **The Melanesian Spearhead Group's Skills Movement Scheme** allows 400 workers annually to work in another member state—comprising the three 'constrained migration' states and Fiji. This is an economic migration programme, intended to allow skilled migration in the region for employment. Member states specify desired skills, qualifications, durations of movement, and caps on migrant numbers. The scheme has struggled to help workers to move, in part due to a lack of private sector involvement (Voigt-Graf, 2015; ILO, 2019b).
- Nine Pacific Island States participate in **New Zealand's Recognised Seasonal Employer (RSE) Scheme**, which permits workers from participating states to be recruited for up to seven months (or, in the case of Tuvalu and Kiribati, for nine months) (Noorda, 2022). This scheme is intended to fill seasonal labour shortages in the horticulture and viticulture sectors, and in 2022 had a cap of 19,000 workers (Government of New Zealand, 2022b). Opportunities for future expansion may lie in dairy farming, care, and construction, industries in which New Zealand employers struggle to recruit (ILO, 2019b). (The RSE is discussed in more detail in a subsequent section).
- **Australia's Pacific Seasonal Worker Programme**, based on New Zealand's RSE, allows the recruitment of an unlimited number of temporary agricultural and accommodation workers for up to nine months from all Pacific Island States (ILO, 2019b). The programme has been a success for the vast majority of participants. Between 2012–15, 17,320 Pacific workers were employed, delivering approximately A\$144 million in net income gains to the region. The average Pacific seasonal worker transferred a total of AU\$8,850 through the programme (World Bank, 2017a). The Pacific Labour Scheme allows access to labour migration to Australia for nine Pacific Island States for a longer maximum period of three years. The scheme is open to all sectors (ILO, 2019b). (The SWP is discussed in more detail in a subsequent section).

The fourth category comprises Kiribati and Tuvalu. These two low-lying atoll nations are already impacted by climate change, and are likely to suffer severe losses and damages. Their citizens are eligible to participate in several mobility schemes, but must compete against applicants from larger states. Given their vulnerability, it is arguable that I-Kiribati and Tuvaluan citizens should be prioritised for access to movement: they have a negligible tourist industry; no natural resources; are already overpopulated; and face growing unemployment, even compared to Pacific peers (Kagan, 2015). It appears that New Zealand may already be prioritising disadvantaged states in its RSE programme (ILO, 2019b).

As of mid-2022, it was estimated that there were 34,400 Pacific workers present in either Australia or New Zealand participating in one of the three temporary Pacific worker programmes. Of these, 33 percent were from Vanuatu; 22 percent from Samoa; 15 percent from Tonga; and 10 percent from each of the Solomon Islands and Fiji. 5 percent of participants came from Timor-Leste, with the remaining 5 percent split between Papua New Guinea, Kiribati, Tuvalu and Nauru. The schemes have had a profound impact on the labour markets of Tonga, Samoa, and Vanuatu—for which the temporary work schemes have had an effect akin to doubling the number of government employees—but little effect on other participating island states (Howes et al., 2022).

In the absence of a regional mobility governance framework, labour migration plays an important role. These are typically circular migration programmes, and their primary benefit lies in the remittances sent back to communities of origin.

Moving towards a regional framework

At the 2012 Pacific Island Leaders Forum, it was agreed that a regional framework should be created addressing risks related to climate change and disasters. A consultative process resulted in the Framework for Resilient Development in the Pacific, which offers advice on how to increase resilience against disasters and climate change (Pacific Community, 2016).

The Framework is non-binding. Among its priorities, it advises that governments:

- “Integrate human mobility aspects, where appropriate, including strengthening the capacity of governments and administrations to protect individuals and communities that are vulnerable to climate change and disaster displacement and migration, through targeted national policies and actions, including relocation and labour migration policies” (15);

- “Contribute to national and regional initiatives aimed at developing capabilities to identify and manage new and emerging issues and initiatives, such as geo-engineering, carbon taxes, and forced migration” (16);
- “Support the protection of individuals and communities most vulnerable to climate change displacement and migration through targeted national and regional policies and regional labour migration schemes where appropriate” (17);
- “Support increasing the protection of individuals and communities most vulnerable to climate change and post-disaster displacement and migration through targeted national and regional policies and regional labour migration schemes” (23);
- “Anticipate and prepare for future displacement by integrating human mobility issues within disaster preparedness, response and recovery programmes and actions” (23).

The FRDP thus emphasises the role of human mobility in resilience-building in several ways: in displacement, relocation, and labour mobility. It sets high-level aims for PIF governments in all three areas. It may serve as an intermediary step in the creation of a more robust regional arrangement. In the absence of implemented policy instruments, however, its impact will be limited.

The Framework for Resilient Development in the Pacific incorporates migration into disaster resilience planning, recognising its potential as an adaptive approach. It needs however to be paired with concrete regional mobility policies.

PACER Plus: a stepping-stone to regionalism?

The Pacific Agreement on Closer Economic Relations (PACER Plus) is a regional trade agreement which entered into force in 2020. Australia, New Zealand, and six Pacific Island States are parties, while three further island states have signed it but not yet ratified (Hawke, 2020). Papua New Guinea and Fiji, two key Pacific Island States, are not signatories, reducing the agreement’s regional legitimacy (Narsey, 2022).

In the absence of a regional approach to mobility in the Pacific, negotiations for PACER Plus appeared a key opportunity to grow policy cooperation. Pacific Island States negotiating with Australia and New Zealand pushed in particular for greater labour mobility. The agreed final version of PACER Plus contains a chapter on movement of natural persons, and a separate agreement on labour mobility. The arrangement on movement of natural persons uses standard World Trade Organisation language without including preferential treatment for services mobility between member states; the arrangement on labour mobility does not liberalise labour market access (Noorda, 2022).

PACER Plus could, like the FRDP, offer a stepping stone to deeper regionalism and a more coherent regional approach to climate-affected mobility. This is not an explicit aim of the trade agreement.

In an analysis of PACER Plus' potential in the migration space, a Commonwealth Secretariat paper (Zhuawu, 2021) proposes that its principal benefits lie in:

- Allowing Pacific Island States to reduce unemployment by sending workers to Australia and New Zealand;
- Increasing the flow of remittances to Pacific Island States;
- Upskilling Pacific Island State workers.

Hope for deeper integration, within which mobility prioritised according to climate vulnerability could be included, comes in part due to increased Australian nervousness about increasing Chinese influence in the region (Narsey, 2022). Operationally, deepened integration would occur through the Pacific Labour Mobility Annual Meeting (PLMAM). The PLMAM offers a forum for deepening cooperation and reviewing progress in implementing PACER Plus, including the management of existing labour mobility programmes and the creation of further forms of temporary labour mobility, such as skills accreditation portability (Noorda, 2022).

During the 2021 PLMAM it was agreed that a Labour Mobility Secretariat would be established; it could in theory be used to coordinate prioritisation of movement. This could, for example, see skill profiles related to mitigation and adaptation prioritised (Dekens et al., 2021), or the targeted movement of people from more vulnerable or overpopulated areas.

PACER Plus could offer a deepened regional approach to labour mobility. Its breadth is currently limited by the non-agreement of Papua New Guinea and Fiji. The PACER Plus process does not currently consider climate in mobility, but climate-vulnerable populations could in future be prioritised for access to labour migration.

Discussions on the draft regional framework on climate mobility for the Pacific

Since early 2022, work has been underway to prepare a regional framework for the governance of climate mobility. This draft framework is being developed within a Joint Working Group on Climate Mobility, chaired by Tuvalu and Fiji, within the IOM-led Pacific Climate Change Migration and Human Security programme (McAdam, 2022b). As of early 2023 this draft framework remains under embargo due to the ongoing nature of discussions, and little is thus known about it. However, it is described as “a comprehensive document” covering (McAdam, 2022b: 8):

- The enhancement of adaptive capacity to allow people to remain in situ;
- Climate change effects and disaster risk reduction;
- Internal migration, including planned relocation;

- Labour mobility schemes;
- Statelessness and citizenship;
- Human rights; and
- The maintenance of “core Pacific values of trust, respect and care—for people, knowledge, land and sea”.

Consultations were held at a High-Level Dialogue in Fiji in June 2022 (Neville, 2022), and in the end-of-year regional consultation in 2022 (PDD, 2022). It is hoped that this will ultimately be endorsed and implemented (McAdam, 2022b). The framework appears likely to be a non-binding one: McAdam (2022b: 8) describes it as a “document which seeks to guide Pacific governments”, and the Platform on Disaster Displacement (PDD, 2022: 2), in its summary of the November-December 2022 discussions, also described it as providing “guidance to Member States to address the key issues emerging in the context of climate change, disasters and related mobility.”

The draft regional framework on climate mobility within the Pacific is—as of early 2023—still under discussion. It appears likely to be a comprehensive but non-binding document.

Part V. International migration

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International migration is far less prevalent than internal migration. Most people affected by climate change prefer to stay in or near their area of origin. For this reason, where people cross borders in response to climate pressures, they are likely to remain within their region (Bekaert et al., 2021; Abdelali-Martini and Hamza, 2014).

In the case of Bangladesh, for example, there is no evidence of mass cross-border movement despite regular flooding, cyclones, and coastal erosion (McAdam, 2011). International migration is disincentivised by high barriers to movement (Bardsley and Hugo, 2010). Among them are:

- The cost of movement;
- Lack of information regarding mobility options;
- Challenges in obtaining visas;
- Language difficulties;
- Lack of networks elsewhere; and
- Low portability of qualifications.

Given increasing xenophobia and the hardening of borders, it is possible that international migration will decrease in the era of climate change (Stojanov et al., 2021). This is especially likely to occur if the response to 'climate migration' is one of border securitisation (Boas, 2015). One study modelling scenarios of future migration finds that climate has almost no impact upon flows compared to policy decisions (Benveniste et al., 2020). McLeman (2019) suggests that there are three potential effects of climate change upon flows of international migration:

1. *Migration flows become larger along established routes.* This would occur if destinations became safer or more attractive; sending areas became less safe or less viable; and migration network effects facilitated movement.
2. *Unchanged or decreased flows along established routes.* This would occur if destinations became less attractive or viable compared to sending areas; if migration routes were disrupted; or if migrant networks were unable to facilitate higher levels of migration.
3. *New flows of migrants along new routes.* This would occur if climate change or other factors lead to movement along axes that haven't previously been significantly connected, potentially due to securitisation and visa restrictions/loosening; significant climate impacts; or new economic centres of gravity.

The extent to which climate change will lead to higher levels of migration is challenging to assess. Most estimates of future migration—unreliable as they are—focus on internal mobility, such as the World Bank's *Groundswell* report (Clement et al., 2021). It is possible that agriculturally dependent countries facing crop losses due to climate change may be more likely to see international out-migration (Cai et al., 2016). In Guatemala, for example, agricultural stress caused by climate shocks—such as droughts—is found to drive increased international migration to the United States (Bermeo et al., 2022). In all contexts, social networks are key to international movement. Networks allow

potential migrants to access financial resources and key information. Where networks aren't already in place, therefore, international migration may be unlikely to increase (Tacoli, 2011).

Most migration in the context of climate change will be internal or regional, rather than international over longer distances.

23. The internal-international link

The relationship between internal movement and international mobility in a climate-affected context is still uncertain, and requires more research. In Mexico, temperature warming and excessive precipitation are found to significantly increase international migration *from rural areas*. This follows the logic of agriculturally-linked climate-affected out-migration, and suggests that with increasing urbanisation, climate-affected international migration may decrease (Nawrotzki et al. 2015).

It is possible however that urbanisation accelerated due to the effects of climate change could have knock-on effects for international migration. This is a mechanism which is still poorly understood. One possibility is that climate-related shocks may accelerate rural-urban migration, leading to depressed wages in cities and incentivising international migration (Maurel and Tuccio, 2016).

Internal migration may also change both migration *aspirations* and migration *capabilities* by expanding worldviews and increasing resources, leading to an increased desire and ability to travel further through 'stepwise' migration (de Haas, 2021; Cattaneo and Robinson, 2019). In a study of 21 Sub-Saharan African countries, individuals who migrate to urban areas are found to be on average the population group most likely to develop the intention to migrate (Cirillo et al., 2022). Further research is needed to assess the extent to which this is also applicable to those moving in the context of climate change. Those moving in circumstances of greater desperation, undertaking circular movement to allow their households to cope, may only be able to maintain a baseline of wellbeing. In these circumstances internal migration may not increase capabilities to an extent sufficient to allow increased international movement.

Social networks may play an important role in facilitating stepwise migration, meaning that those who have moved to a city may have a greater likelihood of subsequently moving to another city (King and Skeldon, 2010). This can have a 'chain' effect: in Mexico, an initial migration from the village to town and then abroad can lead to direct future emigration from the village to abroad, facilitated by social networks (Lindstrom and Lauster, 2001).

Those who migrate internally are more likely to subsequently develop the intention to migrate internationally. Climate-affected internal migration may therefore have a spill-over effect, increasing international mobility.

24. Irregular international migration

Where climate-affected migration does cross borders, the migration will often be irregular due to the high costs of regular movement and low accessibility of regular migration options. Studies of apprehensions at the US southern border suggest that this is the case:

- Prolonged droughts in the Dry Corridor in Honduras are found to increase apprehensions of family units from affected departments at the US border. An increase in rainfall deficits from the 25th to the 75th percentile is associated with an additional 221 family unit apprehensions from that department expected at the US-Mexico border the following year (Bermeo and Leblang, 2021).
- Agricultural stress caused by climate shocks is found to increase US border apprehensions of migrants from Guatemala. A 9 percent increase in cropland agricultural stress in a given year is associated with an 82 percent increase in border apprehensions from that department (Bermeo et al., 2022).

It is possible that the creation of regular migration pathways may reduce the use of irregular options. This idea rests on two assumptions (Cooper, 2019):

1. Destination states' restrictive migration policies and/or lack of regular pathways pushes migrants into irregular entry and illegal residence.
2. Expanding regular migration will reduce irregular migration by allowing access to alternative options.

The idea that regular migration pathways can 're-route' migrants away from irregular movement has attracted attention and support (see e.g., Triandafyllidou et al., 2019), and was important in the lead-up to the creation of the GCM (Clemens and Gough, 2018). There is however limited empirical evidence that the expansion of regular migration pathways does reduce irregular migration. This is in part due to a lack of studies on the subject, and in part due to the difficulty of establishing causality (Cooper, 2019; Crisp, 2022). One recent study of migration from Venezuela does however find that the introduction of visa restrictions reducing access to regular migration did increase irregular entry and irregular visa status for Venezuelan migrants to other South American countries (Hammoud Gallego, 2021). It is possible therefore that access to regular pathways may reduce irregular migration, but given the uncertainties regarding this interaction this should not be a primary aim of opening up regular routes.

Where climate-affected migration occurs across borders, it will often be irregular due to the high cost of regular movement and lack of access to legal pathways. Making more legal pathways available may reduce irregular migration, but this is uncertain.

25. Development interventions to reduce climate-affected migration

A common response to the prospect of climate-affected migration is to emphasise the development of local, especially rural areas with higher exposure to hazards, with the aim of reducing the incentives to migrate.

This can be highly positive, increasing the agency of affected populations, but also risks placing the reduction of migration above populations' adaptation needs or entrenching development pathways which may not remain viable as the climate changes. States have long had an interest in encouraging their populations to remain stationary (Scott, 1998), and development plans are well-noted to have a “sedentary bias”, often against the best interests of populations that could benefit from movement (Bakewell, 2008). In the cases of both internal and international movement, governments often prefer immobility. Significant EU development funding is directed towards “addressing the root causes of irregular migration” (European Commission, 2021: 4), a conceptually vague goal whose implementation may cause harm (Knoll and Veron, 2019). In the context of climate change, this is often undertaken due to a fear of a future ‘wave’ of migrants posing a security threat (Boas, 2015).

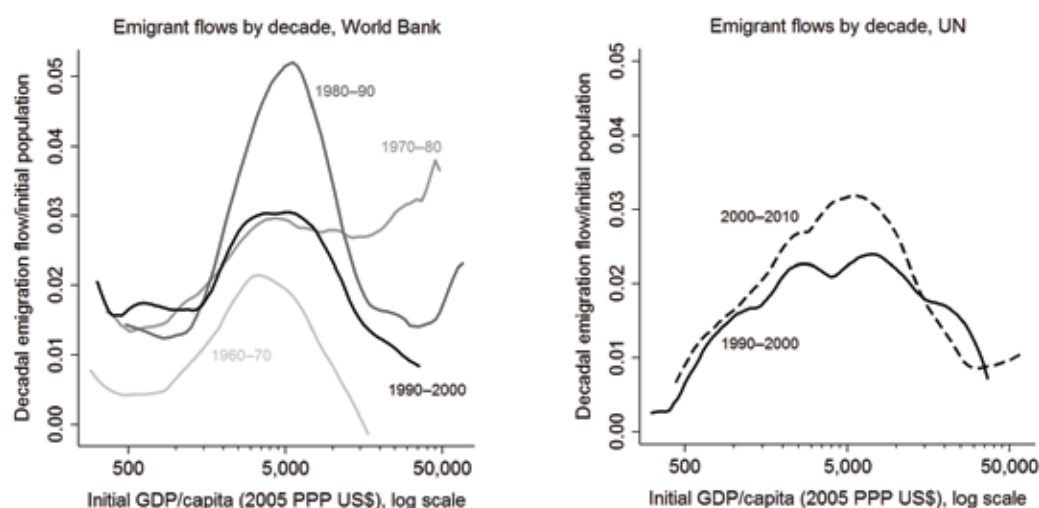
Where this is the case, the best interests of affected populations may not be prioritised. Efforts to ‘address the root causes’ of climate-affected must be highly context-aware, a requirement many fall short of (see e.g., Tubiana et al., 2018). Where rural populations are already high, for example, efforts to increase crop yields in the short-term may lead to land degradation, resulting in the longer term in dangerously reduced crop yields (Snorek et al., 2014). In such contexts, the facilitation of temporary or permanent out-migration may be a logical policy.

The Food and Agriculture’s programming around migration focuses on maintaining migration “as a choice” (e.g., FAO, 2019a). This recognises that populations would prefer to remain in their area of origin and seeks to provide diversification opportunities to allow households to survive income shocks in situ. Choice is crucial, and interventions that maintain the agency of affected populations can be highly useful. A lack of agency may lead to involuntary immobility (Schewel, 2019), or to ‘desperation migration’ with negative consequences (see e.g., Jacobson et al., 2019).

The extent to which development interventions can be successful in reducing out-migration is debated. Aid may not be able to substantially change conditions in migrant origin countries, nor may those changes, if they can happen, succeed in disincentivising migration (Clemens and Postel, 2018). One estimate suggests that insofar as aid does succeed in reducing *international* migration, it may be at a cost of US\$4–7 million per migrant (Clist and Restelli, 2021). This is attributable to the ‘migration hump’ or ‘emigration lifecycle’: the migration-development relationship traces an inverted-U curve, with higher GDP meaning—up to a GDP of around US\$10,000 per capita—greater

access to emigration (Clemens, 2014). Development projects, including in the context of climate change, can increase people’s *capacity* to migrate; if they possess the *aspiration* (see de Haas, 2021), they may make them *more likely* to migrate (Clemens, 2014). Without support, migration may in some instances be impossible, with negative results for community resilience. While internal migration is frequently a coping or adaptive strategy through which communities respond to climate-related challenges, climate shocks can also reduce access to migration (Foresight, 2011). In poor countries, higher temperatures may result in reduced rural-urban migration due to liquidity shocks (Peri and Sasahara, 2019). This appears to confirm the ‘migration hump’ hypothesis (Clemens, 2014) in a new context (see Figure 15).

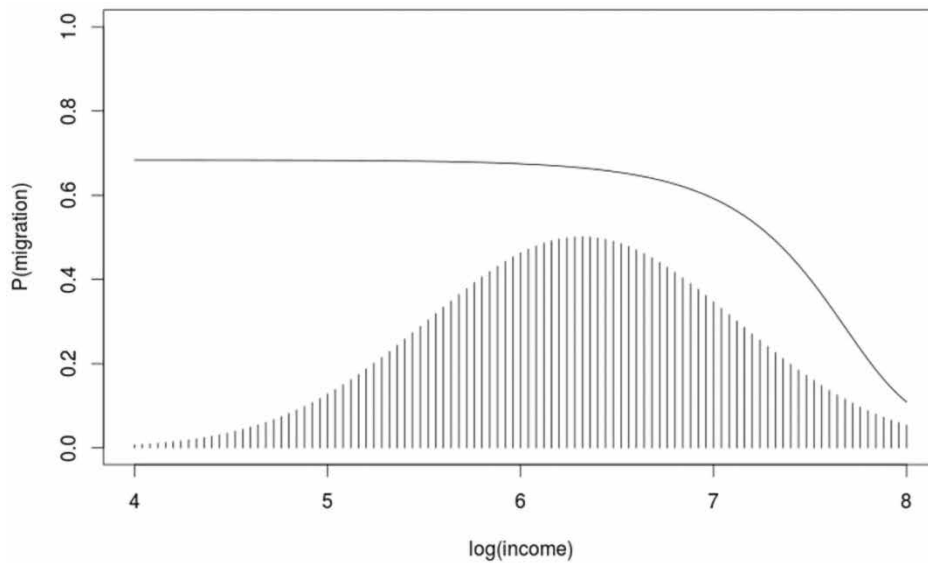
FIGURE 15. Nonparametric regressions of decadal emigrant flows on initial real income per capita, 1996–2010



Source: Clemens (2014: 8).

While Figure 15 refers to international migration, studies of internal migration in climate-affected contexts indicate that similar patterns are followed. In the Mekong River Delta in Vietnam, for example, a study finds that 65 percent of 1,232 households interviewed had migration experience. Migration was inaccessible for those in the lowest income brackets, and undesired for those with more wealth, and especially for those owning land, who were less vulnerable to environmental impacts and could undertake more in situ adaptation approaches (Entzinger and Scholten, 2022). This case study of internal migration in the context of climate change follows a neat ‘hump’ (Figure 16).

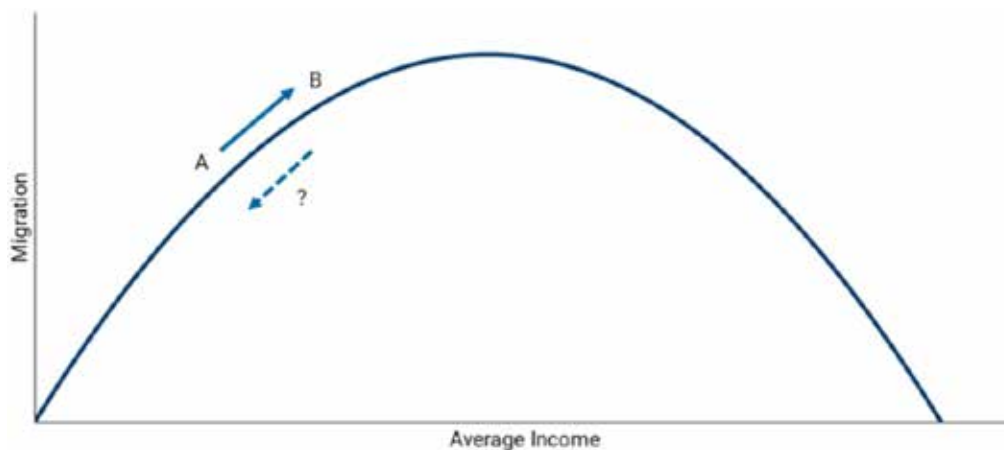
FIGURE 16. Predicted probability of migration by income in Vietnam’s Mekong River Delta



Source: Entzinger and Scholten (2022: 33).

It is possible that the ‘migration hump’ may however not be a permanent result in the case of climate-affected migration. This is speculation. However, where people increasingly suffer a loss of hope for the future in a given location due to increased climatic inhabitability, out-migration may over time increase despite asset constraints (Bermeo, 2021). This could be described as ‘distress’, ‘desperation’, or even ‘destitution’ migration; it would be on the ‘forced migration’ end of the spectrum; and it would more closely resemble refugee movement than that of ‘migration as adaptation’ (see Figure 17).

FIGURE 17. Income–migration relationship: does it hold for climate-affected contexts?



Source: Bermeo (2021).

As Bermeo (2021) notes, “it is unlikely that the traditional emigration life cycle broadly applies to climate migrants. People driven to migrate due to climate change often leave because they face current or future declines in income, not because they have recently achieved enough income to finance migration.” A climate-related shock at point *B* (above) may not result in a corresponding shift to point *A*. If this is correct, the concept of ‘trapped populations’ as a dominant result of climate change may also over time need to be reconsidered, and an increasing portion of those groups may transition to become ‘destitute migrants’.

New research suggests that *some* forms of development may make international migration less likely. Aid targeting rural development reduces emigration more than aid to urban areas does: it is easier to provide prospective rural-urban migrants with attractive local earning prospects (Gamsso and Yuldashev, 2018). Baez et al. (2017) find that rural economic development may reduce youth out-migration from drought-affected areas in Northern Latin America and the Caribbean. Given that internal rural-urban migration increases the likelihood of subsequent international migration (Cirillo et al., 2022; King and Skeldon, 2010), it is plausible that rural development projects may reduce international climate-affected emigration. Large effects should not be expected, however. Furthermore, given that the value of aid is significantly lower than the value of international and internal remittances, it is possible that well-ordered and facilitated migration—internally or internationally—could play a large role in rural development, reducing longer-term out-migration if remittances are used to sustain consumption or invested in resilience-building activities. The success of even internal, rural-urban, migration subsidy programmes in supporting rural wellbeing is noted in other sections (see e.g., Lagakos et al., 2018).

There is increasing interest in using development to reduce climate-affected migration. There is limited evidence of success in these efforts; rural development, however, is most promising. Conversely, circular rural-urban migration may itself provide the greatest assistance to rural development.

Development interventions undertaken or underway

Despite increased attention given to the climate-mobility nexus, few projects specifically focused upon it have yet been undertaken (Huang, 2023). The projects that do cover climate-affected migration—whether explicitly or merely de facto—ultimately fall into two categories: development projects, typically aiming to support people in remaining in situ or in adapting to life in the area of destination; and humanitarian projects, often supporting destitute people after moving (Stojanov et al., 2021). This section provides a brief survey of activities with regard to the climate-mobility nexus, almost all of which fall into the ‘development’ category. The survey is intended to be indicative rather than exhaustive, and more research into understanding and comparing interventions would be useful in order to better inform activities.

In a 2023 mapping exercise, the Migration Policy Institute identified 54 projects with a component related to climate mobility (Huang, 2023). These are found to fall into three main buckets:

- Helping people stay in place (46 percent);
- Helping people move (15 percent); and
- Helping people already in transit or at their destination (39 percent).

These projects may often “look identical to non-mobility-related projects, but because they are targeted to places modelled to have a high likelihood of outmigration, they are considered mobility-related.” Given the complexities of the factors in any migration choice, this approach is inevitable: development projects should be targeted towards *vulnerable* populations, not towards ‘*climate-mobile*’ populations, whether in the place of origin, *en route*, or in the area of destination.

The IOM, in a 2018 mapping exercise undertaken for the Warsaw International Mechanism, found that the Green Climate Fund had undertaken 21 projects in which climate-affected mobility aspects were mentioned, but that this was seldom a primary goal of the project (IOM, 2018). GCF projects have so far been focused on the *prevention* of mobility by providing alternatives (Thornton, 2022). This follows the Paris Agreement’s reference to the need to “avert, minimize and address” displacement in the context of climate change (COP of UNFCCC, 2015: 50), a view framing mobility largely as a matter of last resort to be reduced if possible (Serdeczny, 2017) and continuing as noted the development sphere tradition of the “sedentary bias” (Bakewell, 2008; Tebboth et al., 2023). A European Commission document (European Commission, 2022a) suggests that its goals in the climate-mobility nexus are, similarly, to:

- Avert disaster and climate-related displacement where possible;
- Minimise its impact; and
- Strengthen adaptation in situ.

A 2019 review of the World Bank’s project portfolio working in the climate-mobility nexus (Rigaud et al., 2019) found 67 relevant migration-focused projects and 98 relevant development-focused projects. The migration-focused projects were targeted towards the needs of those already on the move or following movement, often with regard to IDPs or refugees; the development-focused projects intended to address underlying factors hindering sustainable outcomes, often in areas of origin but also in areas of destination. In the majority of the development-focused projects, migrant populations were not the primary beneficiaries. IDPs were included in 60 of the 98 development-focused projects; rural-urban migrants in 8; labour migrants in 11; and seasonal migrants in only two. The World Bank portfolio review recommended that:

- Migration- and development-focused projects and programmes should learn from each other. Migration-focused projects have as their key entry points migrant populations themselves; development-focused projects tended to focus on underlying factors,

e.g., livelihood losses, with migration aspects as incidental objectives. Integrating programme knowledge could allow outcomes to be more holistic and supportive.

- Common instruments and interventions used by both project types could be sharpened, to address underlying issues and common factors in the climate-mobility nexus.
- The designs and approaches of migration- and development-focused climate mobility interventions should be seen as being on a continuum, ranging from reactive, to proactive, to anticipatory.

A number of development projects have been undertaken with a climate-mobility component. The climate mobility components are typically addressed indirectly, e.g., through support for rural livelihoods diversification, and typically with a focus on assisting populations in remaining in situ.

Interventions seeking to reduce out-migration

The majority of development interventions in the climate-mobility nexus seek to support potential migrant populations in their areas of destination, with a goal of reducing the need to move (Huang, 2023). These typically take the form of support for livelihoods; improved DRR programming, such as the creation of early warning systems; support for the strengthening of dwellings and key infrastructure; income diversification efforts; and education, especially of women (Stojanov et al., 2021). This focus is very visible in programming by the Food and Agriculture Organisation (FAO). For example:

- In Nepal, the FAO has recognised that migration is used as a means of adapting to challenging farming conditions exacerbated by increased climatic variability. Between 2009 and 2011, the FAO supported the introduction of stress-tolerant crop varieties, contributing to “efforts to temper climate-induced migration” (FAO, 2019b: 2).
- In El Salvador, the FAO is with the GCF co-funding RECLIMA, a US\$127.7 million project aiming to enhance the climate resilience of over 50,000 vulnerable smallholders. El Salvador is located in the ‘dry corridor’ of Central America, with critically low freshwater provision. The project seeks to replenish aquifers by supporting restoration and reforestation of degraded ecosystems, allowing farmers subsequent access to water (GCF, 2021). The project’s 2021 annual performance report places migration in the category of a vulnerability indicator, along with malnutrition and poverty (GCF, 2022). In the project’s funding proposal, migration was described as a hindrance to rural resilience to climate change, noting that out-migration reduced labour availability, incentivising low-labour practices which could be maladaptive, and potentially weakened community structures with consequences for environmental governance (FAO/GCF, 2018).

The International Fund for Agricultural Development (IFAD) has a similar focus. IFAD's president has argued smallholder farmers will face increasing poverty as a result of unpredictable weather patterns, and that "It is imperative that [development actors] ensure they remain on their land and sustainably produce nutritious food. If not, then hunger, poverty and migration will become even more widespread in the years to come" (IFAD, 2021a). In the summary of its Enhanced Adaptation for Smallholder Agriculture Programme (ASAP+), a flagship initiative, the reduction of the need for migration is presented as a key motivation for the programme (IFAD, 2023).

Several GIZ projects have also aimed to reduce out-migration. These include (GIZ, 2017):

- In Ethiopia, restoring pastureland after drought periods by constructing dams to catch run-off water from fields and rivers; and
- In Viet Nam, reforesting mangroves to protect rice fields in the Mekong River Delta against flooding and storms.

Interventions using anticipatory mechanisms

A subset of projects involve *anticipatory* mechanisms, providing access to support before a hazard occurs. These are often intended to provide an alternative to migration, but in some cases can take advantage of migration that has already happened, or can facilitate temporary migration to avoid hazard exposure. Examples include:

- In the São Tomé and Príncipe Adaptation to Climate Change project, the World Bank assisted coastal communities in moving in response to flood warnings. This complemented the construction of nature-based coastal protective installations, and the provision of jobs training to allow adaptive migration (Rigaud et al., 2019; World Bank, 2017b).
- In Guatemala, MercyCorps is currently preparing an intervention intended to provide early warning to communities exposed to climate hazards, with the aim of allowing them to request remittances before a hazard impact (Díaz López and Reid, 2022).
- A range of Red Cross/Red Crescent projects are using Forecast-based Financing, in which payouts are provided to communities using parametric models, to reduce disaster displacement in the context of climate hazards. This appears a highly promising approach, allowing affected populations to prepare actions with enough time to avoid destitution and distress migration (Thalheimer et al., 2022).

Interventions seeking to support access to movement

Very few projects currently support access to movement for adaptation (Stojanov et al., 2021). Where they do, they are typically at the policy framework level. This is especially notable with regard to support for regional free movement initiatives. The IOM's programme in East Africa, managed in

collaboration with IGAD, is of particular interest in assisting in the preparation of regional policy frameworks for the governance of climate-affected migration (Brenn et al., 2022). Initiatives within the programme include (IOM, 2022a):

- Supporting IGAD Member States in integrating human mobility considerations into policymaking;
- Research into mobility practices and options, including green economy considerations; regularisation; and international protection;
- Training of IGAD Member States, migrants, and other actors regarding migrants' rights; the climate-mobility nexus; disaster risk data; environmentally sustainable business practices; and entrepreneurship;
- The development of Standard Operating Procedures and the running of simulation exercises for cross-border disaster displacement events;
- Interventions to improve access to sustainable livelihoods and green job opportunities, to improve community resilience;
- Policy dialogues at different levels, engaging communities with local- and national-level stakeholders.

The IOM, with the ILO, OHCHR, and ESCAP, is also undertaking the Pacific Climate Change Migration and Human Security programme. This aims to develop policies and projects at the national and regional level to protect and empower climate-affected communities, with a particular focus on disaster-related migration, displacement, and planned relocation. This project includes support in the development of the Regional Framework on Climate Mobility in the Pacific (IOM et al., 2019; 2023; McAdam, 2022b).

The World Bank's Regional Sahel Pastoralism Support Project, operating in Burkina Faso, Chad, Mali, Mauritania, Niger, and Senegal, supported cross-border adaptive migration for climate-affected pastoralists (Rigaud et al., 2019). This included:

- Improving migration corridors;
- Designating markets for regional trade in livestock products;
- Constructing shared water points; and
- Coordinating responses to shocks to cattle-rearing, such as disease and drought.

A similar project was also undertaken in Ethiopia. The US\$350 million Lowlands Livelihood Resilience project in Ethiopia aims to improve the livelihood resilience of pastoral and agro-pastoral communities. This project recognises that mobility is a key part of pastoral lives, seeking to support their mobile livelihoods from the theory that the use of lowlands for cattle breeding is a more efficient allocation of resources than alternative uses (Rigaud et al., 2019).

Interventions supporting planned relocation

While it is increasingly recognised that planned relocation will be necessary, and that many countries will require support from external international development actors (see e.g., Ferris and Bower, 2023; Stojanov et al., 2021; Alverio et al., 2021), relatively few projects have yet been undertaken by development actors in supporting climate-related relocation (by contrast, a number of projects have been undertaken regarding relocation to accommodate development projects, with mixed success). Those undertaken include:

- In Fiji, GIZ has supported the creation of planned relocation programmes, formulating guidelines and assisting in the creation of an inter-ministerial working group (GIZ, 2017).
- In 2007 IOM assisted the government of Mozambique in managing relocation programmes following mass flood displacement. IOM provided food for displaced populations, and assisted the government in identify, demarcating and legalising over 24,000 parcels of land in areas of relocation (IOM, 2007).

Interventions supporting migrants in areas of destination

A number of activities in different areas, conducted by in particular the IOM and ILO, focus on assisting migrants with integrating into their area of destination or upon return to their area of origin, increasingly through training in green jobs. In Senegal, for example, the IOM manages a project supporting reintegration through green skill training (Huang, 2023); in East Africa, similarly, the IOM with partners is managing a project attempting to integrate green economic development and mobility (IOM, 2023). The aim of these projects appears to be largely focused on dissuading individuals from moving by providing them with skills for use in situ. In Ethiopia, for example, IOM and ILO aim to “create green, sustainable jobs for *potential migrants*, returnees and internally displaced people” (ILO, 2023) [italics added].

GIZ are also increasingly conducting projects within the climate-mobility nexus. In Bangladesh, for example, GIZ managed a project intended to assist climate-affected migrants and other urban vulnerable groups in informal settlements in several cities (GIZ, 2021). This sought to:

- Collaboratively plan poverty-reduction measures in slum settlements;
- Establish centralised information hubs providing information of the obligations of different ministries and assistance to slum dwellers;
- Provide both inhabitants of informal settlements and returnees from the EU with vocational skills;
- Provide entrepreneurs with financial support or equipment; and
- Raise awareness of debt risks.

The Mayors Migration Council initiative is, with the Mayors Migration Council and collaborators, funding interventions in six African cities to support the sustainable integration of climate-affected migrants (C40 Cities, 2022b). This follows ten previous cities support, and forms a pipeline of 21 city-based projects. The cities and projects announced in 2022 are:

- Casablanca, Morocco: establishment of a Souk of African Solidarity, where climate-affected migrants and asylum seekers will be supported in starting green businesses;
- Dar es Salaam, Tanzania: assistance in entrepreneurship and employment opportunities for climate-affected migrants in the city's waste management system;
- EThekweni (Durban), South Africa: employment of climate-migrants in the city's recycling programme; establishment of an online portal connecting service providers with people in need of critical services before or after climate disasters;
- Hargeisa, Somaliland: assistance to IDP families in relocating from flood-prone areas to safe parts of the city, providing them with land ownership;
- Nairobi, Kenya: assistance in job creation to migrants, refugees and host communities in making the city's waterways and public areas greener and safer;
- Nyamagabe District, Rwanda: use of waste from a refugee camp to create renewable energy, aiming to reduce deforestation, create green jobs, and increase social cohesion.

The FAO's Safe Access to Fuel and Energy (SAFE) programme, undertaken with UNHCR, provides refugees and IDPs with access to cleaner energy sources, with the aim of reducing the negative environmental effects of population influxes (FAO, 2018). The impact of climate change on refugees/IDPs, and their impact on their local environment, is often under considered (see the section on Displaced Populations).

In the World Bank's review of climate-mobility programming (Rigaud et al., 2019), the following projects are highlighted:

- The US\$60 million Socio-economic Inclusion of Refugees and Host Communities project in Rwanda aims to improve access to basic services and economic opportunities for refugees and host communities and to support environmental management. Activities included the provision of access to basic services; expansion of economic opportunities; and support for environmental management training, including through the rehabilitation of ravines for use as reservoirs, reviews of the environmental sustainability of refugee camps, and improved guidelines for the operation and management of emergency settlements.
- The US\$150 million Development Response to Displacement Impacts Project in the Horn of Africa seeks to improve access to basic social services; expand economic opportunities; and enhance environmental management for communities hosting refugees in the target areas of Djibouti, Ethiopia, and Uganda. This is undertaken by financing livelihood support, natural resource management, and infrastructure development, with the aim of improving adaptive capacity to climate change and reducing disaster risk.

26. International relocation from uninhabitable areas

International relocation is a solution of last resort. However, there are some communities for whom assistance for continued habitation in their current area of origin would in fact be maladaptive, and for whom assisted relocation would significantly reduce their vulnerability (Wilkinson et al., 2016). This is recognised in a number of international schema at the international level (White House, 2021):

- The Sendai Framework for Disaster Risk Reduction;
- The Global Compact for Safe, Orderly, and Regular Migration (GCM);
- The Executive Committee of the Warsaw International Mechanism for Loss and Damage's Task Force on Displacement recommendations; and
- The Nansen Initiative's Protection Agenda.

There is however not yet any framework for the governance of international relocation, nor have any best practices been proposed (Bigge, 2022). The International Law Commission (Aurescu et al., 2018) notes that problems include issues of:

- Sovereignty, in the event of a 'merger' between one submerged state and another larger state;
- Principles governing international evacuation from one state to another;
- The continuity or loss of statehood where states are entirely covered by the sea or become wholly uninhabitable.

No treaties currently relate specifically to the protection of persons in the event of sea-level rise, the climate change effect most likely to result in international (especially whole-state) relocation (Teles and Santolaria, 2022). International relocation will in all likelihood initially be organised by the governments of receiving states, through the allocation of visas according to the risks posed by climate change in areas of origin. Several states facing existential climate-related challenges have, however, started to invest in movement options to third countries. The Maldives, for example, established climate relocation funds with the aim of purchasing land in India or Sri Lanka (Kothari, 2014), and Kiribati has previously undertaken a policy aiming for 'Migration with Dignity'.

In the case of whole-population relocation, serious questions concerning national sovereignty follow. This is most likely to be relevant in the case of Small Island States, which are most likely to become entirely uninhabitable. If a nation-state ceases to hold territory, or holds territory under lease from another nation, its status as a political entity may come to be in doubt (see e.g., Willcox, 2014; Sharon, 2021). This would raise issues concerning:

- Whether the wholly relocated state should retain a presence at the United Nations; and
- Whether the relocated state still had the ability to establish their own domestic and foreign policies when administering a leased subsection of another nation.

In the Pacific, Small Island States are struggling with both issues. The 2021 “Declaration on Preserving Maritime Zones in the Face of Climate Change-related Sea-Level Rise” (Pacific Island Forum, 2021) saw states within the Pacific Island Forum agree that regardless of the effects of sea-level rise upon the location of a state’s population, they would retain sovereignty over the physical space currently recognised. Tuvalu has launched the ‘Future Now Project’ (Kofe, 2021), which aims to move much of Tuvalu’s cultural practices and governance systems online, in order to preserve them in the event of future whole-state migration away from submerged islands. This approach would see many challenges if put into practice. The taxation of a wholly dispersed citizenry, for example, would be difficult without enforcement powers, and the digital governance approach may struggle to maintain buy-in and adequate funding.

International relocation presents a host of problems, and there is no established framework for best practices or governance. In the cases in which it is necessary, states will face major issues of sovereignty and governance.

Kiribati’s Relocation and Migration with Dignity Policies

The Pacific Small Island State of Kiribati is highly vulnerable to the effects of climate change. In 2014, Kiribati purchased a 20km² area of land in Fiji (Hermann and Kempf, 2017; Caramel, 2014). The land is located on Fiji’s second largest island, Vanua Levu, and is higher above sea level than Kiribati. It also contains natural resources such as fresh water, wood, and stone (Kraler et al, 2020). Then-President Tong suggested that the land was bought to allow the partial or full relocation of Kiribati’s population, arguing that “for us on low-lying atoll islands it is already too late” (King, 2015). The government recognised however that it would not be desirable to relocate the state’s entire population to the small area of new land (Caramel, 2014). Relocation efforts would face further challenges in the fact that the purchase does not confer sovereignty over the Fijian land, so that any terms of migration and governance would be wholly contingent on Fiji. Relocation would also risk displacing the community already occupying the purchased land (Ellsmoor and Rosen, 2016).

Kiribati furthermore adopted a ‘Migration with Dignity Policy’, launched out of the recognition that climate change could require permanent relocation for some of its population, and that labour migration pathways could be an important route through which this occurs. Kiribati is made up of thirty-two low-lying atolls, and there are no sustainable internal migration options through which to respond to rising sea levels: most islands are less than three metres above sea level (McNamara, 2015). ‘Migration with Dignity’ sought to provide those who wished to move with opportunities to do so in advance, creating expatriate communities in receiving countries such as Australia and New Zealand. These communities were intended to send remittances back, and to create the possibility of further subsequent migration. This follows a longstanding I-Kiribati reliance on migration. In 2012, an estimated 15 percent of Kiribati’s GDP was derived from remittances sent back from I-Kiribati seafarers (MacLellan, 2012). As labour migration, however, the Migration with Dignity Policy

only presented an option viable for those who were both already interested in movement, and who had the necessary skills to participate (McNamara, 2015).

After President Tong's tenure, Kiribati prioritised in-situ adaptation over retreat despite the recognition that the country will likely at some point become entirely submerged (Farbotko, 2018). This preference ultimately saw the Migration with Dignity approach abandoned, in favour of a policy focused instead on economic prosperity, adaptation to climate change, and advocacy for mitigation (Kupferberg, 2021). The shift in policy furthermore represented a cleavage within Kiribati's domestic politics, within which the issue of population relocation had become contentious and mobilised as part of a faith-based presidential campaign (Walker, 2017; Kupferberg, 2021). Currently, the resettlement scheme sketched by the Tong administration is untenable. This indicates that numerous political; cultural; socio-economic; and identity issues must be carefully navigated if international relocation efforts are to be undertaken in the future.

The transition over time of Kiribati's international climate mobility approach—from full relocation, to Migration with Dignity, to a prioritisation of in situ adaptation—illustrates the political and identity-related challenges of climate-related international relocation.

Temporary protection options

Temporary protection has had a long use as an emergency response to large-scale movement of asylum-seekers. This type of movement poses a particular challenge to states and regions. The costs of hosting large populations; security issues; and the management of borders, may all stretch government capacities. Multilateral responses through cooperative arrangements are often effective in managing the many facets of such cross-border movements, permitting better burden-sharing and improving the protection of affected populations.

In the case of movement in the context of climate change, temporary protection/stay agreements (TSPAs) are especially useful when the situation in the country of origin is unclear and fluid (UNHCR, 2020a). Where sudden-onset disasters occur, TSPAs can cover protection gaps while new instruments are quickly formulated or the situation in the area of origin returns to stability (Türk, 2015). They are particularly suited as a response to (UNHCR, 2014):

1. Large-scale influxes of asylum-seekers or other similar humanitarian crises;
2. Complex or mixed cross-border population movements, including boat arrivals and rescue at sea scenarios;
3. Fluid or transitional contexts [e.g., at the beginning of a crisis where the exact cause and character of the movement may be uncertain, or at the end of a crisis, when the motivation for departure may need further assessment]; and
4. Other exceptional and temporary conditions in the country of origin necessitating international protection and which prevent return in safety and dignity.

In the context of slow-onset climate disasters, TSPAs could conceivably be of use in situations of socio-economic breakdown, in which tipping points have been exceeded and mass movement has resulted—such as in the case of accelerating cross-border migration in the Horn of Africa during ongoing droughts (e.g., IOM, 2021). In considering their use as a response to this sort of event, defined trigger points for invocation should be prepared and agreed in advance. Where governance in the area of origin is unwilling or unable to stabilise the situation, however, temporary protection may not offer a suitable solution. In these cases, longer-term protection will be necessary (UNHCR, 2021). TSPAs are guided by the following understandings (UNHCR, 2014):

- Temporary protection is provided as a humanitarian, rather than political, act;
- TSPAs must be able to react speedily in crisis, while providing a minimum level of protection;
- TSPAs can be part of a better-managed response to crises by allowing burden-sharing through cooperation;
- TSPAs reduce the motivation for further onward movement, reducing security risks and, if supported, building solidarity;
- TSPAs are solutions-oriented and time-limited;
- TSPAs allow access to territory for concerned populations;
- TSPAs allow for formalised identification, registration and documentation;
- TSPAs include minimum standards of stay, without prejudice to more favourable standards;
- TSPAs are without prejudice to states' obligations, including under the 1951 Convention;
- TSPAs are not a substitute for other protection methods, and should supplement other regional temporary protection schemes.

In situations of sudden mass movements, multilateral temporary stay and protection agreements can be highly useful. The leading example of a TSPA is the EU's response to Ukraine (discussed below). In climate-affected situations, TSPAs are likely to be most useful in responding to sudden-onset movement; they may be useful in slow-onset cases where socio-economic tipping points are reached, triggering larger-scale movement over shorter timeframes.

What use is unilateral Temporary Protected Status?

Temporary stay provisions are understood to be cases in which governments agree to allow foreign nationals to remain beyond their existing visa permissions when a disaster occurs in their country of origin. In these cases, the individual protected is *already in* the country providing stay *before* the disaster takes place, and cannot safely be returned to the country of origin (Nansen Initiative, 2016). They are of limited use in assisting populations vulnerable to slow-onset climate change, but may be of more use in cases of sudden-onset disaster.

In the United States, for example, Temporary Protected Status (TPS) is a discretionary status allowing leave to remain to countries in a 'designated' status of danger. Created in 1990, it has been extended to citizens of 22 countries, and is still in place for immigrants from 10 of these countries (Yayboke et al., 2020). A country may be 'designated' where there armed conflict is occurring, or where (McAdam, 2012):

1. There has been an earthquake, flood, drought, epidemic, or other environmental disaster in the state resulting in a substantial, but temporary, disruption of living conditions in the area affected;
2. The foreign state is unable, temporarily, to handle adequately the return to the state of aliens who are nationals of the state; and
3. The foreign state officially has requested designation under this subparagraph.

The provision has had some benefits, notably by protecting individuals from extradition and thus allowing them to send remittances home (Dempster et al., 2021). There are however several drawbacks restricting its usefulness as an instrument for assisting climate-affected persons. These drawbacks are especially stark in the United States.

Firstly, Temporary Protected Status and similar instruments in other countries protect only those who are already in the country of destination. By definition, this does not help those who are most vulnerable, who are those exposed to the hazard in the country of origin. Furthermore, those who have already moved to the country declaring TPS are also less likely to be among the most vulnerable in the country of origin, if only because they are already known to have had the assets necessary to move.

Secondly, the existence of this status can incentivise a sudden effort to claim protected status by accessing the providing country. This is especially likely to happen in cases where the policy is poorly communicated to affected populations, or where smugglers misinform migrants in transit countries of their status, assuring them that they would be exempt from deportation if they were smuggled in. Where migrants undertake irregular migration into the declaring country, they are more likely to be vulnerable.

Thirdly, TPS can easily turn into a protracted limbo. In the United States, TPS has been in effect for 12 years for Haitians; 21 for Salvadorans; 23 for Hondurans and Nicaraguans; 25 for Sudanese; and 31 for Somalis (USCIS, 2023). This makes lawmakers reluctant to extend TPS access to populations newly in need of it.

Fourthly, TPS access is often provided for political purposes through processes lacking transparency. Foreign policy considerations are often of more importance than protection needs (Frelick, 2020). Many countries whose citizens could benefit from TPS status do not have access, despite sharing very similar characteristics with designated countries.

Fifthly, there is the risk that the ‘designated country’ status could be suddenly revoked. In the United States designated status is at the discretion of the administration; the Trump administration attempted to revoke the TPS of several countries’ nationals (Roy and Klobucista, 2023). The Trump administration’s efforts were prevented by court appeals, but in principle migrants’ lives could be upended with very little notice, creating disincentives to integrate effectively and uncertainty harmful to mental health. The United Kingdom, in its ‘New Plan for Immigration’, is capping temporary protected status at 30 months (UK Government, 2022).

Sixthly, TPS status is generally granted in cases of sudden-onset environmental disaster rather than slow-onset. In theory it could be granted in cases of slow-onset disaster, such as drought (Roy and Klobucista, 2023); however, it is usually afforded to those exposed to sudden hazards such as earthquakes (McAdam, 2012).

There have been suggestions that TPS could be adjusted to make it more suitable for response to climate-affected situations. Yayboke et al. (2020) suggest, for example, that the United States could create “a version of TPS specifically for people temporarily displaced by climate change-related disasters”. This would differ from the current form of TPS in two respects:

- The programme would be accessible to those outside the United States at the time of their country’s eligibility designation;
- Recommendations on eligibility would be made by an independent, nonpartisan body of experts responsible for determining both whether a country’s disaster was caused by climate change.

Allowing access to those not yet in the receiving country would make TPS a far more useful instrument for the purpose of responding to climate-affected mobility. This would however also fundamentally change the nature of TPS, essentially turning it into a new humanitarian access visa. Introducing transparency and predictability to the process would also be highly valuable, although there are better criteria for assessing eligibility than mere attribution of a given event to anthropogenic climate change (for a fuller discussion of the challenges and needs in targeting populations, see the section on ‘Targeting by vulnerability’).

Further improvements (especially in the case of the US TPS) could include waiving the requirement that the country of origin request TPS designation, which may be unpalatable for some administrations; and making TPS stay eligible as a pathway to permanent residency. Currently, large numbers of people are in ‘TPS limbo’. There is a risk, however, that as in the case of the 1951 Convention, opening TPS up for renegotiation could lead to a rolling back in its protections.

Unilateral temporary protected status, providing those already in the country of destination with protection following a disaster, is of very limited use in assisting the climate-vulnerable. The most vulnerable do not have access; it is often managed following unpredictable politicised processes; it is typically not applied in cases of slow-onset disaster; and the difficulty in ending temporary protection makes it politically unpopular.

EU-level provisions for protection and relocation

Given the limitations of international refugee law for the protection of climate-affected migrants, international human rights law can offer a 'complementary' basis for protection claims (Kraler et al., 2020; Ammer et al., 2022). Within the EU, international protection is regulated by the Common European Asylum System, a set of EU Regulations and Directives. These do not directly address protection for those displaced in the context of disasters or climate change (Kraler et al., 2020).

The EU's Qualification Directive is of key importance in determining access to protection. The Directive is intended to harmonise common standards across Member States regarding status determination for claimants of international protection. International protection is defined by the Directive in the terms of the 1951 Refugee Convention. Following the 1951 Convention, the Qualification Directive does not recognise environmental motives for movement as justification for protected status: a persecuting agent is absent (Kraler et al., 2020). In cases in which a state were to arbitrarily prevent a particular group from accessing socio-economic rights in the context of a disaster, by contrast, the criteria for discrimination against a group by a persecutor would be met (see Scott, 2019).

Where a claimant does not qualify for refugee status, *subsidiary protection status* is also available. The criteria for subsidiary protection status are drawn from international obligations under human rights instruments, and practices within EU Member States. In practice, this means that status determination standards can vary between Member States (Ammer et al., 2022).

Subsidiary protection provides complementary human rights-related protection. It is defined as the "protection of a third-country national or a stateless person who does not qualify as a refugee but in respect of whom substantial grounds have been shown for believing that the person concerned, if returned to his or her country of origin [...] would face a real risk of suffering serious harm" (European Parliament, 2011: Art. 2(f)). "Serious harm" is understood (European Parliament, 2011: Art. 15) to constitute:

- The death penalty or execution;
- Torture or inhuman or degrading treatment or punishment of an applicant in the country of origin; or
- Serious and individual threat to a civilian's life or person by reason of indiscriminate violence in situations of international or internal armed conflict.

Proving that those affected by climate change risk “serious harm” as defined by the Directive is very challenging, as the UN Human Rights Committee noted in the *Teitiota* case. The EU’s *non-refoulement* principles within the Qualification Directive can grant through subsidiary protection a specific protected status to individuals who cannot be returned to their countries of origin. This could potentially come to be understood to include those arriving in the EU due to environmental displacement (Borges, 2019). Delval (2020) observes that in the case of 2014 case of *M’Bodj v. Belgium*, the Court of Justice of the European Union ruled that ‘serious harm’ is only pertinent in cases in which an applicant is “intentionally deprived” of care—in other words, that “the serious harm must come from a third party”, and cannot be simply the result of “a general shortcoming” of governance. This would appear to preclude subsidiary protection in the case of climate hazards. In practice, however, it appears that subsidiary protection is already being granted in ad hoc fashion in court judgements in different EU countries, considering claims on a case-by-case basis and with varying knowledge of local contexts. Commonalities and differences in EU courts’ approaches to the issue of climate-related protection claims are however poorly understood, and further research is needed (Ammer et al., 2022).

This could usefully be formalised at the EU level. The scope of subsidiary protection under the Qualification Directive for those displaced in the context of climate change is currently narrow, although further negotiations are pending. In the last rounds of negotiations, the European Parliament proposed that disturbances of public order could be added to the qualifying criteria; this would have the potential to open up wider scope for protection, following the example of the Cartagena Agreement and OAU Refugee Convention of 1969 (Kraler et al., 2020).

EU-level humanitarian protection does not currently provide an explicit pathway for those moving in the context of climate change. ‘Subsidiary protection’ is available in cases of ‘serious harm’, but the criteria for serious harm may preclude environmental hazards. Some states are already providing subsidiary protection on a case-by-case basis, but little research on this has been done, and the practice is not harmonised.

The EU Temporary Protection Directive

The EU’s Temporary Protection Directive (TPD), finalised in 2001, may offer a potential instrument for the governance of climate-affected migration. The TPD does not mention environmental causes of movement as an explicit reason for protection: indeed, Finland’s suggestion that natural disasters be included during drafting was shut down on the basis that “such situations were not mentioned in any international legal instrument on refugees” (McAdam, 2012: 102). If used despite that in the context of environmental hazard, the TPD is more likely to be useful in the case of sudden-onset disaster on Europe’s borders. It could also be useful in the context of slow-onset disasters elsewhere triggering tipping points which lead to large outflows.

The TPD is not intended to replace asylum, but to offer rapid humanitarian protection to large groups of people displaced by human rights violations, violence, or threat to life (Borges, 2019). The Directive defines “displaced persons” as “third country nationals or stateless persons who have had to leave their country or region of origin, or have been evacuated, in particular in response to an appeal by an international organisation, and are unable to return in safe and durable conditions because of the situation prevailing in that country” (Council of the European Union, 2001: 2(c)).

Thus far the TPD has only been used once, permitting refugees to enter the EU from Ukraine following the 2022 invasion of Ukraine by Russia (Fragomen, 2022). The Directive was not triggered during the 2015–16 ‘refugee crisis’. It permits protected persons to remain within the EU for an initial period (varying in length from six months to a year, and extendable to a maximum of between nine months and three years) during which asylum status would not need to be concluded (Beirens et al., 2016). During this period groups of claimants would be provided with immediate protection, reducing pressure on national asylum systems. Persons granted temporary protection would be able to take up employment, and access social protection services; they would also have access to onward movement within the EU, allowing them to navigate to areas where personal networks could provide them with informal support.

With regard to mobility in the context of climate change, the TPD offers some upsides. Access of protected persons to work; social protection; and mobility make it essentially a temporary regional free movement regime. The unselective character of the instrument sidesteps the challenges of causal attribution (Borges, 2019). It nonetheless has its drawbacks. The TPD can be triggered in the case of a “mass influx” (Council of the European Union, 2001: 2(d)). This is conceptually vague, but is generally understood to entail (Borges, 2019):

- A large number of people;
- Arriving rapidly;
- To an area with inadequate absorption or response capacity; and
- To an area with asylum systems unable to process the large numbers adequately quickly.

This means that it would be most likely to be triggered either following a sudden-onset climate disaster, or following the reaching of a tipping point in external areas affected by slow-onset climate disaster. For individual migrants moving in the context of slow-onset climate disaster, the TPD would not be of use: it could only respond to a sudden influx. Of more importance could be the TPD’s mention of evacuation programmes as a viable way in which persons seeking protection could enter the EU (Beirens et al., 2016). This opens the possibility of a future route to EU access for delimited groups badly affected by slow-onset climate disaster (Kraler et al., 2020).

The EU’s Temporary Protection Directive is unlikely to be useful in governing migration in the context of climate change. It can be triggered in the case of a ‘mass influx’, but this is most likely in contexts of sudden-onset rather than slow-onset climate shocks. The TPD’s inclusion of evacuation programmes may provide future options in specific contexts, if political will is strong enough.

27. Humanitarian pathways

Humanitarian visas, targeted towards those in situations of particular climate-aggravated vulnerability, offer a possible discretionary bridge with which to fill protection gaps. Beneficiaries of these pathways are—at least initially—most likely to come from states with a clear need for relocation on a close timescale due to existential risk, most notably Small Island Developing States. In practice, humanitarian pathways are likely to be most effectively targeted towards climate-vulnerable populations, as defined by the state providing protection: this allows the receiving state to avoid the causality-related conundrums associated with protection for ‘climate migrants’. This section provides a non-exhaustive summary of current and past humanitarian pathways for climate-affected populations.

Access in order to claim protection

Several countries are increasingly making it difficult for claimants to access space within which they can claim protection. Access to EU Member States for the purpose of making a claim can be challenging. The European Parliament in 2018 requested that the Commission propose a European Humanitarian Visa, which would allow entry to EU Member States for third-country nationals for the purpose of applying for international protection (Kraler et al., 2020; European Parliament, 2018). This followed a previous CJEU ruling finding that EU Member States were not required, under EU law, to grant a humanitarian visa to persons wishing to enter their territory to apply for protection, but could do so under national law (Atanassov, 2022).

Japan requires refugees to enter Japan with a valid visa, such as a tourist visa, in order to claim asylum. Because of this hurdle, Japan rejects approximately 95 percent of asylum claims (Dempster et al., 2021). In 2021, only 74 out of 2,413 asylum claims were granted. Japan has, however, maintained the possibility of invoking ‘emergency measures’ to quickly allow larger numbers to enter. In 2021 residential permits and humanitarian visas were granted to asylum-seekers from Myanmar following the military coup; in August 2022, 133 refugee permits were granted *en masse* to asylum-seekers from Afghanistan; and in March 2022, Japan announced that it would accept Ukrainians fleeing the invasion by Russia, eventually granting 2,302 short-term visas (Takahara, 2023). These are historically rare steps, and suggest that Japan’s stance may be softening. Given however that several countries in its region—such as Bangladesh, the Philippines, and Sri Lanka—are highly vulnerable to climate change, its stance may need to soften faster (Dempster et al., 2021).

The United Kingdom's 2023 Illegal Migration Bill takes a similar approach to that of Japan. The Bill requires that a migrant be removed from the UK if, after 7 March 2023, they (Donald and Grogan, 2023):

- Entered the UK in breach of immigration laws;
- Travelled through a 'safe third country' en route to the UK; or
- Require leave to enter or remain, but do not have it.

Asylum cannot be granted if a migrant arrives through an irregular route (Yeo, 2023). Without safe and legal routes to access UK territory, the bill makes it very hard for any future person requiring protection to claim asylum: UNHCR describes it as "an asylum ban" (UNHCR UK, 2023). While climate factors are not covered by refugee provisions, the inability to access territory and stay if access is achieved poses a major hurdle to claims for protection. This suggests that for the UK—and other countries adopting similar measures—to in the future offer mobility options to populations affected by climate change, bespoke end-to-end arrangements would need to be provided.

Access to territory in order to make a claim of protection is required, even before the validity of asylum for environmental reasons is considered. In many places this is challenging. Where this is the case, bespoke end-to-end mobility arrangements will be needed if protection through migration is to be provided.

EU countries

Where persons seeking protection in climate-affected circumstances wish to do so in the EU, they must rely on national laws. Some EU states have humanitarian pathways, but they can be vulnerable to political shifts, and have not always worked as intended.

Scandinavia

Finland provides protections for humanitarian and compassionate reasons, which also include grounds for protection under environmentally impacted circumstances. However, these protections are not always politically durable (Kraler et al., 2020). Finland's Aliens Act 3011/2004 permitted humanitarian protection for individuals not eligible for asylum or subsidiary protection, if they could not return safely to their country of origin due to (among other reasons) environmental disaster. Sweden's Aliens Act 2005:716 provided protections on similar grounds to Finland's, with a residence permit lasting up to three years. Both Sweden's and Finland's protections were suspended following the 2015/16 migrant influx (Kraler et al., 2020), illustrating the difficulties in balancing political will and migration management requirements.

Austria

Austria does not explicitly provide a humanitarian pathway for persons affected by climate hazards, but judges have proactively considered the relevance of environmental pressures in individual applications for protection. In a study of Austrian courts' approaches to protection applications mentioning environmental hazards, Ammer et al. (2022) find that in 42 percent of cases when applicants explicitly mentioned disasters, subsidiary protection was granted. This was not always solely due to environmental hazards: judges also consider intersectional vulnerability, such as gender and wealth, in their decisions. Austria is unusual among EU states in that it does not follow the CJEU interpretation of the Qualification Directive requiring a human actor in cases of serious harm. This allows it to grant subsidiary protection in a wider range of cases, including with regard to environmental hazards. It is possible that this approach to 'serious harm' and subsidiary protection could spread to other EU countries. It is probably more likely, given the possibility of a major expansion in protection obligations if this persists, that Austria returns to the common line.

Italy

In Italy, non-refugee migrants may qualify for protection if there are "serious reasons" preventing return, including famine or environmental disaster in the country of origin. As of 2020 (Kraler et al.) this protection had been used once. In this case, a foreign national coming from the Niger Delta Region, an area considered to be affected by serious environmental instability, was deemed to be excessively at risk if deported. In the 2020 decision, the *Teitiota v. New Zealand* case was recalled, and while the environmental hazard risk to the applicant was not the determining factor in the decision against *refoulement*, it was recognised to be of importance. Italy has never recognised refugee status as a direct consequence of environmental hazards in the country of origin (Negozio and Rondine, 2022). As in the case of Sweden and Finland, Italy's protections may be vulnerable to domestic political pressures.

France

In France, a 2020 decision in the Administrative Court of Appeal of Bordeaux provided a possible path to protection for environmental reasons. In this case, a Bangladeshi migrant was given leave to remain in France on the grounds that return to Bangladesh would aggravate a lung disease due to pollution. This case represented the first decision in France referencing environmental reasons against expulsion, and the first time in which the possible violation of the right to health caused by environmental degradation was used as a leading argument. This decision was presented in French media as the "first French climate refugee" (e.g., Lenoir, 2021). In fact, the case related far more to environmental and pollution issues than to climate change; and while the case may be a step towards broader protection for migrants affected by environmental hazards, it responded to an individual in specific health-related circumstances, and is unlikely to be replicated frequently (Negozio and Rondine, 2022).

EU Member State protection arrangements in cases of environmental hazards vary across countries, and are frequently subject to changes in the political climate. Most are unsympathetic to migrants arguing for protections on grounds primarily relating to climate hazards, following international norms requiring persecution by an actor for protection to be applicable. Austria is an exception.

Americas

Brazil

In Brazil, the 2017 Migration Law (No. 13,445) allows those displaced by natural disasters to access humanitarian reception through temporary visas. These are to be granted to “a stateless person or a national from any country in a situation of a serious or imminent institutional instability, armed conflict, major calamity, environmental disaster or serious violations of human rights or international humanitarian law, or on other grounds specified in the regulations” (Kraler et al., 2020: 75). This thus provides humanitarian reception according solely to conditions in the migrant’s country of origin, without reference to the individual applicant’s particular circumstances; it in essence offers a place-based protection assessment (Cantor, 2018).

The law was created due to momentum resulting from the needs in managing an increasing number of Haitian migrants after the 2010 earthquake, with the realisation that Brazil’s existing legislation did not provide the necessary legal tools for accepting people moving in the context of environmental disaster (Piacentini de Andrade, 2015). The law has not yet taken effect, however: decrees are still needed on multiple subjects, including the definition of ‘environmental disaster’, the criteria for admission and stay, and the means for managing the visa’s temporary aspect and indeed its entire migration cycle (Serraglio et al., 2022).

Brazil’s temporary humanitarian visas take a simple place-based approach to assessing claims, with scope for movement in the case of environmental disasters. The law has however not yet been implemented—for reasons highlighting the conceptual difficulties present in protection in the climate-migration nexus.

Argentina

Argentina created a new humanitarian visa in 2022, which entered into force in May 2022. The National Directorate for Migration (NDM) Provision No. 891/2022 is a Special Humanitarian Visa Programme, for nationals and residents in Mexico, Central America and the Caribbean (National Directorate of Migration, 2022). This is a total of 23 countries who were not previously eligible for residency in Argentina based on nationality criteria in Art. 23(1) of Law No. 25,871. These 23 countries also include several considered highly vulnerable to climate hazards. The visa aims to provide

complementary international protection to displaced people who do not qualify for refugee status; to open a path for planned relocation; and to offer durable solutions.

The visa grants humanitarian leave to remain for a three-year period to people displaced by environmental hazards who are nationals or residents of Mexico, Central America and the Caribbean, and who request the visa from those countries. After the initial three-year period is completed, visa beneficiaries can access permanent residence in Argentina. The programme also allows relocation to Argentina, providing access to housing, maintenance and integration support for the initial year upon arrival, provided by a civil society sponsoring organisation which also accompanies integration.

The legal framework for the visa is the migratory subcategory for humanitarian reasons provided for in Art. 23(m) of the 2004 Migration Law No. 25,871. This places it within a rights-based framework: Art. 4 of Law 25,871 recognises a human right to migrate regardless of legal status (García, 2017; OHCHR, 2011). However, the visa considers only sudden-onset disasters, such as hurricanes, flash floods, and earthquakes: it does not consider slow-onset factors such as water salination due to sea-level rise.

The visa's implementation is expected to occur as follows (Esquivel, 2022):

1. Declaration of a state of emergency due to natural disaster in a participant country;
2. Individuals requesting a humanitarian visa approach the Argentine consulate in their country of origin, and are identified by UNHCR and/or IOM officials with Argentine support. Where individuals do not have valid travel documents, the NDM will work with the consulate and the International Committee of the Red Cross to determine whether visa access should nonetheless be granted;
3. Identified cases are referred by the consulate to the NDM. A response shall be provided within 120 days of the emergency. If the request is accepted, the case shall be proposed to a civil society sponsor for acceptance.
4. If a registered sponsor agrees to the case references, the sponsor will begin application procedure to obtain an entry permit for a displaced person or household (managed by the NDM);
5. If the entry permit is approved, the applicants present themselves at the Argentine consulate in their country of origin to obtain their humanitarian visa. They are exempt from paying immigration fees, but must demonstrate a clean criminal record.
6. Beneficiaries are received by sponsors in Argentina, which provide accommodation and meals for twelve months and accompany their integration and progress to self-sufficiency.

Argentina's 2022 humanitarian visa is rights-based and offers a path to a permanent, durable solution. It is however only valid in situations of sudden-onset disasters, and moreover may have a challengingly long processing time.

US asylum provisions pre-1980

The United States did not align its refugee qualification laws with the 1951 Convention until the Refugee Act of 1980 was passed. Prior to this, the criteria for admission as a refugee were unilaterally established by the 1952 Immigration and Nationality Act, which focused on those who fled communism or countries in the Middle East, and by its update the Refugee Relief Act of 1953.

The 1952 Act specified that “persons uprooted by catastrophic natural calamity as defined by the President” were eligible for protection in a procedure almost identical to presidential parole (Kandalaft, 2000: 8). This phrasing was adjusted in the 1953 revision, but “natural calamity” remained a justification for admission. An additional criterion was that all refugees must be “in urgent need of assistance for the essentials of life or for transportation” (Murray and Williamson, 2011: 28).

The inclusion of those affected by disaster was not an accident and not controversial. In 1965 Congress stated that the inclusion of aliens “uprooted by catastrophic natural calamity” was “to provide relief in those cases where aliens have been forced to flee their homes as a result of serious natural disasters, such as earthquakes, volcanic eruptions, tidal waves, and in any similar natural catastrophes” (Murray and Williamson, 2011: 29).

However, during the 28 years in which protection for those “uprooted by catastrophic natural calamity” was available, no refugees were admitted to the US under that provision. As in other cases, priority was instead given to providing material assistance in their place of origin. This was in part due to a fear of facilitating ‘brain drain’ at a crucial moment and in part due to a belief that the effects of disasters were temporary and that migration—especially if permanent—was not a suitable response. During this period only one group were admitted due to disaster. This was a group of 1,500 Portuguese citizens from the Azores Islands displaced by tectonic activity. Their admission was facilitated by the Azorean Refugee Act of 1958, rather than through the 1953 Refugee Relief Act.

When in 1980 the Refugee Act brought the United States into alignment with the 1951 Convention, the removal of the “catastrophic natural calamity” clause was not a subject of debate (Murray and Williamson, 2011).

It is impossible to imagine that any effort to restore such a clause could meet with similar silence. It is moreover instructive that despite its presence over nearly three decades, no refugee was ever admitted under it.

For 28 years from 1952 to 1980 the US provided *de jure* access to refugee protection for those moving in the context of “catastrophic natural calamity”. The provision provoked little discussion both when inserted and when removed. Despite this, it was never used.

Canada

Canada's Immigration and Refugee Protection Act (IRPA), the primary federal legislation regulating immigration, provides the option of permanent residency on "humanitarian and compassionate grounds" (Ministry of Justice of Canada, 2001: 25(2)). This may occur at the request of a foreign national, or at the discretion of the Minister of Justice. The pathway is likely to in practice only be used in response to sudden-onset disasters (Gomez and Sullivan, 2022).

The provision has thus far seen few uses (Dempster et al., 2021). These uses have historically been discretionary, with humanitarian and compassionate requests awarded only in "exceptional cases where an individual demonstrates hardship and established ties to Canada" (Galloway, 2022: 27). There are thus at present "no explicit provisions in Canadian immigration and refugee law under which individuals forcibly displaced by climate change or disasters comfortably fit", leading Galloway (2022: 28) to conclude that "Canada's response remains, at best, ad hoc."

Canada offers some access to mobility to those affected by disasters, but historically only on a discretionary basis; in cases of significant hardship; where applicants have links to Canada; and in cases of sudden-onset disaster.

Pacific

New Zealand

New Zealand in 2017 announced a new visa aiming to bring around 100 people a year to the country from neighbouring Pacific Island States (Pearlman, 2017). The plan was widely praised by commentators and analysts, but was discontinued only six months later. The key reason for the termination of the 'climate refugee' visa lay in Pacific Islanders' dislike of the term: refugee status was perceived to be an outcome of last resort, with in situ adaptation efforts or legal migration pathways strongly preferred (Dempster and Ober, 2020). No effort has been made subsequently by New Zealand to create a new humanitarian visa focused on climate-affected migration. Instead, New Zealand's development approach in the Pacific focuses on (Government of New Zealand, 2019):

- Enabling Pacific Island States to lead their own climate change response;
- Promoting greater global action to reduce greenhouse gas emissions;
- Supporting adaptation activities to increase resilience in Pacific Island States;
- Assisting the Pacific to avert, delay, prepare for, and support climate change-related human mobility.

In 2019 then-Secretary of Foreign Affairs and Trade Wendy Adams (2019), in a response to a Freedom of Information request, stated that at least NZ\$300 million was being spent on climate change development activities in the Pacific. Around 75 percent of this was expected to be used to support

communities' in situ adaptation to climate change, allowing them to avoid or delay relocation. New Zealand's 2022 International Climate Finance Strategy left the door open to a change in approach, stating (Government of New Zealand, 2022a: 23) that "We acknowledge the desire of Pacific peoples to continue to live in their own countries where possible. We also recognise the potential for individuals and communities to relocate from their land due to the physical impacts of climate change. Such climate mobility or migration is a legitimate response to climate change." New Zealand, the strategy states (31), has "an important role in supporting Pacific nations in particular to plan for the possibility of displacement, internal relocation and cross-border migration." Given that, as noted, many Pacific Island States are likely to require international relocation of citizens in the future, this may presage future efforts by New Zealand to create a climate mobility visa. In its National Adaptation Plan New Zealand recognises that it may be necessary to support immigration from the Pacific, but does not specify the arrangements through which this could be done (New Zealand Government, 2022).

New Zealand has previously attempted a climate-specific visa, but discontinued it after opposition from intended beneficiaries. New Zealand is now focusing on in situ adaptation assistance, but recognises that it may need to welcome Pacific Islanders in the future.

Australia

Australia has never formally established a climate-specific visa, but discussions on the possibility have arisen. In 2006 a Pacific Rim coalition to accept 'climate refugees' was proposed by the Australian Labour Party. In 2007, the *Migration (Climate Refugees) Amendment Bill 2007* was proposed by the Green Senator Kerry Nettle (Dempster et al., 2021). This envisaged the creation of a new visa class (the 'Climate Change Refugee Visa'); the creation of a new migration programme, admitting 300 such refugees from Tuvalu and Kiribati each; and a push for a new international governance framework. The bill did not proceed to a vote, after criticism regarding the difficulty of defining the eligible populations and concerns that new protections would outstrip Australia's responsibilities and financial capacity,

Australia briefly considered a 'climate refugee' visa in the late 2000s, but the idea was quickly abandoned.

28. Place-based visas

Place-based visas have not yet been considered for use with regard to climate-affected migration, but could allow a more politically acceptable route to permanent humanitarian resettlement. If used for this purpose, they would fall between humanitarian visas and labour pathways.

In many countries facing demographic decline, urbanisation has seen rural communities decline and fail. These villages often need demographic replenishment, but there are few policy options capable of encouraging internal urban-rural migration. This drives further rural economic and cultural decline, and increased urbanisation.

Several countries and regions have already begun experimenting with place-based visas, sometimes including humanitarian components. Catalonia has begun a programme named Operation 500, which targets villages with fewer than 500 inhabitants for reception of refugee families. The initiative is jointly run by the regional employment agency, the equality commission, and the Association of Micro-villages. It runs for one initial year, offering participants a home and work with a salary of EUR 19,434. As of late 2022, 30 families had been accommodated through the programme, of which 24 are refugee households (Burgen, 2022).

In the United States, a “Heartland Visa” has been proposed to rejuvenate declining rural communities (Ozimek et al., 2019). The proposal’s premises are that:

- Communities should opt in voluntarily;
- Place-based visas should be targeted to areas suffering chronic population stagnation;
- The visa should be additive to existing skilled immigration pathways;
- The visa should be prioritised for areas underserved by existing skilled immigration pathways;
- Migrants entering on the visa should be tied to an *area*, rather than an employer, and should be able to move jobs and compete on the open labour market;
- Visa ownership should be contingent on being able to start a job or found a business in the specified area within a reasonable amount of time;
- Place-based visas should offer a path to permanent residency with full mobility;
- The programme should minimise skill mismatches which might affect local labour market prices;
- Visa-holders should receive support in assimilation and their job search;
- The visa should not crowd out other skilled visa holders.

The Heartland Visa is proposed to involve temporary obligations to work within the destination area, before allowing unfettered movement (Ozimek, 2020). The proposal suggests that—at least in the United States—the visa would be targeted to relatively high-skilled individuals, using education as a proxy. This could already, if a further targeting element was included in it, be prioritised for use by workers from climate-vulnerable communities, allowing the programme to introduce a further benefit (while recognising that highly educated individuals are less likely to be among the most vulnerable to climate change). In many rural communities, however, the skills needed are not necessarily high-skill. In France, for example, many small rural towns suffer from a lack of basic businesses, including bakers and grocers (see e.g., Caulcutt, 2022), entrenching decline. If a place-based visa was paired with pre- or post-movement training (see Matias, 2020), the migrants

arriving could bring with them the skills needed to slow community degradation and maintain economic growth.

In many rural areas, population outflow means that housing prices are considerably cheaper than elsewhere. Ensuring that migrant participants have their basic needs met may thus be easier for the state than if they were housed in other locations. However, integration into rural areas may be harder than integration into cities. This is likely to be in part because of the tight networks of rural communities; attitudes towards immigration; and the low likelihood of immigrants moving to sparsely-populated rural areas that have previous immigrants of their background able to welcome them, let alone more direct connections. In the EU, rural inhabitants are less likely to think that immigrants to their area have integrated successfully than respondents from urban areas (Natale et al., 2019).

Because this is such a new proposal, however, it is uncertain to what extent a negative reception could be expected in the case of place-based visas. Declining property prices—driven by community disintegration—are bad for those who are already there; state-sponsored immigration-driven community rejuvenation, providing needed services and contributing to a housing price recovery, could if well-communicated lead to warmer integration. In the EU, rural in-migration is suggested to have the potential to drive economic growth and foster rural development “when this is the result of a choice of the local population and of the migrants themselves” (Natale et al., 2019: 57). As in the Heartland Visa proposal, receiving communities would need to opt in. Migrants moving away from climate-affected locales would also need to be willing to move to a rural area. Given potentially large cultural differences, significant integration support would need to be provided. It is probable, however, that many would be willing to move in order to escape climate-vulnerable areas and obtain a relatively higher standard of living.

In the absence of sufficient pilots, these remain conjectures. However, initial research conducted in Scotland (Boswell et al., 2021) suggested that rural areas have interest in international in-migration in order to reduce the average age and allow businesses to stay. The Scottish Government (2022) has proposed a place-based rural visa pilot. This envisages tying migrants to remote communities for an initial four years, with restrictions gradually easing. The UK’s Migration Advisory Committee has advised (2022) considering a similar pilot elsewhere in the UK, anticipating that rural communities would be eager to consider involvement.

As is the case for every migration pathway addressing climate-affected migration, a place-based pathway would need to both accurately target and efficaciously reach the most vulnerable. Place-based climate-sensitive visas sit midway between humanitarian and labour pathways, especially where migrants are trained in needed skills before movement. Their key benefits are that they are likely to offer cheaper resettlement options than most alternatives; they are likely to be more politically acceptable to domestic migrant-receiving populations; and they have clear positive externalities for migrant-receiving economies, thus also making them more likely to be politically acceptable.

A place-based visa could be a more politically acceptable way of allowing climate-affected persons to move internationally. This would see communities opt in to receive migrants, benefiting dwindling communities and vulnerable persons.

29. Labour pathways

Labour pathways can offer a key adaptation mechanism, providing remittances allowing communities to adapt to climate change and build their resilience. Targeting labour pathways to vulnerable communities and households could be a relatively low-cost way of assisting people in remaining in situ or, if moving from severely climate-affected locales, accessing more livable areas.

This is not a new concept, but it has not been widely implemented. Yonetani (2018: 12), reviewing 82 national and regional Disaster Risk Reduction Strategies, finds that “voluntary migration’s potentially positive contribution to resilience is seldom recognized. Few provisions were found to support (labour) migration as a form of adaptation or a coping strategy to avoid disaster.”

They have however been requested, especially in the Pacific (Kabuni and Rimon, 2022). The government of Kiribati has in the past made it a long-term strategy to secure “merits-based migration” to neighbouring countries in order to allow proactive movement in anticipation of climate change. This envisaged permanent movement towards ‘pockets’ of I-Kiribati (McAdam, 2011). Labour migration programmes such as Australia’s Pacific Engagement Visa may offer a pathway towards gradual permanent relocation. Circular labour migration schemes are likely to be more politically feasible in most contexts. Where possible or necessary, however, labour pathways should provide migrants from climate-vulnerable areas with access to durable solutions and options towards permanent residency.

Circular labour migration schemes offer large potential for climate adaptation. Globally, several hundred thousand workers participate in circular mobility schemes within the agricultural sector. These include the Pacific Australia Labour Mobility scheme; Canada’s Seasonal Agricultural Workers programme; New Zealand’s Recognised Seasonal Employer Scheme; and the EU’s Seasonal Workers’ Directive (Dun et al., 2023). These schemes, and others in other sectors, could be harnessed to deliver opportunities for climate adaptation through remittance-sending and knowledge transfer. Remittances, as discussed in the final section, are a crucial form of adaptation financing; targeting access to labour migration can allow vulnerable communities a new or greater flow of funding for resilience-building. Doing this requires a new institutional arrangement. A research body able to evaluate which countries would most benefit from labour migration access, and a commissioner empowered to proactively negotiate migration agreements, are both likely to be necessary.

This section explores some of these schemes, and discusses lessons from them, ways of funding them, and possibilities moving forward. The schemes discussed primarily consider South-North migration routes, following the existing literature and the largest wage disparities. South-South

targeted migration schemes can also offer large returns, however, and should also be considered in practice (see e.g., Mobarak et al., 2023).

Targeted labour programmes

Circular labour migration pathways targeted towards communities affected by climate change may allow greater access to remittances for those whose livelihoods in their areas of origin can no longer support them. Few efforts have thus far explicitly linked access to circular labour migration with vulnerability to climate change. However, given that numerous legal labour pathways already exist, intentionally directing access towards those areas and groups that would most benefit may be a low-cost way of supporting adaptation. Intentionally opening access to labour mobility for those most affected by climate change faces two key challenges:

- Identifying vulnerability and targeting vulnerable populations; and
- Ensuring adequate access for targeted populations.

Targeting by vulnerability

Vulnerability is the product of social processes. Levels of vulnerability can vary within regions, countries, communities, and even households (Kelman, 2022). Identifying vulnerability from a distance is hard; comparing it across contexts is very hard. Nonetheless, comparisons must be made by policymakers deciding whether to, for example, prioritise access to adaptive labour migration from Nigeria versus Bangladesh—or from northern Nigeria versus south-eastern. With limited data, and due to the fact that vulnerability is highly socially mediated, it is challenging to identify the most vulnerable populations from a distance in order to prioritise opening migration routes up to them. It is likely that to an extent, prioritisation will always have to be targeted according to coarse place-based approaches, and that those who are truly most in need will often not be reached.

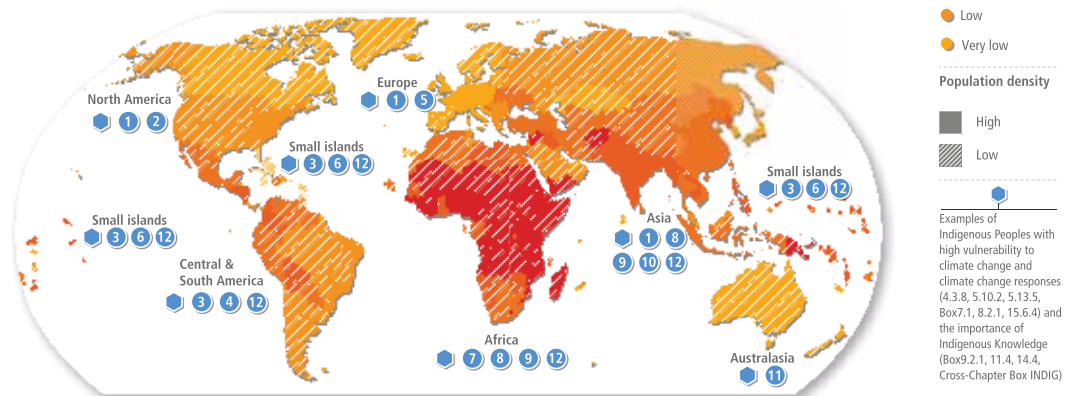
In the IPCC 2022 report, the authors attempted to map vulnerability globally, considering each country's resilience as a whole using development criteria rather than solely climatic forecasts. The attempt was contentious, and reflected the lack of consensus on comparing the severity of climate hazards: it did not account for exposure to sea level rise, floods, heat stress, or storms (Farand, 2022). The national averaging of vulnerability was also noted to not account for differences within countries, and to be potentially biased by the inclusion of governance indicators. A global map (Figure 18) of vulnerability levels ultimately appeared in the final IPCC report (IPCC, 2022), but was not included in the summary for policymakers, reflecting scientific and political divisions.

A definition of the “particularly vulnerable” is of high importance. “Particularly vulnerable” countries are those initially eligible for loss and damage funding following the Sharm el-Sheikh COP. A definition has yet to be agreed (UNFCCC, 2022a: 2). The highly political discussions will continue through a 24-member transitional committee during 2023 (Lo, 2022).

FIGURE 18. Observed human vulnerability globally

Observed human vulnerability differs between and within countries and strongly determines how climate hazards impact people and society

(a) Map of observed human vulnerability based on two comprehensive global indicator-systems using national data, plus examples of selected local vulnerable populations and Indigenous Peoples



Examples of local vulnerable populations | Examples of some aspects of vulnerability | Chapter references

- | | |
|---|---|
| <p>1 Indigenous Peoples of the Arctic health inequality, limited access to subsistence resources and culture CCP 6.2.3, CCP 6.3.1</p> <p>2 Urban ethnic minorities structural inequality, marginalisation, exclusion from planning processes 14.5.9, 14.5.5, 6.3.6</p> <p>3 Smallholder coffee producers limited market access & stability, single crop dependency, limited institutional support 5.4.2</p> <p>4 Indigenous Peoples in the Amazon land degradation, deforestation, poverty, lack of support 8.2.1, Box 8.6</p> <p>5 Older people, especially those poor & socially isolated health issues, disability, limited access to support 8.2.1, 13.7.1, 6.2.3, 7.1.7</p> <p>6 Island communities limited land, population growth and coastal ecosystem degradation 15.3.2</p> | <p>7 Children in rural low-income communities food insecurity, sensitivity to undernutrition and disease 5.12.3</p> <p>8 People uprooted by conflict in the Near East and Sahel prolonged temporary status, limited mobility Box 8.1, Box 8.4</p> <p>9 Women & non-binary limited access to & control over resources, e.g. water, land, credit Box 9.1, CCB-GENDER, 4.8.3, 5.4.2, 10.3.3</p> <p>10 Migrants informal status, limited access to health services & shelter, exclusion from decision-making processes 6.3.6, Box 10.2</p> <p>11 Aboriginal and Torres Strait Islander Peoples poverty, food & housing insecurity, dislocation from community 11.4.1</p> <p>12 People living in informal settlements poverty, limited basic services & often located in areas with high exposure to climate hazards 6.2.3, Box 9.1, 9.9, 10.4.6, 12.3.2, 12.3.5, 15.3.4</p> |
|---|---|

Source: IPCC (2022: p. 76).

Other vulnerability mapping efforts, such as the often-cited ND-GAIN initiative at the University of Notre Dame, face similar challenges to the IPCC effort in finding adequate comparable proxies for vulnerability. Among its indicators of country-level climate vulnerability, the ND-GAIN project uses the discredited World Bank Ease of Doing Business Index as the sole umbrella proxy for economic adaptive capacity (Chen et al., 2015). This renders it highly unreliable, but it is still widely used to assess relative vulnerability. Furthermore, such ‘top-down’ vulnerability mapping exercises often overlook complex local dynamics and adaptation capacities: any reliable initiative would need to incorporate bottom-up or local analysis (Horton et al., 2021).

With time and further advances, a combination of local analysis, satellite data, and rapidly improving machine learning tools may allow more granular place-based targeting. Combining remote sensing data with data from censuses, knowledge of resource location, conflict reports, etc. may allow the identification of ‘hotspots’ from which migration would be especially beneficial. In some areas, efforts to identify vulnerability ‘hotspots’ is already underway (e.g., von Loeben et al., 2022; Amakrane et al., 2023). Some efforts have also been made to empirically identify ‘trapped’ populations, although with methodological challenges (DeWaard et al., 2022). Better methods of analysing livelihood outcomes from a distance are being developed using remote sensing data

(e.g., Ratledge et al., 2022); if progress continues in these areas, they could come to be highly useful in identifying priority targets to policymakers, which could then be assessed for feasibility according to transport connections, distance from urban work opportunities, and other factors.

If an adequate conception and comparison of vulnerability levels could be adopted by a country interested in bending access to its labour migration opportunities to climate-vulnerable countries, a further step in the process of targeting partner countries could use Gallup poll data. The Gallup World Poll Surveys collect data in more than 160 countries, posing questions to at least 1,000 individuals through phone and face-to-face interviews. The individuals surveyed form a sample representative of the resident population older than 15 years (Beine et al., 2021). Two questions on migration desires are included within the annual surveys, one of which is “Ideally, if you had the opportunity, would you like to move permanently to another country, or would you prefer to continue living in this country?” The Gallup surveys have already been used to assess intention to migrate vis-à-vis exposure to climate hazards (Bekaert et al., 2021), finding that self-reported exposure to environmental stress increases the probability to intend to migrate both domestically and internationally. After countries are assessed for comparative climate vulnerability, they could also be considered with regard to their population’s intention or desire to migrate as revealed through the Gallup World Poll.

Comparing vulnerability levels across contexts is hard, but is necessary if targeted migration programmes are to seek to have the maximum impact for adaptation.

Local-level vulnerability targeting

At the macro level, targeting is likely to have to occur on a country-by-country basis. Countries are likely to be selected for their exposure to climate hazards and for their general adaptive capacity, as measured by GDP per capita or other similarly blunt indicators. Partner countries for migration programmes are also likely to be selected due to pre-existing ties; shared language; or diplomatic incentives. Where organised programmes are run, such as Skill Partnerships or models following the approach of the Colombia-Spain Temporary and Circular Labour Migration programme (discussed below), options for more granular targeting may be available.

This is likely to require trusted recruiters or intermediaries in the country of origin. If these are available more stringent criteria can be used, targeting pathway participants according to their household vulnerability. The MECLEP project, in its work in Haiti, used the set of vulnerability dimensions and indicators in Table 5 (Melde et al., 2017). Similar indicators could be used to guide local-level recruiting agents in identifying circular labour migration programme participants. This would be imperfect, but could help to increase the participation of members of more vulnerable population groups.

Past efforts in targeting at the local level indicate that this requires trust and accountability:

- The Colombia-Spain TCLM project used intermediary recruiters in Colombia to target vulnerable households, successfully identifying households that would most benefit according to whether they had greater exposure to hazards; had unemployed household members; or were run by a single mother, among other factors (Vergé Oms, 2009).
- New Zealand’s Registered Seasonal Employer visa uses intermediary recruiters to recruit. Recruiters are found to have sometimes recruited from conveniently concentrated urban areas, and to have in some cases recruited extended family members. This means that the programme’s poverty-reduction potential is reduced (Bedford et al., 2020).
- In an internal migration experiment in Bangladesh, intermediary recruiters were tasked with providing cash or credit to potential migrants. Intermediaries instead targeted those known to have previously migrated out of convenience (Lagakos et al., 2018).

TABLE 5. Dimensions and indicators of the vulnerability index as applied in Haiti by the MECLEP project

| Dimensions | Indicators |
|--------------------------------|--|
| <i>Economic</i> | <ol style="list-style-type: none"> 1) Less than two sources of income 2) Dependency ratio is below the sample mean 3) Household head is unemployed or inactive 4) Household owns neither house nor land 5) Household owns less than two assets |
| <i>Education</i> | <ol style="list-style-type: none"> 1) Household head is illiterate 2) At least one child in school age is attending school |
| <i>Health and nutrition</i> | <ol style="list-style-type: none"> 1) Household has no access to health care 2) Household has a permanently sick or injured member 3) Household has no access to drinking water at least once a week 4) Household does not have enough food for three meals a day |
| <i>Housing and environment</i> | <ol style="list-style-type: none"> 1) Household has taken no measures against future hazards 2) Household has no access to electricity 3) Dwelling’s walls and roof are not made from resilient materials 4) Household exposed to environmental hazards in past 10 years |
| <i>Social capital</i> | <ol style="list-style-type: none"> 1) Household is not a member of an organization 2) Household has no access to a mobile phone 3) Household cannot count on somebody for help 4) Household has no access to formal credit |
| <i>Social inclusion</i> | <ol style="list-style-type: none"> 1) Household has had security issues in the last year 2) Household has experienced discrimination 3) Household has no access to informal credit |

Source: Melde et al., 2017: 49.

Using intermediaries to target vulnerable households in selected countries can allow a more granular targeting of those who would most benefit from access to migration. This requires reliable intermediaries.

Legal framings of vulnerability

Beyond academic or humanitarian targeting by vulnerability, an adequate legal framing would also need to be found. This is likely to be challenging, as has been made evident during the UNFCCC negotiations around loss and damage prioritisation. Given the difficulties of assessing vulnerability from a distance and of comparing vulnerability levels across very different populations, it does not take a great leap to imagine pressure groups in receiving countries taking governments to court to argue that particular groups are more vulnerable and thus have a greater right to movement than any group selected (see e.g., Leboeuf, 2022). If by contrast the definition of ‘vulnerability’ used in assessing migration targeting is very vague, there is a risk of arbitrary targeting processes and opaque and improper choice-making procedures. Furthermore, focusing on migrant or potential migrant populations’ specific needs may overlook important and evolving contextual elements of vulnerability. In the cases of Syria or South Sudan, for example, increased vulnerability to climate change is to a significant extent the result of compounded poor policy choices (Selby et al., 2022; Mitchell and McEvoy, 2019).

The *imminence* of the major hazards to which a given population is vulnerable are also likely to be of interest when weighing vulnerability factors in choices between different targeting options, as was the case in the Teitiotia case. If a hazard is considered not to be very imminent, policy choices allowing adequate adaptation may be possible, meaning potentially that migration pathways to other at-risk populations would be preferable. It may be that the appropriate frame of analysis for assessing vulnerability timeframes lies in the *foreseeability* of harm in a reasonable span of time rather than its *imminence* (see Foster and McAdam, 2022). This would place less of an emphasis on relative timeframes, and a greater emphasis on the overall probability of a hazard occurring. In so doing, it would avoid some populations being cut off from adaptation assistance due to the imposition of arbitrarily narrow windows in which hazards must be expected to occur. Attempting to forecast the timeframes of hazard risks will nonetheless inevitably come to be an important part of migration access targeting.

Defining vulnerability and setting criteria is challenging legally, and likely to have operational ramifications. Determining the timeframes within which a hazard may occur is also of operational importance, but similarly challenging.

Accessing the targeted populations

Accessibility to migration can be limited for those who may most benefit in the context of climate hazards (Foresight, 2011). Those who are identified as most vulnerable to climate change may also be those who have least access to migration, and whom targeted migration programmes most struggle to reach.

This is as much a problem for proactive, pre-emptive programmes as it is for protection options. Programmes aiming to increase access to international migration for climate-affected persons—such as through Skill Mobility Partnerships—will likely draw most easily from urban inhabitants. Rural inhabitants are less likely to have information regarding the programme; to have lower mobility capacities; and to be less conveniently reachable by programme operators. In the case of New Zealand’s Registered Seasonal Employer visa, for example, intermediary recruiters are found to have often recruited from concentrated areas, choosing options more convenient to them—such as extended family members. This means that the programme’s poverty-reduction potential is reduced (Bedford et al., 2020). When France sought to recruit Malian workers for its automobile industry on temporary visas during the late 20th century, similarly, relatively wealthier Malian households were more likely to benefit from the opportunity (Azam and Gubert, 2006). Similar outcomes can be anticipated in internal labour mobility programmes (e.g., Lagakos et al., 2018), which may be least accessible to those in rural areas whose livelihoods are most affected by climate change.

To mitigate these risks, effective communications campaigns will be necessary to alert isolated or low-information populations to available opportunities. These should be targeted either to rural areas, or towards urban networks with higher proportions of rural-urban migrants. Targeting rural-urban migrants for prioritisation for international labour programmes may allow greater penetration of remittances into higher-vulnerability rural areas. For those who cannot access urban areas easily, first-step financing, as discussed elsewhere in the context of Bangladesh, may be needed to allow movement. This is already undertaken in Vanuatu to allow participation in New Zealand’s Recognised Seasonal Employer Scheme (Dyer and Neef, 2023). In the case of organised labour migration pathways, such as the Temporary Circular Labour Migration programme between Colombia and Spain, intermediary recruiters with knowledge of local contexts can be used to identify and approach vulnerable communities with members who may wish to benefit from circular migration. Without these proactive interventions, ‘adaptive’ migration pathways are likely to be captured by those relatively less vulnerable, and to remain inaccessible for those with greatest need.

Organisers of targeted international labour migration pathways will need to ensure that those who are most vulnerable, and would most benefit, have access to the programmes.

BOX 12. Visa lotteries

Targeting by vulnerability is likely to ultimately occur at a relatively coarse scale—e.g., by country or region—due to shortages of data and difficulties in assessing vulnerability at a more granular level accurately from a distance.

Many of the states most vulnerable to climate change also have high levels of institutional corruption (Schran, 2021). In these contexts, migration pathways are at higher risk of becoming captured by interest groups, possibly with the effect of giving greater opportunities to elites partially responsible for wider populations' vulnerability. Visa lotteries, assigning a quota for migration from a given country and randomising applicant acceptance, may offer a way of avoiding inequitable outcomes. They also absolve receiving nations of selection processes which are likely to both consume high resources and remain relatively arbitrary and contestable. Visa lotteries have previously been used in multiple contexts, such as for the United States' Diversity Visa Lottery and for New Zealand's Pacific Access Category visa; Australia's new Pacific Engagement Visa will also use a lottery system.

One benefit inherent in a visa lottery may be that it prevents receiving countries from 'cherry-picking' the highest-skilled migrants, preventing a one-sided brain drain (McAdam and Pryke, 2020). Visa lotteries have not been evaluated in depth for use in migration pathways targeting climate vulnerability, but several analysts suggest that they may be worth pursuing (Nawrotzki, 2014; Dempster et al., 2021). As in the cases of both the US 'Green Card' lottery and New Zealand's PAC, qualifying criteria—such as citizenship of a less-admitted nation, or the ability to speak English—can be applied. In the case of a climate vulnerability-targeting visa lottery, similar basic criteria could be applied, in addition to climate-related factors such as habitation of an at-risk region of a vulnerable country. If the latter or similar criterion was to be adopted, care would have to be taken to ensure that perverse incentives—such as to remain in situ in an at-risk area for fear of losing eligibility, even when internal migration may be safer—did not emerge.

It is worth noting that a climate vulnerability-focused visa lottery found to be admitting relatively secure migrants could face a public backlash in the receiving country, similar to the objections that have been made in the United States against the Diversity Visa Program (see Gelatt, 2018). If an individual at lower risk of harm obtains a visa while a compatriot at high risk does not, this outcome may be perceived as inequitable and counter to the aims of such a policy (Tetrick, 2018). A visa lottery may however—in climate as elsewhere—be a justifiable second-best approach in the absence of a perfect solution (Al Hashmi, 2021). More research into their management and possible effects should be undertaken.

Visa lotteries are used in other areas of migration policy, but have not yet been considered with regard to climate-affected mobility. They may offer a more equitable approach to migrant targeting.

Skill and Mobility Partnerships

Skill and mobility partnerships offer an untested but high-potential approach to labour mobility for international climate-adaptive migration. Skill partnerships are recognised in the Global Compact on Migration (UN, 2018a) as a best practice approach to migration which should be more widely considered. While some pilots have already been successfully undertaken, and more—including in the sphere of climate mitigation—are being prepared, there is large scope for further work.

Skill and mobility partnerships are characterised by an aim to share the benefits of migration through close collaboration and support by the sending and receiving countries, often in cooperation with private sector actors. They thus aim to avoid potential negative effects of skilled migration, including brain-drain: typically, a skill and mobility partnership will result in more trained professionals being present in the country of origin than would have occurred in a no-partnership scenario. Skill partnerships pursue a ‘triple win’ outcome, in which the sending country; the receiving country; and the migrant, all benefit from the partnership. Sauer and Volarević (2021: 12) define a skill and mobility partnership as “an agreement between institutions that aims to link up issues associated with skills and training placement, the recognition of qualifications and (circular) migration across different policy fields in such a way that this creates a fair distribution of benefits to key stakeholders.”

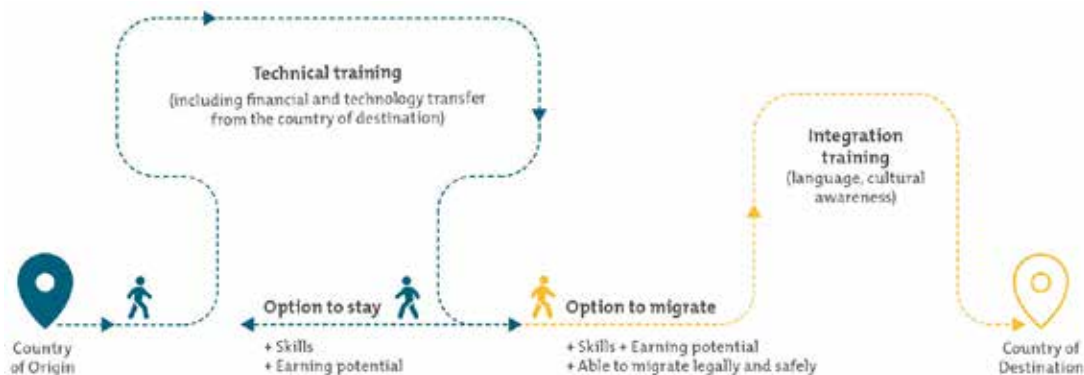
A Global Skill Partnership, a sub-category of skill and mobility partnership, is particularly focused on ensuring equitable and efficient outcomes. A Global Skill Partnership (Clemens, 2015: 1) is defined as:

- Involving an ex ante bilateral agreement;
- Established between public and private institutions;
- Aiming to link skill creation and skill mobility such that
- Migrants, sending countries, and receiving countries all mutually benefit from participation.

In this model:

- A skill need in the migrant-receiving country is identified;
- Training in this skill area is undertaken in the country of origin, funded by the receiving country (ideally with private sector collaboration);
- Part of the trained cohort moves to the receiving (funding) country, while part of the trained cohort remains in the country of origin.

FIGURE 19. The global skill partnership model



Source: Clemens et al. (2020: 5).

Global Skill Partnerships open up new possibilities useful to climate-adaptive movement. Where traditional partnerships recruit people who are already qualified in their field—thus constraining access—a Global Skill Partnership trains participants in their country of origin, thus allowing broader uptake (Hooper, 2019). This would at least partially mitigate issues relating to access for those more vulnerable to climate change, who are more likely to have received less education. They can moreover be targeted directly at those who are already displaced (Clemens and Gough, 2017). If so, they could provide solutions to those in situations of protracted displacement, while also meeting the employment needs of receiving countries elsewhere such that more resettlement places may be made available than for conventional refugee resettlement. The migrants themselves gain the opportunity to enjoy a higher standard of living, and to earn often a far larger wage than would have been available in their area of origin. Some of these earnings can then be remitted, growing the resilience of their community.

These migration pathways may be very attractive to migrant-receiving countries. If labour sectors are carefully selected, these programmes can be a considerably more efficient way for the receiving country to obtain in-demand skills than domestic training. In 2021 the cost to the respective government of training a nurse was at least £26,000 in the UK (Palmer et al., 2021), versus US\$6,000 in Kenya (World Bank, 2020); similar imbalances are likely to be found in other sectors. Should sectors useful to the green transition—a global public good—be targeted, climate-adaptive migration pathways could also help to solve key skill bottlenecks in climate mitigation in both receiving countries and origin countries, reducing overall long-term vulnerability (Huckstep and Kenny, 2022). Migration can thus be more than a reactive adaptation approach to a bad situation: it can also be a proactive means by which human capital is allocated to improve our impact on the environment.

A drawback with GSPs or similar skill mobility partnerships lies in the fact that they are typically intended to be short-term in duration, with migration lasting a matter of years. They would

therefore be of limited use to households whose areas of origin become wholly uninhabitable: they would not provide a pathway to international resettlement. In this respect GSPs, and similar programmes, present a similar challenge to the use of complementary protection pathways for refugee populations (Ruhs, 2019), even if this presents less of an ethical quandary in the absence of an alternative protection pathway. GSPs may, however, allow households vulnerable to climate change to access larger remittance streams with which to reduce their vulnerability in situ, or to fund their own relocation. Receiving country governments could also consider providing pathways to permanent residence for participants in skill and mobility programmes.

Global Skill Partnerships offer benefits to migrants, sending countries, and receiving countries. Like other labour migration programmes, these could be targeted towards climate-vulnerable communities and individuals. Because they incorporate training in the country of origin, they may be more accessible to vulnerable persons. Remittances from GSP participation could be valuable for adaptation.

Complementary pathways and their lessons for climate-conscious labour migration

Labour migration pathways for those affected by climate change share some similarities with complementary protection pathways for refugee populations, and the issues and opportunities of complementary pathways can be learnt from for the climate/migration space. Complementary pathways are understood in the GCR (UN, 2018b: 94) to be “other pathways [than refugee resettlement programmes] for the admission of persons with international protection needs”. These may be through access to third countries for purposes of education; humanitarian needs prior to formal asylum status; for employment; or through individual sponsorship (UNHCR, 2019).

In the New York Declaration for Refugees and Migrants, states agreed that they would “consider making available or expanding resettlement and complementary pathways for admission of refugees” (UNGA, 2016b: 77–9). Complementary pathways are intended to address the gulf between the number of refugees requiring resettlement and the number of places actually made available in countries of asylum. They are intended (Wood, 2020) to:

- Meet the international protection needs of people whose lives and freedoms are at risk;
- Provide durable solutions to refugees who find themselves in first countries of asylum without access to other durable solutions such as return or resettlement;
- Achieve self-reliance for refugees by allowing them to re-establish themselves and pursue their own goals and livelihoods; and
- Promote responsibility-sharing among states in the protection of refugees.

They are envisaged to be more attractive to refugee-receiving states, due to the fact that these states may also benefit from them, e.g., by gaining a needed worker. Despite this, such pathways remain limited. Ruhs (2019) identifies a number of barriers to their use:

- Refugees may lack information of labour immigration programmes;
- Employers and recruitment agencies are less likely to be aware of potential refugee-worker options (although some organisations, such as Talent Beyond Boundaries and TalentLift, are seeking to act as intermediaries);
- Refugees may lack documents, such as identification papers and skill certifications;
- Refugees are less likely to be able to meet the costs of migration;
- Refugee workers must compete with other migrant groups to meet employer demand for skills, but may due to their context have been deprived of access to education.

Many of these problems are also likely to be faced by those who may benefit from labour migration in the context of climate change. Political barriers may present further problems. In Germany and Sweden, two countries among the top ten refugee host countries worldwide, policymakers have been reluctant to consider migration and asylum as potentially overlapping domains. Despite a willingness to consider innovative migration options, the states have therefore not embraced complementary pathways (Vankova, 2022a).

In the EU the current labour migration system could support work-based complementary pathway for people in need of protection, but this “depends entirely on the willingness of interested Member States” (Vankova, 2022b: 109). Applicants to these pathways could struggle to fulfil current labour pathway admission conditions, and may have to be exempted from labour market tests or require new options for recognition of qualifications. This could create administrative and political barriers for EU states. It would also be likely to prioritise only the higher-skilled, a small proportion of those in need of protection. For those who could benefit from these pathways, moreover, there is a trade-off to be made between access to mobility and safety, and the loss of potentially greater protections. Labour migration options seldom offer a certain pathway to permanent residence and family reunion, and may impose limitations regarding the right to change employer or access all occupations. Rights under labour pathways are thus lower than those enjoyed by holders of refugee status. They are, on the other hand, greater than those of asylum seekers or holders of EU subsidiary protection status. Vankova (2022b) suggests that those desiring to move would be willing to accept this trade-off, relying on refugee protection as a safety net should complementary pathways fail. Experiences in Australia and Canada, and interest in attempting these pathways elsewhere, suggest that this is likely to be broadly the case (Fratzke et al., 2021).

Complementary pathways rely on their feasibility for institutions and stakeholders involved in implementation. States need to adapt visa procedures to allow refugee-labour mobility; incentivise employers to participate; and support intermediaries aiming to connect beneficiaries with employers (Vankova, 2022a; Wood, 2020). They must also identify and access a pipeline of eligible

applicants and provide them with support upon migration (Fratzke et al., 2021). These are all issues that must also be confronted in preparing climate-conscious labour migration pathways. Effective intermediaries identifying participants; incentives for employers; and skill matching between migrants and employers, will all be necessary if such a model is to succeed. Encouragingly, however, past experiences suggest that it is not a pipe dream.

Complementary pathways for refugee protection have high upsides, but have seen limited use. Climate-conscious labour migration targeting may encounter similar challenges, and can learn from solutions proffered in the complementary pathway space.

Labour migration schemes in New Zealand and Australia

The Pacific area has several schemes from which other areas could learn. This is in part due to worker shortages in New Zealand and Australia; in part due to regional solidarity in responding to the urgency of finding adaptation measures for Pacific Island States known to face high climate-related risks; and in part due to geopolitical tensions between Australia and China, within which migration opportunities represent a useful diplomatic tool. Pacific area labour migration schemes have not yet been explicitly targeted for use in reducing climate vulnerability; this is an area of possibility requiring work and pilots.

New Zealand's Recognised Seasonal Employer (RSE) Scheme

New Zealand's RSE scheme is the country's largest circular migration scheme, and has a large development impact. It has not yet been tailored to address climate-related needs, but offers potential.

The RSE was launched in 2007. It permits workers from nine participating states to be recruited for up to seven months (or, in the case of Tuvalu and Kiribati, for nine months) (Noorda, 2022). The scheme is intended to fill seasonal labour shortages in the horticulture and viticulture sectors, which have high peak labour demands that New Zealand was unable to fill domestically. It began with a cap of 8,000 workers, but by 2022 had expanded to a cap of 19,000 workers, contingent on there being insufficient New Zealand nationals in the areas of work (Government of New Zealand, 2022b). It is a private sector-driven programme, responding to the needs of the industries receiving migrant workers (Dyer and Neef, 2023). There may be opportunities for future expansion in dairy farming, care, and construction, industries in which New Zealand employers struggle to recruit (ILO, 2019b).

The scheme has had a significant development impact: a survey of participants in 2007–8 found that participating households earned 35 percent more than non-participating households (Gromilova, 2016), and a survey conducted in 2014/15 found that workers from Samoa and Tonga remitted 42 percent of their take-home pay (Dempster et al., 2021). Pay from the scheme has stagnated over

the past decade (Bedford et al., 2020). The earnings nonetheless have the potential to increase overall resilience to climate shocks and provide funding to be targeted specifically at adaptation. Some communities have undertaken remittance-pooling schemes, allowing migrants' wages to be collectively directed towards local public goods. (Such schemes are discussed in the section on Remittances).

The RSE scheme has been called the “gold standard” of seasonal migration programmes (Dempster et al., 2021), with significant development benefits. Three main ideas contributed to it (Winters, 2016):

- Strong analytical evidence that Pacific Islands could not provide their populations with sufficient incomes;
- Very strong evidence that international labour mobility provides very large economic returns;
- Rigorous policy evaluation and the willingness to adapt the programme to emerging lessons.

As in any programme, there are areas to be addressed if the RSE scheme's effects are to be maximised:

- Households sending migrants are noted to in some cases suffer due to lack of workers, and members are found to take on extra duties (Nunns et al., 2020).
- Exploitative practices in New Zealand have been found to have occurred, including in some cases excessive wage deductions. These are made more possible by the scheme's obligation that migrant workers remain with their sponsoring employer (Bedford and Bedford, 2022).
- Targeting of communities on a pro-poor basis has sometimes been difficult. Migrant-sending households are often concentrated in particular areas of participating countries rather than evenly distributed, reducing the programme's development and inequality-reduction effects (Bedford et al., 2020). A 2008 evaluation (Gibson et al., 2008) found however that—in Tonga—the scheme had been successfully targeted towards relatively poor and unskilled workers.

Despite these the scheme has been successful: it provides training to participants, remittances to communities of origin, and reduces unemployment pressures in sending countries. The RSE programme holds lessons for similar programmes elsewhere, although Winters (2016) notes that the combination of strong commercial, geopolitical and humanitarian incentives which pushed its creation may be absent in most areas considering a similar approach.

The New Zealand Government has signalled its intention to adapt existing migration programmes to meet climate-related needs, including the RSE scheme (Dyer and Neef, 2023). In 2015 New Zealand allowed seasonal workers from Vanuatu to remain in the country for longer following Cyclone Pam, allowing them to earn more to support rebuilding in their country of origin (Voigt-Graf, 2022).

The programme has thus already been opportunistically used for climate adaptation. A more significant transition towards a climate resilience framing would require the scheme to seek to target both the partner countries that are at greatest vulnerability to climate change, and the most vulnerable communities within them. This may require reimagining the programme's purpose, shifting from an employer-driven scheme to one which is co-managed for development and adaptation goals.

The RSE is a successful circular migration programme with proven high development impacts in countries of origin. It offers a potentially replicable model for other countries. However, it has yet to be deliberately adapted to meet climate-related development needs.

Pacific Australia Labour Mobility (PALM) scheme

Since April 2022, the Seasonal Worker Programme (SWP, discussed in a previous section) has been combined with the Pacific Labour Migration Scheme within the Pacific Australia Labour Mobility (PALM) scheme.

The SWP, based on New Zealand's RSE, allowed the recruitment of an unlimited number of temporary agricultural and accommodation workers for up to nine months from all Pacific Island States (ILO, 2019b). The programme had two core objectives (Dun et al., 2020):

- To ensure a reliable seasonal workforce for Australian producers and employers who are unable to source sufficient local Australian workers to meet seasonal labour needs; and
- To contribute to the economic development of participating countries through employment experience, skills and knowledge transfer, and remittances.

The programme was not perfect: it was criticised for workers' constrained mobility in Australia; insecure and precarious working conditions; and vulnerability to exploitation (see e.g., Bedford et al., 2017). It has nonetheless broadly been a success. When SWP participants were asked to rate their satisfaction with the scheme from 1–10, the average result was 8.6 across all participating countries (World Bank, 2017a). Between 2012–15, 17,320 Pacific workers were employed, delivering approximately A\$144 million in net income gains to the region. In Tonga, the programme became more important than aid and trade combined (Howes and Orton, 2020). The average Pacific seasonal worker transferred a total of AU\$8,850 through the programme, four times what they would typically have earned in their country of origin (World Bank, 2017a). The SWP programme allowed participants to earn more than participation in New Zealand's RSE scheme, but the programme was not always preferred by migrants due to the fact that the RSE allowed the maintenance of a consistent year-on-year relationship with the same employer (Bedford et al., 2020).

Agricultural workers participating in the SWP programme benefited from knowledge transfer in climate adaptation, and a more direct consideration of adaptation in training components could be beneficial in further programmes (Dun et al., 2023). Participants from the Solomon Islands were

found to use earnings for climate adaptation of agricultural practices and dwellings to reduce risk (Dun et al., 2020). Climate considerations were not integrated into SWP policy, and a more explicit adaptation focus upon Australian migration programmes' role in adaptation could be achieved.

The Pacific Labour Migration Scheme allowed access to labour migration to Australia for nine Pacific Island States for a longer maximum period of three years. The scheme was open to all sectors in rural areas (ILO, 2019b). It was established in 2018, responding to Pacific governments' objections to the dominance of low-skilled labour migration pathways and to concerns about longer-term rural labour shortages in rural Australia. Workers had to be engaged in sectors without Australian workers in that area. The scheme's longer duration and inclusion of mid-skill jobs meant that larger amounts could be remitted to communities of origin. However, the scheme did not permit family accompaniment: given that some migrants could work multiple three-year stints, this may have harmed families' and migrants' mental health. The programme also did not offer a pathway to permanent residence, despite its length, and thus was not a stepping-stone to more durable solutions (McAdam and Pryke, 2020).

The PALM scheme, combining the two programmes, is directed mostly towards fulfilling the staffing needs of the agricultural sector. Australia intends to increasingly use it to expand the workforce in the care sector. The programme has high numbers of returning workers: each year around 74 percent of PALM employees are returnees, often returning to the same employer (Government of Australia, 2023).

The programme could usefully be targeted in a more focused way at climate-vulnerable Pacific Island States and vulnerable communities within them. Since the October 2022 budget the PALM scheme has the capacity to receive 35,000 workers annually (Crowe, 2023). The benefit of this could be maximised if these workers were sought with consideration for the financing needs of their communities.

Australia's SWP (PALM) programme has large development benefits, and could be usefully adjusted to focus more explicitly on reaching climate-vulnerable populations.

Australia's Pacific Engagement Visa (PEV)

The PEV is a new visa to be launched in 2023, modelled on New Zealand's Pacific Access Category and the United States' Diversity Visa Programme. It will allow up to 3,000 workers annually from twelve Pacific countries and Timor-Leste to come to Australia (Government of Australia, 2022). This will provide access to permanent migration with family unification, a departure from decades of Australian visa policy (Crowe, 2023). The visas will be allocated through a lottery system, with visa allocations made according to country population size (Howes, 2022). The visa is designed to avoid prioritising a hierarchical list of skills, to reduce the spectre of brain-drain from Pacific islands.

There will be a nominal fee—of AUS\$25—to enter the ballot (Massola, 2023). To be granted a visa applicants drawn from the ballot will also need to (Crowe, 2023):

- Have a formal job offer with an employer based in Australia;
- Be aged between 18 and 45;
- Meet basic English language requirements; and
- Meet health and character requirements.

The lottery system could also usefully be targeted towards countries which are more climate-vulnerable and have smaller diasporas. Countries with low mobility and high vulnerability have requested—as in Kiribati’s ‘Migration with Dignity’ policy—greater access to the Australian labour market; the PEV could be tweaked to reflect this (Kabuni and Rimon, 2022). Kiribati and Tuvalu, both particularly vulnerable, could be given access to a PEV quota dedicated to them due to their climate vulnerability (Hooton, 2022); Papua New Guinea, with a very low population based in Australia, could also have an increased quota to reflect its low access to mobility. The 3,000-person cap on the visa could also be progressively loosened, reducing Australia’s worker shortage (OECD, 2021) while also increasing mobility access for vulnerable Pacific states.

The visa has been introduced under the Labor Albanese government, elected in 2021; it is the product of both a domestic political shift within Australia, and continuing cultural and geopolitical jousting between Australia and China in the region (Sharman, 2022). The visa has been embraced by Pacific leaders (Crowe, 2023), but may face political challenges within Australia (Massola, 2023).

The Pacific Engagement Visa is a new Australian scheme with high potential. It could be tailored to target more vulnerable populations.

Colombia-Spain Temporary and Circular Labour Migration Programme (TCLM)

Few circular mobility programmes which specifically incorporate climate risk considerations into policy planning have so far been undertaken. One exception was the Temporary and Circular Labour Migration (TCLM) programme managed between Colombia and Spain from 2007–2012. This brought around 1,500 migrants per year to Spain. Migration lasted for a period of 6–9 months, renewable for two years (CGD, 2021).

Unusually, the programme was initiated in 2001 by an employer federation in Catalonia seeking to fill gaps in the agricultural sector, before being deepened through IOM engagement with EU funding (European Commission, 2013). In 1998, the employers’ union requested the national Ministry of Labour for permission to recruit workers from third countries. The national government saw

the possibility of using access to Spain's labour market as a bargaining chip in ongoing fisheries discussions with Morocco; Morocco however objected to the small number of visas being offered. The union, on its own initiative, then suggested Colombia. With the government's agreement, the union worked with partners in Colombia to directly select migrants from vulnerable groups. These included single mothers; members of indigenous groups; and workers based in areas affected by recurring environmental disruptions such as volcanic eruptions (de Moor, 2011).

The programme aimed to allow community members to emigrate temporarily to earn money as agricultural labourers in Spain before returning to found productive enterprises and assist with rebuilding after disasters, reducing the need for potentially unproductive internal migration (Schwerdtle et al., 2018). The approach required accurately forecasting labour needs of participating farms in Spain, and access—through intermediaries—to communities identified as vulnerable (Vergé Oms, 2009).

The TCLM programme mobilised public-private partnerships to offer not only a migration pathway, but also training and development-focused activities in the community of origin and in Spain. Upon arrival, a welcome programme aimed to assist integration and reduce risks:

- Workers were informed of their working conditions and given information about their new temporary location.
- The accommodation in which workers were living during the harvest season was monitored for adherence to standards—often maintained with difficulty (Zapata-Barrero et al., 2009).
- Support and personalised care were provided in the case of crises emerging during the programme.
- Technical capacity building and training were provided to participants to increase their socio-economic integration, including courses in rural development.
- Catalan language courses and excursions were provided to promote intercultural relations.
- Migrants were given social inclusion opportunities, including the organisation of a multicultural festival.

Migrant participants received training, with the aim of increasing their effectiveness as workers in Spain and development actors in Colombia. These included:

- Basic training of first-time migrants, including co-development methods and basic project management.
- Consultancy workshops intended to help migrants to undertake productive initiatives, including market and situational analysis, and more in-depth project management processes.

- Training courses for migrants wishing to carry out co-development community projects in Colombia, including technical training for project planning; social resolution; and knowledge exchange through visits to successful Spanish businesses. In 2008, these courses focused on productive uses of remittances. These courses also included in-depth guidance in the development of a business plan, including follow-up contacts after migrants' return to Colombia.

These training efforts were intended to increase opportunities widely. In 2007, for example, 162 women were given training on leadership and local development (IOM, 2014). The training is understood to have been successful in aiding reintegration upon return and fostering more productive use of remittances (Hooper, 2019).

The TCLM programme ultimately ended after the 2007/8 financial crisis, when Spanish employers' labour needs were depressed (Dempster et al, 2021). Other efforts could learn from it: the TCLM programme was found by evaluations to be successful for all actors involved. Vaughan et al. (2009), reviewing the programme, suggest that the conditions for its success rested on:

- The creation of partnerships;
- Institutional support for migrants;
- The training of temporary workers;
- Access to credit in the area of origin for temporary workers, their families, and communities, for use in the productive investments for which they had received training and created business plans.

The TCLM programme could be usefully replicated in other contexts, using trusted intermediaries to identify participants from vulnerable communities for work in hard-to-fill lower-skill jobs. This will require careful attention. The IOM (2014) warns that the programme may not be easily replicable, given that temporary migration programmes risk facilitating exploitation of workers. This can occur unintentionally; in the TCLM model, lulls between harvest periods in which workers were involuntarily unemployed but unable to seek other work strained their finances and ability to remit. Workers also highlighted the lack of sick and overtime pay; safety hazards when working; and a lack of access to advocates in the case of difficulties arising. Most programme participants nonetheless reported that participation had been at least broadly positive, to the point in some cases of being described as "life-changing" (Barrero-Zapata et al., 2009: 64). As a result of participation migrants were able to buy a house; educate children; purchase land; and found individual or joint businesses.

TABLE 6. Dimensions for replicating the TCLM approach

| Dimensions | Variables | Content |
|--------------------------|---|--|
| Network of actors | Leadership | Strong employers' association is crucial. Respected individual leaders are useful. |
| | Territorial coverage | Needs to be wide to maximise volume of employers and enable linkages, to avoid wasting employee time. |
| Immigrant profile | Skills | Best if low; if high, agreements with universities/ colleges needed to allow training. Experience is generally more important than training. |
| | Nationality | Need to be nationals of countries with which country of destination has a migration flow regulation agreement. Relationship between distances and costs; closer countries are better. |
| | Marital status | Circularity of programme favours migrants with families in countries of origin. |
| | Other variables (urban/ rural; language; age; religion) | Of secondary importance. May be more important, depending on sector and receiving context. |
| Productive sector | Type of sector | Services or primary sector; tertiary sector does not have necessary periods of intense activity. |
| | Temporality of job | Temporary services with cyclical activities. |
| | Difficulty of filling job | Necessary to incentivise employers to seek workers from beyond domestic market. |
| | Size of companies | Large to ensure volume; or multiple companies able to share workers. |
| | Diversity of sectors or jobs | Low, to allow linkages and sufficient work for migrants. |
| Labour market regulation | Existence | Crucial. |
| | Implementation | Effective controls needed. Significant fines required to ensure adherence. |

Source: derived from Barrero-Zapata et al., 2009.

The Colombia-Spain TCLM programme is, with the Haiti-US experiment, one of very few climate-conscious, development-oriented migration programmes. Its success offers an example for other countries.

Haiti-US Temporary Work Visas for Development

In 2010, Haiti was struck by a devastating earthquake. The Center for Global Development proposed assisting in the post-disaster reconstruction by opening up US labour migration visas in the US.

In the absence of an existing option allowing Haitian workers to migrate to the United States, officials

were lobbied to include Haiti on the H-2 visa list. This took five years, after which a pilot programme matching Haitian workers with US farms in need of agricultural labour was implemented.

Between 2015 and 2016, 68 Haitian workers arrived in the US. The results for the workers and their sending households were strikingly large. One month of seasonal agricultural work in the US raised the average wage by approximately 1,400 percent. Two to three months of overseas work thus doubled the annual household income in Haiti. Migrant households were able to invest in durable goods and livelihoods in their area of origin, with gains considerably outstripping those delivered by significant poverty-alleviation programmes elsewhere. The programme also outperformed aid alternatives: all the money remitted by migrants was delivered directly to vulnerable families, without overheads (Hagen-Zanker et al., 2017).

The programme was highly beneficial to the migrants; to Haiti's wider economy; and to the US farms benefiting from migrant labour. For every month of overseas work, approximately US\$1,700 was spent in Haiti; at least US\$3,000 was added to Haiti's GDP; and approximately US\$4,000 to US GDP. If scaled, 10,000 seasonal Haitian migrant workers could be expected to add approximately US\$100 million to the Haitian economy each year, with larger benefits to the US economy (Clemens and Postel, 2017). Haiti was removed from the H-2 visa list in 2017 by the Trump administration, with the argument that Haitian migrants too often overstayed their visas (Devia, 2020).

The Haiti-US temporary labour migration programme was small and brief, but the size of its impact demonstrates the role labour migration can have in post-disaster reconstruction: they can have a larger positive effect than aid or major poverty alleviation initiatives. The sudden cancellation of the programme also indicates how politically vulnerable such initiatives can be.

Canada's visa expedition provisions

Canada offers a regularised version of the US' 2015 response to the Haiti earthquake. Canada's IRPA, the primary federal legislation regulating immigration, contains several provisions intended to direct existing mobility pathways towards populations deemed to be at greater risk. Operational Bulletin 83, 'Guidelines for Priority Processing in the Event of Disaster Solutions', recommends the prioritisation and expedition of applications from countries that have experienced disasters (Dempster et al., 2021). In 2023 this provision was triggered in order to allow priority movement for Turkish and Syrian applicants for temporary and permanent residence, including applications for refugee resettlement, following the devastating earthquake in February (Government of Canada, 2023). The bulletin was previously triggered in 2010 following the earthquake in Haiti, and in 2014 following Typhoon Haiyan in the Philippines (Dempster et al., 2021).

The provision is ad-hoc, however, and is not applied to all disasters. At different points drought in Somalia and large floods in Pakistan have not seen visa expeditions made available (Omeziri and

Gore, 2014). The bulletin instead provides that “in the event of natural disasters, Citizenship and Immigration Canada may receive requests for expedited processing of clients in the affected area”. The applicant or sponsor have a “responsibility to demonstrate that they are negatively affected by the situations” following a disaster (IRCC, 2008). If a request is not lodged, there appears not to be a mechanism to proactively assess the needs of third countries in order to make mobility pathways more accessible to populations facing increased hazards or vulnerability.

Canada’s immigration legislation contains a provision allowing expedited and prioritised visas for populations affected by disasters. This is however applied on an ad-hoc basis.

EU Seasonal Workers Programme

The EU’s Seasonal Workers Directive (SWD) permits Member States to provide seasonal work permits to third-country nationals for between five and nine months (European Parliament, 2014). It aims to harmonise seasonal worker programmes in Europe, allowing member states to meet seasonal labour demand while reducing illegal employment; protect the rights of workers; and provide development benefits for migrants’ countries of origin (Hooper and Le Coz, 2020).

Large numbers of third-country migrants enter the EU through the programme each year. Italy hires around 370,000 migrants in the agricultural sector; France 276,000; and Spain 150,000. Overall, between 800,000 and 1 million migrants are hired through the programme each year, predominantly in agriculture (European Parliament, 2020). Migrants are brought in for periods of five to nine months. Member states have discretion in the number and profiles of migrants admitted, and whether to seek to rehire the same migrants repeatedly.

Building climate into the SWD

While the Directive’s primary focus is on controlling the immigration of low-skilled labour, it does also recognise the importance of “optimising the link between migration and development” (European Parliament, 2014: P(6)). Given the development impact of climate change, the programme could be adapted to target communities whose livelihoods are harmed by the effects of climate change for seasonal work in the EU. This could be during periods of reconstruction after a hazard’s impact, or pre-emptively targeting areas anticipated to suffer increased impacts in need of extra capital for resilience-building (Kraler et al., 2020). Migration would allow increased financing following a sudden-onset disaster, or aid communities in remaining above thresholds of livelihood difficulty, allowing them to avoid permanent out-migration. The SWD would thus be used as a looser version of the TCLM.

Climate vulnerability-based targeting has not yet been systematically undertaken by EU countries’ seasonal worker programmes, but the idea is not new. In its 2013 Staff Working Document,

the European Commission (2013: 28) stated that it would “explore how future initiatives on labour migration and mobility could be more specifically targeted towards regions at risk of climate change or environmental degradation.”

In the case of the SWD, this is possible but potentially challenging, for reasons both ubiquitous to such proposals and unique to the EU scheme. The SWD leaves member states with the freedom to choose the third countries with which they establish seasonal migration agreements. Using the SWD to target climate-vulnerable nations could require establishing a centralised quota to guide member state recruitment towards nations that meet particular criteria. This would be likely to be challenged by member states unwilling to give up full control over migrant selection through harmonisation (Ammer et al., 2014). It would also require agreement on the criteria for determining which nations would be prioritised in such a quota system, which as outlined is difficult. Moreover, the cost of accessing workers in climate-vulnerable countries, which are more likely to also face governance and skills development challenges, may be greater than in less climate-vulnerable countries (Gromilova, 2016). States may therefore also require financial help in recruiting from the countries where remittances would have the greatest resilience-increasing impact.

Maximising the SWD's development impact

To maximise the development and resilience-building impacts of the SWD, issues relating to protection of rights should be resolved. In a study of SWD workers in Italy, the largest recruiter, Passalacqua (2022) finds that many of the over 300,000 workers employed in agriculture are in fact not circular migrants coming from outside Italy, but instead are third-country workers living in Italy on a stable basis and holding regular permits. Many of these workers, furthermore, only saw limited enforcement of the labour rights outlined in the SWD, and were at risk of exploitation. Italy's agricultural sector uses between 400,000 and 500,000 migrant workers versus 370,000 hired through the SWD; those not brought in through the programme are especially at risk of exploitation through illegal intermediations between farmers and workers (Augère-Granier, 2021). The programme's positive effects stem mostly from the impact of remittances for reconstruction and risk reduction; as well as being inequitable and immoral, exploitation also reduces the remittances available for transmission, reducing resilience benefits.

Funding climate-conscious SWD programming

Funding to support vulnerability-targeted recruitment within the SWD could conceivably come from the European Trust Fund for Africa (EUTF), or from the Neighbourhood, Development and International Cooperation Instrument (NDICI). The 2021–2027 NDICI-Global Europe fund earmarked EUR 79.46 billion for cooperation with third countries outside the EU. Migration is a “horizontal target” within programming, expected to receive around 10 percent of funding to “address the root causes of irregular migration”, especially within Africa (European Commission, 2021: 3). Given the

potential of migration to allow greater financial flows for increasing resilience, it would be consistent with the EU's commitment to Policy Coherence for Development (PCD) (European Commission, 2019) for it to seek to prioritise access to labour migration opportunities for those countries most likely to benefit. Climate change and migration are two of the five “strategic challenges” within the PCD approach, and connecting them in this way could justify the use of central funding subsidies where states are unwilling to fund the extra costs themselves.

The size of the EU's SWD programme, and the EU's interest in using it for development purposes, makes it a high-potential instrument for adaptive labour mobility. Establishing a central quota requiring that Member States hire a certain proportion of workers from countries agreed to be climate-vulnerable would be a valuable step, but would be likely to face resistance.

30. Funding adaptive labour migration pathways

In some cases, the cost of labour mobility can be left to migrants. In others, states and the private sector should foot part, or all, of the bill. Many of those who would most benefit from access to international labour migration for climate-adaptive purposes will not have the assets necessary. This is in part due to the fact that the emissions activities of richer states have contributed to asset losses. Demanding that migrants take on significant debt to move in climate-adaptive migration programmes is inequitable, given the reasons for the proposed movement (Draper, 2021). It is also inefficient, reducing the development and climate-adaptive potential of migration. Migration is often expensive for those using existing pathways and programmes. Despite the fact that the ILO suggests in their guidelines on recruitment practices that workers should not be charged for recruitment or other costs during migration (ILO, 2019a), recruitment costs often in practice fall on migrant workers (Hooper, 2022). These costs can vary by country, by time, by sector, and by recruitment corridor.

More can be done to reduce these costs, especially for those most vulnerable. The GCM calls upon signatories to “prohibit recruiters and employers from charging or shifting recruitment fees or related costs to migrant workers in order to prevent debt bondage, exploitation, and forced labor” (United Nations, 2018a: 12–13). Few countries make real efforts in this area, however, and those that have created provisions often struggle to implement them (Hooper, 2022). For labour migration to be most effective for adaptation, this needs to change. If migrants participating in international labour pathways must pay for their own visas, or for their own transport in a time of rising air travel costs (IATA, 2022), access is reduced for those—often poor—who would most benefit. Resolving the targeting and access quandaries requires support for movement.

Costs inherent in mobility programmes

In targeted bespoke labour migration pathways, such as GSPs, a number of costs are essential (Dempster et al., 2022). These include:

- Pre-selection of candidates, identifying, screening, and processing possible participants in the migration programme. Costs include paying agents (such as the IOM) to implement workshops and tests. For programmes incorporating a climate-adaptive element, pre-selection—such as assessing applicants' place of origin or possibly language skills—is likely to be important.
- Project implementation, undertaking planning, financial reporting, and operational activities. These include costs of accommodation, insurance etc. for migrant participants.
- Travel, including visas and airfare for migrants.

Other costs are voluntary, and are not incurred by every programme. These include:

- Training, growing participants' skills before or after migration. With regard to programmes incorporating a climate-adaptive element, training may often be useful in widening vulnerable populations' access to movement.
- Monitoring and evaluation, assessing the success of the programme.

To maximise the climate-adaptive potential of targeted labour migration pathways, costs should be transparent, migrants should be informed, and subsidies should be made available where possible and effective (Hooper, 2022).

- Information on recruitment costs should be made available. In many areas this will require investing in better data collection and encouraging or obliging recruiters to share their costs transparently.
- Migrants should be protected from unexpected costs. Efforts by employers or intermediaries to exploit migrants with sudden demands—such as visa processing fees a short time before travel—should be punished. This may require the creation and publicization of legal advice hotlines. Given the potential role of remittances, preventing exploitation is in the interests of the sending state as well as the migrant.
- Contingency funds accessible to migrants should be created. Where unexpected costs—such as those related to Covid-19—suddenly emerge, migrants may turn to exploitative money-lenders or to their employer, risking debt traps. A cash or low-interest loan assistance programme, possibly from insurance funds for nationals abroad, could prevent this from happening. This would benefit migrants in areas of destination and communities in areas of origin to whom remittances can keep flowing.

Costs can be lowered through the use of government-to-government mechanisms. Migration from Bangladesh to Malaysia, for example, was banned in 2009 due to recruitment malpractices including the extraction of excessive fees from migrants. Labour migration was resumed following the agreement of a new government-to-government approach, which successfully reduced intermediation fees from US\$3,000–4,000 to around US\$400 (Mobarak et al., 2023). Lessons could be drawn from this example to reduce costs elsewhere.

To maximise development impact, migrants should not be expected to bear large mobility costs. Where costs are present, they should be aware of them from the start to allow planning, and should be protected from unexpected expenses.

Finding funding for climate-conscious labour mobility programmes

Having recognised the costs inherent in adaptive labour mobility initiatives, it remains to find funding for such programmes. There are four leading candidates for such funding: Multilateral Development Banks; adaptation or loss and damage funding under the UNFCCC; migrant-receiving states; and businesses in migrant-receiving states benefiting from increased access to labour. It is argued while the UNFCCC is unlikely to be able to provide funding without clarifications to its funding processes, MDBs can usefully support such programmes. The majority of costs are however likely to rest with receiving states, with the possibility of some costs being supported by benefiting private sector actors in the country of destination once a programme's utility has been demonstrated.

Funding by Multilateral Development Banks

MDBs exist to invest in projects contributing to sustainable development, primarily in low- and middle-income countries. Their volume of investment is far larger than other actors'. MDBs are however constrained by their need to generate a return on investment, and considerable changes could be necessary for MDBs to meaningfully address global and cross-border development challenges, rather than state-limited projects (Chakrabarti et al., 2022; Dissanayake et al., 2022). While MDBs do have a lot to offer in support of climate-adaptive labour migration programmes, their capacity to provide engagement at all parts of such schemes may be limited without reform.

MDBs have already shown some willingness to explore funding in the migration space. At the 2018 Spring Meetings, MDBs launched a collaboration platform on both economic migration and forced displacement. This initially focused on refining a common framework for MDB engagement; advancing cooperation on knowledge, evidence, and data; ensuring strategic coordination on priority topics; and creating better-targeted instruments and products (IISD, 2018). In 2016, a briefing paper for the World Bank Board argued (World Bank, 2016b) that the Bank could contribute to the global migration agenda by:

1. Financing migration programmes;
2. Addressing drivers of migration;
3. Maximising the benefits, and managing the risks, of migration in sending and receiving countries;
4. Providing knowledge for informed policymaking.

The briefing paper provides a number of ways in which the World Bank could provide support for labour migration programmes. These include:

- Supporting governments in improving the regulation and monitoring of recruitment agents;
- Brokering cooperation between sending and receiving countries in enforcing job contracts;
- Preparing standardised measures of recruitment costs;
- Supporting the establishment of bilateral labour migration schemes, as the Bank already did in the case of the RSE schemes in New Zealand;
- Supporting countries of origin in training workers for emigration or to replace emigrants, such as in healthcare;
- Supporting the integration of migrants in countries of destination, including through language and skill training; and
- Supporting programmes in countries of destination with regard to skill recognition.

In a subsequent briefing paper requested by the Board, the World Bank (2019a) set out four broad areas in which it intends to work with regard to migration:

1. Support safe and regular labour migration;
2. Support specific migration-related indicators in the SDGs (e.g., reducing recruitment and remittance costs);
3. Generate knowledge for policy making;
4. Support global partnerships.

Concretely, the World Bank has scope to do more within these parameters. Adhikari and Dempster (2021) argue that the Bank could:

- Continue to support the collection of labour market data, informing countries' knowledge of skill shortages that could be addressed through migration.
- Build institutional capacity for improved migration systems in countries of origin. This could involve supporting skill development to subsequently be used in international labour markets, as the Bank has done in a US\$3.05 million project Morocco (World Bank, 2020) and a US\$20.9 million project in Tonga (Dornan, 2022). It could also involve providing technical assistance for migration management systems; assistance with the negotiation of bilateral labour agreements; or support in improving public and private intermediation services.
- Convene actors. Migration partnerships can struggle to reach implementation due to lack of coordination and a lack of successful examples. The World Bank could support multi-stakeholder dialogues, and assist in the organisation of necessary mechanisms.
- Finance new pilots to provide 'proof of concept'. Directly financing pilot programmes, and providing evaluation capacities, can reduce initial risks for participants and help to convince other states that such programmes are useful.

Adhikari and Dempster (2021) note that “all of the roles outlined above are difficult to implement in practice and require working across sectoral and geographical barriers”, but that the Bank is “one of the best placed global institutions to take on a more substantive role in the international labour mobility discussion because of its knowledge generation potential, deep engagements with countries of origin and destination, and its ability to bring together diverse set of stakeholders into a common forum.” This is an assessment shared by the Bank’s two Board briefings (World Bank, 2016b; 2019a).

Individually, the African Development Bank also ran an Initiative on Migration and Development for several years from 2009, seeking to maximise the development impact of remittances by channelling them to productive investments and supporting migrant-oriented financial services (AfDB, 2022b). Diaspora remittances to Africa, estimated in 2022 to total US\$95.6 billion, have become more important in a context of reduced foreign direct investment and official development assistance, and should be maximised (AfDB, 2022a). Supported climate-oriented mobility programmes could offer a sustainable and cost-effective way of increasing remittance flows for adaptation.

MDBs have expressed their intention to support labour migration programmes, recognising its potential for development. The World Bank, in particular, has previously supported aspects of labour migration partnerships. Reform may be necessary for greater engagement.

Funding by receiving states

Where MDBs do not foot the bill, costs are likely to initially be borne by governments in destination countries. This is the case for most existing legal labour migration pathways, due to governments’ interests in resolving skill deficits (Dempster et al., 2022). These costs can often be allocated to Official Development Assistance budgets (ODA). ODA is defined by the OECD Development Assistance Committee as “government aid that promotes and specifically targets the economic development and welfare of developing countries” (OECD, 2020). A new set of criteria for assessing whether migration-related activity can be reported as ODA was published at the end of 2022. This clarified that a migration programme’s funding can count as ODA if its “main objective” is “the promotion of the economic development and welfare of developing countries” (OECD, 2022b). The following guiding principles determine whether migration programme costs can be counted as ODA (OECD, 2022a). A programme must have:

- Development as a primary purpose;
- No diversion of ODA towards donors’ immediate interests on migration;
- Mutual benefits recognised but developing countries’ interests remain at the centre of ODA eligibility;
- ODA is aligned with development, humanitarian and human rights objectives and principles;

- ODA integrity is preserved through a focus on developing countries' main benefit;
- Activities that intercept and return migrants with the main objective to restrict migration to provider countries are excluded from ODA.

Labour migration programmes prioritising climate-vulnerable populations would, if well-managed and well-targeted, enhance the economic development and welfare of developing countries. If they are undertaken with this aim as a primary purpose—as in the TCLM or RSE schemes—they thus could potentially be eligible to be counted as ODA.

Migrant-receiving states are likely to provide the majority of funding. This may be ODA-able.

UNFCCC funding

While it is unlikely to be a preferable option due to longer grant timeframes and the prerequisite of reforms, climate-adaptive labour migration pathways could also conceivably be funded by climate adaptation funding under the UNFCCC. In cases where migration and remittance-sending would have a greater impact on adaptation options in the area of origin than a straight money transfer, climate finance options could support the labour migration pathway in order to increase impact and make adaptation money go further. This could offer a migration-fuelled form of 'billions to trillions', using adaptation financing as seed funding for further adaptation through remittances.

The Paris Agreement saw the commitment to “avert, minimize and address” *displacement*, rather than mobility (COP of UNFCCC, 2015: 50). The IOM, in a report prepared for the WIM Executive Committee Task Force on Displacement, suggests that international migration options such as free movement protocols or labour migration schemes could fit under ‘minimisation’ of negative displacement (IOM, 2018). The IOM recommends that unspecified actors “emphasize the need for collective measures that reach across policy areas” to, among other goals, “foster regular pathways for migration taking into account labour market needs”, and also argues that “multi-year funding” should be allocated “for the measures and mechanisms suggested” (IOM, 2018: 12).

It is unclear whether the above recommendations also apply to the UNFCCC. If they do, the idea of using UNFCCC funding for climate-adaptive labour migration would be still nascent but not wholly new. It would however be a departure from the UNFCCC’s current funding practices. It is also possible that other funding needs may be more urgent. Such initiatives would moreover require further agreements on UNFCCC provisions. At COP27 in Sharm el-Sheikh it was agreed that for the purposes of operationalising funding arrangements, displacement, relocation, and migration would be considered separately, and that there are “gaps within... the landscape” for funding these needs (UNFCCC, 2022a: 5(b)). This suggests that as discussions continue there may be future scope for financing adaptive labour migration, but that this may not arrive for some time.

The Green Climate Fund, another option within UNFCCC processes, has thus far supported very few projects with mobility-related components (Tänzler and Bernstein, 2022). It furthermore pursues a country-driven approach, requiring *country ownership*, e.g., through project alignment with NAPs, which could restrict its ability to support international mobility programmes (GCF, 2015). It has however funded several cross-border projects, especially with regard to large infrastructure such as hydropower (e.g., UNECE, 2021a); over time, the GCF and other UNFCCC instruments may come to be able to support other transboundary adaptation initiatives.

Although climate-conscious labour migration can provide major adaptation benefits, UNFCCC funds are unlikely to provide funding in the foreseeable future.

Funding by businesses

Costs are likely to remain predominantly the responsibility of migrant-receiving states. In some cases, it may be possible to tap private sector funding. The private sector could be willing to fund programmes if they can obtain needed skills through the pathway more 'cheaply' than they could through domestic approaches. This is less likely to be the case if other factors, such as relatively short stays by migrants, are inconvenient to employers. Where financial responsibility can be transferred to the private sector, this should be done carefully and slowly, and is likely to only occur after the viability of the pathway has already been demonstrated and trust has accumulated (Dempster et al., 2022).

Funding for climate-adaptive circular labour migration programmes is most likely to be provided by the country of destination. This funding can potentially be eligible for ODA status. Funding could also be provided by MDBs; potentially, in the future, accessed through UNFCCC funding; or supported by private sector actors.

31. New governance needs for climate-conscious labour mobility

A new governance approach to migration is needed if climate-conscious labour mobility is to become an institutional reality.

If migration governance is fragmented at the global level (Kainz and Betts, 2021), it is also fragmented at the level of the region and the nation-state. This is in part because it is complex: "so complex", Castles (2004: 854) argues, that "states tend towards compromises and contradictory policies". The complexity is compounded by, and compounds, the fact that migration governance is multi-level and multi-actor (Pasetti, 2019). Within the EU, for example, national governments struggle with the regional body for control over migration policy; and at the sub-national level, cities such as Barcelona or Rotterdam struggle with national agenda-setters (Scholten and Penninx, 2016).

If there is a decoupling between levels, there is also a decoupling between agendas. Migration is broadly demand-driven. This is often through crude processes. Immigration rates are typically assessed and regulated against states' understanding of the needs of the labour market. Labour market needs are often not well understood, and thus immigration policy responds to crude stimuli. Governments attempt to understand “what’s going on ‘out there?’” and then attempt to decide “what should we do next?” (Geddes, 2020: 312), always facing pressures from a wide range of other actors present in the space (Axelsson et al., 2022). If they do not consider all aspects of their domestic situations, they consider factors beyond their borders still less.

The need for a cross-cutting labour migration approach

This leads to inefficiency and incoherent policy. Migration can have enormous positive ramifications for both the sending country and the receiving country, but it is typically not a policy area considered in conjunction with development policy, foreign policy, trade policy, etc.: while there are examples of these areas eliding, migration is predominantly decided by domestic labour market imperatives as perceived by the administration. This can lead to sub-optimal results. Free trade talks between India and the UK, for example, were jeopardised by remarks against migration made by Britain’s Home Secretary (Srivastava, 2022), who criticised the possibility that a deal would increase the number of skilled workers moving from India to the UK (Syal, 2022).

A 2015 review of European policy and institutional arrangements in the ‘migration-development nexus’ found that responsibility for migration policy may be housed in a variety of different ministries: Development, Foreign Affairs, Internal Affairs, or Justice. The ministry in which it was housed affected the extent to which migration was considered in conjunction with development intentions. In all countries the Ministry of the Interior was a major actor in shaping migration policy, with other ministries—such as Finance or Labour—involved in discussions relating to different sub-areas. ‘National’ and ‘external’ dimensions of migration policy were often blurred, and Policy Coherence for Development—at that point nominally a governing paradigm—was often not prioritised with regard to migration policy (Keijzer et al., 2015).

To place migration in a separate silo from other issues—especially development and foreign policy—is unwise. Migration can potentially bring major benefits to sending households, communities, and countries more widely. Its role in an international development strategy could therefore be significant. Migration can have a positive impact upon poverty and, if migrants are selected against wealth levels, upon inequality (Andersson and Siegel, 2020). Access to funds generated through migration can allow increased savings, reconstruction after disasters, investment, the smoothing of consumption (Mueller et al., 2020c), the repayment of debt (Jacobson et al., 2019), increased access to education (Siddiqui, 2012), and over the longer term the creation of businesses and contributions to local public goods (e.g., Bedford et al., 2020; Zapata-Barrero et al., 2009).

Some countries have demonstrated the ability to view migration in conjunction with other policy areas. This may be with a development lens, focused on creating greater benefit for the country of origin; may have an eye upon foreign policy incentives; or may be undertaken with a greater focus on either reducing immigration or upon placating domestic constituencies. For example:

- Australia uses migration policy with Pacific peers as a diplomatic chip in the continuing cultural and geopolitical jousting with China in the region (Sharman, 2022).
- The EU has oriented much of its development activity towards the reduction of migration towards Europe. The effectiveness of this approach is doubtful, but it is an instance of migration policy being addressed in tandem with other areas (see e.g., Geddes, 2018; Knoll and Veron, 2019).
- The US government's inclusion of Haiti in their H-2 visa scheme following the 2010 earthquake was intended to increase the flow of remittances directed towards the country, allowing post-disaster reconstruction (Hagen-Zanker et al., 2017).
- The TCLM programme between Colombia and Spain incorporated considerations of vulnerability and post-disaster reconstruction, prioritising households who would most benefit from inclusion in the programme (Zapata-Barrero et al., 2009; IOM, 2014).
- Several Pacific programmes—including the Pacific–New Zealand RSE scheme and Australia's pilot Pacific Seasonal Worker scheme—were created with the intention of contributing to development outcomes as well as Australian or New Zealand labour market needs (Gibson et al., 2013).

The US-Haiti programme produced household-level gains substantially larger than the best poverty-reduction programmes (Hagen-Zanker et al., 2017). Similar gains are found elsewhere, leading Gibson et al. (2013: 18) to argue that “increased migration [is] likely the most effective mechanism to rapidly increase incomes of people from poor countries”. This is especially the case for small countries such as small island states, which possess fewer alternative paths to development (McKenzie, 2017).

Access to labour migration programmes is thus a major but underutilised tool in migrant-receiving countries' development arsenals. In the context of climate change, its underuse is highly inefficient. Targeted labour migration programmes, prioritising members of vulnerable communities for whom the marginal benefit would be highest and for whom remittances could be transformational resilience, have enormous potential. Developed countries pledged, but have not provided, US\$100 billion in climate finance annually to support adaptation (UNFCCC, 2022c). To not seek to maximise adaptation options through alternative pathways is to tacitly embrace incoherency.

Migration can allow access to resources with transformational adaptation potential, but is frequently viewed as siloed from development policy. This is incoherent and inefficient.

Needed: a migration impact research body

What is needed to maximise the potential of migration for climate adaptation? Firstly, countries of destination require an agency with a mandate to conduct research into the potential development and adaptation benefits of access to migration programmes for countries of origin. Secondly, they need to empower a state actor or body to establish migration partnerships on the basis of these recommendations.

This is a broadly untested idea, but is not without precedent and may already be gathering momentum. In its 2021 report on climate change and migration the White House recommended that the US government “establish a standing interagency policy process on Climate Change and Migration to coordinate U.S. government efforts to mitigate and respond to migration resulting from the impacts of climate change” (White House, 2021: 30). The standing interagency policy process (SIPP) is suggested to be intended to:

- Analyse the structure and coordination of the US approach to climate-vulnerable populations;
- Assess foreign assistance for climate change impacts on migration;
- Review gaps in US policy;
- Take a holistic view of opportunities for “address[ing] climate migration”;
- Support “better understanding of climate and migration”, presumably commissioning or undertaking research;
- Support assistance to governments and civil society in responding to climate change;
- Support people in adapting in situ and through (seemingly internal) mobility; and
- Support assistance for migrants and host communities in destinations.

This is a long but necessary list of expectations. Key among them is the need to support research to guide policy. In the White House report the SIPP is advised to focus on “improved analytics”. The suggestions are broad—and include advice to attempt to forecast climate-affected migration—but contain several important proposals. The SIPP is advised to seek to consider:

- The intersections between climate-affected migration and other factors, including social, economic, geographic and political;
- The conditions most likely to lead to immobility and ‘trapped’ populations; and
- The role of migration in supporting adaptation and resilience at different scales.

This research is anticipated to be most likely to guide development activities by actors such as USAID, although the short ‘legislative’ proposals in the report do suggest that the US could seek to “harness the potential positive development impact of migration” (2021: 32). It is unclear whether this includes international mobility.

The SIPP appears to have encountered institutional challenges, and there has not yet been public confirmation that it has been established (Watson, 2022). We advise nonetheless that the SIPP not only should be established, but should expand its remit and the targets of its advice, and that other countries—or potentially blocs, such as the EU—should also seek to establish similar mechanisms. The SIPP should broaden its focus of research to consider *vulnerability*—which may both drive migration, or inhibit it—and should advise on the creation of US migration pathways as well as the focus of the US' climate-conscious development spending.

The role of the research agency

Countries of migrant destination with a need for workers should establish a research agency with the mandate of assessing options to establish the development-optimal countries with which to establish migration partnerships. This agency would evaluate a range of structural characteristics and also be able to integrate the need for adaptation funding via migration in response to ex-ante shock risk or ex-post shock reconstruction needs. For example, the agency could consider:

- Domestic unemployment patterns;
- Domestic skill needs and training capacity;
- Partner countries' GDP per capita;
- Partner countries' GINI coefficient;
- Development indicators, e.g., child mortality, education outcomes, etc.;
- Partner country skill base according to national education pipelines;
- The size of a potential partner country's existing diaspora;
- Potential partner countries' demographic trends;
- The proportion of the partner country's workforce unemployed;
- Dependence on agriculture;
- Exposure to macroeconomic, e.g., commodity price, shocks;
- Exposure to climate-related hazards, by magnitude and imminence;
- Occurrence of recent climate-related shocks;
- ODA, FDI and remittance flows; etc.

Potential partner countries would be assessed for both their capacity to provide the workers of which the receiving country has need, *and also* the relative benefits accruing to them from participation. Migration from climate-vulnerable countries with small diasporas and high agricultural dependency could conceivably thus be prioritised over migration from less vulnerable countries with larger remittance flows.

This would allow countries of destination to evaluate and compare potential partner countries' situations and needs, before recommending possible third countries from which to receive migrant workers. The agency could evaluate different scenarios of domestic skill need or external shocks, and have proposals for migration pathway options with domestic and development rationales.

This could see migration policy become rationalised and transparent, going beyond policy which is merely reactive to demand to instead use migration as a valuable development tool to support the most vulnerable. A 10 percent increase in the size of the migrant population in a country of destination sees a corresponding increase in aid spending in the migrant population's country of origin of nearly 7 percent (Bermeo and Leblang, 2015). For purposes of objectivity and equity, this should be avoided when considering development-oriented migration policy. This is especially the case in the context of climate hazards, within which the stakes are higher and marginal benefits are potentially larger.

The objectives of the 'Migration Policy Research Agency' are thus broadly to:

- Model existing and projected domestic labour market needs;
- Model the impact of access to labour migration pathways upon potential partner countries' development and climate vulnerability;
- Provide relevant bodies with holistic advice of options within migration policy.

It is likely that, given the at times incendiary political nature of migration as a topic, recommendations delivered by nation-specific agencies are most likely to hold legitimacy and be politically acceptable. Where this is not the case, states could follow the UNFCCC's process in assessing national vulnerability levels, and where feasible target migration access to states determined to be at high vulnerability to climate hazards. The following sub-sections consider examples of systems from which efforts to establish such a national agency could learn.

Migration policy is not set on the basis of holistic research. This squanders labour migration's potential development impacts. Countries should establish 'Migration Policy Research Agencies' to advise migration policy considerations, allowing targeted labour migration pathways.

Examples to draw on

The Standing Commission on Immigration and Labour Markets

Specific to the US context, Meissner et al. (2006) propose the creation of a Standing Commission on Immigration and Labour Markets, charged with analysing labour market needs and making recommendations to the president and Congress regarding adjustments to levels and categories of immigration. It would have a mandate to propose changes supporting economic growth while maintaining low unemployment and preventing wage depression, acting as a form of Federal Reserve for the labour market. The Standing Commission is proposed to be a bipartisan agency, comprising five voting members with a maximum of three members from the same political party, and with Secretaries of State from major departments acting as ex officio members. It would have large powers over migration, able to propose new limits or pathways to be adopted by the president unless Congress affirmatively took a different approach.

The proposal of the Standing Commission could well be highly valuable, but goes beyond this paper's proposal of a research body to guide decision-makers. The Standing Commission furthermore focuses predominantly on domestic labour market needs, with little attention given to the development impact of migration upon migrant-sending countries.

The 2006 proposal of a US Standing Commission on migration suggests the creation of an empowered federal agency. This goes beyond the immediate needs for climate-conscious labour migration policy for resilience-building and development.

The UK's Migration Advisory Committee

The Migration Advisory Committee (MAC) of the UK is an independent, non-statutory, non-time limited, non-departmental public body established to advise the UK Government on migration issues. It has a wide remit and works across government, providing transparent, independent and evidence-based advice. Each year it publishes several reports on UK-specific issues of migration, primarily following commissions by the Home Secretary. From 2020, the MAC's remit was expanded to include an annual report with an expanded committee-led analysis, supplementing direct commissions by the Home Office (the department responsible for much of UK migration policy). The most recent report (MAC, 2022) discussed exploitation of migrants within the UK; the effects of Brexit upon UK migration flows; patterns of historical migration to the UK; analysed migration to the UK's adult social care sector; and analysed UK job postings.

The MAC comprises a panel of leading experts drawn from universities and the Civil Service. One of its most important contributions is to evaluate the UK's Shortage Occupations List against British labour market needs and propose changes to immigration intakes. This allows a more agile response to labour market needs. The MAC's recommendations are non-binding, and as of December 2022 the UK government had not responded to the MAC's recommendations regarding migration challenges within the adult social care sector made at the start of that year (Bell, 2022).

The MAC plays a valuable role in UK migration policy, but does not look beyond domestic impacts of migration. If migration pathways are to be used as a tool for assisting the climate-vulnerable, the proposed agency would require the capacities to evaluate potential partner countries' situations and model the impact of labour migration access upon their economies and vulnerability levels in order to provide recommendations.

The UK's Migration Advisory Committee makes a valuable research contribution to UK migration policy. It is inward-facing, focused on the domestic impacts of migration: a similar body could provide advice on the external effects of labour migration policy to maximise development impact.

International Trade Commissions

As a policy area migration lags far behind trade in its integration into and coherency with other areas of policy. Trade policy commissions serve as a potential model on which to base a targeted labour migration initiative.

The United States system offers an example. The United States International Trade Commission (USITC) is an independent, nonpartisan, quasi-judicial federal agency that fulfils a range of trade-related mandates. Its primary purpose is to provide high-quality analysis of international trade issues to the President and Congress, informing decisions on trade policy. The USITC is headed by six Commissioners, nominated by the President and confirmed by the US Senate. Its work is undertaken by a professional staff including analysts and economists.

The USITC works with multiple other federal actors to implement the Generalised System of Preferences (GSoP). This is a trade programme providing nonreciprocal duty-free treatment for certain imports from developing countries evaluated as eligible. The programme is the largest such US initiative, but is supplemented by other initiatives with particular regional focuses. The GSoP was created by Congress in 1974 to spur economic development in poorer countries through trade, following interest among Global North countries within the UN in assisting developing countries in economic diversification (CRS, 2022). Despite being the product of multilateral discussions, the GSoP system was not created as a unified approach. Instead developed countries created their own programmes following a common set of principles. A similar approach could be taken with regard to climate-conscious labour mobility: multilateral studies of comparative vulnerability, such as those conducted during the UNFCCC process, could provide initial points of unison before countries established their own parameters and policies.

Other countries with a GSoP programme include Australia, the UK, Japan, and South Korea. Within the US the programme is administered by an interagency committee chaired by the US Trade Representative, which conducts annual product and country reviews and provides recommendations to the President, who has primary authority over the programme (CRS, 2022).

Following the WTO Hong Kong Ministerial Decision, preferential Rules of Origin are expected to be “transparent and simple” (UNCTAD, 2022: vii). Countries are assessed for eligibility in the programme on the basis of certain legislated criteria. In the US, these criteria cover both foreign policy and development factors. Eligibility criteria include (19 USC, 2021: §2462):

- Disqualification in the case of institutional Communism;
- Disqualification if a member of a bloc aiming to “cause serious disruption of the world economy”;
- Disqualification if the state has expropriated property belonging to US citizens;
- Disqualification if considered a “high-income country” according to the International Bank of Reconstruction and Development’s definition;

- Consideration of its per capita GNP;
- Consideration of the living standards of the country's inhabitants.

Ultimately, furthermore, eligibility for the programme and the continuation of the programme are at the discretion of the President. In 2019 then-President Trump removed GSoP benefits for India (due to failure to provide equitable and reasonable market access) and Turkey (based on its level of economic development) (CRS, 2022). Similar criteria and mechanisms acceptable to the individual nation-state could be established for governing development- and climate-conscious labour migration policy.

There is not currently a clear picture of the aggregate effects of GSoPs. One study finds that LDCs gain export increases if they are WTO members, and other developing economies gain export increases if they are *not* WTO members (Ornelas and Ritel, 2018). In the case of the EU, the GSoP programme is found to increase exports of covered products to the EU from LDCs by up to 5 percent, but to be very heterogeneous (Thelle et al., 2015). A USITC report found that under US preferential tariff programmes, the annual export flow of Haiti—which was eligible for four different programmes since 2000—had a peak of a little over US\$1 billion (USITC, 2022). The effects of migration upon Haiti's economy are significantly larger: in 2011, the year following Haiti's major earthquake, the flow of remittances from the United States to Haiti was estimated at over US\$2 billion (Clemens and Farrell, 2011).

Targeted trade policy is broadly accepted as a viable instrument through which to assist international development. A similar approach has largely not been attempted with regard to migration. The use of trade policy commissions, as in the United States and elsewhere, allows the impact of trade upon partner countries to be evaluated for development and foreign policy goals. Similar institutional approaches could be adopted for migration, considering where greater access to remittances would have the largest development and vulnerability-reduction benefits.

Trade policy in the US and elsewhere incorporates development goals informing preferential treatment, evaluated by a permanent impartial commission. A similar advisory body for migration could allow states to make evidence-based labour migration policy, with potentially a far greater impact upon development outcomes and climate vulnerability.

Needed: an actor to make migration agreements

If climate-conscious, targeted migration pathways are to be planned and made available, they must also be agreed and implemented. This requires the existence of an actor overseeing strategy within the policy area, empowered to seek out, negotiate and advise on migration agreements.

This could be undertaken through considerably better cooperation between existing configurations of currently empowered bodies, such as ministries or agencies. If so, this would require the establishment of respected working groups or coordination bodies, such as the SIPP proposed in the White House (2021) report.

Alternatively, a new institutional arrangement could be sought. This would be preferable given the current fragmentation in migration governance and the likelihood of inter-departmental political wrangling continuing in an altered setup. A new arrangement would be most likely to mean the creation of an Office of a Migration Representative. Thus far only one country—Germany—has created such a position.

Examples from trade

133 countries have a National Trade Facilitation Committee (UNCTAD, 2023). These bodies have varying purviews, institutional capacity, and institutional set-ups. In surveys regarding these bodies' responsibilities and activities, UNCTAD finds that 59 percent 'always' or 'frequently' advise their government on trade priorities; 41 percent monitor technical assistance projects or programmes; and 40 percent negotiate, promote and monitor new trade agreements.

Trade policy in the United States is overseen by the Office of the United States Trade Representative, which is responsible for developing and coordinating US international trade, commodity, and investment policy, and for overseeing negotiations with other countries. The US Trade Representative is a cabinet member, and serves as the President's principal trade advisor, negotiator, and spokesperson on trade issues. The US Trade Representative operates through an interagency structure to coordinate trade policy, resolve disagreements, and frame issues for presidential decisions. The Trade Policy Review Group and the Trade Policy Staff Committee are administered and chaired by the US Trade Representative, and comprise nineteen federal agencies, creating a sub-cabinet level mechanism for developing and coordinating national positions on trade and trade-related issues (OUSTR, 2023). A similar institutional arrangement could be considered for a new Office of the Migration Representative and its interagency relations.

India did not have a national trade policy coordinator until 2016 (UNCTAD, 2019). In a study commissioned to consider other countries' experience with central coordination of trade policy, a number of lessons were identified (Taneja et al., 2016). With regard to the scope and functions of the national trade facilitation body:

- Having a defined work programme is essential, which should be linked to government and business priorities.
- Preliminary studies on private sector needs should be conducted, to incorporate them into the work plan.
- The body's mandate should be flexible, dynamic and open to change.

With regard to the organisational structure:

- Active consultation and collaboration with private enterprise is necessary to ensure operational relevance and efficiency.
- A demonstration of political will is important, and the body should engage regularly with senior officials.
- Leadership is a crucial element, and high-level representatives from government and the private sector should be involved.
- The national trade (or migration) body must be institutionalised.
- An adequately equipped secretariat is essential.
- Sub-groups working on specific issues within the wider area are vital.

With regard to operational issues:

- Adequate funding is essential.
- The obligation to present concrete results—such as reports—and to be open to monitoring processes is essential.
- Information on national and international activities should be shared.
- The trade facilitation agenda requires persistence and persuasion for implementation.

Many of these lessons are also potentially relevant to the creation of similar institutional arrangements for more coherent labour migration governance.

Germany's special commissioner for migration agreements

The post of the Special Commissioner for Migration Agreements is new to Germany's federal government. Its creation was agreed in negotiations between governing coalition partners following the 2021 general elections, and assigned to the Federal Ministry of the Interior and Community (BMI, 2023b). Joachim Stamp, former state Minister for Children, Families, Refugees and Integration for North Rhine-Westphalia, was appointed in December 2022 and took office in February 2023 (Schuster and Frigelj, 2022; BMI, 2023b).

The post is intended to “further promote migration dialogues between Germany and its partner countries”, according to Germany's submission to the International Migration Review Forum update on GCM implementation (Federal Republic of Germany, 2022: 29). The creation of the new post reflects the need for “a general switch in migration policy, with procedures in which entry requirements are checked in advance and people come to [Germany] according to clear criteria”, in the words of the Interior Minister (Schuster and Frigelj, 2022).

The responsibility of the Special Commissioner (or Special Representative) is to “draw up practical cooperation agreements with key countries of origin” (BMI, 2023b). Within this responsibility, the Office is expected to consider (BMI, 2023a; 2023b):

- Enhanced economic cooperation with partner countries;
- Technology transfer;
- Visa facilitation;
- Training programmes tailored to the German labour market;
- The creation of Germany-based job listings;
- Qualification smoothing measures for the German labour market;
- Job exchanges;
- The upholding of human rights in the German migration system; and
- The return of asylum seekers whose claims are rejected.

The Special Commissioner is expected to coordinate closely with federal ministries concerned in the above policy areas when approaching partner countries and negotiating agreements. The expansion of regular migration pathways is expected to be accompanied by efforts to establish deals with partner countries regarding the return of irregular migrants of asylum seekers whose claims have been rejected (BMI, 2023a). This is accepted to be a lengthy process, and to require a well-staffed bureau (Dake, 2023).

Germany's Special Commissioner could, if supported by the federal ministries with which the office will need to work, set a coherent migration policy. As Angenendt (2022) observes, Germany is "highly dependent on regulated immigration" but also "wants to fulfil its humanitarian obligations"; this requires "an active and institutionally well-anchored foreign migration policy", incorporating foreign and development policy aspects. Germany's migration partnerships have historically not fully incorporated development policy considerations, and have instead been too focused on German labour market needs and the reduction of irregular migration.

Germany already has an equivalent of the UK's MAC. The Expert Council on Integration and Migration was established in December 2020 by the Federal Government, and is an independent body created to provide research-based migration policy advice. It composes reports to assist decision-makers in integration and migration policy. It publishes an annual report intended to provide comprehensive analysis of integration and migration policy; prepares position papers on issues at its own initiative; provides advice when requested; and every two years undertakes an 'Integration Barometer'. The Expert Council on Integration and Migration has a staff of nine within its Research Unit, and for 2022 had a budget of EUR 2.2 million (SVR, 2023). The Expert Council, like the MAC, is intended to be largely inward-looking. With increased support and an expanded remit, it could also undertake work on the supply side of migration, considering partner countries' benefits from potential migration pathways in order to enhance Germany's policy coherence.

The new Special Commissioner could consider climate vulnerabilities when preparing development-conscious labour migration policy. Whether the Office of the Special Commissioner is empowered to do this remains to be seen. In the meantime, its creation is an encouraging development from which other countries can learn.

The creation of the office of the Special Commissioner for Migration in Germany is an encouraging step towards coherent migration policy. The Special Commissioner should consider climate vulnerabilities when determining which countries to approach to establish migration partnerships. Other countries should closely watch the German experiment and learn from it in establishing similar offices.

Switzerland's 'whole-of-government' approach to migration

Switzerland has taken a different approach to Germany in attempting to manage migration policy holistically. Where Germany has created a single focal point overseeing migration policy, Switzerland has instead sought a 'whole-of-government' approach to migration.

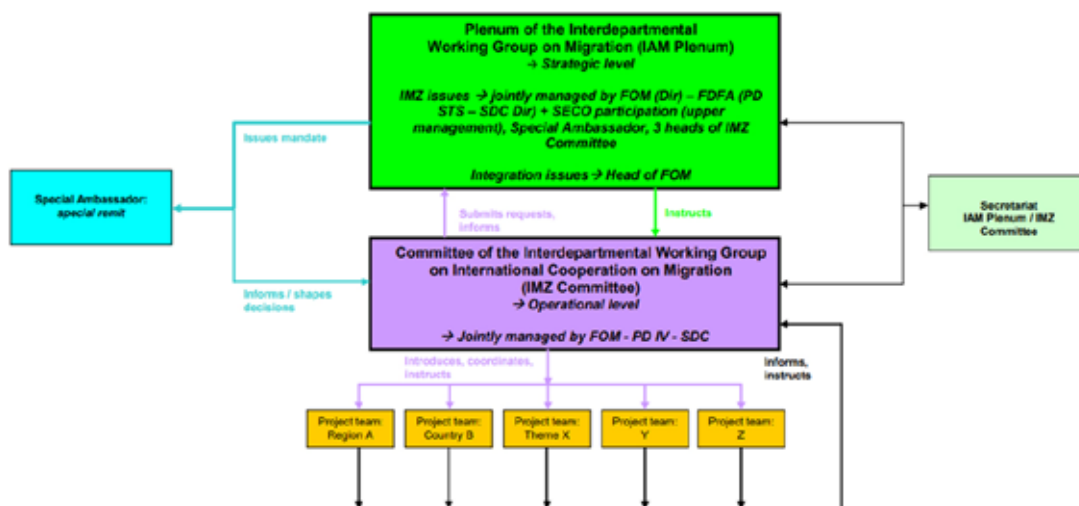
Switzerland's foreign policy-informed approach to migration follows the recommendations of the 2011 'Report on International Cooperation on Migration'. This proposed a migration policy based on three principles (FDFA, 2011):

- A comprehensive approach to migration that considers the economic, social and cultural opportunities offered by migration without losing sight of its challenges (e.g., irregular migration, return, human trafficking);
- Close partnerships between Switzerland and countries of origin, transit and destination combined with a balanced consideration of the interests of all stakeholders; and
- Close interdepartmental cooperation to ensure that Swiss migration policy remains coherent and that the instruments developed to address migration issues are used as part of a comprehensive approach.

Migration policy is managed through the Interdepartmental Structure for International Cooperation on Migration. This incorporates numerous federal agencies, and operates at three levels (SEM, 2023; Figure 20):

- The Plenum, at the level of departmental directors or state secretaries;
- The Committee, headed by Deputy Director of the State Secretariat for Migration and by the Department of Foreign Affairs Ambassador for Development, Forced Displacement and Migration; and
- Task forces for specific regions, countries and topics.

FIGURE 20. Organisational chart of Switzerland's international migration policy system



Source: FDFA (2011: 19).

The 2011 report highlighted that “the development potential that migration offers” is recognised (FDFA, 2011: 8), but that “one of the main challenges is creating the necessary conditions that ensure safe and legal migration, preserving the rights and interests of all stakeholders, and also empower migrants to become drivers of development” (5). The above structure was created in part to address this challenge, by coordinating migration policy with foreign and development policy.

The Swiss Agency of Development and Cooperations (SDC) has the lead role in ensuring that migration contributes to development. The Swiss approach has in particular made use of migration partnerships, intended to find constructive solutions to joint problems and to consider the development context in countries of origin. This is however principally the case when evaluating the needs of persons being returned, with less focus on the development benefits of regular labour migration (McGregor et al., 2015). In recent years Switzerland’s ‘whole-of-government’ policy has focused more on externalisation; border management and return; south-south migration; and development to address ‘root causes’ rather than the use of migration partnerships to support development in countries of origin (see e.g., FDFA, 2020; SECO, 2021; SDC, 2022).

Switzerland’s ‘whole-of-government’ approach to migration could allow the inclusion of climate-related considerations in its labour migration policies. This would require tight coordination between actors. While Switzerland’s focus has shifted away from migration as a development tool, other countries could learn from Switzerland’s experience of a coordinating institutional arrangement.

Switzerland's 'whole-of-government' approach to migration could allow the inclusion of climate-related considerations in its labour migration policies. While Switzerland is not currently doing this, other countries could potentially learn from its institutional arrangement.

Establishing an Office of the Migration Representative

Germany's experience with the new Special Representative on Migration will be instructive. Such an office has significant potential for making migration governance more efficient and coherent. Within this, it also has the opportunity to incorporate aspects often not considered, prime among them the relative benefit of access to migration for development and climate resilience.

Any 'Office of the Migration Representative' would need:

- A legal mandate to negotiate migration agreements on the basis of both domestic labour market needs and external development impacts; and
- Adequate resources to fulfil this mandate, including financial and human capital resources.

The responsibilities of the Office would be to:

- Consult actively with the private sector regarding labour market needs;
- Consult with the proposed Migration Policy Research Agency regarding potential partner countries, considering both their capacity to provide workers meeting labour market gaps, and the relative impact of the migration partnership upon their development;
- Approach potential partner countries to propose and negotiate labour migration agreements; and
- Advise the executive and legislature on migration-related policy issues.

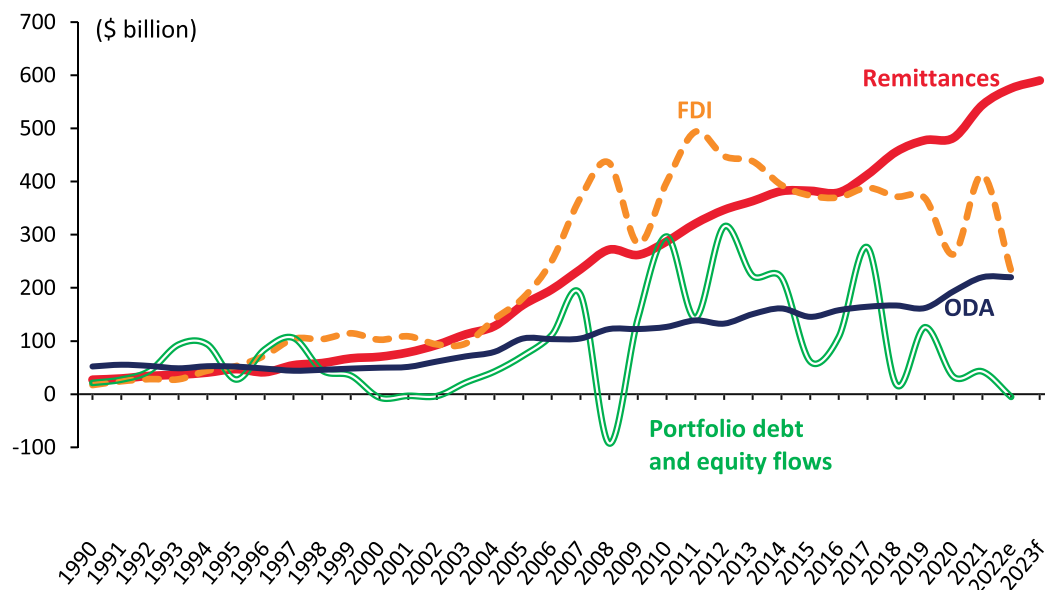
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The ability to earn more money and send it home is a key reason for migration. In the 20th century, the developing world received more money in remittances than in governmental development assistance (Clemens, 2022b; see Figure 21). In 2022, remittances to low- and middle-income countries were estimated to total US\$626 billion, growing 5 percent (Ratha, 2022). Total sums may be larger; estimates do not fully capture the size of informal remittance sending (Raga, 2022), which may amount to 35–75 percent of official remittance amounts (Freund and Spatafora, 2005). For low- and middle-income countries, remittances are a vital source of household income. In 2019 one in nine people—around 800 million globally—benefited from remittances (Mills, 2023). They can also serve to support local poverty reduction (Gupta et al., 2009) and economic growth (Meyer and Shera, 2017). In many countries, international remittances contribute a large proportion of national GDP (Figure 22). In the context of climate change, their impact can be transformative.

FIGURE 21. Remittance, FDI, portfolio flows, and ODA to LMICs (excluding China), 1990–2023f



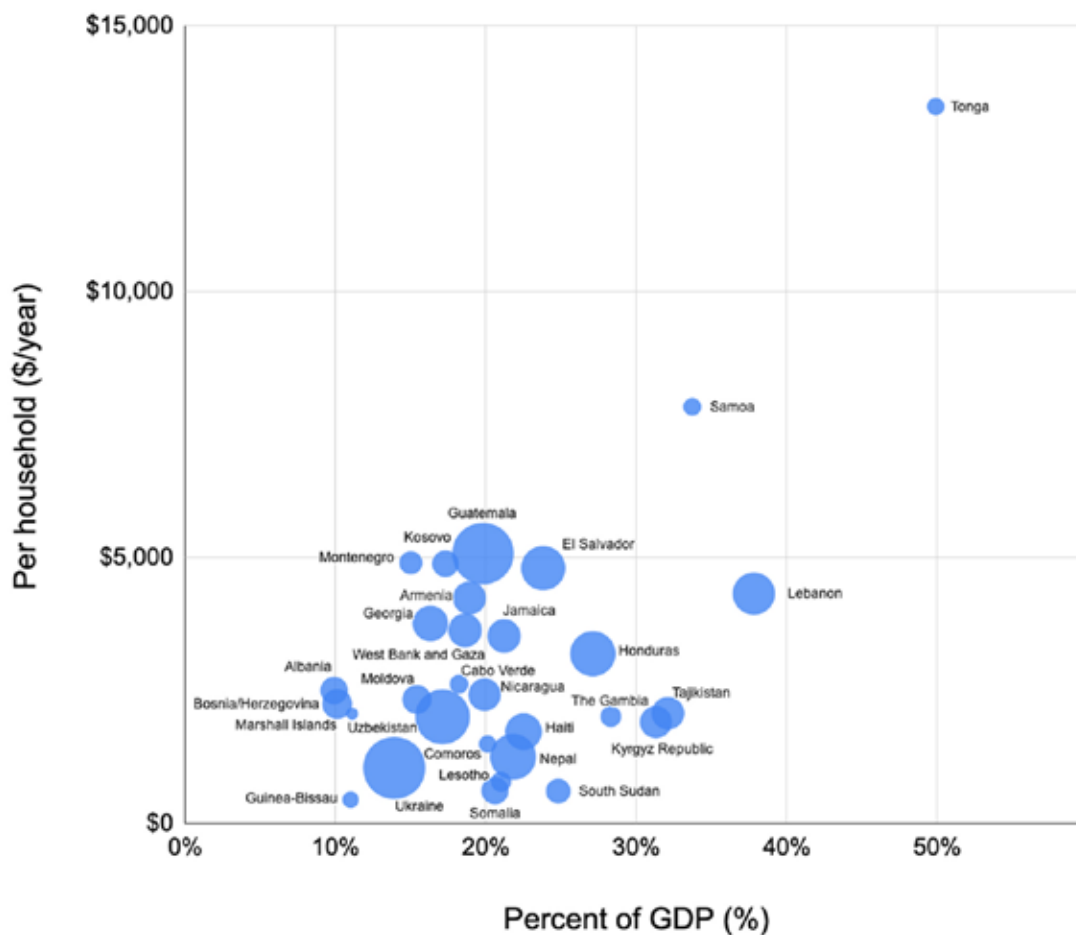
Source: Ratha et al. (2022: 9).

For some time, migration in the context of climate change was perceived to be an undesirable ‘last resort’ (see e.g., Penning-Rowsell et al., 2013). While the ‘migration as adaptation’ narrative is still under discussion (see e.g., Gemenne and Blocher, 2017; Vinke et al., 2022), migration is no longer considered solely a negative consequence of climate change to be avoided. Instead, migration is recognised to play a valuable role in community adaptation to the effects of climate change. Movement allows access to better employment opportunities, providing struggling communities with capital with which to maintain consumption, repair climate-caused damages, and proactively prepare for increased hazards.

32. The role of remittances

Remittances are the main adaptive vehicle of migration. Remittance flows support consumption needs, react to climate-related income shocks, and can be used to invest proactively in resilience-building initiatives. Possibilities in channelling remittances towards community-level adaptation efforts are beginning to be explored, and more research in this area would be useful. Policy that engages with diasporas to attract adaptation funding has high potential, but relies on trust.

FIGURE 22. Migrant remittances for the top 30 most dependent countries, as a percentage of GDP (2022)



Source: Mills (2023: 5).

For many, migration serves as an opportunity, allowing escape from poverty traps through access to higher wages in urban destinations (Bharadwaj et al., 2022b). In Bolivia, for example, Tacoli (2011) finds that internal remittances are vital for investment into agriculture, and are one of the main reasons for migration to be undertaken. The remittances sent back by *individual* migrants may allow *households* to stay in-situ where they would otherwise leave their home areas. Remittances can serve

as valuable regular payments, allowing households to plan outlay or, as is often remarked, obtain a form of insurance against shock (see e.g., Yang and Choi, 2007). In surveys in Bolivia, Senegal, and Tanzania, migrant-sending households not receiving remittances are unanimously agreed by peers to be those that are most insecure; and in the most vulnerable areas, remittances are identified as an essential element of food security (Tacoli, 2011).

While remittances do not always reach poor communities with less access to movement (Licuanan et al., 2015), they can have significant poverty-reducing effects (Gupta et al., 2009). In post-Soviet states, each 1 percent increase in remittances is found to have decreased poverty severity by around 2 percent (Abduvaliev and Bustillo, 2019); in a study of ten Asian developing countries from 1981 to 2014, a 1 percent increase in international remittances' share in GDP is found to reduce the poverty severity ratio by 16 percent (Yoshino et al., 2017). Detecting their impact on growth is challenging, however (Clemens and McKenzie, 2014).

Measures to improve the use of remittances, directing them where possible to public goods or towards activities that build household or community resilience, will be important given the difficulties of access and targeting which limit uptake of the most vulnerable into migration programmes. Increasing the positive ripple effects of participation can increase community-level adaptive capacity. This may however be difficult given the private and network-based nature of remittance flows.

General remittance practices

Decision-making in remittance use is contextually specific, but there are nonetheless some commonalities (Lipton, 1980). Remittances are first used to pay off debts, such as those taken out to finance migration itself, or from education or healthcare. They are then used on everyday consumption, some of which is 'conspicuous consumption' spent on houses, ceremonies, or imported goods to increase status. Remittances may also be used to finance the migration of further family members, or invested into production. Lipton (1980) proposes that investment is generally the fourth-largest use of remittances.

Remittance use choices follow similar patterns globally, with some slight variations according to context. In a study of the climate/migration relationship in India (Bharadwaj et al., 2022b), remittances are found to be used for, in order of priority:

- Daily consumption;
- Healthcare;
- Household items;
- Education;
- Ceremonies;
- Investments in savings, equipment, or livestock.

In Ghana, over fifty percent of remittances are found to be spent on daily consumption needs, with some households in climate-affected areas relying on remittances for up to ninety percent of their expenditure (Musah-Surugu et al., 2020). In other cases, pressing debt priorities are found to be a major remittance sink. In communities in Cambodia trapped by cycles of debt and climate-related shocks, around forty percent of remittances may be used to pay debts (Jacobson et al., 2019). In these cases remittances play an important role in maintaining a baseline level of wellbeing, and households would struggle to stay afloat without them; their potential for a transformation of adaptive capacity is however limited by the adverse circumstances.

Remittance-sending and use practices can vary even across relatively similar populations. In the case of the Pacific–New Zealand RSE scheme, for example, participants are found to demonstrate different remittance sending and use patterns, and these are found to change over time (Bedford et al., 2020):

- In Samoa, approaches to the uses of remittances generated by participation in the RSE Scheme have changed over time. While in early years of the scheme it was common for workers to regularly remit smaller amounts of money for day-to-day needs, village leaders in Samoa and RSE employers in New Zealand have urged saving remitted money for specific projects.
- Among participants from Fiji, some remitted regularly while others sent money only on request from family members. Regular remitters' money was used mainly for school-related costs; money by those remitting on request was used for specific one-off expenditures.
- Participants from Tonga were more likely to remit money regularly, often every week or fortnight, for use covering household consumption or school fees.
- In Kiribati, most workers sent around AU\$200–300 every fortnight.

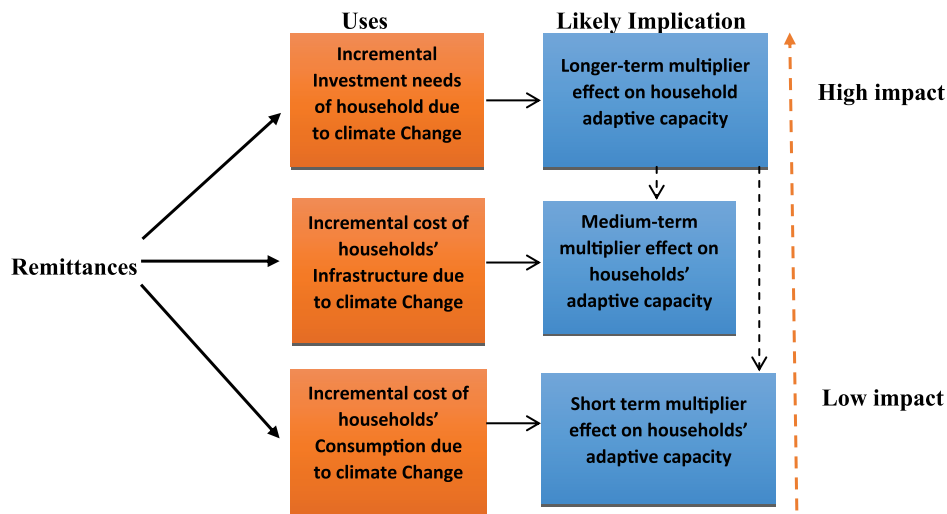
RSE remittances are identified as having positive ripple effects beyond the migrant's household. In some cases, RSE households support community initiatives, in particular through the payment of extended family members' school fees and the employment of community members for garden and household work (Bedford et al., 2020).

RSE participants are however often relatively 'wealthier' migrants, obtaining funds several times larger than they would have earned in their area of origin. Those moving in circumstances of greater distress can be less able to send money. In Dhaka City, climate-affected migrants are found to be far less likely to remit money than those not moving in circumstances unaffected by climate-related causes. Climate-affected rural-urban migrants can seldom visit their areas of origin; they have few contacts with family in their home area, due to an inability to afford regular phone credit; and they have limited ability to save money to remit (Adri and Simon, 2018). Similar patterns are found in Vietnam, where few internal migrants from the Mekong River Delta are found to remit money home, in part due to the high cost of living within urban areas (Entzinger and Scholten, 2022).

In Tajikistan, similar patterns are found to those noted by Bharadwaj et al. (2022b) in India. Remittances are spent on daily household consumption, such as food or consumer goods; then on major ceremonies, such as weddings and funerals; then on the repair of housing; and, increasingly, on investment in local infrastructure (Babagaliyeva et al., 2017). The conspicuous consumption demonstrated in Tajikistan’s use of remittances on ceremonies is found in many contexts. Remittances are ultimately the product of an investment in mobility by a household or community, and priorities at the household or community level will determine remittance use (Iskander, 2005). In many places, remittances are perceived to be valuable in part for their contribution to the recipients’ status (Lipton, 1980; Clemens et al., 2014). Assets and ceremonies are frequently not just functional, but also possess symbolic meanings of respectability and status (Rao et al., 2019). In Thailand, for example, remittances are found to be sent by migrant children to their families in order to enhance their family’s prestige in their community of origin (Porst and Sakdapolrak, 2020). In Tanzania remitted money is used to purchase cattle, a key status symbol, despite the fact that it is not always an efficient use of resources during times of drought or disease (Tacoli, 2011).

Conspicuous consumption is unproductive, but cannot be said to be ‘invalid’. As Iskander (2005) observes, remittances should be accepted to have a social value and aspect as well as a purely economic function. They are however sub-optimal uses of remittances when considering them through the lens of their usefulness to reducing climate vulnerability and increasing community resilience (see Figure 23). Community or external interventions to guide remittance spending towards productive or adaptive uses may, as discussed in a subsequent section, increase resilience and the longer-term wellbeing of the recipient community.

FIGURE 23. The effect of remittance use choices upon adaptive capacity



Source: Musah-Surugu et al. (2018: 184).

Conspicuous consumption is not universally a major use of remittances. In an in-depth study of remittance uses among beneficiaries of the RSE programme between Pacific Island States and New Zealand, conspicuous consumption is found to be small. Remittances were found to instead (Bedford et al., 2020):

- Cover daily living costs;
- Pay for education: RSE funds often supported the education of children beyond the direct family, distributing wealth within origin communities;
- Repair, build, or furnish their home: RSE earnings constitute a relatively large cash influx in a short space of time, and can therefore be invested in house improvements. In the Pacific, investment in better materials strengthens dwellings against climate hazards, decreasing vulnerability. Investment in domestic energy generation, including roof-mounted solar panels, is also found to occur, further increasing resilience;
- Purchase a vehicle (often for farming use);
- Savings: Saving has become more common, in part due to community encouragement;
- Post-disaster recovery;
- Investment in plantation or cattle farming, and/or small business opportunities.

RSE participants' low use of remittances for conspicuous consumption, and their increasing use for investment in household or community assets, is in part due to a change in the culture of remittance use. This subject is discussed in more detail in a subsequent section.

Remittances are widely used for daily costs, then are used for dwellings; debt; education; healthcare; or investment, in context-specific orders of priority. Unproductive 'conspicuous consumption' is a frequent use of remitted money.

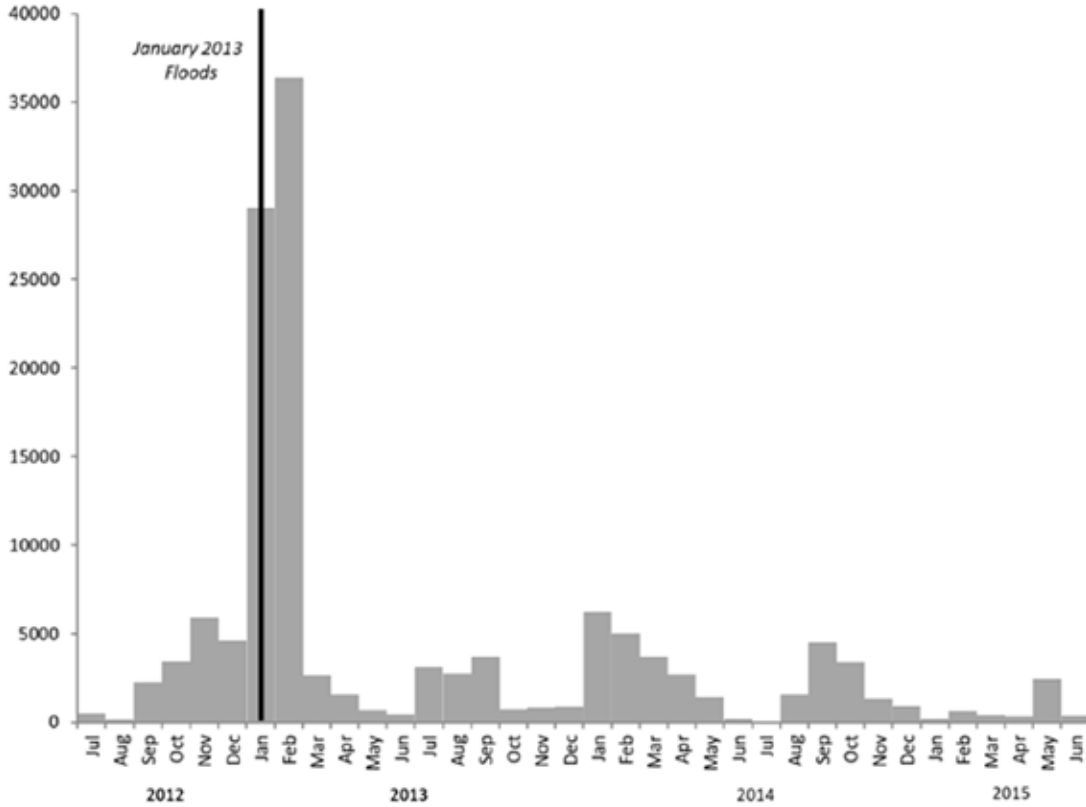
Responding to shocks

In crisis situations, remittances can play a crucial role in smoothing household income shocks and providing money needed for rapid adaptation (see Figure 25). This is an important function of international remittances (Bryant, 2019), and presumably—although there is less data on them—of remittances sent by internal migrants: when shocks occur they can respond quickly and in large amounts. For example:

- In a study of West African countries from 1985 to 2007, remittances are found to respond counter-cyclically to economic downturns triggered by negative precipitation shocks, smoothing consumption possibilities (Couharde and Généroso, 2014).
- During rainfall shocks in the Philippines, remittances are able to offset as much as 60 percent of households' losses (Yang and Choi, 2007).

- In coastal Ghana, organised international diaspora communities have coordinated to ensure that remittances are used to construct new accommodation after flood disasters, reacting to climate shocks (Hillmann et al., 2020).
- After floods occurred in Mozambique in 2013, remittances sent to affected villages through mobile networks spiked sharply, allowing rebuilding in the aftermath before dropping to lower levels (Batista and Vicente, 2021; see Figure 24).

FIGURE 24. Mobile money transfers (in MZN) received by rural households in flood-affected Mozambique area

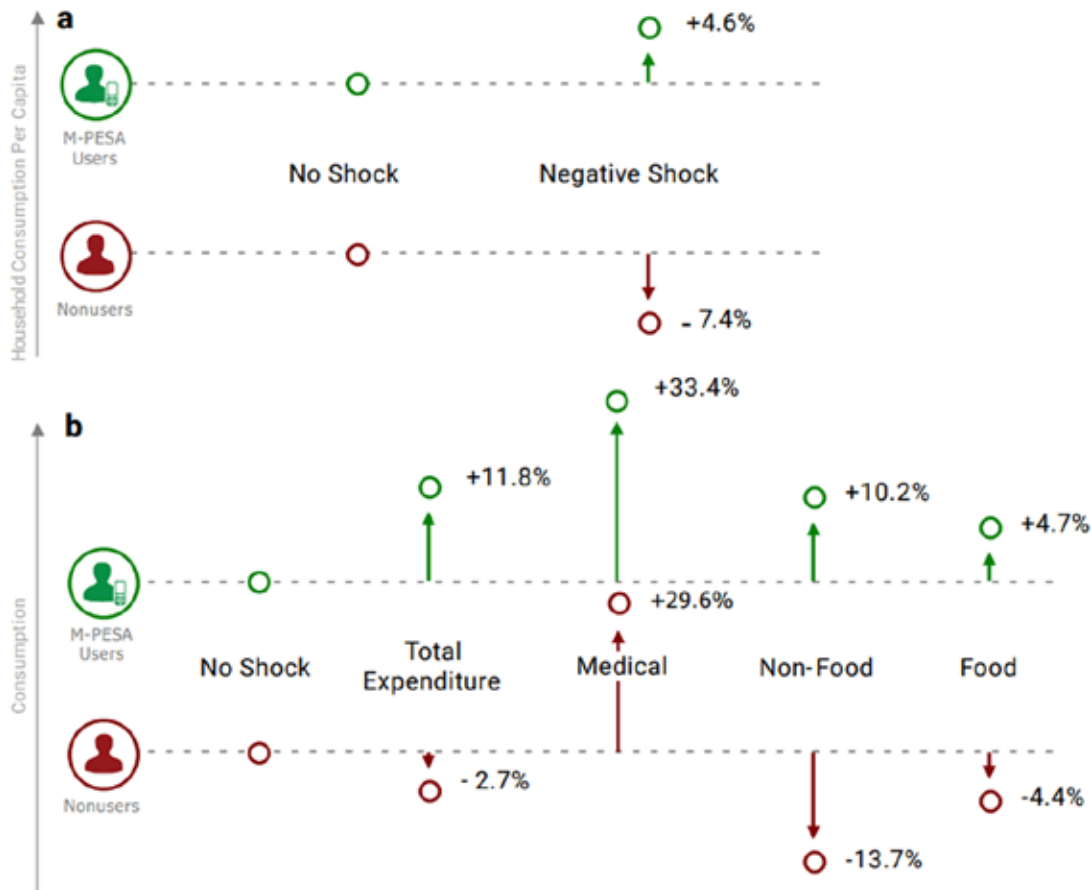


Source: Batista and Vicente (2021).

Similar findings are demonstrated in Kenya, where households with access to the mobile money platform M-PESA exhibit significantly higher adaptive capacity to economic shocks thanks to remittance-sending enabled by the app (Suri et al., 2023). Households with M-PESA are more able to smooth risks, and their consumption is less affected by shocks (Figure 25). Households with mobile money access are more likely to:

- Receive remittances;
- Receive more money in total; and to
- Receive money from a more diverse set of network relationships, reducing their risk.

FIGURE 25. Responses to shocks of M-PESA and non-M-PESA households in Kenya

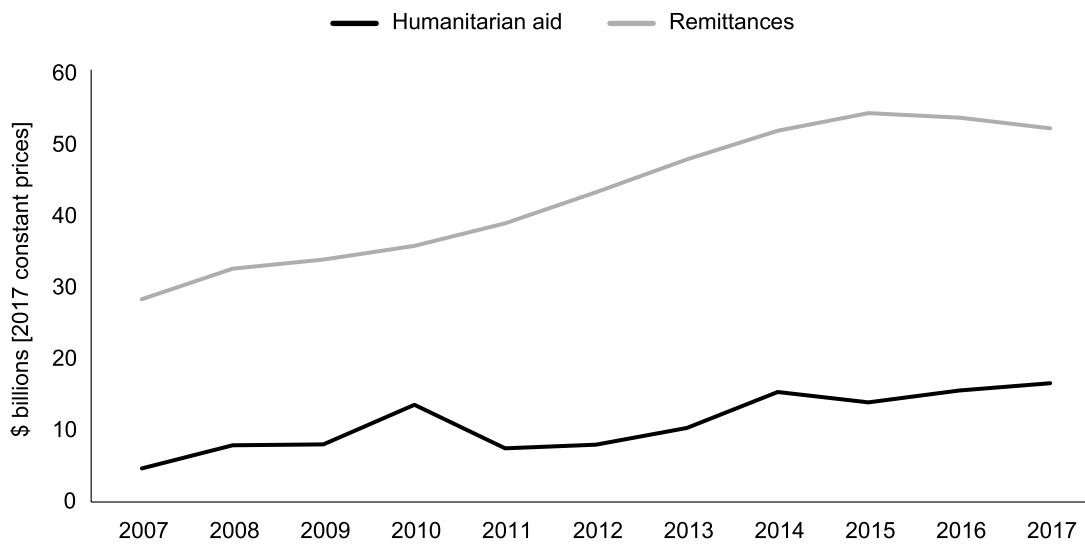


Source: Suri et al. (2023:17).

International remittance flows to struggling contexts are significantly larger than humanitarian funding (see Figure 26). In comparison with cash disbursement programmes, including in humanitarian contexts, remittances (Hagen-Zanker and Himmelstine, 2014):

- Are better targeted towards the poorest;
- Have wider coverage, including a greater share of poor and vulnerable households;
- Are typically larger in amount, and often significantly larger;
- Respond better to shocks, including sometimes being accessible shortly before a shock hits; and
- Are used differently by recipients, including being used on more than only basic needs.

FIGURE 26. Received remittances and humanitarian aid to the 20 largest humanitarian aid recipients, 2007–2017



Source: Bryant (2019: 2).

For countries with large emigrant stocks, remittances thus provide a very helpful boost in response to disasters (Mohapatra et al., 2009). Even in contexts in which formal institutions are unreliable, such as in the case of Somalia, far-reaching remittance distribution networks may have access to large proportions of affected populations. Remittances are a vital lifeline for communities affected by shocks. Following major natural shocks affecting, intra-household transfers may dry up. Sources of external remittances, working in markets uncorrelated with the area of origin, are however unlikely to be affected, and will often continue to flow (Pelham et al., 2011). Importantly, however, the flow of remittances is normally roughly steady, and while remittance-sending can be front-loaded to respond to a shock, the amount sent in a year is typically the same (Tänzler and Bernstein, 2022).

Remittances can play a vital role following shocks. They can respond quickly to disasters; have wide coverage even where formal institutions are failing; and can support recovery in counter-cyclical fashion, increasing resilience.

Anticipatory remittance responses to shocks

Remittances can play a vital role in helping households to ride out shocks. When money is sent *in anticipation* of a shock rather than during or after, results can be still better. This follows the lesson from DRR that “acting prior to the onset of predictable shocks is significantly faster, more dignified and more (cost) effective than traditional humanitarian response” (Gettliffe, 2022: 4) For example, in Bangladesh households that receive a WFP cash transfer when expecting floods (Pople et al., 2021):

- Maintain far better consumption levels (36 percent less likely to go a day without eating);
- Endure lower asset loss;
- Are less likely to engage in costly borrowing; and
- Report higher earning potential afterwards, than those that do not.

Despite this, no attempts have yet been made to pair remittance-sending with hazard warnings (Tesfaye and Ferris, 2022). Mercy Corps, working with the University of Georgetown, is preparing a project piloting the approach in Guatemala: this could provide useful lessons for replication elsewhere (Díaz López and Reid, 2022). Hazard warnings are themselves relatively new, although the UN's Early Warnings For All Initiative, which aims to ensure that by 2027 everyone in the world is covered by an early warning system (WMO, 2022b), should if successful make them more accessible. Red Cross and Red Crescent Societies have piloted Forecast-based Financing projects in more than 15 countries, including Kyrgyzstan, Vietnam, and Peru (IFRC, 2022; German Red Cross, 2017). Over 50 countries are now developing anticipatory action systems (Easton-Calabria et al., 2022). The programmes aim to:

- Identify when excess 'danger levels' are reached in a given locale, based on risk analysis and historical data;
- Select a package of support to be given when a 'triggering forecast' is made; and
- Allocate funding automatically when a pre-agreed danger level is exceeded, to allow quick and effective implementation.

In some cases, these efforts were more long-term; in Zimbabwe, for example, the Ministry of Agriculture worked with the World Food Programme to provide drought-resistant crops when forecasts of drought exceeded limits (Wilkinson et al., 2018).

Forecast-based financing programmes could be usefully paired with diaspora engagement to increase the amount of funding reaching at-risk communities, reducing costs to state actors and affected communities by allowing timely action. At present forecast modelling is under-developed, and while it is likely to be more efficient than a no-forecast approach over a long run (such as a decade), it is possible that due to inaccuracies it may be less efficient over a short run due to false positives and/or negatives (MacLeod et al., 2021). It is nonetheless worth exploring.

Conceivably, a system could be created to nudge diaspora members to send remittances shortly before an anticipated shock. This would be most easily managed through digital systems. One system would need to alert migrants—or their households in the hazard-exposed area of origin—to anticipated hazard impacts; another would need to allow them to quickly send remittances to their household in the place of origin. This could allow an alert to be received, and money sent, within a short amount of time, allowing those in the shock-affected area the maximum chance of avoiding major harm. When proven and scaled, such a tool could possibly be paired with a state matching system. This would save money for both migrants and for government actors who may anyway consider sending cash for disaster relief.

Proactive responses to shocks have better results than reactive responses. Diasporas and migrant populations could be supported in sending shock-anticipatory financing to their communities, allowing a better response to hazards.

Preparing for shocks

Most studies of remittance use in climate-affected contexts find that remittances are more frequently used for *relief* rather than *anticipatory action*. This may be because short-term needs, especially for subsistence, are typically too pressing. It may also be because remittance sums are often not large enough to invest in proactive adaptation (Wrathall, 2012; Tacoli, 2011; Atuoye et al., 2017). It may also be because communities have limited knowledge of their increasing exposure to climate-related shocks (Simpson et al., 2021). For example:

- In Ghana, remittances respond more quickly after climate shocks than government funding, but they are typically used in response to shocks rather than in preparation for them (Musah-Surugu et al., 2018).
- In a survey of 678 households in southeast Nigeria, Maduekwe and Adesina (2022) find that very few households used remittances for proactive intentional climate change adaptation.
- In Tajikistan, a lack of clear policies regarding migration and remittance use “contributes to irrational spending in view of adaptation measures”. Remittances are often spent repairing housing following disasters. Increasingly, migrants are beginning to invest in small businesses and community-owned farms, increasing resilience against shocks. There is little use of remittances for anticipatory adaptive action, and the Government of the Republic of Tajikistan does not yet consider remittances in national policy for use in adaptation to climate change (Babagaliyeva et al., 2017).

This is however not always the case. For example:

- In Burkina Faso and Ghana, households receiving international remittances—and especially remittances from higher-income OECD countries—are more likely to have houses built of concrete rather than mud, and to have greater access to communications. This can be crucial in coping during disasters (Mohapatra et al., 2009).
- In a review of several countries, Tacoli (2011) finds that households not receiving remittances are unanimously identified by peers as the most vulnerable in their community.
- In Mauritania, remittances have been used to construct solar-powered wells, creating employment and freeing women’s time for productive activities (Scheffran et al., 2012).
- In pre-war Syria, rural households receiving remittances are found to have ‘de-rocked’ land, allowing greater productivity; and to apply ten percent more farm inputs than

non-migrant households, increasing their yield by twenty percent. Remittance-receiving farmers were also more likely to diversify their incomes (Abdelali-Martin and Hamza, 2014).

- In the Hindu Kush Himalaya region, agriculture-dependent households are found to be more likely to invest in adaptive practices when they send a migrant than when they do not (Maharjan et al., 2021).

Even if remittances are seldom deliberately invested directly into pre-shock resilience-growing measures such as diversification, migration can allow de facto preparations for shocks. As Clemens et al. (2014) note, remittances should not be seen as a windfall households enjoy unexpectedly; instead, they are a form of investment households make into insurance. As an insurance mechanism, migration can be stunningly effective. In some contexts, rural-urban migration may have a greater positive effect on wellbeing than same-cost rural workfare programmes or even unconditional cash transfers (Lagakos et al., 2018). The impact of migration can be many times larger than that of development or poverty reduction programmes (McKenzie, 2017). In Senegal, around 69 percent of rural households are in poverty, and around 55 percent suffer food insecurity. Remittances are key for these households: over 30 percent of rural households receive internal or international cash transfers sent by migrant household members. These are used to cope with everyday needs and difficulties, provide a buffer against shocks, and save for investment (IFAD, 2020). The differences in preparation for shocks between remittance-receiving and non-remittance-receiving households are strikingly large (Figure 27).

FIGURE 27. Difference between remittance-receiving and non-remittance-receiving households in the adoption of agricultural risk management strategies in rural Senegal

| Households receiving remittances | Households not receiving remittances |
|---|---|
| 73 per cent have adopted a risk management strategy. | 22 per cent have adopted a risk management strategy. |
| For 40 per cent , this strategy consists of investing in supplies to diversify their activities through small-scale sales of everyday consumer goods (cosmetics, clothing, jewellery, etc.). | For 25 per cent , this strategy consists of waiting for aid from the Government or NGOs. |
| 65 per cent save, 45 per cent to offset potential agricultural losses. | 33 per cent save, 38 per cent to offset potential agricultural losses. |
| 45 per cent obtain credit, 33 per cent for agricultural financing. | 19 per cent obtain credit, 33 per cent for agricultural financing. |

Source: IFAD (2020: 17).

By allowing consumption to continue during down periods; increasing household financial predictability; and—in some cases—providing money for investments into education, infrastructure, or enterprise, migration generates development benefits which in turn increase resilience. With assistance, remittance use could be targeted still more explicitly at resilience-boosting activities.

Remittances are frequently too small to both meet immediate needs and be invested into adaptation. However, meeting consumption needs itself reduces vulnerability to shocks; and in many cases remittances can increase resilience through deliberate investment into diversification, dwelling upgrades, communications, and other adaptation methods.

Non-financial remittances

The benefits of migration are not merely financial. Knowledge gained by migrants can also help their households and communities in the area of origin, either by allowing migrants to obtain better jobs upon returning to the sending area, or by passing on good practices learnt elsewhere to transform aspects of the local economy (Clemens et al., 2014). In some cases, these practices can help to grow resilience to climate change, through direct application of resilience-building techniques; by freeing up time and assets through the introduction of more efficient practices; or through the development of more robust economic networks (Scheffran et al., 2012).

For example:

- Across the six countries studied by the MECLEP project, at least 40 percent of migrant-sending households gained new skills through migration, and (to a lesser degree) used and shared them (Melde et al., 2017).
- In Thailand, translocal networks enabled by migration are found to create opportunities for improved agricultural processes through the diffusion of knowledge. Migration-enabled knowledge transfers in areas such as sugarcane and rice farming can contribute significantly to adaptation, driving bottom-up innovation. The shift from transplanting to rice broadcasting and cutting is highlighted as a particularly clear-cut and beneficial effect of migration: return migrants first introduced the practices after learning them elsewhere, and their efficacy led them to spread rapidly despite a lack of external support (Rockenbauch et al., 2019).
- In rural India, farm households with a migrant member are found to be considerably more likely to demonstrate high levels of climate adaptation than those without one, due to increased access to knowledge of better crop varieties, new methods of irrigation, and soil and water techniques, as well as financial remittances (Jha et al., 2017).
- In Northwest Africa, a key component of migration's contribution to adaptation is found to be the acquisition of skills and knowledge (Scheffran et al., 2012).
- In Vietnam, relatively few internal migrants from the Mekong River Delta area are found to send financial remittances. Instead many report that the greatest benefit from migration lay in skills gained during movement, which opened up better employment opportunities with higher incomes. Nearly forty percent of migrants claimed that they had also passed the new skills on to community members (Entzinger and Scholten, 2022).

Facilitating internal and regional migration can therefore be a means of encouraging the spread of beneficial practices, potentially increasing community resilience. Remittances can also be ‘political’ in nature: migrant networks can lobby local, national and international actors to assist affected populations and promote vulnerability reduction plans (Gemenne, 2022). In Ghana’s coastal flood-affected Ewe community, for example, diaspora members coordinate through regular meetings to support development and adaptation within the community still in the area of origin. This can see them take on important political roles; some diaspora members have been elected as chiefs despite their absence, and connect local community structures with international NGOs and government officials (Hillmann et al., 2020).

Where possible, the remittance of human capital for the growth of resilience should be encouraged. With regard to international migration this can be undertaken in two main ways: by building training components into migration programmes, and by encouraging diaspora networks to bring their knowledge to bear in their countries of origins to support development. With regard to internal migration, the spread of good ideas could be assisted through organised exchanges in the place of origin, with migrants given a platform or network within which to share new practices.

Building training into circular migration programmes.

Training components can be valuably integrated into formal circular migration programmes, which can increase the benefits of the programme for all parties (Zimmermann, 2014; Newland et al., 2008). This is already undertaken in several programmes, but few target climate-vulnerable populations, and very few attempt to directly increase adaptive capacity through the training modules included. Where circular migration programmes are tailored to provide access to communities at risk of climate hazards, the integration of migration with training can help to increase their resilience.

In the case of participation in New Zealand’s RSE programme, for example, workers are supported in gaining useful skills during migration. Technical knowledge including carpentry, mechanics, and solar power installation are highly valued in areas of origin, and can all be used to increase resilience to climate change effects. In agriculture, RSE workers gained knowledge of crop management techniques which could be beneficially transferred to the home environment. Not all participants felt that they had gained transferrable skills, however, indicating that ongoing engagement with migrants to ensure the relevance of training is necessary (Bedford et al., 2020).

The TCLM between Colombia and Spain also successfully incorporated training modules, preparing participants to establish and manage businesses upon their return (Hooper, 2019). Other programmes, such as the EU’s Seasonal Worker Programme, could incorporate similar training, especially if migrant workers are expected to be rehired multiple times (Hooper and Le Coz, 2020).

The Korean Employment Permit System (EPS) for temporary non-professional employment also integrates training into its workflow. The EPS is primarily a labour migration programme, bringing

between 40–50,000 workers into the country each year from 16 partner countries through bilateral relationships. When the programme was introduced in 2005, it was expected that workers would use the skills acquired to return to Korea to undertake the same job at a higher level of expertise. Instead, returnees have typically undertaken a different job on subsequent returns. This has led to a shift in training, instead focusing on equipping migrant workers for employment in their countries of origin. Only around 3 percent of EPS participants benefit from training opportunities, but this has still amounted to over 30,000 workers receiving training since 2010 (EMN, 2022). Among the 16 sending countries are Bangladesh, Cambodia, and Pakistan—all countries heavily affected by climate change-related impacts (ILO, 2015). If an element targeting particularly vulnerable communities was introduced to the programme, its training components could also be focused on increasing adaptation capacities.

While the primary benefit to migrants and their sending communities from participation in circular labour migration programmes is likely always to be the financial remittances earned, pathways’ development benefits could be enhanced by giving participants the option of attending training in practices useful in their areas of origin. Most circular migration programmes are in relatively low-skilled areas, such as agriculture; good practices in, for example, water conservation and fertilisation could nonetheless be usefully included, targeted towards climate change adaptation areas in both sending and receiving countries. Similarities of climate and crop are not necessarily required for valuable knowledge transfer to be possible, as experiences in the Pacific indicate (Dun et al., 2023). To maximise the impact of circular migration schemes upon adaptation knowledge transfer:

- In-job experiential training and person-to-person exchange is key;
- The possibilities of bringing together participants from a diverse range of countries should be enhanced, allowing an exchange of knowledge across migrant workers from similar professions in different contexts;
- In agriculture, especially, connection to agricultural extension services in the area of origin is highly useful, to assist migrants in putting into practice the lessons learned;
- Training organisers should liaise with regional or country contacts to consider the training areas with the highest benefit to climate resilience in the area of origin.

Incorporating training into circular labour migration programmes can provide migrant workers with the skills needed to become more resilient to climate change in the area of origin.

Maximising the impact of diaspora networks

Secondly, established diaspora networks can be mobilised to support actors remaining in the area of origin in undertaking climate adaptation, including in establishing businesses capable of building community resilience.

Diaspora communities can have a major impact through their transmission of knowledge back to their communities of origin. One study finds that a 10 percent increase in the stock of emigrants to a country exporting a given product is, on average, associated with a 2 percent increase in the likelihood that the migrant-sending country will itself come to export that same product in the next ten years, ‘from scratch’. This is the result of knowledge in that product area brought back to the country of origin by migrant workers (Bahar and Rapoport, 2018).

Increasing efforts to maximising the benefits of diaspora knowledge are being made by the UN and EU. This follows longstanding interest from developing countries with large diasporas to attract knowledge and resources back for development purposes. In Germany, GIZ supports the ‘Returning Experts’ programme, intended to assist diaspora experts in carrying out short development-focused engagements in their countries of origin. These assignments last up to six months, funded by the German government, and cover sectors including financial advice, legal services, and health. Since 2016, more than 360 diaspora professionals have offered voluntary short-term work (Shayan, 2021). Numerous diaspora engagement initiatives focused on green areas have been identified by the European Union Diaspora Facility (2021). These include:

- SPaKTEN: Sudanese Partnership for Knowledge Transfer by Expatriate Nationals, a diaspora organisation established to address ‘brain drain’ in Sudan. The initiative recruits Sudanese diaspora experts (from a 215-member network, based in 34 countries) to provide short-term consultancies to different Sudanese sectors, including engineering, agriculture, and the environment.
- Project Return: An initiative established by the Association of Thai Professionals in Europe, based in Denmark. The project seeks to encourage Thai emigrants with skills useful to development to return to Thailand to share their knowledge, especially in science and technology, agriculture, and forestry and the environment.

Targeted engagement with long-term diasporas should be sought to increase the transfer of knowledge useful to adaptation. This is likely to often be cheaper than merely hiring consultants—due to the affective links between diaspora members and their countries of origin—and also frequently more effective, given diaspora members’ deeper knowledge of the context of their country of origin. In the case of shorter-term circular migration, training in skills useful to adaptation should be undertaken where possible. This enhances the effectiveness of labour migration pathways for development and climate resilience, and may also be cheaper for funding countries than undertaking training in countries of origin, given the larger pool of technical experts that can be drawn upon.

The knowledge possessed by diasporas can contribute to development and to climate adaptation. Efforts to engage with diasporas for knowledge transfer should be pursued.

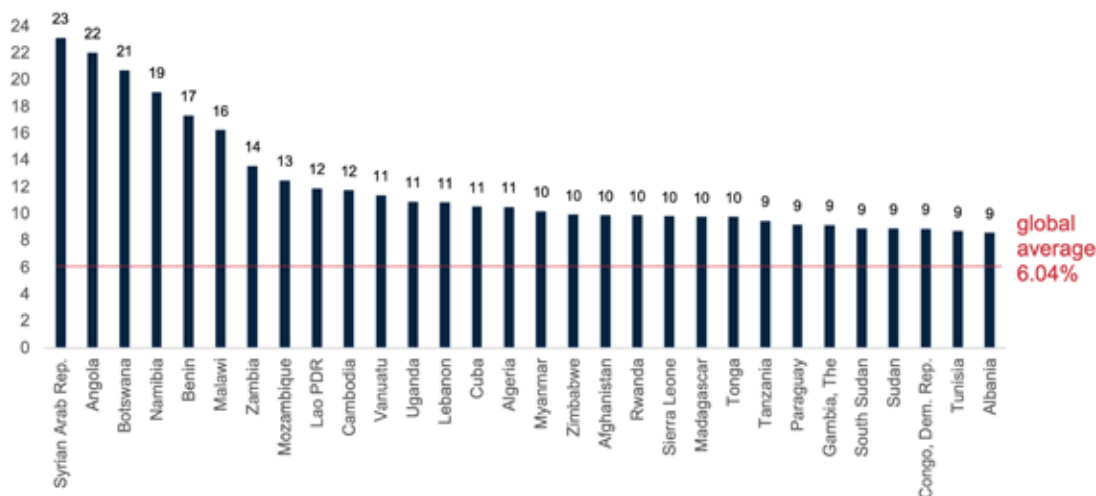
33. Enabling the flow of remittances

Reducing the cost of sending

Making it easier to send remittances increases the amount of money that reaches those who need it. When attempting to maximise the effectiveness of migration and remittances for climate adaptation, this is thus a crucial area of work. The literature holds numerous examples of how remittance-sending was made harder by policy changes or shifting circumstances; it holds fewer examples of ways in which remittance-sending was intentionally made easier.

The Sustainable Development Goals include the target of reducing remittance costs to less than 3 percent by 2030, and of eliminating remittance corridors with costs higher than 5 percent (United Nations, 2022: 10.C). In the second quarter of 2022, the average cost of sending US\$200 to low- and middle-income countries was 6 percent, twice as high as the SDG target (Ratha, 2022). The cost of remittance-sending is elevated by post-2001 “Know Your Customer” legislation, intended to restrict terrorist access to international financial networks. For many migrants, especially undocumented migrants without adequate documentation, access to formal banking systems is made more challenging by this legislation, pushing them towards informal channels with higher sending costs and more risks (Cirolia et al., 2022). This inevitably makes it harder for remittances to be sent back to areas of origin for use in development or climate adaptation.

FIGURE 28. Cost of remittance-sending to selected countries (cost as % of remittance value, 2020)



Source: Raga (2022).

The reasons for high remittance-sending costs vary, and are often difficult to address (Olivié and Santillán O’Shea, 2022):

- **Informality:** remittances are often sent through informal channels. The formal transfers market has thus seen limited competition, resulting in higher prices.
- **Financial exclusion:** both migrants and recipients in the Global South often have limited access to formal financial institutions. With access, remittance-sending could be one of many formal financial services, with lower commission rates due to competition.
- **Digital exclusion:** both remittance senders and recipients may lack digital access, cutting them off from cheaper sending services.
- **Inadequate digital and financial regulatory environments:** inadequate regulatory frameworks in remittance-receiving countries limit digital and financial inclusion.
- **Inadequate infrastructures for formal remittances:** a lack of infrastructure for formal financial and digital activities—such as ICT infrastructure—limit options for senders and receivers.
- **Lack of trust:** remittance senders and receivers may prefer informal channels due to their familiarity, avoiding initiatives intended to create greater financial and digital inclusion.
- **Foreign exchange margins:** in sending remittances, a financial commission is demanded by agents, and foreign exchange fees. The foreign exchange margin may by itself be only barely below the SDG remittance cost target of 3 percent.
- **Lack of information:** many migrants have limited knowledge of the options offered by remittance service providers, and so are unable to seek out the cheapest agent.

Because of higher costs migrants often—although not always—transmit money through informal channels. Government actions can have an impact on choices of remittance-sending options.

For example:

- In Tajikistan, 87 percent of migrants send money through official channels, such as banks. 12 percent send money through friends and 1 percent bring money back personally when returning. In 2014, USD 3.83 billion was sent from Russia to Tajikistan through official channels. In 2016, however, the Tajikistan’s National Bank declared that money could only be transferred in Tajik Somoni, at an exchange rate disadvantageous to those remitting. This led to an increase in money being sent through irregular channels, increasing the risk of theft or corruption (Babagaliyeva et al., 2017).
- In the Pacific, remittance-sending has been made easier through the ‘Ave Pa’anga Pau’ product, developed by the Tonga Development Bank and the World Bank. This gives migrants access to a secure online cashless remittance-sending platform, almost halving the cost of sending remittances home (Hawke, 2020).

- In IGAD, a UNCDF (2022) evaluation of policy affecting remittance-sending in the region concluded that regional harmonisation of remittance policies, even without a regional monetary union, could create significant opportunities for the development of regional financial markets by encouraging the use of formal remittance channels. Harmonisation would reduce investment costs for remittance service providers and allow providers to access new markets. This would enable more competition, further driving down costs, and incentivising and enabling service providers to build more viable business models. In 2021, the average cost of sending remittances to IGAD countries was 8.5 percent; of the US\$8.8 billion transferred to IGAD in 2021, an estimated \$753 million was lost to fees.

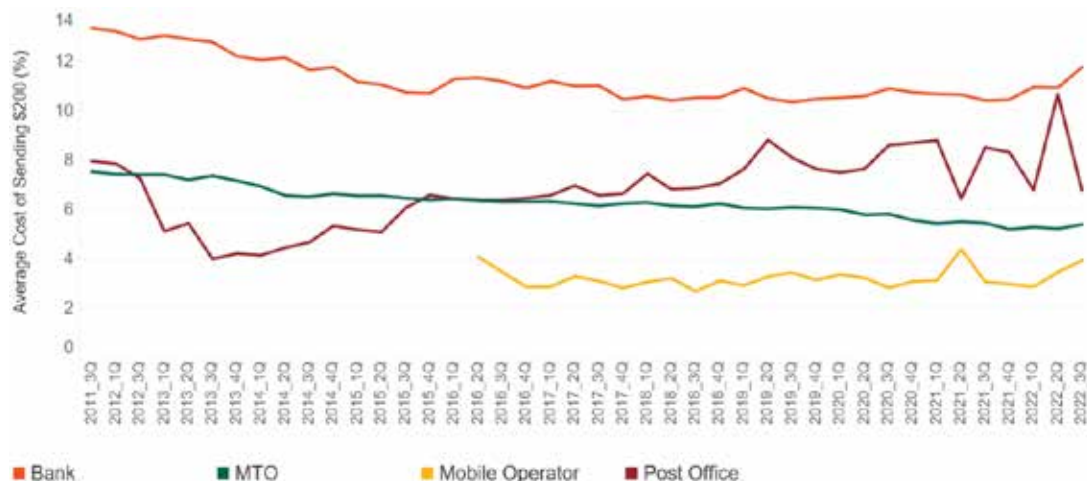
Emerging fintech initiatives are beginning in some contexts to disrupt legacy banking systems, presenting migrants with cheaper and more accessible ways of remitting (Cirolia et al., 2022). The cost of sending money via a bank is estimated to be an average of 11.7 percent (in Q3 2022); via a post office, 6.8 percent; via money transfer operators, 5.4 percent; and via a mobile operator, only 3.9 percent (World Bank, 2022c). Prices fluctuate; a 2018 study, for example, suggests that the cost of sending mobile money may be the cheapest available, at only 1.7 percent (Naghavi and Scharwatt, 2018). In Kenya, the cost of sending internal remittances via M-PESA is 30 percent of the cost of sending via a postal bank or informal bus delivery, and 46 percent of the cost of sending via Western Union (Suri et al., 2023). Mobile operators currently account for less than 1 percent of the total remittance sending market, however (World Bank, 2022c).

FIGURE 29. Average cost of remittance sending by region: cash vs. digital services



Source: World Bank (2022d: 17).

FIGURE 30. Average cost by Remittance Service Provider type



Source: World Bank (2022d: 18).

Reducing the cost of sending migrants not only saves migrants money, but would also spur the sending of greater total amounts. A one percent reduction in the cost of formal remittance-sending is estimated to lead to an increase in total remittances sent of around 1.6 percent (Ahmed et al., 2021b). This is especially valuable for female migrants, who often send smaller amounts more often, and therefore pay more in sending fees (Tänzler and Bernstein, 2022). Furthermore, increased access to cheap remittance-sending methods—such as mobile money networks—may also make households more likely to send a migrant in the first place. This is because reducing the transaction costs of immediate long-distance transfers improves the viability of migration as a form of long-distance insurance. This allows households to invest in migration instead of less productive—and potentially more risky—activities such as local subsistence agriculture. In Mozambique, the introduction of mobile money access saw migration out of rural areas increase, initially from villages affected by floods and in need of ex-situ adaptation options, and then by households in the wider population (Batista and Vicente, 2021).

If brought to scale, technologies allowing cheaper and more reliable remittance-sending could be of particular use in fragile and conflict-affected states, where they could allow remittances to support livelihoods and post-conflict development, and respond to shocks in low-state capacity environments (Isaacs et al., 2017).

The cost of sending remittances reduces the effectiveness of migration as an adaptation to climate change; disincentivises remittance-sending; and incentivises the sending of remittances via riskier informal channels. Reducing the cost of remittance sending, e.g., through support for digital channels, can increase access to cash flows for adaptation.

Lessons learned during recent years

Despite the effects of Covid-19, and deterioration in the global economy as a result of Covid-19 and the war in Ukraine, remittance flows have remained resilient over recent years.

In 2020 remittance amounts to low- and middle-income regions declined from US\$722 billion to US\$711 billion; they rebounded rapidly to US\$781 billion in 2021, however, and rose further to US\$794 billion in 2022. They are expected to rise further in 2023 (Ratha et al., 2022). Remittances' resilience during the Covid-19 pandemic stems from migrant workers' commitment to supporting their families' back home, and resourcefulness in doing so; actions taken by public sector and international bodies to ensure the continued flow of remittances, including the promotion of digital channels; and the unprecedented switch to digital and regulated channels for remittance-sending, facilitating the development of linkages with other digital financial services (IFAD and World Bank, 2021).

IFAD and the World Bank identify the following lessons learned regarding remittance-sending practices during the Covid-19 pandemic. All are also relevant to practices during climate-related crises:

For migrants and migrant-sending households:

- Remittances provided a robust countercyclical income stream, crucially supporting struggling households in low- and middle-income countries.
- Both migrant workers and remittance-receiving families should be better supported by social safety net programmes; migrant-sending families may have different needs to non-migrant households.
- Migrants sacrificed long-term financial goals to meet immediate household needs.
- Migrants with better knowledge of digital and financial literacy could take more effective actions during the crisis. Vulnerable groups—such as women and refugees—were however less likely to have this knowledge.
- Vulnerable groups including women, rural, and refugee populations require assistance in accessing digital remittance channels: these can be a path to financial inclusion, or can be a barrier to it.
- Risk-based approaches taken by remittance service providers allowed faster responses to service provision needs; remote on-boarding of customers was also effective.
- Financial services linked to remittance-sending networks is needed for longer-term resilience.
- More micro-level information is needed regarding remittance behaviours, and the triggers and impediments to digital remittance-sending approaches.

For the private sector:

- Digitalisation was driven by collaborative action with regulators.
- Private sector buy-in required open and honest communication by the public sector.
- Emergency measures need clearly defined expiry dates to allow business planning.
- Digital transfer volumes remained above pre-pandemic volumes even after emergency measures expired.

For public authorities:

- During crises authorities face a time crunch. An enabling environment should be created *before* a crisis, preparing payment infrastructures for use when most needed.
- Digital remittance channels are crucial to enable them to flow in crisis situations. Digital systems can also have positive effects for financial inclusion and the empowerment of marginalised groups.
- Digital systems are however not easy to access for everyone; cash-based remittance services should also be supported in crises, especially for marginalised groups.
- Improved data collection is necessary to ensure informed policymaking, especially during crises.

Digital systems are likely to be of particular use in climate-affected contexts. Where sudden-onset events occur, they allow a rapid transfer of money in response. In slow-onset cases, digital systems can—with support—allow broader access to remittance flows for those most affected, such as marginalised and rural communities struggling with reduced agriculture yields. These systems must be supported in scaling up before crises occur, including in accessing marginalised groups. Given the evidence that remittances are a crucial lifeline for households during shocks, this is a sensible approach likely to ultimately save states considerable resources by facilitating increases in household resilience.

The Covid-19 crisis demonstrated the value of remittances as a countercyclical support to households and communities. Digital remittance-sending channels, and governance systems established *before* crisis hits, are crucial to allowing adequate responses.

34. Channelling remittances towards resilience-building activities

Given the size of remittance pools and flows, it is unsurprising that governments and development actors are increasingly interested in attracting and directing remittances towards public goods. “Directing” remittances towards productive projects is however often challenging. While remittances can frequently function as a safety net, those earning and sending them are typically not the most vulnerable in a community (Hagen-Zanker, 2015). They will inevitably have their own preferences for how to spend the money they have earned.

Remittances can thus in some contexts be seen as a complement to official development assistance or humanitarian aid, but must not be thought to respond to the same incentives: they operate within micro-economic considerations, and are targeted to families of those sending the remittances (Bryant, 2019). This being the case, efforts to channel remittances productively risks “teeter[ing] on a conceptual contradiction” (Iskander, 2005: 249), attempting to reconcile a view of development as the resolution of market imperfections with a view of development as a process of social change. Migration and remittances straddle the two views, and re-allocating resources intended for family support to capital earmarked for public goods requires deliberate action charged with social meaning. Ratha (2017: 77) argues that “remittances are private funds that should be treated like other sources of household income”, and that states should seek to increase savings or improve expenditure allocation by improving the overall investment climate rather than targeting remittances.

Even where remittances are not visibly invested in productive activities, furthermore, they may nonetheless generate positive outcomes. Families may for example de facto invest remittances in education or housing, activities that either maintain a necessary baseline of wellbeing or produce positive yields over a longer timeframe (Lucas, 2019).

Options are available to increase the climate-adaptive potential of remittance streams, and to increase their size. They require deep engagement with those sending remittances, however, and an understanding of their priorities and perceptions. Remittances cannot be directed like water through pipes. Instead, efforts to tap them for climate adaptation must offer diaspora members trustworthy projects which either offer valid returns or meet their own goals for supporting development in their communities and countries of origin. Household members receiving remittances, and deciding what to do with them, can also be engaged with to support climate-adaptive activities.

Remittances can be directed to support climate adaptation, but this may not be easy. Channelling remittances for productive results requires engagement with the diaspora; reliable governance systems; and either acceptable yields for the investor, or development goals which they can support.

Working with remittance recipients: voice, climate literacy, and remittance use choices

In order for remittances to be used to increase climate resilience, household members responsible for deciding their uses must have adequate access to information. Household decision-makers may benefit from the support of external actors able to share best practices with them; from communication campaigns; and from peer networks, NGOs, and civil society organisations facilitating the exchange of successful adaptation techniques.

In attempting to work with households to influence their choices of remittance use, it is important that external actors take context into account. The households receiving and making choices

regarding remittance use vary. In a review of Latin America (Acosta et al., 2007), some countries' remittance-receiving households are found to be concentrated in the upper income quintiles, while in other countries remittance-receiving households belong mostly to the lower income quintiles. The ages of remittance-receivers also vary by context; in North Africa, recipients of remittances in Egypt, Algeria and Tunisia are on average aged over 35, whereas in Morocco half are under 35 (Olivie and Santillán O'Shea, 2022). Variations in remittance-receivers' context and identity mean that their incentives and challenges also vary. Understanding these incentives and challenges requires genuine engagement with household-level decisionmakers or with community representatives holding deep knowledge of households' situations and needs.

Within households, decision-making roles also vary. In different settings, different actors may have more or less voice and decision-making power, and should be more or less targeted by information efforts or interventions intended to increase agency. A baseline survey for a World Bank project in the Western Balkans, for example, found that while women were not less financially astute than men, male remittance-senders typically dominated decision-making regarding spending, earmarking money for major purchases but leaving their remittance-receiving wives to manage day-to-day expenditure (World Bank, 2021d). In these cases, women's voices were marginalised. In all contexts the acts of sending and receiving remittances, and the negotiations that this entails regarding remittance amounts, their use purposes, etc., are embedded within existing gender relationships and other power hierarchies. In Thailand, for example, the senior male in a household frequently makes the final decision on remittance use; if he does not support adaptation practices, they are unlikely to happen (Porst and Sakdapolrak, 2020).

Knowledge of best practices in remittance use is important to ensuring that they have a high impact. This requires both contextual knowledge and, potentially, outside assistance by actors with wider knowledge bases. In Africa, several studies suggest that 'climate literacy' is low, inhibiting responses to climate change (Simpson et al., 2021; Amakrane et al., 2023). 'Climate literacy' is defined (Amakrane et al., 2023) as:

- The recognition that climate change is taking place, and that it is human-caused;
- The ability to locate and assess scientifically credible information regarding climate change and its impacts; and
- The use of scientifically credible information in relevant decision-making.

Inadequate climate literacy makes informed decisions regarding mobility choices less likely; it can also lead to poor adaptation decisions. Smallholder farmers are found to often make their decisions—including the selection of crop types; the purchase of inputs; and choices regarding the cropping calendar—based on the previous season's weather patterns, making them vulnerable to increased variability (Guido et al., 2020; Ceci et al., 2021). Even where remittances are invested in measures that *could* increase resilience, they may not be effective adaptation choices. For example:

- In India, households are found to sometimes use remitted money to drill borewells, a strategy which is ecologically and financially unsustainable (Singh and Basu, 2020).
- In Honduras, remittances from migrants to the US can be invested in livestock populations which cause land degradation, diminishing or eliminating the benefits gained from agroforestry systems and harming soil health, increasing vulnerability to climate shocks (Herrick et al., 2019).

This suggests that climate literacy should where possible be increased in order to support adaptation. Actions in this sphere could include (Simpson and Rosengärtner, 2023):

- Increasing awareness of anthropogenic climate change, its impacts, and everyday adaptation options;
- Targeting vulnerable and marginalised populations, especially those working in sectors exposed to climate shocks, such as agriculture;
- Targeting women with information relating to climate hazard exposure, and opportunities to access adaptation skills;
- Improving localised and timely weather and climate data, and ensuring that it is locally owned; and
- Ensuring that climate-related information is shared, accessible (e.g., in local languages, and shared through community networks), and actionable.

It should be noted however that climate literacy is not universally lacking, and that efforts to adapt are undertaken in many places, with greater or lesser success depending on the information and resources available (see e.g., Toulmin, 2020; Maharjan et al., 2021; Jha et al., 2017).

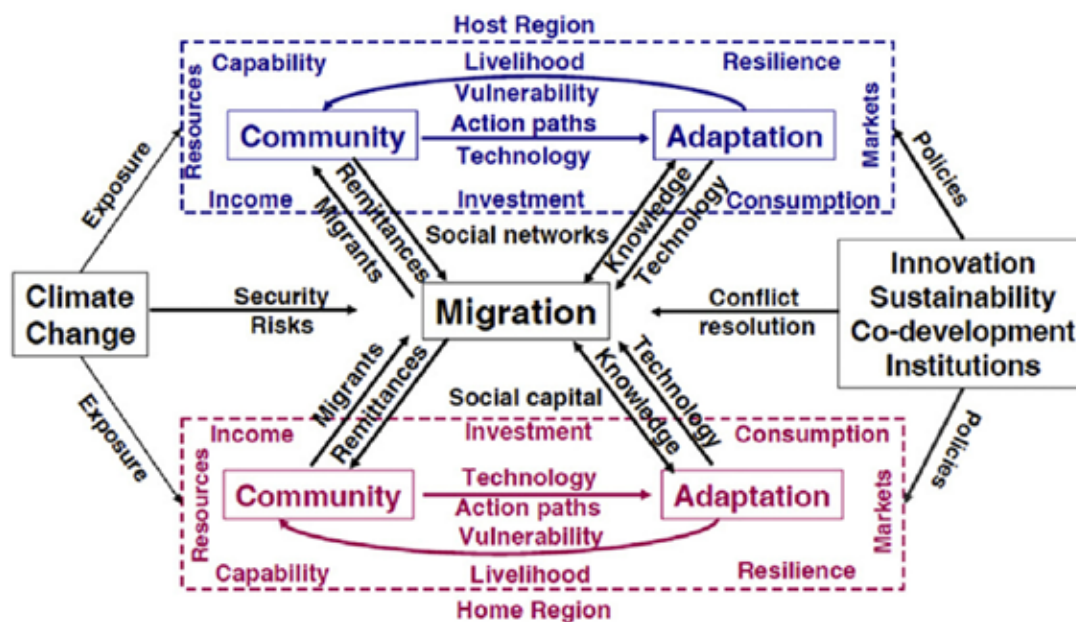
Furthermore, local contextual factors, including and perhaps especially cultural attitudes to risk and disaster, must also be taken into account. Understanding household perceptions of climate change, and of climate change adaptation techniques, is crucial: a blanket approach prioritising the simple sharing of information will often not work. For example:

- In parts of Niger a lack of rain is considered the result of an excess of modernity, and the discussion of future drought is taboo. In such a context adaptation and preparations for drought are difficult and must be undertaken with sensitivity (Rain, 2001).
- In parts of Bangladesh disasters are considered a divine judgement for which preparations are futile (Ayeb-Karlsson et al., 2019).
- In Nigeria, household-level discussions on the usages of remittances indicate that climate change adaptation is not a significant aim of spending (Maduekwe and Adesina, 2022).
- In Guatemala, Díaz López and Reid (2022: 13) find that although ninety percent of surveyed individuals said that they could access some—although often inadequate—climate information through some means, “there is no culture of prevention”, leading to reactive rather than proactive activities.

This can mean that external interventions are necessary to support alternative uses of remittances and to encourage adaptation. This is not guaranteed to succeed, however. Externally driven adaptive approaches do not always work, and may even cause harm (Schipper, 2020). The anticipation of future events is uncertain, and perceptions, fears, and power imbalances can result in vulnerable populations becoming still more vulnerable (Paprocki, 2018). In one case in Bangladesh, for example, a World Bank/WWF project anticipating the destruction of coastal rice agriculture by sea-level rise and saltwater intrusion sponsored a shift to shrimp aquaculture. This was intended to provide durable livelihoods in an increasing challenging context. Because shrimp-farming is less labour-intensive than rice farming, however, this intervention forced large numbers of workers to migrate for work (Paprocki, 2019).

Adaptation processes, making use of remitted money and attempting to help households to have agency in their mobility decisions, must be viewed as dynamic processes rather than technocratic operations (Bertana et al., 2022). They must also be themselves adaptive, responding to local market conditions and choices within the local and wider community, as well as to climate pressures (see Figure 30 for a sketch of the relationship between migration, adaptation, and wider factors).

FIGURE 31. Framework for integrating migration into community adaption to climate change

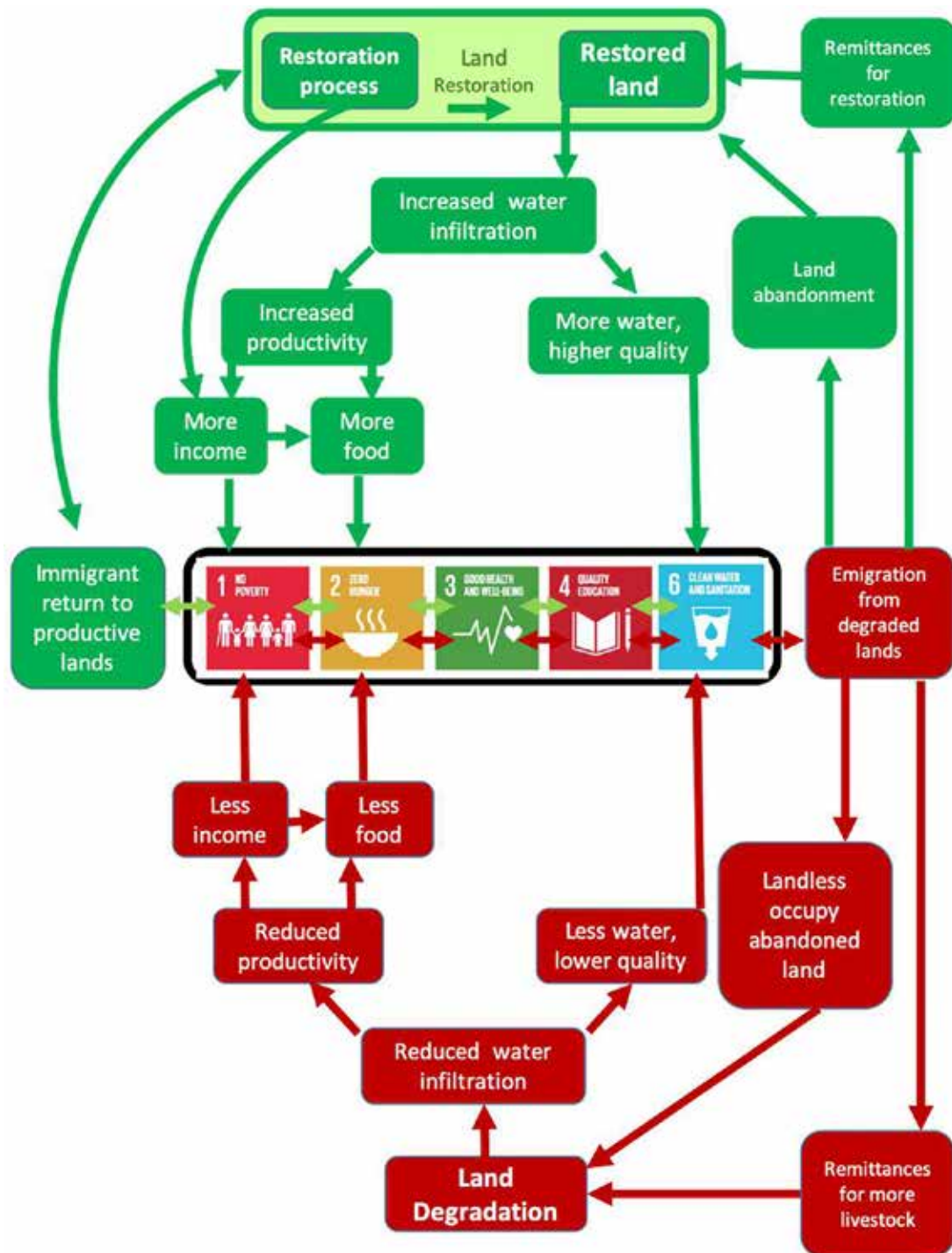


Source: Scheffran et al. (2012: 2).

For example, if a small number of farmers use remitted money to move away from water-intensive cash crops to instead produce a drought-tolerant crop—such as sorghum—they may become more resilient. If all the farmers of their region follow the same path, however, the local sorghum market could crash, with a net negative effect on vulnerability. For a sketch of the possible interactions between land degradation, migration, remittances and the SDGs, see Figure 31. As it helpfully illustrates, remittances generated by migration can be used to support restoration processes,

with positive spillover effects upon water management; agricultural productivity; and resilience. However, where remittances are mis-invested—such as where they are invested into cattle in areas that cannot support more livestock—their net effects may be negative.

FIGURE 32. The land degradation-migration-SDG nexus



Source: Herrick et al. (2019:18).

Remittances can be ‘better-used’, but there are no panaceas to poverty and climate vulnerability, and outside actors seeking to guide investments should be wary of their own knowledge and goals (Schipper, 2020). Where communities can be provided with increased knowledge to make better-informed remittance investment choices, however, the impact upon vulnerability may be enlarged. This could be through the sharing of traditional forms of knowledge across local networks; the introduction of the products of new forms of knowledge, such as information on heat-resistant crops, new irrigation technologies, or early-warning systems using inputs new to the community; or the linking of communities in the area of origin with diasporas able to share useful knowledge.

The community members making choices about remittance uses will not be the same in all contexts. If remittance use choices are to be climate-informed and able to contribute to reduced climate vulnerability, engagement with remittance use decision-makers will however be important.

BOX 13. Remittance priorities: adaptation, mitigation and development

In attempting to ‘channel’ remittances towards climate-adaptive activities, a hierarchy of activities will inevitably be created. There is likely to be a temptation among international actors to try to address both climate mitigation and adaptation simultaneously. Mills (2023) notes, for example, that several studies find that energy use increases with remittance access, and argues that this means that remittances can thus be harmful, reducing sustainability by increasing emissions.

For most climate-vulnerable populations in developing states, projects attempting to channel remittances should focus on adaptation and development, not mitigation. Some vital adaptation efforts will run counter to mitigation goals. In Togo, for example, remittances allowed increased energy use, which results in greater emissions but reduces vulnerability to climate shocks (Sodokin and Nyatefe, 2021). Adaptation and development are not synonymous, but they do overlap considerably. Where remittances allow greater energy use, education, or the establishment of businesses, they are also likely to support increased incomes. Given that poverty is a key component of vulnerability (Shahabuddin and Ali, 2006; Hallegatte et al., 2020), this can be a good outcome for climate resilience. It is uncertain, however, whether such interventions or remittance use choices should be counted as adaptation. Not all adaptation activities are development activities, but all development activities should, if successful, contribute to adaptive capacity. McGray et al. (2007) identify three ways in which development and adaptation can overlap:

1. ‘Serendipitous’ adaptation: Development objectives incidentally lead to the attainment of adaptation objectives. These may not be realised until after the project is complete.
2. Climate-proofing ongoing development efforts: Adaptation is integrated into planning to achieve development ends, by ensuring that an ongoing development objective is feasible within a changing climate.

3. Discrete adaptation: Development activities may be used as a means to achieve adaptation ends, but the primary goal of projects is to allow the maintenance of a baseline of activities in a changing climate.

Adaptation is furthermore divided into a continuum of four broad categories:

1. Addressing the drivers of vulnerability: Activities that reduce poverty, thereby providing households exposed to climate hazards with a greater buffer and more adaptive capacity. Activities in this category include livelihoods or literacy intervention.
2. Building response capacity: activities intended to build robust systems for problem-solving in climate-induced crises. These include the establishment of weather monitoring and early warning systems.
3. Managing climate risk: activities intended to mainstream climate risk considerations into ongoing activities. This includes the creation of disaster response plans and incentivising the use of drought-resistant crops.
4. Confronting climate change: activities focused almost exclusively on reducing the impacts of climate change. These include relocation efforts.

Remittances could be used for the first category and in some cases the fourth; efforts to channel remittances for adaptation would fall in the second category. The above categories do not fully account for local-level adaptation efforts, such as consumption smoothing, the purchase of increased land or inputs by smallholders, or crop substitutions (see e.g., Musah-Surugu et al., 2018; Toulim, 2020). Remittance channelling efforts require a pragmatic and context-informed view of use choices. Not all remittance uses, as discussed, currently fall into one of the three forms of development-adaptation overlap. Where possible, remittances should be encouraged towards the most cost-effective way of durably raising living standards. This may require outside interventions (Musah-Surugu et al., 2018; Mills, 2023), and will certainly require community buy-in.

Attention must furthermore be paid to *hard* and *soft* limits. Hard limits occur when adaptation becomes unfeasible, and hazard impacts and risks are therefore unavoidable (IPCC, 2022). Soft limits, by contrast, occur when adaptation relies on technological or socioeconomic options that are not currently available (Mechler et al., 2020). Hard and soft limits will vary in different sectors in different places.

Adaptation, development and mitigation are not synonymous. Mitigation should not be a priority when approaching the needs of the most vulnerable.

Creating a culture of productive and climate-adaptive remittance use

Remittances are more likely to be spent in positive ways if there is an enabling environment to facilitate this, including through encouragement from trusted community leaders. This is a field that requires more research, but initial findings in different contexts support the idea that resilience-building remittances uses can be fostered. This requires disincentivising ‘conspicuous consumption’, spending designed to enhance the status of the migrant’s household (Lipton, 1980), in favour of saving, investing, and prevention activities.

The findings of the evaluation of the RSE programme suggest that with coordinated information campaigns and social pressure, remittances can be directed towards resilience-enhancing activities such as saving to later invest in a business. Early in the RSE scheme migrants would often purchase “consumer goods that were deemed of little benefit to families and the community”, to the frustration of development practitioners and community leaders (Bedford et al., 2020: 78). With an increased emphasis on savings by government officials, village leaders and New Zealand employers, remittance uses have changed to match new cultural pressures. This is encouraging, and could be replicated in similar programmes elsewhere.

In Guatemala, similarly, the absence of a “culture of prevention” (Díaz López and Reid, 2022: 13) is found to disincentivise the use of remittances for disaster preparedness. Rural respondents to an assessment accepted that anticipatory action could reduce risks, but argued that this could not take place unless the state and NGOs provided increased climate information; provided greater resources; and promoted a “culture of prevention”. A new project by the University of Georgetown and Mercy Corps will seek to explore the impact of climate knowledge upon remittance as an anticipatory adaptation tool, testing whether the absent “culture of prevention” can be created with outside help.

It can take time before households are able to save more money and invest more. This is in part because remittances are used to fill holes in consumption needs, and it can take remittance-receiving households several years to satisfy more immediate needs—such as the repairing of dwellings, or the repayment of medical debt—and begin to be able to save and invest (Detrell et al., 2014).

Investment in small businesses by households participating in the Pacific–New Zealand RSE programme only began to occur after three seasons of participation. In Vanuatu, no RSE migrants had started a business after two years of participation. After three years, 67 percent of participants had established a small business, and after ten years, 71 percent had founded one. These businesses were often managed by kin and were supported by RSE-derived funding (Bailey and Kautoke-Holani, 2018). Similar trends are found in remittance uses in Tajikistan. While remittances were initially largely spent on housing repairs following disasters, after several years migrant-sending households began to invest in their own businesses, setting up small and medium-sized enterprises and community-based farms (Babagaliyeva et al., 2017). With support, these businesses could

increase climate resilience by increasing incomes and reducing dependence on weather-dependent agriculture.

Many of those in Vanuatu who did not start businesses were found to be interested in doing so, but unable due to constraints such as a lack of small business development support services, including skills development (Bailey and Kautoke-Holani, 2018). These findings suggest that:

- The benefits of seasonal migration programme participation accrue most significantly when regular participation provides households with the predictability and financial security necessary to undertake investments.
- Accordingly, a balance must be found by mobility scheme organisers between providing communities with regular access to migration, allowing the stability necessary for saving, investment, and transformative development; equity in spreading opportunities across populations; and the need to ensure that the frequent and potentially long-term absence of migrants from their communities of origin does not have excessive non-economic negative impacts.
- Where mobility programmes are planned, such as interventions supporting internal rural-urban migration, they should provide migrants with financial advice; and should consider providing targeted business development support after several years have elapsed in order to obtain the largest development impacts once capital accumulation has become more possible. The TCLM programme, which provided migrants with business development training when in Spain, could be an example in this area.

More productive uses of remittances become more possible after time has elapsed and regular remittance flows have allowed increased savings. Engagement by community leaders to encourage saving and investment may make productive remittance use more likely. Financial advice and support for business development may increase the productive impact of remittances.

Remittance pooling mechanisms

Remittances are almost always transmitted via bilateral relationships, and are very seldom pooled to support longer-term projects that could support adaptation and reduce vulnerability, such as through organised investment in public goods (Gemenne, 2022). In Tanzania, for example, remittances sent by migrants to households using mobile money are found to improve risk-sharing for migrant households, but not to have spillover effects for other households within the community (Riley, 2018). Remittances are predominantly confined to tight networks, and positive spillovers are a secondary effect, through the hiring of labour or the purchase of goods.

Remittance pooling does however sometimes occur. Where household remittance amounts are too small to be investable, or—as is more likely—resilience-building is inhibited by bottlenecks in global

public goods which individual households do not have the resources to overcome, pooling schemes may allow sufficient funds to be gathered for use in adaptation programmes. These programmes may be targeted at specifically climate-related efforts—such as the installation of air conditioning in areas expected to suffer intensifying heat, or the purchase of drought-resistant crops—or they could be used for public goods that lift general community resilience. Road improvements funded by migrants, for example, can provide farmers with improved connection to markets, increasing funds and time available for other resilience-building activities.

While diaspora philanthropy is most frequently channelled through formal bilateral or informal interpersonal networks, it can also be transmitted through NGOs, faith-based networks, hometown development associations, and other linkages (Gemenne and Blocher, 2017). These initiatives may be formal, organised in conjunction with NGOs or with community-level governance actors; or they may be informal or quasi-informal, such as multi-household pools to invest in a local well or through a home-town association.

Where remittances are pooled for collective uses, this often occurs through home-town associations or similar community organisations. In these cases, they are typically invested in local amenities and infrastructure (Lucas, 2019). Such uses are not explicitly directed towards increasing resilience to climate change impacts, but will nonetheless have positive externalities in this area. Remittances to Morocco, for example, are noted to have been directed through community organisations for investment in the construction of roads; water provision; and the establishment of schools and clinics (Aoudia, 2005). All of these investment areas inevitably have beneficial spillover effects for responses to climate change. Educated young adults, for example, are themselves more likely to be successful in migration, and are more able to find jobs (e.g., Gray et al., 2020; Bohra-Mishra et al., 2016); they are also more likely to undertake adaptive responses to climate change (Jha et al., 2017).

Remittances are very rarely pooled; they are almost always transmitted bilaterally for direct use by the migrant's family. In some cases, however, they may be used for local public goods.

Examples of formal pooling

In the Philippines, the diaspora-linked NGO Atikha worked from 2010 to mobilise diaspora resources for development. The NGO provided training to overseas Filipino workers interested in starting businesses in the Philippines; following training, 2,000 migrant workers pooled US\$6 million in savings, which were invested in small businesses and local rural cooperatives. These investments created 1,000 jobs (de Vasconcelos et al., 2017). It is likely that, by creating jobs and productive businesses, this programme increased the base resilience of the communities involved.

In Ecuador, the International Fund for Agricultural Development (IFAD, 2009) supported a two-year project assisting immigrants in Spain in sending money back for use in the development of clean

energy technologies in rural areas. Off-grid energy sources can provide reliable energy, increasing the resilience of recipient populations. New projects directing and pooling remittances for the development of renewable energy systems in Small Island Developing States are currently being prepared (IFAD, 2022). IFAD has significant experience in remittance pooling: its Financing Facility for Remittances was founded in 2006, and has so far piloted sixty projects pooling remittances for development (Ali et al., 2023).

In Haiti, a pilot scheme channelling remittances from the Haitian diaspora assisted 30,000 beneficiaries in accessing solar lanterns and solar home systems in 2013. This was organised by the Inter-American Development Bank, and allowed marginalised and energy-poor households access to cleaner fuels, reducing household air pollution (Scott et al., 2018).

In Tajikistan, migrants' remittances can in some cases be mobilised for explicit development projects for climate adaptation: in Rasht Valley, UNDP implemented 15 social and economic projects, with remittances contributing up to \$5,200 per project (from a total of ~\$10,000 per project). Efforts to replicate the project in the nearby Zerafshan Valley failed, however, due to lower trust in the pooling system on the part of labour migrants (Babagaliyeva et al., 2017). In discussions with labour migrants, two key conditions were identified as necessary for attracting remittances for community projects:

1. The presence of a Trust Fund, a transparently managed mechanism for sending and using remittances;
2. That remittances should be spent in the communities from which the migrants themselves come.

These conditions are intuitive. A key determinant of remittance-sending is the affective relationship held by a migrant for their place of origin (Ober, 2019). It is to be expected that migrants will be more likely to contribute to public goods if these goods are to be enjoyed by the community from which they have come, and for which they still feel affection. Trust, and assurance of accountability in the process, is also crucial, as can be seen in the failure of Mexico's 3x1 programme below.

Relatively few examples of formal remittance-pooling projects exist. Such projects are most likely to be successful when trust is high and when they are undertaken within the migrant's community of origin.

Examples of informal or quasi-informal pooling

In Nepal, a country receiving large remittance flows from migration to Gulf states, several collective enterprise efforts have pooled remittances for investment in agriculture and food distribution businesses. These projects were initiated by farming collectives, buying land and equipment to found a tea factory that enabled farmers to escape exploitation by large actors in the sector.

After the success of the tea processing project, the approach was replicated elsewhere in Nepal in the rice sector. These cases succeeded due to:

- Their community-driven approach;
- The fact that remittances were flowing to known contacts in migrants' areas of origin; and
- The increased accountability provided by the collective governance structure and the location of spending.

By contrast, efforts by a state-affiliated hydropower company aiming to tap remittance flows for energy production have been less successful, potentially due to a lack of affective relationship on the part of migrants, and doubts concerning the project's success (Maharjan, 2018).

Small-scale farmers are estimated to need global annual funding of US\$340 billion a year if adaptation to climate change is to be undertaken. In the current economic climate, many governments can only raise limited domestic tax revenue. Climate-smart small-scale agriculture must thus look to funding options beyond the public purse (Chowdhury et al., 2022). Remittances sent by diaspora members, as in the case of Nepal, may support agricultural development.

In Mali, fewer than 10 percent of migrants move to the 'Global North'. Officially recorded remittance amounts are nonetheless higher than Foreign Direct Investment flows. In the Kayes region, migrants have invested in numerous development projects in water, irrigation, health, education, agriculture, transport and other areas. Between 2000 and 2004, migrants contributed some 7.8 million USD to development projects in Kayes. From 1980 to 1995, migrant funding allowed the number of healthcare facilities to increase by four times; by 2011, migrant funding had contributed to the installation of solar panels in over 8,000 households. In neighbouring Mauritania, similarly, diaspora organisations have contributed to the construction of solar-powered pumps for water access, saving women from walking 10km to access poor-quality water; and to the creation of an agricultural cooperative (Scheffran et al., 2012).

In the case of RSE participants in Pacific Island States, remittance pooling mechanisms have allowed the implementation of community projects. Some districts have local systems through which migrants contribute—or are obliged to contribute—to community development trusts from regular remittance transfers. In Tonga, Samoa and Vanuatu, RSE workers have donated to a number of local community initiatives. These include the funding of local school buses; the construction of kindergartens, a village hall, and community gardens; and the development of water supply projects (Bedford et al., 2020).

Quasi-informal remittance pooling methods can allow support for local public goods. They are less reported in the literature. This may be because they are often not noticed; it may also be because informal pooling mechanisms have less trust and accountability, and are therefore less likely to occur.

For a discussion of an IFAD project that sought to use the crowdsourcing platform Babyloan to encourage diaspora members to finance micro-entrepreneurs in 22 countries of origin, see Annex IV.

Avoiding 'vigilante infrastructure'

In many areas, remittances are a crucial contribution to sustainable and resilience-building activities (e.g., Tacoli, 2011). Where migration is a viable way of responding to vulnerability, however, it is a response to structures which are also social in nature, and which are often the result of inequitable governance choices or state absence.

Climate-affected migration often occurs only after *in situ* adaptation options have been exhausted, often following government inadequacy (IPCC, 2022). Just as vigilante security organisations arise in pockets of state weakness (see e.g., Boege et al., 2009), migration responses may reflect inadequate local service provision. Migrant decisions—especially for the poorer among a population—are often informed by government inefficiency, lack of accountability, and irresponsibility (Gamso and Yuldashev, 2017). For example:

- In south-east Nigeria, autonomous adaptation responses including migration are found to be more common in contexts of weak or absent governance, where NGOs and state actors make few efforts to reduce vulnerabilities (Maduekwe and Adesina, 2022).
- In Uganda, urban slum inhabitants are found to rely on international remittances and other network relationships in the absence of state service provision (Waters and Adger, 2017).
- In Vietnam, rural inhabitants without access to state safety nets rely on remittances as a form of insurance, shortening recovery times following climate-induced losses (Simelton et al., 2021).

There is a risk of household migration being embraced as a neoliberal “third way” (de Haas, 2010: 258) in which the capacity of actors to undertake migration and send remittances is viewed as a form of adequate ‘self-help’, neglecting the heterogeneity of migration outcomes and the fact that for many, migration is a response to vulnerability itself exacerbated by state absence. In Nicaragua, for example, the state adopts a neoliberal discourse assigning responsibility for vulnerability and poverty to households, within which labour migration is an encouraged response. For many families, however, labour migration barely permits the maintenance of semi-subsistence agricultural livelihoods; in some cases, it may reinforce existing social inequalities which perpetuate vulnerability and food insecurity (Radel et al., 2017).

States should not be permitted to encourage adaptive migration as a way of avoiding their own obligations. A neoliberal reliance on individuals to make the necessary responses to increased climate risk is unjust, ignoring the structural and agent-driven causes of varying vulnerability

levels (Bettini and Gioli, 2016). Even where migration allows vulnerable populations to adapt to climate change, it should not be viewed as sufficient: state activities will continue to be vital. In many cases—such as those of “left-behind” households in some contexts—migration will introduce new vulnerabilities, to which only the state will have the capacity to adequately respond. Migration can play a large positive role, and it should be facilitated where useful. This should however be undertaken in tandem with other vulnerability-reduction policies.

There is a risk that states come to push adaptation responsibilities downwards, expecting migration to provide vulnerable communities with an autonomous resilience-building approach. This is to be strongly discouraged.

35. Remittance matching programmes

Remittance matching programmes seek to attract remittances from migrant associations to fund local priorities by pledging to provide a certain amount of state funding for each amount of remitted money. These programmes are often promoted as a way to ensure “a more productive use of remittances” (see e.g., Olivié and Santillán O’Shea, 2022: 14). Few remittance-matching programmes have been undertaken, however, and where they have been, they have seen mixed results. Nonetheless, they do present a credible way of ‘crowding in’ diaspora funding for adaptation and resilience-building programmes—a use case which so far has been little tested.

Remittance matching is not a fool-proof option. In some cases, remittance matching programmes may risk diverting scarce government budgetary resources to projects favoured by non-resident nationals (Maimbo and Ratha, 2005). Where remittance-sending migrants choose less-effective projects, this may harm adaptation. This does not have to be the case, however. Where projects are community-level, allowing community members and diverse actors a voice in proposing and vetting project ideas should contribute to ensuring that funding opportunities put forward to emigrants are sound. Furthermore, if only viable projects which the state would already have sought to fund are proposed to diaspora communities for funding, budgetary waste should be avoided or eliminated. In these cases, the state will instead essentially receive a discount on its pre-existing spending; at a 3:1 state: emigrant funding ratio, the state saves 25 percent of its costs. If, of course, the state instead pursues emigrant funding by proposing catchy but less useful projects, the programme may have a net negative effect—but this is by no means unavoidable.

Remittance matching programmes can provide state budgets with a discount, but can risk diverting money away from higher-value projects towards catchy but less useful initiatives. Trust is crucial to remittance-matching efforts.

Mexico's 3x1 Programme

The pre-eminent example of a remittance matching programme is Mexico's 3x1 programme. Launched in 1992, first in the state of Zacatecas through its *Iniciativa Ciudadana* programme, and then expanded nationally, the programme has also been considered for replication elsewhere. The 3x1 programme sees each dollar sent by emigrants matched by a dollar from federal, state and municipal government funds, quadrupling its impact. Money raised was allocated to a community development project fund organised with home-town associations. In 2002 alone, US\$16 million was channelled through the programme; at points, the amounts sent by emigrants were so great that state budgets were not large enough to match the funds (Azad, 2005).

Origins and growth of the 3x1 Programme

The programme's origins in Zacatecas lay in the state's myriad formal and informal relationships with diaspora members elsewhere. Originally proposed during conversations between migrants and the state in meetings, it began as a one-to-one remittance matching project between the state and the diaspora community in the United States. The programme's aims were to draw on migrant resources to complete community development projects, *and* to build trust between the state government and migrants by sharing project risks.

In 1992, after initial successes, the programme was expanded to a two-for-one programme, with money matched by the state and federal government, and then a three-for-one programme. Iskander (2005) attributes the success of the Zacatecas fund-matching programme to the construction of necessary social infrastructure by both the state and diaspora communities: the state supported the diaspora in organising itself into hometown associations, with which it liaised to raise funds and select projects. As the programme grew, migrant associations became increasingly intertwined with state government. This contrasted with other Mexico-based efforts to bring in diaspora funding—such as the state of Guanajuato's failed co-investment programme—in embracing dialogue with migrant communities and building trust.

In its growth beyond Zacatecas, especially following its expansion to a nation policy under the Fox government in the early 2000s, the 3x1 programme was relatively less effective while still mobilising significant resources. This was despite the addition in some states of further funding from Western Union, raising the remittance matching to 4:1 (Detrell et al., 2014). Up to 2010, the programme financed over 6,000 projects, involving over 1,000 separate home-town associations, and mobilising an average of US\$15 million per year (Gelb et al., 2021). Participating villages' access to sanitation, water and drainage were found to have been improved.

Decline and failure of the 3x1 Programme: the importance of trust

The programme's relative failure is largely attributable to a loss of trust: the social learning patterns built by the Zacatecas state government over years of engagement were not replicated. Without opportunities to engage closely in the programme, the diaspora viewed the Mexican government with suspicion. In some states, such as Sinaloa, the diaspora community was already too detached from their home communities, and were relatively uninterested in participating; collaboration between the diaspora and the home bureaucracy remained the exception rather than the rule (Rivera, 2014).

In others, participation was eroded by mismanagement and political considerations. The programme rewarded municipalities that reliably voted for the dominant party, penalising politically competitive municipalities. Poorer municipalities, less likely to send migrants, were furthermore less likely to participate than municipalities with medium poverty levels (Aparicio and Meseguer, 2011). By 2020 over 29,000 projects—mostly involving small-scale public infrastructure—had been supported through the programme (Zamora and Olvera, 2020; Pérez-Armendáriz and Duquette-Rury, 2019), but they were disproportionately implemented in less poor areas. The 3x1 programme came to be perceived to be “overrun by corruption” (Malone, 2019: 189), in which projects chosen were frequently subject to manipulation by bureaucrats and politicians. A lack of adequate due diligence undermined trust. Community associations frequently requested diaspora funding assistance for “simulation projects” never carried out, eroding willingness to participate.

There are several lessons to be drawn from the 3x1 programme:

- Establishing and maintaining diaspora trust is crucial (as is the case in all remittance-channelling efforts).
- Accountability and due diligence in selecting and undertaking funded projects is central to trust, but challenging in corruption-ridden environments.
- Remittance matching schemes will typically favour relatively richer districts able to send more migrants. This risks de facto channelling state money to areas with less need in order to obtain a discount for state funding. This could be avoided by diverting a portion of remittances pledged through the programme away from less vulnerable areas—although this risks counter-productively disincentivising participation—or giving greater assistance to migration from lower-income areas, although such migrants may be more likely to prefer to remit for direct household needs. It is likely, on the evidence of the 3x1 programme, that remittance-matching schemes will primarily not benefit the poorest and most vulnerable areas.

Mexico's 3x1 programme was successful when it engaged closely with diaspora communities and maintained trust; when it became a political weapon and accountability waned, it failed. Trust and accountability are key to diaspora engagement.

Other remittance matching programmes

Relatively few other remittance matching efforts have been undertaken, but programmes in Moldova, Tajikistan, and elsewhere are currently underway and may be promising. In the case of Moldova:

- The “PARE 1+1” (Programme for Attracting Remittances into the Economy) scheme matches diaspora funds with EU and state financing, helping emigrants to fund improvements to their towns of origin. The scheme was begun in 2010 with the aim of raising US\$8.5 million (Gelb et al., 2021), and is envisaged to run until at least 2024 following an extension in 2021. Under the programme, emigrants support Moldova-based citizens in establishing businesses; entrepreneurs are supported with training. From 2010–2021, over 2,500 people were trained; over 1,800 projects were approved for financing; and over 730 businesses were started, including in photovoltaic facilities and wind stations (Government of Moldova, 2021). This was accompanied by a programme of diaspora crowdfunding projects, in which small grants would be given to match money crowdfunded by local development projects (UNECE, 2021b).
- The DAR 3+1 (Diaspora Succeeds at Home) programme seeks to attract diaspora funding for local development initiatives. Projects are joint funded by the diaspora (at least 10 percent); the government (at least 50 percent), local public authorities (at least 10 percent); and development partners. This scheme was launched in 2019 as part of the Migration and Local Development programme, which itself has attracted support from over 10,000 diaspora members for local development projects. A UNECE (2021b: xxii) review warns however that the two initiatives “may not last due to a combination of the lack of long-term funding and wavering trust within the diaspora towards government initiatives.”

In Tajikistan, a programme led by the Ministry of Labour, Migration and Employment and the FAO seeks to attract emigrant investments into agriculture and agribusiness by matching grants, for which funding was supplied by the Russian Federation (FAO, 2019c). As of 2021, 224 grant applications—among which women and youth were the main target groups—had been screened by the FAO with local authorities and community members, with 51 being approved (FAO, 2021b). The project was selected because of the scale of remittance flows into Tajikistan: many agricultural sector households depend on remittances to maintain food security, but most remittances are spent on primary needs, with little being saved or invested in rural areas (FAO, 2021a). The Government of Tajikistan’s project managers travelled to Moldova to learn from the PARE 1+1 scheme. In an evaluation (FAO, 2021a), the matching grants project was considered to be suitable for scaling and replication elsewhere.

BOX 14. WIDU.africa

Matched remittance programmes can also be used to support inter- or transnational development activities, as well as domestic projects. This may work best where larger numbers of diaspora investors are able to send small amounts of money to support relatively small-scale projects with which they can engage more closely. Crowdfunding websites may offer a useful resource for these activities.

The German government has created a web-based platform, WIDU.africa, to channel remittances into investment opportunities in Africa. The project was piloted in 2019 to Cameroon and Ghana, countries with large diasporas in Germany. Four further recipient countries were brought on board in 2020, relying on word of mouth to increase use, and Austria, France, and Switzerland joined as diaspora-hosting countries. The project exhibits calls for funding from African entrepreneurs on its website, providing emigrants with the opportunity to invest. 25 percent of funding must come from the diaspora; 25 percent comes from the entrepreneur themselves; and 50 percent from the German government. Support for each entrepreneur is from US\$500 to US\$5,000.

Accountability is ensured by the German government, which monitors beneficiaries' purchases and payments (Gelb et al., 2021). As of August 2021, 9,000 investors and entrepreneurs had registered, and 1,300 projects had been approved and were under implementation. In addition to financing, the programme also supplied entrepreneurs with free tailored coaching sessions, and provided supplementary grants during the Covid-19 pandemic (Shayan, 2021). In 2022, WIDU.africa launched a call for proposals and fundings for Kenya-based businesses focused on the green transition, including in solar photovoltaic installations; and in Kenya and Ethiopia in food security, including weather forecasting (GIZ, 2022a; 2022b). Such initiatives can contribute significantly to increased climate resilience.

Lessons from remittance matching efforts

In seeking to use remittance matching to build climate resilience, states and other actors should:

- Seek to build trust-based relationships with diasporas;
- Be aware that migrant-sending areas will often be those that are relatively less vulnerable, and that accordingly matching programmes may be useful tools but are unlikely to be transformational for the very poorest;
- Engage with communities in selecting local-level projects—which is likely to often also include identifying community-level risks, and ensuring that communities have access to the knowledge necessary to make informed climate-aware project decisions;
- Ensure that project implementation is subject to scrutiny, and that accountability is maintained;

- Not expect a transformational flow of finance; instead, matching efforts are likely to represent a reduction—often small—in the cost of projects, and will still require significant allocation of resources (although often in different configurations, e.g., vetting applicants and monitoring fund spending); and
- Consider instituting a mechanism diverting an acceptable percentage of remittances, or money saved as a result of matching programmes, towards the most vulnerable communities, recognising that remittances mobilised through matching programmes will often flow towards relatively wealthier areas.

36. Green diaspora bonds

Diaspora bonds serve two primary purposes. They firstly provide implementing actors, typically the state, with capital to be used for productive activities. They secondly allow migrants to use money saved in low- or no-interest accounts in a way that both generates a higher yield and improves conditions in their country of origin—estimated to total US\$500 billion in 2019 (World Bank, 2019a). In theory, they offer a double win. The country of origin is thus offered a unique opportunity: diaspora bonds allow it to serve both non-emigrants and the diaspora. It may also be able to access cheaper debt through diaspora bonds; migrant populations with emotional ties to the country of origin may expect lower returns than the international capital markets do of sovereign debt. Countries could use diaspora bonds to mobilise remittances for larger adaptation purposes.

In theory, diaspora bonds offer the following advantages (Ali et al., 2023):

- They encourage external investment in a developing country;
- They allow the targeting of remittance funds beyond immediate family networks to instead support public goods attractive to the investor, such as health systems or renewable energy systems;
- They use a structured financing vehicle with predictable rates of return and known levels of risk;
- They target the diaspora, but could also be opened up as a wider retail investment option;
- They seek to access what may be an under-used multi-billion dollar global resource pool.

The success of diaspora bond offerings has however varied. Low- to middle-income countries with large first-generation diasporas in middle- to high-income countries, such as India, Israel and Nigeria, have received good responses to bond offerings. As of 2021, Israel had raised over US\$46 billion in diaspora bonds. India, in three rounds of bond offerings in 1991, 1998 and 2000, raised over US\$10.3 billion. Israel's programme succeeded because it had a clear goal—to contribute to infrastructure projects—from the start; it achieved legitimacy thanks to transparency and strong debt ratings; and the Israeli government maintained a strong, direct, and proactive engagement with its diaspora. Over time, its diaspora bonds have come to be a trusted and resilient financial instrument.

Other countries have been less successful. Greece during the 2011 debt crisis failed in its efforts to raise US\$3 billion from the US-based Greek diaspora. Ethiopia failed to attract diaspora funding for major dam projects in 2008 and 2011, largely due to environmental concerns and fears of default. Kenya in 2009 and Nigeria in 2017 successfully issued diaspora bonds, but were not able to repeat the feat (Gevorkyan, 2021). Gevorkyan identifies five challenges in issuing diaspora bonds:

1. Whether a diaspora can provide sufficient funds to justify the effort of issuing a bond. Financing needs have historically often been greater than diasporas are willing to offer.
2. The hurdle of maintaining strict fiscal responsibility while investing in the institutional maturity of a diaspora borrowing programme. Altruism on the part of the diaspora may yield an initial burst of investment, but not be sustained.
3. Identifying efficient uses of funds raised through diaspora bonds. Diaspora bonds are in theory most likely to see uptake in times of crisis—although not always, as the case of Greece illustrates. In the case of adaptation to climate change, efficient uses would often need to be identified with the help of UN agencies with sector-specific expertise, and this collaboration could be communicated to diaspora communities to raise the bond's legitimacy.
4. Diaspora bonds may suffer from volatility in migrant-hosting economies. Where migrants experience economic volatility in their destination country, they may be unable to remit.
5. Diasporas may be relatively uninterested in buying diaspora bonds or prefer using remittances to support their immediate family. This is especially likely where trust in the state is low.

Lessons from diaspora bond efforts

Success in diaspora bond offerings requires finding the right combination of risk and reward, and trust on the part of diaspora members that their money will be used effectively to stimulate development (World Bank, 2019a). Where diaspora communities have low trust in state actors in their country of origin, therefore, diaspora bonds may face the same uptake difficulties as remittance matching programmes. This may have been one of the problems in the case of Ethiopia's bond (Famoroti, 2017).

In surveys of diaspora members in Europe, Salia et al. (2022) find that migrants are more likely to participate in a diaspora bond if they have a strong association with their country of origin. Diaspora bonds paying frequent coupons; which have longer maturity; and which target high education attainers and high-income migrants are also more likely to see subscriptions. In another survey, migrants from Africa are found to be far more likely to support diaspora bonds when they are perceived to “support a critical national course”, with the diaspora sensitive to the bond's purpose (Salia and Nyantakyi, 2022).

Bonds supporting post-disaster reconstruction, such as after 2022's floods in Pakistan, could therefore be supported by diaspora communities. Such bonds are however sensitive to wider market

conditions. When difficulties in the country of origin coincide with difficulties faced by the diaspora or with a turbulent global market, diaspora bonds may be less likely to succeed. A World Bank-supported programme in Kerala sought to mobilise approximately US\$140 million in diaspora bonds for reconstruction after the floods of 2018 (World Bank, 2019a). In April 2021, however, due to “the context of the COVID-19 pandemic and unfavourable market conditions”, the issuance of the diaspora bond was suspended (World Bank, 2022c: 31).

The survey of diaspora members (Salia and Nyantakyi, 2022) also found that there is a moderately higher likelihood that green bonds may be more likely to succeed if they:

- Support community-level green projects;
- Are issued by the central government; and
- Have a maturity period of one to three years, with a coupon payment frequency of twelve months.

Ali et al. (2023) also suggest that participation may be more likely if diaspora members can withdraw their funds early if desired to allow them to back other projects in the country.

Community-level green projects may be perceived to be less risky than large-scale infrastructure; they may also be perceived to involve more accountability. Remittance mobilisation efforts could investigate a form of ‘diaspora bond crowdsourcing’, as in the WIDU.africa project, in which adaptation proposals could be put forwards by local government, to be selected by diaspora members to receive money ringfenced from diaspora bond pools. This would be beneficial by:

- Allowing diaspora members more engagement in the adaptation process, increasing buy-in;
- Increasing accountability in the use of bond money, seemingly often a factor in decision-making;
- Permitting diaspora members to continue sending money to their own communities of origin through a de facto pooling mechanism, likely increasing participation;
- Putting diaspora savings to use;
- Increasing financing of community-level adaptation projects for country of origin governments;
- Increasing country of origin governments’ access to cheaper debt.

Such programmes could—depending on context—need to be undertaken in collaboration with international agencies, to increase credibility and to provide guidance in selecting projects for funding.

Green diaspora bonds may allow countries to tap into diaspora savings to increase resilience or advance the green transition.

Annex IV. IFAD's Babyloan project

In France, a pilot project co-led by IFAD sought to use the crowdfunding platform Babyloan to encourage diaspora members to finance micro-entrepreneurs in 22 countries of origin, and in particular Mali. Diaspora members invest money—on a solidarity basis, with the principal repaid without interest—in activities beneficial to development in their country of origin. Entrepreneurs are able to receive funding at a below-market rate. The Malian diaspora in France sends more than US\$500 million in remittances; through the Babyloan platform, this flow is guided towards micro-entrepreneurs in need of financing. Only 5 percent of remittances in Mali are used for investment. IFAD suggests that this indicates that opportunities exist to facilitate productive activities if the environment became more supportive. In-depth surveys of diaspora members suggest that this is indeed the case, and that information and trust present the key bottlenecks (de Vasconcelos et al., 2022).

IFAD's project with Babyloan ran from 2017–2020. It initially struggled to attract diaspora lenders. The project had an initial target of 2,000 individual lenders contributing more than EUR 350,000 to 200 rural microenterprises in Mali (IFAD, 2016). By 2020, however, only 339 had contributed to the platform. Adapting to this, the project introduced the option for Malian associations and families to contribute loans through collective solidarity pools. This was preferred by migrants, and by 2020 fourteen solidarity pools (totalling 192 members) had made collective contributions, mostly to micro-entrepreneurs working with cattle (Agwe and Faujas, 2020). Several lessons can be drawn from the Babyloan crowdfunding pilot:

- There is a preference among diaspora members for engaging in collective solidarity pools, rather than lending individually.
- Crowdfunding approaches rely on trust between lenders and operators. Diaspora members shared disillusionment and bad experiences with development actors, and their mistrust of Mali's institutions. Solidarity schemes are thus held in suspicion. The IFAD/Babyloan project committed to transparency and evaluation of investments, increasing diaspora trust and participation.
- Once the concept was proven to interested investors, demand to lend outstripped the project's ability to find investment opportunities. Ensuring a pipeline of projects in need of funding, while not cutting corners on due diligence, is important to maintaining diaspora trust.
- The crowdfunding, remittance-pooling concept takes time to prove itself to diaspora members. This is in large part because the various actors involved need to prove themselves to be trustworthy.
- Identifying qualified partner microfinance institutions in remittance-receiving countries can be challenging. In many climate-affected contexts, professionalisation of the microfinance industry is lagging, making it hard to demonstrate reliability to investors.

- No diaspora is homogenous, and generations within a diaspora may have very different expectations and intentions in engaging in remittance pooling.
- Access to funding is often not sufficient to ensure a micro-entrepreneur's success. In the Malian case, intense technical assistance—provided for in IFAD's project—was necessary.
- Given the need to vet and support funded projects, a crowdfunding model may not always be suitable or sustainable. However, if there is a large enough interested diaspora, it may be a good way of 'crowding in' private finance to increase adaptive capacity.

The experience of IFAD's Babyloan project in Mali suggests that diaspora members prefer collective investment options to individual lending, and that trust in the institutions involved is crucial and may require time. On the enterprise's side, money alone is often not enough, and technical assistance needs can be significant.

Part VII. Conclusion and Recommendations

The climate-migration nexus is complex, vast, and requires a holistic policy response. This paper provides a comprehensive, but not exhaustive, overview of many of the issues that are and will be faced in this area, identifying and providing policy options for addressing new and emerging challenges.

Climate change will, if not mitigated, reshape livelihoods; place stress on both rural and urban environments; increase healthcare burdens; reduce productivity levels; cause loss of property and life; and incentivise movement. The first priority must be given to mitigation. The second priority must be placed on adaptation within a development framework.

It is within this framing that we examine migration in the context of climate change. How can migration promote sustainable development? How can those who are most vulnerable to climate shocks have access to movement, and gain from it to support their communities? Migration can be transformative. It can also result in exploitation and heightened vulnerability. Whose responsibility is adaptation, and where does migration fall within this?

At the level of international mobility, what can be done to allow movement? At the level of internal mobility, how can areas of origin and destination prepare for new or changed movement patterns? At the regional level, how can countries work together to facilitate movement?

Migration can be an invaluable tool for adaptation. Internal mobility allows households to access labour markets within which they can earn money to supplement failing livelihoods. International mobility can provide access to transformative multipliers on earnings in areas of origin, allowing greatly increased resilience.

At the international level, new institutional arrangements are necessary for climate-adaptive migration to become a reality. Mechanisms for providing climate-vulnerable populations with easier access to foreign labour markets is required, as is funding for such pathways. The effects could be greater than those of the many development and adaptation programmes already pledged or underway, but migration for climate adaptation has not yet been seriously attempted by governments. This is urgent, especially in the light of the improbability of rights-based international mobility options.

At the regional level, increased collaboration between states can provide reliable and flexible access to populations vulnerable to climate shocks, allowing them to temporarily relocate in the event of disaster; to diversify their income streams through circular movement; or to permanently emigrate to find greater opportunities.

At the internal level, in situ adaptation can reduce the need to migrate. Migration is, however, and will continue to be, a vital adaptation tool for many populations. Vulnerable populations should

be supported in accessing mobility and maximising the benefits gained from it. The many risks of migration should be identified and mitigated.

Migration will be a feature of the era of climate change. Its benefits to vulnerable populations should be recognised, and its adaptive potential should be incorporated into policy and practice.

Access to international mobility

There are very few options for international movement. Climate-affected migration is increasingly prominent in discussions in the international policy sphere, and the ‘migration as adaptation’ paradigm continues to gain ground. This is likely to be provided through labour migration regimes.

The 1951 Refugee Convention does not offer protections to people moving due to non-agent-caused reasons. The 2018 Global Compact on Migration does encourage the development of labour mobility and free movement regimes, but is non-binding. Migration’s place within UNFCCC processes is uncertain, even if previous statements have recognised migration’s potential as an adaptive tool. Some regional initiatives, especially the Cartagena Declaration and the 1969 Organisation of African Unity Convention, can provide protection for people moving in the context of climate shocks.

Implementation is challenging, however, and South America’s experience with the Venezuelan outflow suggests that even where legal instruments are present, there is limited appetite for increased refugee hosting.

There is little prospect of reform, and conceptual and operational challenges would make this unlikely even if there was appetite. Alternative arrangements, such as a multi-stakeholder platform for the coordination of international approaches to climate-affected mobility, are more likely to succeed.

The urgent need for new governance arrangements

There is not currently a way of managing labour migration systems to reflect supply needs and optimise for development benefits beyond the country of destination. This is a major oversight. Enormous development and climate adaptation potential is therefore squandered.

Each migrant-receiving state should create two new institutions to correct this: a ‘migration research agency’, evaluating criteria of potential migrant-sending states to determine where access to labour migration pathways would have the largest development and climate-adaptation effects; and a ‘commissioner for migration’, empowered to negotiate bilateral labour migration agreements and advise on the policy area.

This would allow greater policy coherence, and unlock greater financial flows towards areas in greatest need of adaptation assistance. This is not a replacement for the undelivered US\$100 billion in climate finance transfers, but would be a highly valuable supplement.

Predictions

Our ability to predict the impact of climate change upon migration is very poor. Policymakers should take the many numerical predictions of climate-related migration in different timeframes and geographical areas with a large pinch of salt. Migration is not mono-causally affected by climate change, and the many factors affecting it are beyond our models' predictive capacities. Future economic and conflict-related shocks; cultural priorities regarding movement; poor historical data from which to extrapolate; future governance decisions; and adaptation actions all reduce our ability to forecast migration.

Climate change, conflict and migration

There is no linear relationship between climate change, migration, and conflict. Conflict is primarily the result of governance failures. Frustration with governance failures may grow in contexts affected by climate change, but climate change does not 'cause' conflict. Migration, conflict, and other relevant policy areas should however not be addressed in isolated siloes. In some cases, migration to areas already experiencing tense governance situations may worsen or incentivise conflict; in these situations, mobile populations—such as refugees burning wood in low-resource contexts—may be highly vulnerable.

Planned permanent relocation

Many households and communities will require future relocation from areas rendered increasingly uninhabitable by climate change. These relocations will almost always be internal. Few preparations have yet been made for these movements. No meaningful preparations have been made for international relocation, which presents numerous challenges.

Relocations should be proactively planned for and expected to take place, but should be avoided where other options are feasible. This requires identifying ex ante areas that must not be inhabited; identifying options for adaptation in areas that are inhabited; making communities and markets aware of the areas that will not receive adaptation support; and, in close engagement with communities, presenting options for relocation. These options should be culturally and socio-economically appropriate to the relocated population.

The processes for making in situ adaptation financing available versus requiring relocation will be intensely political. They will require the establishment of clear and open criteria. States should review their legal and policy frameworks; develop capacity for planning and undertaking relocations; and conduct local risk assessments and inventories in at-risk areas. Relocation should be undertaken voluntarily; it should be developmental, not moving people into increased vulnerability; and it should be undertaken following and through transparent processes.

Funding regimes for relocation must be urgently established. For many countries, this will require international assistance, potentially via UNFCCC processes. In wealthier countries, close public engagement with private actors, especially with the insurance and real estate sectors, will be necessary.

Reducing policy barriers to movement

Temporary labour migration can present an alternative to subsequent relocation. Many countries, however, maintain barriers to internal labour mobility. These barriers should be eased. The portability of access to social protection, in particular, should be made greater in contexts where it is restricted. This could be targeted towards populations of areas of greater vulnerability.

Social protection and climate-affected migration

Social protection in the areas of origin and destination can be important in allowing in situ adaptation or facilitating adaptive migration. The effects of social protection upon the migration of climate-vulnerable populations are not universal: in some cases social protection allows populations to smooth incomes against shocks and remain in place, but in other cases transfers can reduce resource constraints, aiding mobility.

Social protection is often not accessible to migrants in areas of destination. This increases the vulnerability of rural-urban migrants, and reduces the adaptive effectiveness of migration. Social protection schemes should be made more portable; migrants and vulnerable populations should be better informed of their rights; access should be assisted, including through facilitated registration and provision of identity documents; legislation providing access should be enforced; and programmes should where possible be made more affordable for the most vulnerable populations.

Integrating human mobility into National Adaptation Plans

National Adaptation Plans offer a valuable way of mainstreaming the adaptive role of migration. Not all countries have yet done this, and those that do mention migration in their NAP often do not specify concrete actions. NAPs' inclusion of mobility should be data-informed; establish priorities; set out plans for implementation at multiple levels; establish funding mechanisms; incorporate capacity-building measures; and include adequate monitoring and evaluation systems.

Rural land tenure

Land tenure is key to vulnerability, adaptation, and mobility in many contexts. More research on the relationships between climate change, land productivity, land tenure, and migration, is necessary. Tenure reform, providing populations with greater security, can allow access to credit for adaptation and provide the asset security necessary for temporary migration. It can also cause more harm than it is worth, however, and must be context-informed. Those with land tenure may furthermore

not always be those least vulnerable to climate shocks; where land cannot be sold, involuntary immobility may be the result. Where land is expected to become less productive due to climate change, these considerations should inform policy regarding in situ adaptation versus migration.

Supporting migrant integration in cities

Climate-affected rural-urban migrants are often marginalised in urban social networks. This reduces their resilience, harms their income-generating ability, and reduces the adaptive effect of migration. Policymakers should work with informal migrant organisations and networks, and should seek to provide migrant populations with a greater voice in policy processes. This could be undertaken through a migrant engagement council. Informal mutual-support networks should be supported and used as a means of increasing migrants' knowledge of their rights. This is likely to be undertaken by local government actors; civil society organisations; or NGOs. Given the shared vulnerabilities and hazard exposure between migrant and host communities, especially in informal contexts, these measures should also consider synergies between migrant-specific and host-relevant needs in order to reduce possible tensions.

Urbanisation and informal settlements

Migrants moving to cities often settle in informal dwellings. These are frequently in the cheapest locations: areas exposed to climate-related shocks such as landslides or floods. Migrants can thus move from rural vulnerability to urban vulnerability. Informal settlements and slums have inadequate services, which may be stretched further by increasing climate-affected urbanisation. City government actors may also struggle to respond to intra-urban displacements caused by climate shocks. Further resources will be needed at the city level.

City planners must be aware of the extent of climate-related hazards. Climate-informed zoning will be important to reduce future risks, and the provision of alternative accommodation will often need to be supported. This may require expanding cities. Local policy approaches, undertaken through a city-wide approach, may be best, responding to contextual needs regarding e.g., land zoning. Development should be guided towards areas at lower hazard risk; with adequate current or potential services; and with access to labour markets. Where informal settlements are established, they should be upgraded where possible, in consultation with local populations. These recommendations all require money that city governments often lack. Increased devolution of national funding and access to international funding options for cities could be important in allowing climate-related action.

Secondary cities

Rural-urban migration will often flow towards 'secondary cities'. These are cities below the top tier of a country's urban areas. Secondary cities may be closer and more accessible to migrants. These urban areas often face underdeveloped economies and inadequate policies, with low governance

capacity due to a lack of skills and underinvestment. They will require increased financial and technical support from national governments and international actors in coping with increased urbanisation and in responding to the needs of migrant populations.

Support for city-level governance actors

Municipal governance actors will require more support. This includes increased devolution of funding from the national to the local level, with more flexibility in responding to changing circumstances; and capacity-building and financial support from international actors in improving governance systems and accessing much-needed finance flows, through new sources or mobilised through multi-stakeholder and pooling approaches. City-level actors will be directly responsible for the welfare of rural-urban climate-affected migrants, and will need increased resources. Best practices can be usefully exchanged through city-level peer networks such as C40 Cities.

Climate-affected migration and healthcare

Migration in the context of climate change can lead to new healthcare challenges. Movement may see populations—both migrants and hosts—exposed to threats from new pathogens to which they do not yet have immunity. Climate-affected migrants may also require mental health support. Governments should proactively consider needs, by mapping possible migration flows and considering epidemiological profiles of sending, transit, and host populations to inform public health interventions; and by considering the health risks and needs of migrants in areas of destination. Migrants and service providers should be made aware of migrants' rights to healthcare access. Where rights are limited, they should be expanded. Migration may also improve the health of both migrants and communities of origin thanks to increased wages and access to urban services.

Facilitating adaptive migration through information provision

Inadequate access to information regarding work opportunities and wage differentials can constrain migration. This may for many be the greatest cost inhibiting movement. Governance actors can facilitate adaptive mobility by allowing potential migrants to know more about their options elsewhere. This requires knowledge of labour market needs and prices in areas of destination, and conveying that information to areas of origin.

Improving migration outcomes by facilitating training

Many people lack the skills to take advantage of job opportunities in areas of destination. Those who would most benefit from climate-adaptive mobility can thus not have access. Governance actors can increase access to mobility, and increase the effectiveness of movement, by providing potential migrants with training in skills useful in areas of destination. This requires knowledge of labour market needs; collaboration across geographic areas; the provision of teachers; and the provision of

portable qualifications upon the completion of training programmes. Training could take place in the area of origin or the area of destination.

Improving adaptive labour migration outcomes

The climate-adaptive impact of remittances relies on migrants finding work. For migrants new to an area, this is often difficult. This slows or reduces their earning ability, reducing the adaptive impact of migration. This is especially likely if they have limited access to social networks. Migrants can be assisted in finding jobs through job application workshops; subsidised urban transport; training; and advance knowledge of job options, such as through an app connecting workers to potential employers.

Exploitation and trafficking

Those moving in the context of climate change are often desperate and vulnerable to exploitation. Migrants relying on middlemen for movement and to find a job can become trapped in debt; unable to leave an employer; forced to work longer hours, potentially in dangerous conditions; and with arbitrary deductions from paychecks, preventing the sending of remittances. Such migration outcomes render movement maladaptive as a response to climate change.

Governance actors should act to reduce exploitation where possible. This can be done by informing migrants of their rights; providing access to trustworthy intermediaries, or by tightly regulating intermediary businesses; establishing helplines providing exploited migrants with advice; assisting exploited migrants in leaving employers; and providing bridge support to migrants transitioning from exploitation.

Funding internal migration: reducing the prevalence of 'trapped' populations

The cost of movement is often a key barrier to mobility, keeping populations in situations of greater vulnerability. This is especially the case for households whose assets have been reduced by the effects of climate change. Households with constrained credit also have fewer options for funding movement. Governance actors can support involuntarily immobile populations by providing small grants or low-/no-cost loans to allow movement and access to better labour markets to allow remittances to flow.

Debt

Debt is a double-edged sword, but harms many. Debt can be positive, allowing adaptation and movement, but often leads to debt traps and vicious cycles of poverty. This can drive distress migration, including towards trafficking and long-term exploitation. Microfinance providers should in many contexts be better regulated to avoid over-collateralisation and credit for poor investments.

The negative impacts of debt in migration can be reduced by reducing the costs of mobility to migrants; increasing migrants' financial literacy; creating more responsible, lower-cost lending programmes for adaptation and migration, potentially through state actors; and providing access to insurance or pre-disaster funding, to limit exposure to debt traps and subsequent distress migration.

Supporting 'left-behind' members of migrant-sending households

Those remaining in the area of origin can face new challenges. Those 'left behind' are often women, and in patriarchal contexts can be more vulnerable. Vulnerability is likely to be highest when household members are away, but remittances have not yet begun to be sent back in adequate quantities. Local governance actors should be aware of the heightened vulnerabilities of migrant-sending households during this period, and should seek to address local labour challenges; education difficulties where relevant; and challenges to women.

Climate change and displaced populations

Climate change can increase the vulnerability of populations that are already displaced. Little attention has been given to these groups, including to those in refugee or IDP camps.

Camps are often located in areas exposed to hazards. Climate change may threaten displaced populations' livelihoods, reducing the possibility of self-sufficiency; heighten health threats; and disrupt sanitation provisions. Governance actors should be aware of climate-related hazards in deciding where to locate camps. More research should be conducted to assess the major challenges and options to reduce them. Camps' damage to local environments should also be mitigated where possible, including through the provision of alternatives to biofuels.

Regional migration regimes

Access to regional movement can allow adaptive mobility. This can be facilitated through regional free movement or through wide webs of bilateral migration agreements within regions. This is often more politically feasible than any international multilateral agreement.

Implementation of regional arrangements is often challenging. Support should be provided to secretariats managing free movement implementation; to states in implementing agreements, including in providing citizens with knowledge of their rights and access to necessary documents; and to civil society organisations in holding state actors accountable in implementation. Outside actors engaging in migration governance, including through border securitisation measures, should also consider the extent to which their policy approaches are coherent with development and climate adaptation needs.

Internal-international link in migration

Most climate-affected migration will occur internally, but it may have secondary effects for international migration. These dynamics are poorly understood and require more research.

Much of this international migration will be irregular, due to low availability of regular migration options and the high costs of regular movement. Greater access to regular migration pathways may reduce the incentive to undertake irregular migration, although this is uncertain.

Development interventions incorporating climate-affected migration

Migration should be a choice. There is a widespread focus on addressing the ‘root causes’ of migration through development. This extends to the area of climate-affected migration. This is to be welcomed where it increases agency, but will not always have the desired effect.

Care should be given to ensuring that development and adaptation efforts do not entrench unsustainable path dependencies. Projects should also be undertaken to improve development outcomes and enhance dignity, not as the result of a pathologizing of movement.

The ‘migration hump’ hypothesis suggests that development is unlikely to reduce migration.

This may not hold in cases of rural livelihoods assistance. It may also not hold in the longer term in climate-affected areas, where mobility may ultimately more resemble forced displacement than economic migration.

International relocation

There is no international legal framework for international relocation in the context of climate change. Populations of uninhabitable countries, such as submerged small island states, will require relocation assistance. This opens up a host of problems, however, including questions of sovereignty and citizenship.

Temporary protection options

Temporary protection options are good if they allow access, and of very limited use if they do not. Multilateral temporary protection and stay arrangements can allow better management of large, sudden movements across borders in situations of sudden displacement. This may be useful in contexts of sudden-onset climate disasters, but is less likely to be of use in cases of slow-onset climate disasters (except in rare cases where socio-economic tipping points are suddenly reached, leading to rapid large movement).

Temporary protected status, as is used in the US and elsewhere, is less useful. Temporary protected status prevents the deportation of people already in a third state at the time of a disaster. These people are often left in a legal limbo, disincentivising use of the instrument. It also cannot help those who are really vulnerable, but only those already out of the hazard-struck area. While it can enable a useful flow of remittances, it is not an optimal policy.

Humanitarian protection in the EU

EU humanitarian protection options follow the 1951 Convention, and thus are very seldom of use to those moving in the context of climate change. Austria is a rare outlier in that it does not require agent-caused harms for justification of protection; it has therefore accepted far more people for subsidiary protection than peers.

Humanitarian protection elsewhere

Humanitarian pathways are few and challenging. Brazil in 2017 passed a law allowing those displaced by disasters to access humanitarian protection through temporary visas. The law has however not yet been ratified. Decisions on the definition of an 'environmental disaster' and the processes for admission and stay are still needed.

Argentina in 2022 created a new humanitarian visa, which has entered into force. This is applicable for South American and Caribbean citizens moving in the context of sudden-onset disaster, and provides three-year protection with a pathway to permanent protection.

The United States provided international protection for those affected by environmental disasters from 1952 until 1980. The provision was never used, however, and was dropped without debate in 1980.

New Zealand briefly trialled a new visa bringing small numbers from the Pacific Islands, in light of anticipated sea-level rise. This was discontinued after six months due to resistance from Pacific Island States to the idea of becoming 'climate refugees'. New Zealand is instead now providing in situ adaptation assistance.

Place-based visas

Place-based visas offer an untested middle option between humanitarian visas and labour pathways. They provide international migration, but only to ringfenced areas of destination. Place-based pathways allow movement to areas that have requested migrants, such as rural areas in need of skills and people. This may be more politically acceptable than more general labour pathways or humanitarian pathways. Trials have already been conducted, including in providing access to refugee populations, and interest has been lodged elsewhere.

Targeting labour programmes

International labour mobility is one of the highest potential options in the context of climate-affected mobility. This is because humanitarian options seem politically shackled, and family reunification options—the other major visa category—are numerically inadequate. Labour pathways can allow access to permanent relocation, or to higher earnings to allow adaptation. Bending labour pathways towards climate-vulnerable populations requires the identification of comparatively vulnerable populations, and efforts to ensure that those who would most benefit can access them.

Visa lotteries

Visa lotteries may provide an equitable way of opening labour migration pathways up to vulnerable populations. Quotas could be assigned to particularly vulnerable populations, and minimum access criteria could be imposed. Visa lotteries may assuage fears of ‘cherry-picking’ higher-skilled migrants, causing brain-drain. It is possible that visa lotteries undertaken at the country level, without the ability to sift applicants at more granular vulnerability levels, may allow access to less vulnerable individuals, causing controversy. They may however be a justifiable ‘second-best’ option, and more research should be conducted.

Skill and mobility partnerships

Skill and mobility partnerships can facilitate labour market movement for climate-vulnerable populations. Skill and mobility partnerships allow the training of potential migrants in their country of origin for labour market needs in the country of destination. These pathways are beneficial to migrants, sending countries, and countries of destination; because they are tailored to provide necessary skills, they may be more politically acceptable. Skill and mobility partnerships could be targeted towards vulnerable populations. They could also be targeted towards skills needed for climate change mitigation and adaptation, especially in ‘green skills’ for solar panel installation, smart agriculture, etc.—an area of key international skill shortage.

Circular labour migration schemes

Circular labour migration schemes can allow vulnerable populations access to transformative remittances. Some good examples exist; other current programmes could be adjusted to support development needs.

Several migration programmes in the Pacific, including New Zealand’s Recognised Seasonal Employer scheme and the Pacific Australia Labour Mobility scheme, could or do already benefit populations affected by climate change. They were created in part due to a recognition of the future impacts of climate change, and have high development benefits.

The Colombia-Spain Temporary and Circular Labour Migration programme ran from 2007–2012. It brought Colombian workers from vulnerable communities to work in agriculture in Spain. Recruitment intermediaries in Colombia were directed to particularly target those affected by or vulnerable to environmental impacts. The scheme both allowed access to remittances, and provided training in business development and adaptive measures. It had a high development impact, and similar programmes could have a large effect.

The Haiti-US Temporary Work Visas for Development initiative saw the US provide Haitians with temporary labour visas following the 2010 earthquake. Over two years 68 workers came to the US for short work periods. Employment in the US increased their average wage by 1,400 percent, allowing transformational change in the area of origin.

The EU Seasonal Workers' Programme brings hundreds of thousands of lower-skilled workers to the EU each year. It does not currently seek to incorporate development and adaptation goals, but could do so to great effect.

Learning from complementary pathways

Complementary protection pathways have enough similarities to climate-conscious pathways to provide lessons. Complementary protection pathways are intended to provide individuals in need of international protection with alternative options to refugee protection, through humanitarian visas and admission programmes; community sponsorship; labour mobility; education visas; and family reunification.

They require political will; knowledge of the options among eligible populations; and engagement with the private sector regarding skill accreditation. Lessons for climate-conscious labour pathways can be learnt from complementary approaches; their example suggests that climate-conscious labour pathways are feasible.

Funding adaptive labour migration pathways

The cost of mobility should not be placed on the shoulders of those who are most vulnerable.

As is evident in the discussion of debt, this approach risks making migration a maladaptive option. Migrants should be made fully aware of all costs that will be required, and should be shielded from sudden demands.

Instead, states of destination are most likely to support mobility programmes financially. These costs may be ODA eligible. Multilateral development banks, especially the World Bank, can play a role in funding climate-conscious labour migration programmes. For full engagement, reforms may be necessary. Given the effectiveness of migration options, this may be justifiable for them on both a poverty-reduction and climate-adaptation basis. Finally, private sector actors may be open

to financially support these pathways. This is likely to occur at a later date, after their viability has been proven.

Remittance flows in response to shocks

Remittances can play a vital role in helping communities to weather shocks. During and following shocks remittances are sent in higher amounts, allowing the smoothing of consumption. When compared to humanitarian funding, remittances are better targeted towards the poorest; have wider coverage; are often larger in quantity; respond better to shocks; and can go beyond basic needs. Options for earning and sending remittances should be increased.

Allowing anticipatory remittance-sending

Delivering funding before a shock hits can allow better adaptive responses than funding delivered after. Hazard warnings to allow parametric state cash transfers are already being used in some areas. These systems should be diffused to migrant networks, allowing anticipatory remittance sending to reduce the impacts of disasters.

Remittances as preparation for shocks

Remittances can greatly increase resilience ahead of shocks. They can allow investment in more robust dwellings; improvements of agricultural techniques; and diversification into non-agricultural activities. In many places households receiving remittances are notably less vulnerable than households that do not. Options to earn and send remittances should be increased, and support should be given to remittance-receiving households to assist them in deciding how best to spend funds.

Non-financial remittances

Knowledge gained by migrants can increase resilience in communities in the area of origin. The spread of good ideas can be fostered by building training in relevant areas into circular labour migration programmes, and by providing migrants returning to areas of origin with platforms and networks within which to disseminate good practices. Diaspora networks should also be engaged with to allow their subject- and context-specific expertise to contribute to development and resilience-building.

Increasing remittance flows

In addition to allowing more migrants to earn remittances, governance actors can also undertake actions to make it easier to send remittances. If remittance-sending costs are to meet SDG targets they must fall to less than 3 percent by 2030; as of 2022, however, average costs were

around 6 percent. This incentivises remittance transfers through informal networks, which have higher risks. Governance actors can reduce the cost of remittance-sending by increasing access to financial and especially digital systems.

Guiding remittance flows towards climate-adaptive activities

Remittance flows are large, and can be channelled towards resilience-building uses. Remittances can support resilience to climate shocks, but are often spent on basic or ‘conspicuous’ consumption. This is not inherently a bad thing, but governance actors can support households in becoming more aware of their exposure to climate-related hazards and selecting fund uses for climate resilience.

Remittances can also be spent in maladaptive ways, by local and external actors. Awareness of the local context; engagement with remittance use decisionmakers; and subject-specific knowledge, possibly necessitating outside experts, could all improve adaptation outcomes. In many cases engagement with community leaders will help in fostering a ‘culture of adaptation’ in remittance uses.

Remittance pooling

Remittances can be pooled for public goods, including for adaptation. They are generally sent through household networks for use as private financial assets. In some cases they can however be pooled. Formal pooling can occur with the help of government actors or NGOs; informal or quasi-informal pooling can occur through collective groups and community arrangements. External actors can facilitate remittance pooling through the use of online crowdfunding projects linking migrants and diaspora networks with communities and enterprises in need of support. They can also support and advise community-led pooling efforts, to strengthen their financial management processes. Accountability and trust are crucial in all efforts to use remittances for public goods.

Avoiding reliance on ‘vigilante infrastructure’

‘Migration as adaptation’ must not be allowed to become a neoliberal substitute for state action.

Many vulnerable communities will require support that can only be delivered by the state. Migration should be a choice, not obligated by state negligence.

Remittance matching programmes

Remittance matching programmes funnel remittances towards state activities by pledging to match money sent with state funding. This can allow governments to enjoy a discount on activities. It can also, however, encourage state actors to divert activities towards areas perceived to be attractive to diaspora funding. Because many migrants leave relatively wealthier areas, remittance

matching may furthermore not be a viable way of helping poorer communities. In Mexico, remittance matching programmes began in a promising way, but were politicised, suffered from corruption, and had inadequate accountability. In all remittance use efforts, accountability and transparency is central.

States wishing to raise remittances through matching should seek to build trust-based relationships with diasporas; engage with communities in selecting local projects; subject project implementation to scrutiny; and use a proportion of saved or raised money for more vulnerable communities, recognising that remittances will flow towards relatively wealthier areas.

Green diaspora bonds

Diaspora bonds can provide funding for green and adaptation initiatives. They allow diasporas to use saved money earning low interest rates to help their countries of origin, paying below-market-rates to support development projects. Green diaspora bonds would support adaptation or mitigation projects.

Diaspora bonds require trust in the government. Many climate-vulnerable nations exhibit high levels of corruption, and diaspora bonds may not be feasible in these contexts. Where they can be used, they should be used to support community-level green or adaptation projects; they should be issued by the central government; they should have a relatively short maturity period; and they should allow early withdrawal or transfer to another domestic development project.

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