



german  
cooperation

DEUTSCHE ZUSAMMENARBEIT



# The landscape of financing options to address human mobility in the context of climate change

Instruments and approaches to finance measures on climate change related migration, displacement and relocation

Implemented by

**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH

### **Suggested citation**

Tänzler, D. and Bernstein, T. (2022), The landscape of financing options to address human mobility in the context of climate change. Instruments and approaches to finance measures on climate change related migration, displacement and relocation. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH/adelphi. Bonn and Eschborn/Berlin.

# Content

List of figures and table .....	4
List of abbreviations.....	5
<b>Executive summary .....</b>	<b>6</b>
<b>1 Introduction.....</b>	<b>8</b>
1.1 Objective and scope of the paper .....	8
1.2 Background.....	9
<b>2 Sources of HMCCC finance.....</b>	<b>11</b>
2.1 Domestic sources.....	12
2.2 Multilateral and bilateral sources.....	13
2.3 Private sources .....	15
<b>3 Financial tools and instruments .....</b>	<b>16</b>
3.1 Loans and non-insurance climate disaster risk financing instruments .....	18
3.1.1 Forecast-based financing.....	18
3.1.2 Microcredit.....	21
3.1.3 Bonds .....	23
3.1.4 Grants, loans and loan forgiveness .....	26
3.1.5 Budget contingency and contingent credit .....	28
3.2 Insurance .....	29
3.2.1 Microinsurance.....	30
3.2.2 Sovereign risk pools .....	32
3.3 Remittances.....	34
3.4 Trust funds.....	37
3.4.1 Relocation funds and other relocation schemes .....	37
3.4.2 Climate land bank .....	39
<b>4 Impact of COVID-19 on HMCCC and financing .....</b>	<b>42</b>
<b>5 Recommendations.....</b>	<b>45</b>
5.1 General recommendations .....	47
5.2 National governments.....	48
5.3 International (climate) governance and bilateral and multilateral organisations .....	49
<b>6 Reference list.....</b>	<b>50</b>

# List of figures and table

Figure 1 – Overview of potential sources of HMCCC finance.....	15
Figure 2 – Relationships between HMCCC instruments and sources.....	17
Table 1 – Instrument risk elements, intervention points and maturity.....	18

# List of abbreviations

<b>ADB</b> .....	Asian Development Bank	<b>IPCC</b> .....	Intergovernmental Panel on Climate Change
<b>AF</b> .....	Adaptation Fund	<b>KLIP</b> .....	Kenya Livestock Insurance Program
<b>ARC</b> .....	African Risk Capacity	<b>KNOMAD</b> .....	Global Knowledge Partnership on Migration and Development
<b>ASEAN</b> .....	Association of Southeast Asian Nations	<b>LDCF</b> .....	Least Developed Countries Fund
<b>CCRIF</b> .....	Caribbean Catastrophe Risk Insurance Facility	<b>MDB</b> .....	Multilateral development bank
<b>CDRFI</b> .....	Climate disaster risk finance and insurance	<b>ODA</b> .....	Official Development Assistance
<b>CLB</b> .....	Climate land bank	<b>OECD</b> .....	Organisation for Economic Co-operation and Development
<b>COP</b> .....	Conference of the Parties	<b>OECS</b> .....	Organisation of Eastern Caribbean States
<b>DRR</b> .....	Disaster risk reduction	<b>PCRAFI</b> .....	Pacific Catastrophe Risk Assessment and Financing Initiative
<b>EAP</b> .....	Early action protocol	<b>RCCC</b> .....	Red Cross Red Crescent Climate Centre
<b>EIB</b> .....	European Investment Bank	<b>SEADRIF</b> .....	Southeast Asia Disaster Risk Insurance Facility
<b>FbF</b> .....	Forecast-based Financing	<b>SFDRR</b> .....	Sendai Framework for Disaster Risk Reduction
<b>GCF</b> .....	Green Climate Fund	<b>SRP</b> .....	Sovereign risk pool
<b>GIZ</b> .....	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH	<b>TFD</b> .....	Task Force on Displacement
<b>HLP</b> .....	Housing, land or property	<b>UN</b> .....	United Nations
<b>HMCCC</b> .....	Human mobility in the context of climate change	<b>UNDP</b> .....	United Nations Development Programme
<b>IDA</b> .....	International Development Association	<b>UNDRR</b> .....	United Nations Office for Disaster Risk Reduction
<b>IDB</b> .....	Inter-American Development Bank	<b>UNFCCC</b> .....	United Nations Framework Convention on Climate Change
<b>IDMC</b> .....	Internal Displacement Monitoring Centre	<b>UNGA</b> .....	United Nations General Assembly
<b>IDP</b> .....	Internally displaced person	<b>UNHCR</b> .....	United Nations High Commissioner for Refugees
<b>IFRC</b> .....	International Federation of Red Cross and Red Crescent Societies		
<b>IISD</b> .....	International Institute for Sustainable Development		
<b>IKI</b> .....	International Climate Initiative		
<b>IOM</b> .....	International Organization for Migration		





## Executive summary

*Climate change-induced, slow-onset processes and extreme weather events have been worsening and increasing over the last few decades and, as a result, human mobility has been on the rise. Changing climates are forcing people to leave their homes in search of better economic opportunities, slower environmental changes, such as water scarcity and sea-level rise, are making certain areas uninhabitable, disasters are destroying livelihoods and causing displacement and entire villages are undertaking planned relocations to avoid inevitable loss and damage.*

The implementation of timely and diversified financing measures can dampen the effects of climate shocks, preserve and rebuild livelihoods and significantly reduce future costs. This study presents an overview of sources of financing for human mobility in the context of climate change (HMCCC) and a list of 10 financial instruments and tools for addressing this issue.

The study starts by discussing the key sources of HMCCC finance, covering national, multilateral, bilateral and private sources. At the national level, government budgets, loans granted in the context of a disaster and financial tools, such as bonds, provide the majority of financing. At the multilateral and bilateral level, development funding in the shape of loans and grants through multilateral climate funds, such as the Green Climate Fund (GCF) or the Adaptation Fund (AF), or direct development financing through development agencies (e.g. GIZ) represent some of the most important sources of funding for HMCCC activities. Disaster response organisations also play an important role at the international level with their contributions to disaster relief funding and now with more innovative anticipatory actions, such as the forecast-based financing (FbF) approaches being pioneered by the Red Cross Red Crescent. In the private sphere, sources include philanthropy, remittances and private companies. The most important in terms of volume and impact are private microinsurance offerings and remittances.

The study then details 10 financial tools and instruments: FbF, microcredit, bonds, grants / loans / loan forgiveness, budget contingency, microinsurance, sovereign risk pools (SRPs), remittances, relocation funds and climate land banks (CLBs). They are not mutually exclusive and each of them can play an important role, as part of a diversified risk portfolio, in dealing with the eventualities of climate change impacts on human mobility. The instruments presented can be divided into different risk categories, namely risk retention, risk transfer and risk reduction. Their links to HMCCC vary depending on whether they correspond more to micro-policies (e.g. microinsurance and mi-

crocredit), with clearer direct links, or to macro-policies (e.g. SRPs and bonds), where funding can subsequently be channelled into micro-policies. Some instruments relate to all aspects of HMCCC, for example, remittances, while others are specifically associated with one particular aspect, for example, relocation funds to resettle vulnerable populations.

The study also evaluates how the instruments can serve as a vehicle for gender transformative action. Ensuring that implementation guidelines for more macro-level policies pay special attention to the social context and the recipients of benefits (i.e. who gets help) at the more micro-level can have the added bonus of addressing gender inequalities in the areas where they are implemented.

The analysis of sources of financing and financial instruments resulted in recommendations for different target groups. A general recommendation that should be emphasised is that for a better risk portfolio, synergies between instruments need to be leveraged. To this end, capital raised through any type of capital procurement (macro-level policies) can be passed on to those who need it through other instruments. The main recommendations drawn from the study for national governments are to improve the role of monitoring and data collection, to further support capacity building to enable financing for addressing HMCCC and to implement a diversified portfolio of instruments to spread risk. Finally, the recommendations for international climate governance and bilateral and multilateral organisations suggest that international partners can help achieve better results by offering flexible financing periods and by continuously supporting the process of enabling informed and flexible decision-making by governments, for example, through capacity building projects, seed funding, funding programmes and funds dedicated exclusively to HMCCC.





# 1 Introduction

## 1.1 Objective and scope of the paper

This scoping study provides information on sources of financing and financial tools and instruments for addressing HMCCC. It will explore where such financing comes from and detail the innovative financing solutions that are currently being implemented, piloted and suggested. The study pays particular attention to the gender transformative power of the tools and instruments presented and the extent to which the COVID-19 pandemic is affecting financing flows and options.

Human mobility is a catch-all term encompassing forced displacement, migration and relocation. The way it is addressed is therefore context dependent, and the normative point of departure of this scoping study is that the sources, tools and instruments should serve the well-being of people affected by the different types of mobility.

While the study is intended for a general audience, it will be especially useful for governments facing pressing HMCCC challenges as it will help them identify concrete instruments



and methods for financing measures to address HMCCC and relevant implementing agencies and institutions capable of carrying them out. While the authors recognise that HMCCC is happening all over the world, this study focuses on developing countries that are particularly vulnerable to the impacts of climate change.

The second section of the introduction provides background information explaining why there is an urgent need to better understand financing related to HMCCC. The next chapter gives a general overview of the different sources of HMCCC financing, followed by a description of financing tools and instruments. The penultimate chapter discusses the potential impacts of COVID-19 on sources of financing and the implementation of the tools and instruments, and the final chapter sets out conclusions and recommendations going forward.

## 1.2 Background

Climate change-induced, slow-onset processes and extreme weather events have been worsening and increasing over the last few decades (IPCC 2021). Scientifically documented increases in droughts, heavy precipitation and hot and cold extremes (ibid.) have put particularly vulnerable people under further strain. These increases in rapid-onset disasters and slow-onset events, such as sea-level rise, have impacts on and consequences for human mobility. As has been noted elsewhere (Kaczan and Orgill-Meyer 2020, p. 3), many of the cases examined in this study relate to increased weather anomalies and may not be indicative of permanent changes in climate, although this has no bearing on the applicability of the information provided.

Human mobility has been increasing as a result of climate change, with 30 million new displacements by weather-related disasters in 2020 alone (IDMC 2021). The latest worst-case-scenario estimates pin the number of internal climate migrants (including forced migrants) at up to 216 million by 2050 (Clement et al. 2021).

Changing climates are forcing people to leave their ancestral homes in search of better economic opportunities, disasters are destroying livelihoods and leading to displacement and entire villages are undertaking planned relocations to avoid inevitable loss and damage. Regardless of whether some impacts are unavoidable, the implementation of timely and diversified financing can mitigate the effects, preserve and rebuild livelihoods and significantly reduce future costs. The United Nations Office for Disaster Risk Reduction (UNDRR) estimates that every USD 1 invested in risk reduction and prevention saves up to USD 15 in post-disaster recovery, and every USD 1 invested in resilient infrastructure saves USD 4 in reconstruction (UNDRR 2021). Despite the clear benefits of financing activities related to risk reduction, climate change adaptation made up just 5% of climate finance flows in 2018, with disaster risk management accounting for just 22% of that (Buchner et al. 2019).

**Human mobility has been increasing as a result of climate change, with**  
**30 million**  
**new displacements by weather-related disasters in 2020 alone.**

*IDMC 2021*

Adaptation finance does not necessarily have to target human mobility directly as pre-emptively and actively mitigating loss of livelihood often helps to avoid human mobility. However, increasing wealth and helping people retain their assets can also serve as a driver for migration. The relationship between financing and potential counterfactual non-displacements or complex social drivers for decisions to migrate make it difficult to draw empirical links between the implementation of financial instruments and causal effects on human mobility. Ultimately, better preparedness and availabil-

ity of funding for people in need will lead to improved outcomes for those most vulnerable to the impacts of climate change.

Research conducted for this paper suggests a steady increase in financing to address HMCCC from a variety of sources, including private entities, national governments, disaster response organisations and multilateral and bilateral development agencies and banks, which are discussed in greater detail in chapter 2. It is increasingly recognised that there is no one financing solution or instrument that can slice the Gordian knot of HMCCC; rather, a mix of instruments, with diversified risk strategies and the acceptance of potential inevitabilities (such as relocation), is necessary to tackle the multifaceted challenges nations are faced with. A non-exhaustive list of 10 financial instruments and tools is provided in chapter 3.

The financing tools and instruments implemented in relation to HMCCC not only support people generally, but can also lead to positive gender transformative outcomes. Typically, in developing country contexts, women are more likely to be affected by climate change and climate change-related disasters (Women's Environment and Development Organization 2008; Habtezion 2013) although the exact impacts are

very situation dependent (Goh 2012). With the aim of feeding two birds with one scone, practitioners and policy-makers can look to embed (preferably) gender transformative (or at least gender sensitive) elements in their institutional practices on the sources<sup>1</sup> of financing side and in implementation on the tools and instruments side.<sup>2</sup> The role of gender is therefore considered, and examples of either gender sensitive or gender transformative elements are presented for each of the financing instruments in this study as far as insights are available. Many of the examples focus on empowering women as women are often more disadvantaged in an HMCCC-developing country context. The gender examples and recommendations hold true for, and can in many cases also be extrapolated and extended to, marginalised groups, who are more vulnerable to climate change too (Habtezion 2012).

Lastly, it would be impossible to ignore the pandemic that has been affecting all aspects of life since mid-March 2020. The study therefore includes a chapter on the impact of COVID-19 on financing related to HMCCC. Potential ways in which the pandemic has affected and will continue to influence the different financing streams is discussed in relation to the selection of instruments.

1 For example, the UNFCCC pays special attention to and provides information on gender issues in its climate finance: <https://unfccc.int/topics/gender/gender-and-unfccc-topics/gender-and-climate-change-finance>.

2 Generally speaking, it is possible to design either norm aware (or sensitive) interventions or norm transformative interventions. Norm aware interventions do not try to change the norms but work around them so that they do not prevent the project results from being achieved. Norm transformative interventions will try to change the norms hindering the project in order to contribute to a positive project outcome, or norms may change as a result of the increased empowerment of women (source: [2021 GIZ Women's Financial Inclusion Toolkit](#)).



## 2 Sources of HMCCC finance

*Climate policy discussions increasingly focus on the need to mobilise more and smarter finance – especially in the realm of climate adaptation. Research into the volumes and flows of climate finance normally point to a substantial gap between growing needs and available resources, which is particularly pronounced in the case of adaptation finance (Micale et al. 2018). In addition, developments during the 26th session of the Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change (UNFCCC) put the spotlight on the gap that still exists between the 100 billion per year pledged back in 2009 and the actual level now. COP26 helped not only to move towards closing the gap, but also to initiate the process to discuss raising the financial target.*



At the same time, the situation for the specific case of financing solutions regarding HMCCC is similar to what can be said for the overall climate (adaptation) finance landscape: It is clear that there is no single source of financing that can cover the increasing costs. An overarching approach is needed, including financing from domestic, international, public and private sources. These different dimensions often overlap (e.g. links between domestic and international sources of financing). In addition, public and private sources often depend on each other. For instance, insurance, which is a key instrument, may be provided by the private sector under certain framework conditions established by the public sector. Another example is the increasingly prominent role of blended finance, which the Organisation for Economic Co-operation and Development (OECD) defines as ‘the strategic use of development finance for the mobilisation of additional finance towards sustainable development in developing countries’, with ‘additional finance’ referring primarily to commercial finance (OECD 2018).

### A survey of the Climate Vulnerable Forum countries revealed that

# 81%

**of respondents have ‘at least one national financial mechanism or instrument to deal with climate risks and impacts’**

*Analysis by Künzel and Schäfer, p. 17 (2021)*

#### 2.1 Domestic sources

As far as domestic sources are concerned, different approaches need to be considered. The increasingly important role of domestic budgets for adaptation is highlighted in a recent study pub-

lished by the Global Center on Adaptation (Allan et al. 2019). The findings suggest that, in many developing countries, domestic budgets are already the largest source of funds for adaptation. This is, of course, true for government investments in infrastructure, specifically those aimed at ensuring resilience to future climate changes, although it is less clear-cut for other adaptation finance. Government bonds is one approach that has gained increasing prominence.

An analysis by Künzel and Schäfer (2021) found that there is evidence that national mechanisms are being set up to deal with climate risks and impacts. A survey of the Climate Vulnerable Forum countries revealed that 81% of respondents have ‘at least one national financial mechanism or instrument to deal with climate risks and impacts’ (p. 17).<sup>3</sup> Furthermore, most of the countries without a national mechanism were participating in a regional one.

Another potential source of financing (at least in terms of providing resources, if not cash) for addressing HMCCC is social protection programmes. Existing infrastructure for dealing with arriving migrants, joblessness, homelessness and food insecurity, for example, can provide a lifeline for people facing pressing problems relating to HMCCC. It has also been shown in several studies that social protection can enhance adaptive capacity by providing recipients with resources to build their asset base, which allows households to plan for the future, inter alia, for more climate-resilient livelihoods (Tenzing 2019). Insurance as a pillar of social security must also be mentioned. The important role of (socially inclusive) insurance approaches as a major element of social security schemes is highlighted by initiatives such as the Global Partnership for Financial Inclusion. Here, the interplay and overlap between public and private is evident. Incentivising the engagement of the private sector at the local level (e.g. local small and medium enterprises) is identified as an important component of domestic action (Restle-Steinert and Hausotter 2019). In addition, financial coopera-

<sup>3</sup> On pp. 19 and 20 of the report, the authors provide examples of national and regional risk transfer and risk retention mechanisms currently in use in the surveyed countries.



tives set up and managed at the community level and the active role of rural and national banks can form a key pillar of domestic finance. Small-scale approaches, in particular, can be a viable option that is more accessible to local people and therefore more effective in reaching vulnerable people quickly when they most need help.



## 2.2 Multilateral and bilateral sources

### *International climate regime*

At the international level, there is a broad spectrum of potential sources of financing for addressing HMCCC. International climate finance, a major contributor, is most likely to provide entry points for targeted support. In the area of international climate policy, migration has received increasing political attention over the past decade. Key steps, such as the recognition of the relationship between climate change and different forms of human mobility within the UNFCCC process at COP16 in Cancun in 2010, paved the way for the creation of a Task Force on Displacement (TFD) under the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (WIM) at COP21 in Paris. The first TFD workplan (2016-2018) focused on providing an up-to-date overview of the available data and the methodologies, policies, institutional frameworks, guidance and tools existing at national, regional and international level relevant to displacement in the context of climate

change. The recommendations produced on the basis of this work were approved by the Parties at COP24 in Katowice. The TFD's mandate has been extended for a further five years. The second phase (2019-2021) is based on a new plan of action, which has gone further in recognising the importance of financing instruments and sources. Under activities 15 and 20, there are explicit references to FbF in the context of supporting parties in strengthening their understanding of preparedness and concerted efforts to better leverage funds from GCF and AF (TFD 2021).

Despite these encouraging developments, however, a recent analysis of major international climate finance donors, notably the GCF, the AF, the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF), and bilateral approaches, such as the International Climate Initiative (IKI), indicated that climate funds and financial mechanisms fund only a very small number of programmes and projects that explicitly address migration and human mobility issues (Wright et al. 2021; Schäfer et al. 2021). Under the AF, there are currently projects with a strong focus on this topic in progress in Morocco and Rwanda but also additional projects especially in small island states where human mobility is at least considered as an important factor. Furthermore, only a few examples of international climate finance highlight the relationship between environmental migration and climate change as an overall priority. These projects target a range of vulnerable countries including some Pacific island states. Generally, they focus on climate change adaptation, ranging from coastal protection measures to more sustainable forms of housing. However, there are some countries, such as Fiji, where a relocation trust fund has been established to address the challenges associated with HMCCC (see section 3.4 below). Fiji's approach also aims to attract other international partners and, to this end, considers normative frameworks established by international climate finance. Another example is the Vanuatu National Policy on Climate Change and Disaster-Induced Displacement (2018) which takes into account GCF fiduciary standards and social and environmental safeguards in planning. An overview of the theoretical funding

scope and current project portfolio for loss and damage, including HMCCC, by four major climate finance mechanisms can be found in the study [Financing Instruments and Sources to Address Loss and Damage from Slow-onset Processes](#) by Germanwatch (Schäfer et al. 2021).

#### *Bilateral and multilateral funding*

Another important source of financing is bilateral development cooperation (e.g. GIZ), which is aimed at providing capacity building and institutional support to set up structures to involve financing support from international partners. An example of bilateral climate finance addressing HMCCC as a priority is the East Africa – Peru – India Climate Capacities (EPICC) project funded by IKI.

The role of development banks is also worthy of attention. The Asian Development Bank (ADB), for example, is helping people to move to affordable, low-carbon, climate-resilient and liveable eco-districts as part of its engagement in Mongolia. The focus is on financing sustainable and comprehensive solutions to transform the climate-vulnerable and heavily polluting ger areas (a type of residential district in Mongolian settlements) in Ulaanbaatar city. Private sector investment is being leveraged to build 10,000 affordable green housing units and redevelop 100 hectares of ger areas into eco-districts. Other institutions such as the European Investment Bank (EIB) have been actively working to link their climate and migration work, exploring options for both loan and grant models to bolster their efforts, as revealed in the interviews conducted for this study.

In addition to multilateral development banks (MDBs), disaster response and humanitarian aid organisations also play an important role in HMCCC financing, occupying a slightly different space in that, traditionally, they have provided immediate ex post disaster financing. This is done by pooling relief efforts from a variety of sources and using established channels to disburse funds to meet acute needs. Increasingly,

these players, especially organisations such as the International Red Cross and Red Crescent Movement, have been shifting towards ex ante approaches, with the implementation of FbF initiatives, among others (discussed in more detail in section 3.1). Beyond disaster response there is a recognition of the power of preventative and adaptive capacities to stymie the impacts of disaster. To this end, for example, through the Red Cross Red Crescent Climate Centre (RCCC), measures ranging from policy support and capacity building, to partnerships with the private sector, extensive government collaboration and humanitarian dialogues, infrastructure investments and environmental planning and restoration (RCCC 2020) are being pursued by humanitarian actors to provide a varied and more holistic approach to disaster prevention.

#### *International frameworks and agreements*

The impetus for the efforts of national, multilateral and bilateral actors comes partly from frameworks and agreements adopted on the international stage. One example is the Sendai Framework for Disaster Risk Reduction (SFDRR) which, despite the political sensitivity of the topic, gives credence and consideration to a variety of human mobility issues relevant to disaster risk reduction (DRR), such as acknowledging the fact that displacement is one of the main consequences of disasters and the important role of migrants in resilience building in their host communities (UNGA 2015). However, there are also omissions and limitations; although the problem is recognised (disasters and displacement), action to address the issue was watered down in the drafting process (Guadagno 2016).<sup>4</sup>

Other international initiatives such as the Global Compact for Safe, Orderly and Regular Migration (GCM) represent a strategic opportunity to promote efforts to address HMCCC as a key element of overall international migration governance and management and, closely related to this, to enable long-term finance. However, the targets and principles adopted in 2018 lack any

<sup>4</sup> This is only one of several criticisms; see Guadagno (2016) for a more extensive look at the shortcomings of the SFDRR in relation to human mobility.

clear focus on how to further enable finance although there are general references to development finance and promoting solutions to further enable the use of remittances (target 20), which too can serve as an important source of financing for addressing HMCCC (UNGA 2018).

### 2.3 Private sources

Private sources of HMCCC finance include the efforts of individuals (remittances, philanthropy) and private sector companies. Private sources are by no means siloed from public funds, and interaction and cooperation take place on different levels. Often, private sources of financing will be combined with public sources, such as official development assistance (ODA). This is known as blended finance, as mentioned above, which has been on the rise in recent years as a way of leveraging additional capital to complement grants (Pereira 2017). However, the blended finance approach has mainly been used in middle-income countries so far and may be of limited value in addressing the impacts of sudden-onset events.

Philanthropic contributions from individuals to address HMCCC are presumably managed almost

exclusively by disaster relief organisations, such as the Red Cross Red Crescent, who act as an intermediary, or at least guided by institutions such as the Center for Disaster Philanthropy, which helps individuals make informed decisions about their donations. Remittances are perhaps the single most important source of private financing, with flows to low- and middle-income countries (excluding China) exceeding foreign direct investment and ODA (Barne and Pirlea 2019).

Finally, there are different types of contributions from the private sector. Relevant stakeholders in the field of adaptation are financial institutions and investors, such as banks and insurance companies as well as pension funds and impact investors. They can, in principle, invest in resilience or provide funding for adaptation for others, for example, through (micro) loans, bonds or venture capital (Cochu et al. 2019). With regard to human mobility, insurance companies are probably the most relevant actor aiming at contributing to the affected people’s coping capacity. However, a major interest of companies may be to technically support adaptation before climate hazards take place as their profits are directly linked to such hazards not happening.

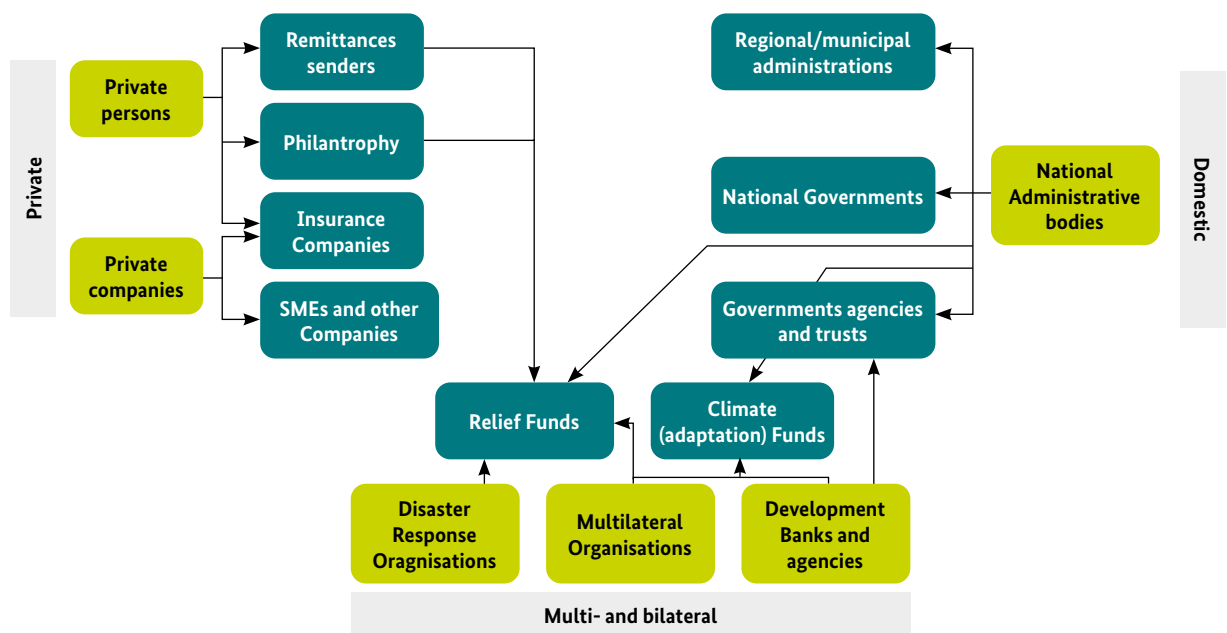


Figure 1 – Overview of potential sources of HMCCC finance





### 3 Financial tools and instruments

*For an analysis of how activities to address HMCCC can be financed, it is important not only to look at where the financing comes from, but also to see how the funding is subsequently implemented. A selection of 10 financial instruments and tools are presented below. It is important to note that the list is not mutually exclusive; in fact, using different instruments and tools either simultaneously or in conjunction with each other is recommendable to better manage the risks resulting from the impacts of climate change. In terms of risk, the tools can be categorised under the headings of risk retention, risk transfer and risk reduction, and by employing a mix of the three, governments can position themselves well to tackle the multitude of challenges faced.*



The list is also non-exhaustive. There are more financial instruments that could be employed to address HMCCC although the ones chosen were deemed the most prevalent based on the research and interviews conducted for the study, both in terms of likelihood of implementation and the funding directed towards them. They are also to some extent context dependent, which means that some tools and instruments will be more suitable than others depending on what aspect of HMCCC is to be addressed.

The instruments and tools presented are generic in the sense that they can be adapted and tweaked to match different societal circumstances and cultural contexts. For example, instead of using bonds, insurance and loans, sukuk (Islamic bonds), takaful (Islamic insurance) and qardh al-hasan (Islamic loans) could be used for compatibility in an Islamic context.

Lastly, in selecting the instruments and tools, the focus was on those with a clear financial element. Therefore, the likes of social protection programmes were omitted from the list as they entail a host of different services, each embedded in its own legal and cultural context. Taking advantage of infrastructure that can help with distribution to the most vulnerable is, however, useful, and this question will be revisited in the recommendations chapter.

The chapter is structured into sections matching the classification of instruments shown in Figure 2 and Table 1. For each instrument, a definition is provided, its link to HMCCC is explained, implementation timing is described, gender transformative issues are discussed, examples of implementation are given, also highlighting gender transformative aspects where relevant, and barriers and opportunities are analysed.

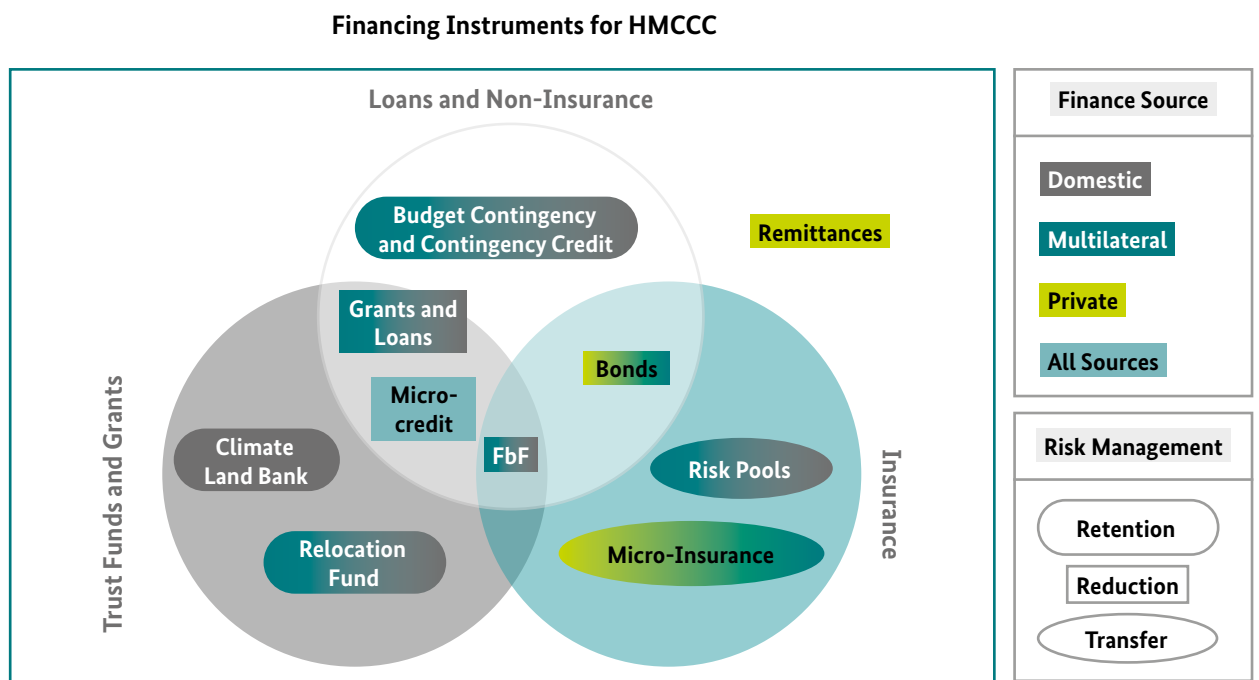


Figure 2 – Relationships between HMCCC instruments and sources

Action	Instrument	Point of intervention			Type of Event		Source of Finance			Instrument Maturity		
		Before	During	After	Slow-onset	Sudden-onset	Domestic	Multilateral	Private	Nascent	Early days	Well established
Risk Reduction	Remittances	•	•	•	•	•			•			•
	Forecast-based Financing	•			•	•	•	•		•	•	
	Bonds	•		•	•	•	•		•		•	•
	Micro-credit	•		•	•	•	•	•	•			•
	Grants and Loans	•		•	•	•	•	•				•
Risk Retention	Relocation Fund	•		•	•		•	•		•	•	
	Climate Land Bank			•	•	•	•			•		
	Budget Contingency and Contingency Credit		•	•		•	•	•			•	•
Risk Transfer	Micro-insurance	•	•	•		•		•			•	•
	Risk Pools		•	•		•	•		•	•		

Table 1 – Instrument risk elements, intervention points and maturity (inspired by Meenan et al. 2019, p. 8)

### 3.1 Loans and non-insurance climate disaster risk financing instruments

This section describes different types of loan instruments and non-insurance climate disaster risk financing instruments. It mainly covers different risk reduction instruments (aside from remittances which are described in section 3.3) and risk retention in the context of contingency budgets and contingent credit. Risk reduction, that is, reducing the severity of the impacts climate change could have on human mobility, is an important pillar in addressing HMCCC. In particular, advances in ex ante financing and creating protocols and established channels for quickly accessing funding when it is most crucial have made a significant contribution to tempering the effects of climate change-related disasters.

#### 3.1.1 Forecast-based financing

##### ➔ Description

FbF is a financial mechanism used to get funding for anticipatory humanitarian action before a natural disaster strikes. Using what are called early action protocols (EAPs), which define the important tasks and responsibilities related to humanitarian operations (e.g. triggers for financing, role division and funding allocation), a framework is established which provides a plan for eventual implementation. The rationale is that upfront measures can mitigate higher losses incurred post-event (UNDRR 2021; IFRC and RCCC 2020). This instrument has been applied by the World Food Programme and others in different regional environments to ensure

food security and to enable anticipatory activities in the context of droughts (World Food Programme 2019).

#### ➔ *Link to HMCCC*

FbF is linked to HMCCC in different ways. The financial support can be used to secure properties (houses, etc.) before a disaster hits to strengthen coping capacities and anticipatory action, which in turn helps to avoid displacement. FbF can also facilitate unavoidable evacuation, if planned for in the EAP, by securing rapid finance to set up planned evacuation routes and transport, planning for shelter, organising critical information campaigns with local radio stations, etc. (IFRC 2020). A causal link to avoiding displacement is slightly more tenuous as the question of whether mobility would occur without the FbF action in place would be a counterfactual, and the authors are only aware of one randomised control trial, to date, that has evaluated the impact of an FbF intervention. This aside, reducing adverse effects on livelihoods is likely to contribute to the affected people being able to, at least partially, avoid displacement.

#### ➔ *Implementation timing*

The timing of FbF implementation is inherently ex ante although exactly how long before the disaster it should be deployed depends on the event it is being used to mitigate the effects of. For slower moving weather and climate developments, an FbF mechanism could theoretically be triggered anywhere from one year (or more) up to a week before direct impacts are felt. For sudden and rapid-onset events, FbF could be triggered anywhere between seven days and 24 hours before the expected event.

#### ➔ *Gender aspects*

FbF can facilitate the application of gender sensitive or transformative elements if they are incorporated into EAP design. Funding can be allocated in such a way as to help promote positions of social and financial influence for women and marginalised people more gener-



ally in the affected communities, for example, by only providing resources or providing more resources to households with no male adults. The overall FbF process entails, in principle, different entry points to duly reflect gender transformation, such as agreement on thresholds which needs to be based on consultation processes that should be highly iterative and participatory to enable effective decision-making on the who, when, where and how to act ahead of a drought. Another entry point is the integration of FbF and social protection programmes to allow a broader range of anticipatory actions (World Food Programme 2019).

#### ➔ *Examples*

##### *Slow-onset events*

In Mongolia, extreme weather disasters, called *dzuds*, which are the product of summer droughts followed by heavy snowfall and low temperatures in the winter, are common and can lead to livestock dying off. As these are semi-slow-onset events, they can be predicted well in advance. Using a geographical risk map based on ground observation and remote sensing data, the Mongolian National Agency for Meteorology and Environmental Monitoring

developed trigger guidelines for the disbursement of livestock nutrition kits and unconditional cash transfers. The aim is to support at-risk pastoral households one month ahead of the critical phase. The EAP has been designed to specifically support vulnerable households, with herders only qualifying if they are a single head of household, are over 60 with no guardian, have a disabled member in their household or have five or more children under 16 (IFRC 2019). When affected households receive no support, they can lose their livelihood. In the past, particularly devastating dzuds led to migration from rural to urban areas, such as Ulaanbaatar, in search of new opportunities (Reinikainen 2013).

Just over  
**20%**  
said they used the financing to reinforce their homes.

#### Further reading

- ▶ Further information on FbF can be found on the [FbF website](#) hosted by the IFRC, the German Red Cross and the RCCC.
- ▶ More information and a catalogue of EAPs can be found on the [Anticipation Hub](#), which currently details 105 planned or implemented early actions with information on the country of implementation, administering organisation, related hazard, affected sector, purpose of the action (e.g. preventing loss of livestock) and lead time (i.e. how far in advance the response is initiated).

#### *Sudden-onset events*

A programme run by the International Federation of Red Cross and Red Crescent Societies (IFRC) in Bangladesh paid out the equivalent of USD 60 to over 1,000 households prior to a flood in 2017. Using a post-disaster household survey, Gros et al. (2019) analysed the short-term coping capabilities of these families and compared them with those of families in other flood areas who had not received FbF. The cash grants helped families avoid debt accrual and gain access to food and, importantly, meant that they were not forced to sell valuable assets. One third of respondents used part of the FbF grant on evacuation expenses, another third on livestock fodder and just over 20% said they used the financing to reinforce their homes (p. 6). The Bangladeshi Government is now coordinating with the Bangladesh Red Crescent Society and the German Red Cross to co-implement further FbF measures (Anticipation Hub 2021).

#### ➔ *Opportunities and barriers*

FbF depends on the ability to produce accurate, reliable and sometimes long-term forecasts. This requires significant capacities (human resources, infrastructure) and support from regional or global forecasting centres. To ensure this capacity, new partnerships are required, which also offer further opportunities to strengthen resilience.



### 3.1.2 Microcredit

#### ➔ Description

Microcredit is usually granted to disaster-affected people by national governments but can also come from private entities, multilateral institutions and NGOs. It provides immediate relief to people on the ground directly affected by a disaster. Microcredit is also generally used for adaptation finance and is well established as a financing tool in developing countries.

#### ➔ Link to HMCCC

The use of microcredit can help avoid displacement by providing vital cash injections to bridge gaps and avoid immediate livelihood disruptions. The relationship between credit and migration is less straightforward. Research from Cambodia and elsewhere in South-East Asia suggests that there could be a relationship between taking out loans and migrating, with access to finance enabling people to move. However, no causal link was detected, and it could be that families send a household member abroad to facilitate better access to credit (Bylander and Hamilton 2015; Maharjan et al. 2020). This link

is very situation dependent, and other studies in the literature found that access to credit, especially in the context of a natural disaster, fully mitigated any migration effect (Chen and Flatnes 2019). Furthermore, in the case of microcredit for addressing climate-related impacts, the amounts are small, and loans and credit enabling migration would involve larger volumes (Fenton 2015, p. 8).

Although microcredit is not usually associated with planned relocation efforts as there are ethical concerns surrounding facilitating relocations that would entail the incurrance of debt by the newly relocated, it may be appropriate in some cases for the purpose of funding new livelihood or business opportunities.

#### ➔ Implementation timing

Microcredit is and can be granted before or after an event although it is often not used as an anticipatory action. When anticipatory microfinancing is dispensed, it is usually in the form of grants or insurance. Microcredit granted after an event can help bridge liquidity gaps and can be crucial for avoiding irreparable loss of livelihood.



At the time of publication of its report on the project, the repayment rate was

**93%**

and was expected to close above

**97%.**

*VisionFund 2017*

### ➔ Gender aspects

Microcredit can be gender transformative to the extent that it takes into account local social norms, power structures and hierarchy. In other words, the tool, as such, can only be transformative if the institutions enabling it focus efforts on this aspect; granting microcredit will not automatically result in the empowerment of women. In a case study in India, Guérin and Kumar (2016) found that the provision of microcredit is necessarily embedded in local power structures. These structures must be rethought or addressed to enable microcredit to be gender transformative. This has also been observed in South-East Asia where social norms were employed to the benefit of the crediting institutions at the expense of the supposedly empowered women receiving the loans (Karim 2011). Therefore, microcredit facilitating mechanisms must be evaluated and changed, if necessary, to ensure the inclusion of gender transformative elements.<sup>5</sup>

### ➔ Examples

In its project Recovery Lending in Fragile African States affected by El Niño, VisionFund supported 14,500 families following the events caused by this climate phenomenon in 2015. Around USD 3 million was disbursed to families in Kenya, Malawi and Zambia. The project



helped support the rapid recovery of the clients' livelihoods and strengthen their adaptive capacities. At the time of publication of its report on the project, the repayment rate was 93% and was expected to close above 97% (VisionFund 2017). Although this programme was not specifically aimed at reducing migration, by preventing loss of livelihood it can indirectly contribute to reducing migration, taking into account that extreme weather events (extreme heat and lack of rainfall, among others) have been shown to have a statistically significant bearing on migration in sub-Saharan Africa (Hassan and Tularam 2018).

The Government of Vanuatu (2018) published a National Policy on Climate Change and Disaster-Induced Displacement, in which it outlines a longer-term exploratory strategy for 'soft loan options' for people affected by displacement to help them get re-established. These small loans (microcredit) would be granted paying special attention to the capacity of the recipients to repay the loans and their financial literacy (p. 42).

Small loans have also been offered in Viet Nam in conjunction with planned relocations in the

<sup>5</sup> GIZ's new [Women's Financial Inclusion Toolkit – Paving the way for women's economic empowerment](#) not only provides useful information on 'project scoping, design, implementation, and measurement ... tools, guidance, and project ideas', but also discusses social norms on slides 31-36.

context of climate change. Here, as a supplementary service offered in addition to small cash grants, relocated people can secure low-interest credit (IOM 2016). Although the terms are rather generous (e.g. with deferred payment schemes), the policy has been criticised for not employing a nuanced understanding of vulnerability and the financial instability that can arise from relocation when it does not secure and support long-term livelihood outcomes (Chun 2015).

### ➔ *Opportunities and barriers*

One key advantage of microcredit is that it is easily accessible as support in the immediate aftermath of a rapid-onset event. An effective credit system of this kind can diminish the motivation to migrate. However, the design needs to reflect the context-specific vulnerabilities of a country or region to ensure the sustainability of the measure. Other barriers include the lack of local infrastructure for the disbursement of microcredit, local financial literacy and trust in financial institutions. The risk of over-indebtedness must also be taken into account. In situations where microcredit is offered and used solely for reconstruction purposes and not as an investment in activities that can lead to higher productivity or additional income, loan recipients can end up in a debt spiral.

### 3.1.3 Bonds

#### ➔ *Description*

Bonds are debt instruments and come in many shapes and forms. The issuer of a bond, usually a sovereign state, corporate entity, philanthropic institution or development bank or agency, issues a debt security (bond) to a holder, who pays for the bond. The issuer receives immediate capital which they can use, paying the bond holder an interest rate over a predefined period and finally repaying the initial bond purchase price at the end of the fixed bond period. The main purpose is to raise immediate funds, which can help provide short-term liquidity. The flexibility in the structure of a bond is also useful to the issuing entity as its maturity can be designed to match the purpose of the capital (project duration, infrastructure development, etc.). Bonds have recently gained some prominence, especially as a means to support green transition processes.

#### ➔ *Link to HMCCC*

The link between bonds and displacement, migration and relocation in the context of climate change will depend on the nature of the bond.

The creation of low-yield refugee bonds has been proposed to support longer-term refugees

#### Further reading

- ▶ The ADB paper [Microfinance for Disaster Recovery](#) discusses the usefulness (and empirically positive effects) of microcredit for recovery following disasters.
- ▶ The International Institute for Sustainable Development (IISD) has published a [useful report](#) on the role of microfinance for climate change adaptation more generally.



via housing, infrastructure and job creation (which could help generate repayment cash flow through taxation) in Jordan, for example (Kleiman 2017, p. 26). These bonds could also be specifically aimed at raising capital for people displaced by the impacts of climate change. This would help create planning security for the host country and facilitate the local integration of refugees (Angenendt et al. 2019, p. 22).

Impact bonds have also been increasingly used in climate, development and aid contexts. They tie the interest rate and eventual repayment options to metrics-defined goal achievement (Puri and Khan 2019). So far, they have not been used explicitly for HMCCC but could, in the future, be issued to raise capital for adaptive capacities or other sovereign funds, such as the CLB and relocation fund instruments discussed below. As they require a measurable development aspect, they do not lend themselves to being used as capital for immediate response funds.

More directly linked to disaster and disaster response are catastrophe (cat) bonds. Cat bonds are different from traditional bonds in that they have an insurance element integrated into them. They are modelled on the occurrence of catastrophes, where bond maturity and pay-back are linked to a disaster not happening in that timeframe. If a contractually specified disaster does occur, then the investors may lose their initial investment. Governments can issue cat bonds to help insure against disasters, with the potential for funds (that they would otherwise have had to pay back) to be used for post-disaster assistance. The Red Cross Red Crescent is considering using cat bonds to help provide financing for internally displaced persons (IDPs), the majority of whom are displaced due to natural disasters (Artemis 2018).

Finally, some countries, for example Israel, have issued diaspora bonds with an especially low interest rate. This is accepted by the purchas-





ers likely due to a sense of patriotic duty (Ketkar and Ratha 2010). Diaspora bonds could be employed by national governments especially vulnerable to climate change to generate cheap capital to help with adaptation or relocation.

### ➔ *Implementation timing*

As bonds are used to raise capital, the timing of their implementation will depend on when the capital is available and for what it is ultimately earmarked in the bond agreements. Impact and refugee bonds could be used either before or after an event, and cat bonds can be used in the immediate to longer-term aftermath of a disaster.

### ➔ *Gender aspects*

Impact bonds can be modelled to specifically benefit and empower any body or group, including women. Gender bonds have become increasingly popular in the last decade, with the market picking up significantly since 2017 (IISD 2021). For example, the Women's Livelihood Bond Series raises capital to help women in South-East Asia adapt to climate change by providing affordable credit, with products such as disaster insurance and agricultural inputs to support climate adaptation (UNFCCC 2019a). Refugee and other impact bonds can also be established with protocols for gender transformative aspects. These can be created to be independently verified, which would serve to support the bond product by defining clear milestones for when the investors would receive their repayments and the level of interest payments on the bond.

### ➔ *Examples*

No single bond is a one-size-fits-all solution, and different types can be combined to achieve the most effective outcome for financing measures to prevent disaster displacement or, if necessary, relocation. In a study of innovative finance options for increasing flood resilience in Semarang, Indonesia, the Mercy Corps (2019) outlined a mix of bond instruments that could help build flood resilience to avert displacement. They list green bonds (bonds that

cover capital expenditure for green/climate-related resilience infrastructure), resilience impact bonds (metrics-based payouts, as discussed above, for example, a certain number of trees planted to help build a sea wall) and resilience bonds (bonds that monetise the savings from infrastructure investment to reduce insurance premiums, which helps generate initial cash flow as a result of savings on insurance payments), all as initial liquidity instruments to provide funding for resilient infrastructure that can avert displacement were a flooding disaster to take place.

Disaster-related displacement in the Philippines, a very at-risk country due to its climate, geography and infrastructure, is well documented (IDMC 2013). As part of a diversified climate disaster risk finance and insurance (CDRFI) portfolio, the Philippine Government set up a catastrophe bond in 2019 to provide immediate funding in the wake of a disaster. It makes USD 225 million available over a three-year period. Payouts are dependent on the severity of a potential earthquake or tropical cyclone (GC Capital Ideas 2020). No payouts have been reported so far, and there is no evidence of a specific focus on making them available for displaced people.

### ➔ *Opportunities and barriers*

The introduction of targeted bonds can help increase planning security by diversifying the issuing party's risk portfolio. Bonds also allow for the consideration of a diverse set of functions, including the promotion of gender transformative aspects. Barriers include the technical know-how to implement, structure and certify them, which also entails some transaction costs.

#### Further reading

- ▶ The [Disaster Risk Finance – A Toolkit](#) publication by GIZ has further information on bonds on p. 33.

### 3.1.4 Grants, loans and loan forgiveness

#### ➔ Description

In HMCCC finance, grants, loans and loan forgiveness will usually be provided by development agencies and MDBs to disaster-affected nations. While microcredit is also a type of loan, this section refers to loans involving larger amounts, usually those granted to a governing entity. The grant or loan is often tied to a programme that specifies what the grant or loan can be used for, what conditions have to be met and, in the case of a loan, what the repayment terms are. Although governments are often the direct recipients, ultimately, people affected by climate change are the beneficiaries of the grants and loans. There are also ‘concessional loans’, which are loans granted at below market rates, often in a development context, to avoid exacerbating the indebtedness of the recipient country.

In a slightly different context, grants are also awarded to fund HMCCC research. While such grants have no immediate impact on people moving as a result of climate change, the knowledge garnered from the research helps inform policy and decision-making. In this case, funding will come from supranational bodies, national governments, development agencies and multilateral development banks and institutions. An example is a recent technical assistance grant awarded by ADB with the purpose of ‘Understanding Disaster Displacement in Asia and the Pacific’ (ADB 2020).

**Although addressing human mobility is not specifically referenced in the overall objective of the GCF, since 2018, HMCCC elements are now observable in over**

**20** of its projects

#### ➔ Link to HMCCC

There is no inherent link between grants and loans and migration, displacement or relocation. Any links will depend on the implementation of the funds granted or loaned. Grants and loans may be specifically designated to address a HMCCC-related topic, and one such case is discussed in the examples section below. As grants and loans are essentially just sums of money (provided under different terms), they can be used in conjunction with many of the other instruments covered in this report. For example, grant money can be utilised to facilitate FbF or to provide microcredit.

#### ➔ Implementation timing

Loans will often be given in the aftermath of a climate change-related event in order to support recovery processes. Typically, grants will fund adaptive capacities. General relief funds, which can be categorised as a grant, are issued shortly before or after an event that could lead to HMCCC.

#### ➔ Gender aspects

Grants and loans can be designed to accommodate gender transformative aspects. The GCF is the first climate finance mechanism to mainstream gender perspectives. This entails having gender aspects inform project design and choices for funding allocation, and for an institution to be GCF-accredited (meaning that they can develop funding proposals and handle GCF project grants), they need to be able to demonstrate (verified) internal institutional gender-related practices and standards (GCF 2019). Although addressing human mobility is not specifically referenced in the overall objective of the GCF, since 2018, HMCCC elements are now observable in over 20 of its projects (IOM 2018).<sup>6</sup>

<sup>6</sup> Full list of projects available in footnote in IOM 2018, p. 54. The project numbers can be entered into the search bar on the GCF website. HMCCC elements in the projects listed in IOM 2018 are mostly indirectly addressed and are not the primary target.

### ➔ *Examples*

The GCF project Enhancing adaptive capacities of coastal communities, especially women, to cope with climate change-induced salinity addresses the problem that an increase in the concentration of salinised water poses for coastal communities in Bangladesh. The resulting decrease in the availability of freshwater resources has led men who previously had livelihood opportunities in farming to migrate in search of employment. This places an added burden on women who are left with a larger proportion of unpaid and paid work. Increasing salinity also threatens livelihoods because it reduces resources for livestock and paddy fields. Preliminary project research has also showed that the task of fetching water, now more tedious and time-consuming as it is necessary to go farther to find it, falls primarily to women. To reduce climate-induced migration and thereby enable women to have more time to pursue different economic activities, the project is supporting coastal residents in a variety of integrated water management schemes so that they can make better use of available resources (GCF 2018). It complements and supports a related project in Bangladesh with a more direct focus on climate-induced migration.

Following Cyclone Idai in 2019, which displaced close to half a million people (IDMC 2019), the World Bank made around USD 550 million available to help the people of Mozambique, Malawi and Zimbabwe re-establish key livelihood-enabling resources (water supply, food security, basic infrastructure, crops, etc.). The support was made available through the Crisis Response Window of the International Development Association (IDA) (World Bank 2019). IDA funds are either grant-based or loan-based, or a mix of the two, and are dependent on the recipient's risk of debt distress (World Bank 2021a).

Loan forgiveness can also be used to free up financial resources to address HMCCC. Debt swaps, where debt is forgiven under the promise of using the forgiven (discounted) sum for a specific purpose, is not a new concept, but it has been increasingly eyed in recent times for implementation in a climate context. The debt

would be forgiven as a means of development assistance. The United Nations (UN) Economic Commission for Latin America and the Caribbean has recently advocated using this in the Caribbean to fund the Caribbean Resilience Fund (IISD 2019). The aim of a Caribbean Resilience Fund, which is still at the conceptual phase, would be to finance response and (green) recovery efforts in the member states of the Organisation of Eastern Caribbean States (OECS) to deal with the impacts of climate change and disasters in the region. The financing mechanism will help to avoid a downward spiral of disaster-related infrastructure destruction, economic recession, shrinking financial capacities and regional disintegration. It will also be instrumental in perpetuating regional integration for resilience and post-disaster finance.

### ➔ *Opportunities and barriers*

Grants, loans and loan forgiveness can build on existing fiscal infrastructure to enable the rapid disbursement of funds. They can be combined with other instruments described here to allocate funds in a just and timely manner although grants and loan forgiveness are to some extent funder dependent, and loans may be a less attractive option for already indebted governments.

#### Further reading

- ▶ A more general overview of the role of loans and grants in climate change adaptation finance can be found in the publication [Financing adaptation to climate change – an introduction](#).

### 3.1.5 Budget contingency and contingent credit

#### ➔ Description

Budget contingency and contingent credit provide for emergency funds that are explicitly budgeted for and then drawn upon if needed. Sovereign states provide for budget contingency as allocations in the national budget (they may also be established by regional or municipal governments although this is less likely due to their significantly more constrained budgets), and contingent credit is issued by MDBs. Like the grants and loans described in the previous section, these funds can be disbursed using some of the instruments discussed in this report. Ultimately, the beneficiaries are the people directly affected by the climate change-related event, and the aim is to prevent unwanted mobility or to facilitate necessary mobility.

#### ➔ Link to HMCCC

Budget contingency and contingent credit in relation to HMCCC are funds specifically set aside to deal with the immediate effects of an extreme weather event. There is a link to HMCCC insofar as budgetary planning addresses HMCCC or helps restore livelihoods or prevent their destruction, which contributes to averting displacement. Contingency budgets can also be employed to relocate people, where necessary.

#### ➔ Implementation timing

This instrument is used immediately before or after an extreme weather event. In the short time window before, it could be used for FbF measures, and immediately after, for different relief purposes, whichever form they take (small grants i.e. unconditional cash transfers, microcredit, debt moratoriums and other general disaster response measures).

#### ➔ Gender aspects

Similar to loans and grants, contingent finance can include gender transformative elements to the extent that they are planned for. For contingent credit, they can be stipulated in the lending terms. For budget contingency, plans can be drawn up in advance to ensure that funding is gender transformative.

#### ➔ Examples

In Thailand, the central government budgets for emergency funding to tackle loss and damage resulting from flooding in order to provide immediate livelihood-preserving relief to households. Funding is provided in the form of unconditional cash transfers made uniformly across affected regions (UNFCCC 2019b).

The Contingent Credit Facility, developed by the Inter-American Development Bank (IDB), offers pre-prepared contingent loans to IDB member countries. Recipient countries are required to have a pre-approved comprehensive natural disaster risk management programme in place and can borrow up to USD 300 million or up to 2% of their GDP, whichever is lower. The programmes must include 'risk analysis, prevention, mitigation, emergency preparedness and disaster response, as well as provisions for adequate and sustainable financing of the remaining retained or transferred risks, to be implemented in a period of no more than five years'. Triggers for disbursement are parametric (IDB n.d.). Although no explicit HMCCC elements are mentioned in

**Recipient countries are required to have a pre-approved comprehensive natural disaster risk management programme in place and can borrow up to**

**USD 300 million**

**or up to 2% of their GDP, whichever is lower.**



### Further reading

- ▶ As part of input for the 2019 review of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts, the UNFCCC Secretariat produced a [technical paper](#) which discusses the sources of and modalities for accessing financial support for addressing loss and damage, including risk retention and contingent finance.

the stipulations for the credit, these, in addition to gender transformative elements, could be added at a later point in time.

### ➔ Opportunities and barriers

Contingent credit and contingent finance are an important part of risk portfolio diversification, complementing risk reduction and transfer with risk retention and allowing for adequate long-term planning to address both sudden- and slow-onset events that can lead to human mobility. The main barrier, at least for contingent finance, is that national/subnational budgets are inherently zero-sum, which means that there can be political challenges involved in the initial allocation to a contingency financing pot.

## 3.2 Insurance

Insurance instruments serve as risk transfer instruments as they transfer the risk associated with an event from the insurance policy holder to the insurance provider. Insurance schemes to minimise the risk of the impacts of a climate change-related event have been in use both at the micro and macro level for over a decade now. While microinsurance typically involves indemnity-based insurance, where a policy holder must provide proof *ex post* of the damages to claim for them, in climate change policies, parametric insurance is almost exclusively employed. This is also the case at the macro level, for example for SRPs, which are described below. Parametric insurance uses predefined metrics and payout triggers; when a cer-





tain threshold is met, the insurer will pay out immediately without requiring proof of individual damages. This is particularly useful for two reasons. The first is that it is very efficient as the resources for small-claim policy holders to provide proof of loss when they are in a dire situation simply are not there. A second advantage is that it dramatically increases the speed at which policy holders receive payment. This is crucial for preserving livelihoods when they are threatened.

Timing is therefore vital when it comes to designing insurance policies. Parametric insurance allows, to some extent, for implementation to be *ex ante*; the triggers can be set to pre-empt any shock and make payouts to help prevent displacement or enable relocation, for example. Some such cases are described under section 3.2.1 below.

Like the other instruments, insurance should be part of a balanced HMCCC response portfolio. In some instances, there are structural limits to the applicability of an insurance scheme, for example, with slow-onset events. Unless triggers can be clearly defined, insurance (at least parametric insurance) may not be suitable for addressing the problem (Müller et al. 2018).

### 3.2.1 Microinsurance

Microinsurance is a small-scale individual insurance product provided at affordable rates and often paid out parametrically (and pre-emptively) to help people avoid or recover from livelihood loss that could lead to displacement. Microinsurance is offered to those who could be affected by an extreme weather event by governments, development agencies and private firms. The vulnerability of the recipients should be taken into account, and the insurance premiums can be subsidised to assist particularly vulnerable and cash-strapped households (Müller et al. 2018).

#### ➔ *Link to HMCCC*

The role of insurance tools in relation to mobility is primarily that it increases agency although, empirically, the exact effect on HMCCC is not clear – insurance might facilitate or inhibit mobility. Potential causal pathways are that when insurance payouts help people regain their livelihoods they would then eventually either have the means to migrate or, conversely, not need to migrate in search of better opportunities. It can also reduce the number of people or the amount of time displaced (GIZ 2018). There are also ongoing policy discussions on microinsurance for people enduring protracted displacement to facilitate inclusion in their temporary place of residence (Müller et al. 2018).

#### ➔ *Implementation timing*

For parametric insurance, which is the preferred type of microinsurance in developing countries, the point of deployment is after the predefined parameters and thresholds are met. This could either be before or after the full impacts are felt by the policy holders as the policy will pay out not when the insured asset is affected, but when an extreme weather event that is known to affect the insured product, has taken place. For example, with slower-onset extreme weather events, insurance schemes to protect livestock may be triggered before any livestock fatalities occur if certain drought levels are reached and demonstrated by verifiable satellite data.

### ➔ Gender aspects

Many existing microinsurance products take gender into account. They can be gender transformative by taking into account local power structures and social circumstances that may inhibit gender equality. Using a data-based approach, they should consider 'how to inform, select and target clients; the kind of product coverage provided; the way of distribution and servicing that works for women, and the way benefits or payouts are provided to be effective' (Miles and Wiedmaier-Pfister 2018). Microinsurance products do not have to be offered exclusively to gender-relevant populations; general availability of the product can be combined with specific models, for example, by offering subsidised premiums to vulnerable households.

### ➔ Examples

Since 2008, the International Livestock Research Institute has been implementing various microinsurance products that protect pastoralists against drought in arid and semi-arid areas in Kenya and Ethiopia. The idea behind the initiative is that, by promoting economic development and building greater resilience, such products can help slow 'the cycles of displacement, irregular migration and resultant instability in the three regions of the Mander triangle by providing people – particularly the most vulnerable – with choices' (Boresha 2021).

One of these programmes is the Kenya Livestock Insurance Program (KLIP). Livestock is an important part of the lives of many people in rural areas of Kenya where extreme weather impacts can be devastating for their livelihoods. The Kenyan Government estimates that 70% of the damages (USD ~8.4 billion) caused by drought between 2008 and 2011 affected livestock alone (World Bank 2017a). KLIP had the target of reaching 65,000 pastoralists by 2020 with payouts issued on the basis of a forage availability index. The Kenyan Government has purchased a portion of this livestock cover on behalf of selected vulnerable households (ibid.). KLIP's product design included considerations

### The Kenyan Government estimates that

# 70%

of the damages (USD ~8.4 billion) caused by drought between 2008 and 2011 affected livestock alone.

*World Bank 2017a*

of equity of access, including by gender (Miles and Wiedmaier-Pfister 2018).

### ➔ Opportunities and barriers

Convincing people of the quality of insurance may be challenging as its benefits are triggered by stochastic occurrences. Liquidity can also be an issue in general but may be addressed by ensuring effective timing of premium payments, which can help overcome liquidity constraints. Some flexibility is required because people who are forcibly displaced or lack the required documentation might have difficulty making insurance claims (although this is less relevant for parametric insurance).

### Further reading

- ▶ The InsuResilience Global Partnership aims to improve the use of CDRFI. There are many useful resources available in their [knowledge hub](#).
- ▶ The [Munich Climate Insurance Initiative](#), a think tank on climate change and insurance has publications and more information on CDRFI topics on its website.
- ▶ Insurance – a new approach for linking relief, rehabilitation and development ([Müller et al. 2018](#))
- ▶ New [Evidence Roadmap](#) for CDRFI, applicable not only to microinsurance, but also to CDRFI more generally.





### 3.2.2 Sovereign risk pools

#### ➔ Description

A risk pool is a method that insurance companies use to reduce their risk of sudden and extreme losses caused by major disasters. SRPs operate under a similar principle whereby geographically dispersed entities pool together to form a collective disaster insurance-like payout scheme for governments. The pool itself is operated by an institution set up to manage it, as in the case of the African Risk Capacity (ARC), the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) and the Southeast Asia Disaster Risk Insurance Facility (SEADRIF), or by an independent company providing such services, as in the case of the Caribbean Catastrophe Risk Insurance Facility (CCRIF).

Contributions (premiums) are used to raise funds, and the geographic distance between the pool partners helps reduce risk for individual contributors. Unlike typical insurances, which have cyclic rates depending on demand for the policy, SRPs can dictate their own terms, thereby avoiding unplanned premium increases. Similarly, if the pool is not activated, the SRP can also offer savings or reduced contributions in the future. As the name indicates, SRPs serve national governments and can help provide im-

mediate relief to people affected by sudden-onset extreme weather events. SRPs can also be funded in the form of a development scheme, with individual contributions (partly) subsidised by a development institution, depending on the nation's individual needs.

Like other instruments that constitute cash injections at the macro national level (budget contingency, contingent credit and grants), the funds can be used innovatively and effectively in line with the micro-instruments that directly target affected people (microcredit, FbF, unconditional cash transfers).

#### ➔ Link to HMCCC

As an SRP is a macro-level policy, any direct links to HMCCC will depend on the implementation of the relief funds. The rapid funding made available through an SRP can provide flexibility in financing action to meet urgent infrastructure and livelihood needs, which can either facilitate migration or shorter-term relocation or help prevent displacement. Some initial insights may be available from the Caribbean region, where the CCRIF Real-Time Impact Forecasting System supports rapid evacuation measures although there is no significant reference about how to enable the financing needed (CCRIF 2010).



### ➔ **Implementation timing**

Existing SRPs are modelled as parametric insurance schemes and are therefore implemented when certain predefined parameters are triggered. This could be when certain wind speeds are reached or when a certain magnitude on the Richter scale is registered for earthquakes. Payouts are made shortly thereafter. The time it takes to pay out depends on the agreements of the respective SRPs although it would be within the two-week range.

### ➔ **Gender aspects**

SRPs can be gender transformative by requiring gender transformative practices to be implemented in the disbursement of the funds by the receiving party. The institutional manager of the pool can also institutionalise gender practices and offer support in their implementation. This is done by ARC, which ‘accompanies Member States through an institutional strengthening process that spans from 12 to 18 months’ (ARC n.d., p. 23). The process involves setting up a country programme which coordinates country activities and ultimately culminates in the creation of an implementation plan, that is, a gender strategy for the disbursement of funds (ibid., p. 24). CCRIF and PCRAFI do not have guidelines for gender transformative implementation, but CCRIF does collect gender impact data and PCRAFI collects sex-disaggregated data on beneficiaries and audits payouts (Miles and Wiedmaier-Pfister 2018).

### ➔ **Examples**

There are currently four SRPs in operation: CCRIF (some Central American and Caribbean nations), ARC (African Union member nations),<sup>7</sup> PCRAFI (some Pacific island nations) and SEADRIF (participating ASEAN nations).

- CCRIF is the longest running of the four and has made the most payouts, both in terms of

frequency and volume; in the last year there have been payouts on 12 occasions with the most recent coming after the magnitude 7.0 earthquake in Haiti in August 2021 (CCRIF 2021).

- RC offers parametric insurance policies for the key climate risks faced by African nations, namely droughts and tropical cyclones; policies for river floods are under development. ARC requires recipients to develop an implementation plan before they can receive payouts (World Bank 2017b).
- PCRAFI started as a development programme with fully subsidised premiums. Now though, the programme has progressed to a co-financing model, with some countries taking on full responsibility for premiums by either paying them in part with loans from the IDA or, as is the case of the Cook Islands, paying them wholly from their government budget (ibid.).
- SEADRIF launched its first product, a regional catastrophe risk insurance product covering floods. Although, so far, it is only operational in the Lao People’s Democratic Republic, with the aim to expand it to other countries in the near future (SEADRIF n.d.).

As part of the Philippine Government’s Disaster Risk Financing and Insurance Strategy, the Philippine Department of Finance designed a city-level disaster risk insurance pool, based on the parametric insurance principle, with 10 geographically dispersed cities participating. The premiums paid by the participating cities are dependent on the pre-assessed level of risk they bring to the pool. The programme was inspired by the three SRPs described above and is set to be extended to other cities following its roll-out (ADB 2018a).

### ➔ **Opportunities and barriers**

The clear opportunity offered by an SRP is that it helps spread the risk among geographically similar nations that are dispersed enough to en-

<sup>7</sup> World Bank (2017b) provides an overview of participating countries (as of 2017) on p. 34. All countries in the African Union are technically party to ARC although the risk pools are set up as yearly instruments and the members vary from year to year. See ARC’s [risk pool overview](#) for more information.

sure that the impacts of a single given event will not affect all of them. By banding together, they not only have the benefit of spreading risk, but are also able to access more capital with an external policy provider. In the case of an internally managed pool, they can set the premiums themselves without the need for a profit margin for the provider. Barriers to successful implementation include a lack of capital if the pool is not reinsured and there is a year with an abnormal number of extreme weather events or when extreme weather occurs but without reaching pre-determined thresholds.

#### Further reading

- ▶ The World Bank publication [Sovereign Climate and Disaster Risk Pooling](#) provides a trove of information on managing the financial impact of climate and disaster risks, lessons learned from existing SRPs and recommendations going forward.
- ▶ The individual websites of the different SRPs mentioned in the examples above are a useful starting point for understanding exactly how an SRP is managed and implemented. [CCRIF](#), [ARC](#), [PCRAFI](#), [SEADRIF](#).

### 3.3 Remittances

#### ➔ Description

Remittances are sums of money sent home by migrant workers to their personal networks in their countries of origin. The importance of the role of remittances in development cannot be overstated, with the yearly volume exceeding total development assistance by a factor of three to four (Angenendt et al. 2019). Remittances are especially important in the aftermath of an extreme weather event when using established channels can get the necessary support to those who need it efficiently. Where an event has been particularly devastating, the investment and credit/loan prospects may be particularly poor; here too, remittances play an important role in bridging liquidity gaps for the people on the ground immediately affected by the event.

Remittances can finance adaptive capacities although it is important to consider the socio-economic profile of the households receiving the remittances to determine whether it is relevant in adaptation discussions: low-income households will be more likely to use remittances to cover basic needs, whereas higher-income households may use them for 'longer-term investments, which could benefit adaptation strategies' (IOM 2017).

#### ➔ Link to HMCCC

Remittances relate to HMCCC in three main ways: as disaster relief, as a means of financing adaptation and increasing resilience and as an enabler for mobility.

Like the other micro-instruments and financing sources outlined in this paper, remittances, when used as disaster relief, can help rebuild livelihoods which can help avoid (longer-term) displacements.

Remittances can be used to finance adaptation as they provide people living in disaster-prone areas, who may otherwise be more adversely affected, with a stable source of income, helping

them smooth consumption and reduce the income volatility associated with farming in such contexts. This has been shown to be the case in Ghana, for example (Musah-Surugu et al. 2017). It can also help secure more long-term planning, conceivably deterring migration in search of better economic opportunities.

Remittances can also be used to enable further mobility, for example, by paying for another household member to migrate, reducing the risk of them being trapped. Remittances can therefore support in situ adaptation and also enable migration as an adaptation strategy.

### ➔ *Implementation timing*

While remittances may increase in the aftermath of an extreme weather event (Debnath 2015), they are generally sent on a continuous basis. The amount and frequency of remittances will depend on the ability of the migrant/diaspora communities to continue to provide them and the receiving communities to receive them. Some research indicates that although remittances will increase after an event, the yearly average will remain the same, implying that later in the year the amount will decrease as the financial situation of the senders does not change (Bragg et al. 2018).

### ➔ *Gender aspects*

The sending of remittances is an inherently social process, and any gender impacts will depend on who is sending/receiving the remittances and in what context. On the receiving end, for example, following extreme weather in India's Upper Assam region, households with only female members were worse off compared to households with a younger male head of household because, culturally, men are typically 'custodians of a household's social capital' (Banerjee et al. 2017, p. 17), which affords them better access to recovery funds and supplies. For women-headed households, remittances constituted important livelihood-preserving



funds that they might not have received otherwise (ibid.). Gender is also a factor in the sending of funds. Women who migrated due to climate change (e.g. unstable crop yields led them to seek economic opportunities elsewhere) remitted larger proportions of their income than men in a study of remittances received in climate disaster-prone villages in Bangladesh (Debnath 2015). In general, however, it should be kept in mind that the types of financial and remittance services offered often do not meet the financial needs of migrant women. For example, as women send smaller sums more often, they spend more on transfer fees.<sup>8</sup> This implies a need to develop products and services that cater to the unique characteristics and needs of different target groups. Women generally also have less access to banking than men in developing countries (Demirgüç-Kunt et al. 2018), which presents structural challenges (also relevant to the discussion of gender and micro-finance above) in addition to social ones.

<sup>8</sup> <https://www.iom.int/sites/g/files/tmzbdl486/files/about-iom/Gender-migration-remittances-infosheet.pdf>

One project looking to address these issues is the GIZ-funded Digi#ances project, which aims to increase the use of digital financial services, including cross-border remittances, by un-banked Jordanians and refugees, with a particular focus on women (GIZ n.d.).

### ➔ *Examples*

Remittances in the Upper Assam region of India play an indirect and direct role in household-level adaptive capacity in terms of both ex ante and ex post disaster-related response. The duration and regularity of remittance sending also has an impact (helps ensure longer-term planning and investment). Remittances were found to be used first and foremost for basics (food, debt repayment, housing needs, etc.). In terms of indirect impact, households receiving remittances have access to communication technology which means they are more likely to receive early warning of natural disasters. Time is crucial in preparing for flooding, for example, shoring up the house and moving livestock. A direct impact is that households receiving remittances have better access to formal financial institutions and insurance and are more likely to invest in disaster adaptation (Banerjee et al. 2017).

### Further reading

- ▶ The World Bank's [Migration and Remittances Unit](#) has many useful sources on the topic. It also funds the Global Knowledge Partnership on Migration and Development ([KNOMAD](#)) which has additional resources and publications.
- ▶ [Banerjee et al. \(2017\)](#), referred to above, is a KNOMAD working paper and one of few to discuss the impact of remittances on adaptive capacity.

In Somalia, remittances played a crucial role in supporting people affected by droughts in 2016. Responses from a survey<sup>9</sup> conducted by the World Bank revealed that those who received remittances coped better with the drought and covered emergency needs more easily. IDPs living outside displacement settlements and receiving remittances also coped better with the shock of the drought (Plaza 2019).

### ➔ *Opportunities and barriers*

Extreme weather events tend to increase the amount of remittances sent (Mohapatra et al. 2009), at least in the short term, thus serving as a useful tool to be coupled with other policies to get the most out of every dollar sent home by migrants abroad. Remittances, as a source of funding, are generally more resilient to climate and weather shocks (depending on where the sources are situated) because the migrants are abroad and there is no correlation between the risks to their livelihoods and those of the recipients. Additionally, urban jobs are often less dependent on weather and therefore provide a point of financial stability in the face of any eventual shocks. Barriers include the fact that data on remittances is often limited and that, as a decentralised financing mechanism, remittances cannot be counted on to reach all those who need help because not every family receives them. Remittances alone cannot therefore be relied on to provide short-term relief.

<sup>9</sup> Raw survey data available [here](#).



### 3.4 Trust funds

A trust fund in the field of climate finance refers to an instrument that establishes an ongoing fund to act on problems caused by climate change. As part of a trust fund approach, government institutions and ministries can collaborate with civil society, the private sector and international partners to implement specific dedicated objectives using financial resources contributed according to partner pledges or other ways of ensuring sufficient resources. There are manifold examples of trust funds – Bangladesh and Indonesia are among early movers in this regard and good examples of how challenging some of the key features of a fund are, such as blending finance from different sources, setting up an appropriate governance structure and ensuring that the process to access the fund is sound and transparent.

#### 3.4.1 Relocation funds and other relocation schemes

A trust fund to manage the process of relocation is a special form of trust fund with a distinct purpose. The Government of Fiji started its efforts to adopt a comprehensive approach to planned relocation back in 2012. It published its national 'Planned Relocation Guidelines: A framework to undertake climate change related relocation' in late 2018. The guidelines are the first of their kind and set out principles and social safeguards to guide the government in assisting those communities in Fiji that are at risk from increasing sea-level rise in the island's coastal areas. Relocation is considered and decided as a last resort measure, and close interaction with the affected villages and communities is a key priority to ensure a participatory process. This has involved community consultations and the setting up of a cross-sectoral government Relocation Task Force. The government laid the legal foundation for the Climate Relocation of Communities Trust Fund in 2019. Funding of FJD 5 million annually is expected



## Funding of FJD

# 5 million

annually is expected to come from the government via the allocation of a portion of the revenue from its Environment and Climate Adaptation Levy, which is essentially a tax on the service and tourism industry

*Thornton et al. 2021*

to come from the government via the allocation of a portion of the revenue from its Environment and Climate Adaptation Levy, which is essentially a tax on the service and tourism industry (Thornton et al. 2021). The first international pledge came from New Zealand, illustrating how domestic sources and international (ODA) funding can be combined.

Standard operating procedures for planned relocation are close to finalisation. They are important for ensuring that the distribution of funds and the selection of beneficiaries is organised in a way that is sound, transparent and inclusive. They also help make the trust fund attractive to other international donors so that they contribute to it.

### ➔ *Link to HMCCC*

A relocation trust fund addresses the problems of a population at very high risk of being displaced in the foreseeable future. In the case of Fiji, the government started with villagers from Vunidogoloa in Vanua Levu, the first to be relocated in 2012. This first experience provided insights into how to coordinate such a process. The villagers had already experienced the effects of rising sea levels, with salt-water flooding their homes and ancestral burial grounds and ruining their farmland. The risks from

landslides were also high. Two more communities followed, but overall more than 40 villages have been identified as needing to be relocated to higher and safer ground. To date, the identified relocations have not been financed by the trust fund as it is not yet fully operational. However, as our interviews indicated, the identification work carried out made the need for reliable financing all the more obvious.

### ➔ *Implementation timing*

Once established, a trust fund focusing, for example, on relocation will aim to plan and implement the relocation before the effects of a slow- or rapid-onset event are felt. It can therefore be considered an anticipatory action. In principle, such a trust fund can also be organised in the form of grants or insurance to provide support as a response to a climate impact. However, by planning the fund well in advance, irreparable losses of livelihoods and lives can be avoided.

### ➔ *Gender aspects*

As the Fiji example indicates, a defining element of the relocation trust fund idea is to ensure the participation of the most vulnerable, including women. The Government of Fiji highlighted that the fund should serve as a blueprint not only for engaging communities being relocated, ensuring proper coordination between various agencies and gender awareness in the proc-

### Further reading

- ▶ The UNHCR report [Planned Relocation, Disasters and Climate Change: Consolidating Good Practices and Preparing for the Future](#) provides guidance on how to implement planned relocations.
- ▶ Insights on experiences with planned relocation relevant for setting up funding mechanisms can be found in the working paper [Designing a funding framework for the slow-onset impacts of climate change](#) (Boston et al 2020).



ess, but also for considering how marginalised groups, such as children, the elderly and those living with disabilities, could best be served.

#### ➔ *Opportunities and barriers*

The challenges of a relocation process are manifold. Even if funding is available to relocate a village slightly inland, there may be no higher customary land available which would mean the relocation could not take place (Farbotko 2020; Government of Kiribati 2019, p. 13). The process of selecting the beneficiaries can also prove contentious. Challenges surrounding property rights will arise as a result of the lack of clarity on ownership of both the original land and the destination site. The opportunity it offers is that any new infrastructure can be built in a green and climate-resilient way to avoid the need for relocation in the future.

### 3.4.2 Climate land bank

#### ➔ *Description*

The idea of a CLB was conceptualised by the organisation Displacement Solutions (2018) and has slowly been gaining traction since a publication outlining how it could be implemented in Myanmar was published in 2018. Due to changing political circumstances and the armed conflict that broke out in the country in early 2021, the proposal never left the drawing board. Nevertheless, its principles are applicable beyond Myanmar and indeed anywhere in need of a management process for relocating people threatened by the impacts of climate change.

A CLB is a state-held trust designed to hold land assets that can be used for relocating IDPs if and when necessary. It can help minimise and avoid indefinite internal displacement, international displacement, land disputes and other conflicts. Setting up a CLB entails creating an institution tasked with facilitating the process of providing people with new land. This involves



carrying out an initial scoping review of climate threats, evaluating land that could potentially be claimed for relocation, managing and holding assets, working with would-be-affected communities to decide who should be relocated and when and ensuring that their livelihoods are guaranteed in their new places of residence. It is a financing instrument insofar as it can be viewed as a type of social security scheme, providing social housing too. Beneficiaries of such a programme, that is, people vulnerable to slow and sudden-onset climate events, often have limited choices, which boil down to either indefinite displacement or migration to slums on the outskirts of cities, a trend observable in many climate change-stricken regions. As demand will grow over time, considering that climate change impacts will only worsen in the decades to come, the state will need to increasingly access and claim larger parcels of land to be taken over and made available under the trust (ibid.).

Consideration is being given to the idea of introducing a voluntary land swapping plan, similar in concept to a CLB, as part of an ADB-led

project (with GCF funding) in Mongolia (see section on grants above). The plan is to utilise already inhabited space for an eco-district in the greater Ulaanbaatar metropolitan area (ADB 2018b).

#### ➔ *Link to HMCCC*

Like the fund described above, a CLB is specifically geared towards facilitating relocation. The purpose is to avoid displacement by ensuring relocation options for those whose current living situations are threatened by the effects of climate change. The approach is for all relocations to be voluntary and requires a collaborative bottom-up participatory process involving the would-be-affected people.

#### ➔ *Implementation timing*

A CLB should be designed and set up well in advance of when relocation would become necessary. Conducting climate impact assessments (who is likely to be affected), amassing land assets (identifying existing government land, reclaiming potential sites and acquiring new as-





sets), identifying the most immediately affected, establishing relocation protocols and holistically addressing infrastructure needs are steps that need to be taken before anyone can be moved.

### ➔ Gender aspects

A CLB is an institution that performs a variety of tasks including climate impact mapping, convening meetings to design the bank itself, creating action plans, appointing staff to carry out pilot studies and eventually carrying out the voluntary relocations. A gender lens should be embedded institutionally to promote transformative elements in all aspects of implementation. The country context will also be a factor as laws might restrict women's ability to hold housing, land or property (HLP) rights. In addition to legal parameters, potential social constraints should also be taken into account. In Shwe Sar Yan, one of the villages for which the feasibility of a CLB in Myanmar was explored, it was noted that while women's HLP rights were relatively strong, the decision-makers and dispute resolvers in village land management were always men (Displacement Solutions 2018, p. 14).

### ➔ Example

A CLB has not so far been implemented anywhere and has only been thoroughly evaluated and proposed for Myanmar. The report from Displacement Solutions (2018) includes case studies on several villages in Myanmar to evaluate the feasibility of relocation. They found that vulnerable villagers at risk are willing to move but only when the situation forces them to do so. Additionally, certain livelihood guarantees would have to be in place, including property rights in their new place of residence and livelihood options, in this case, land suitable for rice paddy cultivation. Displacement Solutions further concluded that adjacent land would not be sufficient and relocations would necessarily involve the acquisition and allocation of non-adjacent land.

### ➔ Opportunities and barriers

Barriers to implementation of the CLB idea include, first and foremost, a lack of political stability in the implementing country. In the case of Myanmar, proposals and work on the land bank were halted following the military coup in early 2021. Other barriers are potentially weak property rights, where competing land claims can exacerbate conflicts. Opportunities include the fact that moving early can help avoid long-term internal displacement, taking into account that movement will be inevitable for some communities eventually. A thorough scoping of available land, in a bid to pre-empt any avoidable loss of livelihood, will pay dividends both economically and socially in the long run.

#### Further reading

- ▶ The publication [Establishing a Myanmar National Climate Land Bank](#) referred to above.
- ▶ Project [document](#) for the voluntary land swapping plan referred to above.



## 4 Impact of COVID-19 on HMCCC and financing

*In terms of mobility, COVID-19 has resulted in more restrictions on migration, with national borders being closed to foreign nationals, although it has also led to foreign nationals living abroad returning home. Closed borders pose a challenge for places such as the Eastern Caribbean where the OECS free movement regime means that people can normally move across borders, when required, to escape the effects of extreme weather events (GIZ 2020). The pandemic has adverse effects related to IDPs too. Internal displacement caused by climate change will often force people to move from rural to urban areas, which in times of COVID-19 can further increase the social strain on host cities. Coping strategies in the context of climate-related migration also often include rural to urban moves as migrants seek better job and health care opportunities, which have become scarcer during the pandemic (Mosello et al. 2020).*

There are also clear effects on financing as dealing with the effects of COVID-19 has put budgetary stress on most, if not every, government worldwide. A reduction in revenue, coupled with more funds being diverted to health services and other pandemic-related spending, has meant fewer resources for already over-stretched funding programmes.

COVID-19 has unlocked large amounts of state financing in the shape of recovery funds. In order to kickstart their economies, governments the world over have pledged unparalleled public spending which, in some instances, is also mandated to be used for green initiatives. Examples are the recovery plans of the European Union (37% of recovery funds for green transition) and the United States (climate and energy elements of the Build Back Better initiative turned infrastructure bill). In order to further encourage governments to put climate change at the centre of recovery efforts, the UN Secretary-General proposed six guiding actions (UN 2020).

On the other hand, elevated national debt levels as a result of stimulus spending puts governments in a weaker fiscal position to deal with natural disasters. Hochrainer-Stigler (2021) demonstrates in a catastrophe simulation model that some developing countries, particularly those that are climate vulnerable, would be much more susceptible to fiscal risk were a disaster to happen.

One silver lining to emerge from the pandemic is the recognition of the salience of digitalisation. As a positive side-effect of a health policy, digitalisation has been given a boost, offering new opportunities to those who traditionally have not had access to financial services. The benefits of providing digital solutions for HMCCC can be observed, for example, in the GIZ Digi#ances project, which aims to increase financial inclusion by helping refugees and women in Jordan gain access to banking services (GIZ n.d.). Additionally, the digitisation of financial processes reduces transaction costs (which means more money goes to those who need it), increases the speed at

which funds are transferred and improves overall efficiency.

In light of the above-mentioned challenges and opportunities, a closer look at the potential impact of COVID-19 on some of the instruments is warranted. The information below is specific in terms of the examples mentioned but has implications that extend beyond the immediate context of the instruments in question.

- **FbF and other disaster response situations:**

In the specific case of FbF, but also generally applicable to other disaster response situations, the IFRC and the RCCC (2020) note that EAPs can be amended to reflect pandemic-related necessities. In Bangladesh, in anticipation of displacement due to extreme weather, the National Red Crescent Society worked together with the Cyclone Preparedness Programme and local authorities to distribute personal protective equipment, increase shelter capacity, distribute hygiene items and communicate risks related to COVID-19 (p. 11). The amount of financing made available to an FbF initiative also has to be amended to reflect the added services needed to keep people safe.

**The World Bank estimated that, despite the pandemic, the remittances in 2020 were only**

**1.6%**

**below the amount of 2019.**

*World Bank 2021b*



- **Remittances:** The World Bank estimated that, despite the pandemic, in 2020 remittances only fell by around USD 8 billion (from USD 548 billion to USD 540 billion), 1.6% down on 2019. The total amount of remittances was therefore much higher than had previously been anticipated and estimated (World Bank 2020), with the World Bank Remittances and Migration Unit having predicted that they would fall by somewhere between 14% and 20%. One of the main drivers for the steady flow of remittances was the strong stimulus programmes implemented in host countries, enabling senders to keep their contributions consistent (World Bank 2021b).
- **Fiji Relocation Fund:** Where funding for instruments is tied to other funding mechanisms, reductions in the source will logically have knock-on effects. The Fiji Relocation Fund is supposed to receive a significant proportion of its funding from the Environment and Climate Adaptation Levy, which is essentially a tax on the service and tourism industry (Fiji Revenue and Customs Service 2019). The industry took a big hit from COVID-19, leaving a third of the workforce unemployed or underemployed. With the country's economy expected to contract by more than 20% in 2020 (Richmond et al. 2021), inflows to the relocation fund would be significantly reduced.







## 5 Recommendations

*The recommendations in this concluding chapter have been formulated on different levels and for different target groups, especially national governments and donor organisations.*

The overview of the different instruments for supporting financing to address HMCCC reveals a dynamic and innovative landscape, but also different degrees of applicability and maturity. There are two main guiding questions for national governments when considering additional financing options:

- Under what conditions (risk, duration of climate change shock, type of shock, etc.) does it make sense to use the different instruments from the portfolio analysed?
- What are the limits and opportunities determined by specific country contexts? For example, can a well-functioning social security system or sound data collection be utilised to establish an FbF approach?

It is clear from the analysis of the different instruments that none of them will serve as a silver bullet and that some barriers need to be overcome to harness the full potential of the instruments in their respective areas of risk reduction, risk retention or risk transfer. In this context, remittances play a special role due to their relevance at different risk stages. The main challenges to be overcome if remittances are to play an even bigger role in financing for addressing HMCCC include the lack of available data and the fact that, as a decentralised financing mechanism, it cannot be counted on to reach all those who need it as not all families receive remittances. In general terms, the following can be said about the instruments and tools analysed for the three risk categories discussed.

#### *Risk reduction*

- FbF depends on the ability to produce accurate, reliable and sometimes long-term forecasts. This requires significant capacities (staff, infrastructure) and support from regional or global forecasting centres.
- Microcredit needs to reflect the context-specific vulnerabilities of a country or region to ensure the sustainability of the measure. In addition, there is a need for local infrastructure for the disbursement of microcredit, local financial literacy and trust in financial institutions.

- Bonds are a promising instrument for promoting targeted investments and can help to increase planning security, but in-depth technical know-how is required to implement, structure and certify them.
- Grants, loans and loan forgiveness can build on existing fiscal infrastructure to enable the rapid disbursement of funds. They can be combined with other instruments described here to allocate funds in a just and timely manner although grants and loan forgiveness are to some extent funder dependent, and loans may be a less attractive option for already indebted governments.

#### *Risk transfer*

- There is already some experience in using insurance as a financial instrument. It can present liquidity challenges and also requires some flexibility with respect to the difficult situation of forcibly displaced people. Adding flexibility to insurance premium payments can help make them more feasible for people whose liquidity is not cyclic in a monthly sense, but is influenced by seasonal windfalls associated with crop and livestock farming.
- SRPs gained some prominence as a related approach but may face the problem of a lack of capital if the pool is not reinsured and there is a year with an abnormal number of extreme weather events.

#### *Risk retention*

- Finally, ideas for enabling relocation processes – be it a dedicated trust fund or the concept of a CLB – are still in an early stage. The opportunity they offer is that any new infrastructure can be built in a green and climate-resilient way to avoid the need for relocation in the future. However, the issue of the availability of land and the beneficiary selection process can prove to be contentious. Challenges surrounding property rights will arise from the lack of clarity on ownership of both the original land and new sites.



## 5.1 General recommendations

### For a better risk portfolio, leverage synergies between instruments.

Combining the instruments to address HMCCC results in a better risk portfolio, and the synergies achieved by combining them can be leveraged.

### The uptake rate in the two-week experiment window was

# 22%

### higher than it had been among people in rural areas who had been offered the product in previous years.

*Kazianga and Wahhaj 2018*

- In the case of remittances, piggybacking on established credit networks can help facilitate the use of risk transfer policy options. In Burkina Faso, one study offered a rain-

fall index insurance to urban migrants for agricultural land farmed by rural relatives. The uptake rate in the two-week experiment window was 22% higher than it had been among people in rural areas who had been offered the product in previous years (Kazianga and Wahhaj 2018). This naturally relies on the availability of data on remittance senders and receivers. With the creation of a better data-based picture, these networks can be utilised in a variety of ways.

Receiving remittances can also signal credit worthiness as recipients have a steady stream of income from an external source.

- Following a hurricane, the Government of Samoa established a credit line facility (microcredit) for affected households. People who received remittances and where the senders of those remittances were willing to act as guarantor for the loan would pay a much more favourable 3% interest rate as opposed to the usual 10% rate (Le De et al. 2015).
- In addition to remittances being used to build adaptive and reconstructive capacity, states can themselves tap into the wealth of their nationals abroad structurally.



Once capital is raised through bonds (or some other means of procuring capital), it can be passed on to those who need it in the form of other instruments.

- One example is the Women's Livelihood Bond Series which uses the money raised to help women access insurance, small grants and microcredit, among other things (see section 3.1.3 on bonds).
- In a DRR context, bonds can also be combined with insurance through resilience bonds which monetise the reduction in insurance premiums to provide financing for infrastructure that quantifiably reduces damage risk. They do not raise capital like a typical bond, but rather pool together the savings from reduced premiums. It therefore necessitates an insurance scheme, which at the sovereign level could be done in conjunction with a cat bond, for example (Mercy Corps 2019).



## 5.2 National governments

### Improve the role of monitoring and data collection.

The role of data in the application of the different instruments, such as risk assessment, FbF, insurance, relocation funds and CLBs, is of utmost importance.

- Good data is necessary for the implementation of planned relocation and to facilitate implementation and a better understanding of risk profiles. To this end, it is highly recommended to use climate change modelling to inform risk assessments.
- Even when sufficient weather data is available, if the insurance is climate change-related, historical data might not be sufficiently indicative of the impacts of the changing climate, that is, if circumstances deteriorate and insurance premiums are based on more optimistic projections, the scheme will not be financially sustainable.

### Further support capacity building to enable financing for addressing HMCCC.

With more capacity building projects and seed funding, governments can further support the setting up of infrastructure for a number of instruments. It would be helpful to have more dedicated HMCCC programmes and programmes mainstreaming HMCCC that include measures for capacity building to enable financing for addressing HMCCC.

- Important portfolio elements are risk mapping, vulnerability assessments, EAPs, bond infrastructure and macroinsurance and microinsurance policies.
- Together with this portfolio, measures are needed for the digitalisation and streamlining of cash transfers, whether they are small unconditional grants, microcredit or remittances. In this way, transaction costs can be reduced in the event of an emergency.
- This can help build useful interlinkages between governments and remittances. For example, if a government unconditionally



covered the transfer fees of the main transfer service in the country for the period surrounding a disaster event, more money would get through to the vulnerable people who need it quickly and efficiently.

#### **Promote a diversified portfolio of instruments.**

A diversified portfolio of instruments will help spread risk both in terms of who bears the risk and in terms of coping with the potential impacts of climate change-related disasters on human mobility.

- By combining contingency planning instruments, such as budget contingency (potentially in the form of microcredit) and trust funds aimed at short- and long-term coping mechanisms, with instruments such as microinsurance and FbF, a comprehensive strategy can be implemented that both addresses the issue of relocation when it is inevitable and alternatively avoids it efficiently when possible.
  - An example of this is the strategy developed by the Philippine Government that includes elements of microcredit, contingency budgeting, insurance schemes and bonds in an approach called disaster risk layering, based on the premise that no single financial instrument can address all risks (Disaster Risk Financing and Insurance Program 2018).
- The tools and instruments should be implemented in a gender transformative manner. Some instruments, such as trust funds or targeted bonds, are better suited to enabling transformative change than others.
- Existing social protection programmes should be used to help strengthen adaptive capacities before climate-related shocks occur and to streamline help in the aftermath.

### **5.3 International (climate) governance and bilateral and multilateral organisations**

#### **International partners can support the achievement of better results by offering flexible financing periods.**

A more flexible multi-year financing can be promoted – something frequently advocated by international organisations engaged in humanitarian aid, climate finance and ODA. Flexibility is necessary because disasters cannot be predicted. Moreover, long-term financing is required for relocated communities since they might continue to need funding even after the relocation process is complete. The fact that only 2% of UNHCR financing was earmarked as multi-year financing in 2018 highlights the rigidity of international financing.

- Flexible financing can better address longer-term challenges such as slow-onset events or climate shocks that are seasonal.
- Flexible financing can help reduce administrative costs for donor countries and aid organisations and achieve better results through longer planning horizons (Angeendt et al. 2019, p. 15).

International partners have a crucial role to play in continuously supporting the process of enabling informed and flexible decision-making by governments and local partners on HMCCC.

- **Capacity building projects, together with seed funding**, are also useful for governments as recipients to enable them to use innovative financing instruments and to further support the setting up of a comprehensive and coherent financing infrastructure.
- **Dedicated HMCCC programmes** can also be promoted as a pillar of proposals to international climate financing instruments, such as the GCF and AF. In this way, programmes related to HMCCC can be further mainstreamed, and this co-financing can be used to increase the impact.



## 6 Reference list

**ADB (Asian Development Bank) (2018a)**, Philippine City Disaster Insurance Pool: Rationale and Design, Asian Development Bank, Mandaluyong City. <https://www.adb.org/sites/default/files/publication/479966/philippine-city-disaster-insurance-pool-rationale-design.pdf>.

**ADB (Asian Development Bank) (2018b)**, Voluntary Land Swapping Plan – Mongolia: Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Sector Project, <https://www.adb.org/sites/default/files/linked-documents/49169-002-sd-01.pdf>.

**ADB (Asian Development Bank) (2020)**, Understanding Disaster Displacement in Asia and the Pacific, Technical Assistance Report. <https://www.adb.org/sites/default/files/project-documents/53124/53124-001-tar-en.pdf>.

**Allan, S., Bahadur, A. V., Venkatramani S. and Soundarajan, V. (2019)**, The Role of Domestic Budgets in Financing Climate Change Adaptation: A Background Paper for the Global Commission on Adaptation, Global Center on Adaptation, Rotterdam and Washington, DC. [https://gca.org/wp-content/uploads/2020/12/The\\_Role\\_of\\_Domestic\\_Budgets\\_in\\_Financing\\_Paper\\_Final.pdf](https://gca.org/wp-content/uploads/2020/12/The_Role_of_Domestic_Budgets_in_Financing_Paper_Final.pdf).

- Angenendt, S., Biehler, N., Kipp, D. and Meier, A. (2019)**, Growing Needs, Insufficient Resources: How to Fund International Refugee Protection?, SWP Research Paper 13, Stiftung Wissenschaft und Politik (SWP), Berlin. [https://www.swp-berlin.org/publications/products/research\\_papers/2019RP13\\_adt\\_EtAl\\_Web.pdf](https://www.swp-berlin.org/publications/products/research_papers/2019RP13_adt_EtAl_Web.pdf).
- Anticipation Hub (2021)**, 'Government Forecast Based Financing/Action (FbF/A) Taskforce will accelerate FbF/A in Bangladesh', 25 March 2021. <https://www.anticipation-hub.org/news/government-forecast-based-financing/action-taskforce-will-accelerate-fbf/a-in-bangladesh>.
- ARC (African Risk Capacity) (n.d.)**, African Risk Capacity – Leading Gender and DRM: Gender Strategy and Action Plan. [https://arc.int/sites/default/files/2021-09/ARC\\_Gender-Strategy\\_2019.pdf](https://arc.int/sites/default/files/2021-09/ARC_Gender-Strategy_2019.pdf).
- Artemis (2018)**, 'Red Cross looks to ILS structure for refugee & migration financing', 13 December 2018. <https://www.artemis.bm/news/red-cross-looks-to-ils-structure-for-refugee-migration-financing/>.
- Banerjee, S., Kniveton, D., Black, R., Bisht, S., Jyoti Das, P., Mahapatra, B. and Tuladhar, S. (2017)**, Do Financial Remittances Build Household-Level Adaptive Capacity? A Case Study of Flood-Affected Households in India, KNOMAD Working Paper 18, The Global Knowledge Partnership on Migration and Development (KNOMAD). <https://www.knomad.org/sites/default/files/2017-04/KNOMAD%20WP%20Do%20financial%20remittances%20build%20household%20level%20adaptive%20capacity-%20anuary%2017%202017.pdf>.
- Barne, D. and Pirlea, F. (2019)**, 'Money sent home by workers now largest source of external financing in low- and middle-income countries (excluding China)', World Bank Blogs, Blog Post, 2 July 2019. <https://blogs.worldbank.org/opendata/money-sent-home-workers-now-largest-source-external-financing-low-and-middle-income>.
- Black, R., Adger, N., Arnell, N., Dercon, S., Geddes, A. and Thomas, D. (2011)**, 'The effect of environmental change on human migration', *Global Environmental Change*, 21(1), pp. 3-11. <https://doi.org/10.1016/j.gloenvcha.2011.10.001>.
- Boresha (2021)**, Risk Management and Risk Reduction in Fragile Cross Border Areas: Impact and Lessons, World Vision Kenya, Nairobi. <https://boreshahoa.org/wp-content/uploads/2021/05/IBLIDRR-Portfolio.pdf>.
- Boston, J., Panda, A. and Surminski, S. (2020)**, Designing a funding framework for the slow-onset impacts of climate change: insights from recent experiences with planned relocation, Centre for Climate Change Economics and Policy Working Paper 373/Grantham Research Institute on Climate Change and the Environment Working Paper 343, London School of Economics and Political Science, London. [https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2020/08/working\\_paper\\_343\\_Boston\\_et\\_al-1-1.pdf](https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2020/08/working_paper_343_Boston_et_al-1-1.pdf).
- Bragg, C., Gibson, G., King, H., Lefler, A. A. and Ntoubandi, F. (2018)**, 'Remittances as aid following major sudden-onset natural disasters', *Disasters*, 42(1), pp. 3-18. <https://doi.org/10.1111/disa.12229>.
- Buchner, B., Clark, A., Falconer, A., Macquarie, R., Meattle, C., Tolentino, R. and Wetherbee, C. (2019)**, Global Landscape of Climate Finance 2019, Climate Policy Initiative (CPI), London. <https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2019/>.
- Bylander, M. and Hamilton, E. R. (2015)**, 'Loans and Leaving: Migration and the Expansion of Microcredit in Cambodia', *Population Research and Policy Review*, 34(5), pp. 687-708. <https://doi.org/10.1007/s11113-015-9367-8>.



- CCRIF (Caribbean Catastrophe Risk Insurance Facility) (2021)**, 'CCRIF SPC Payouts': <https://www.ccrif.org/aboutus/ccrif-spc-payouts>.
- Chen, J. and Flatnes, Jon. (2019)**, 'Credit Access, Migration, and Climate Change Adaptation in Rural Bangladesh', 2020 Allied Social Sciences Association (ASSA) Annual Meeting, January 3-5, 2020, San Diego, California 296671, Agricultural and Applied Economics Association.
- Chun, J. (2015)**, Planned Relocations in the Mekong Delta: A Successful Model for Climate Change Adaptation, A Cautionary Tale, or Both?, Brookings-LSE Project on Internal Displacement, Brookings Institution, Washington, DC. <https://www.brookings.edu/wp-content/uploads/2016/06/Brookings-Planned-Relocations-Case-StudyJane-Chun-Vietnam-case-study-June-2015.pdf>.
- Clement, V., Kumari Rigaud, K., de Sherbinin, A., Jones, B., Adamo, S., Schewe, J., Sadiq, N. and Shabahat, E. (2021)**, Groundswell: Acting on Internal Climate Migration, Part II, World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/36248>.
- Cochu, A., Hausotter, T., and Henzler, M. (2019)**, The Roles of the Private Sector in Climate Change Adaptation – An Introduction, adelphi, Berlin. <https://www.adelphi.de/en/system/files/mediathek/bilder/EXPLAIN-ER%20The%20roles%20of%20the%20private%20sector%20in%20climate%20change%20adaptation%20-%20adelphi.pdf>
- Debnath, P. (2015)**, 'Climate Change-Induced Migration and Post-Disaster Remittance Responses through a Gender Lens', in Hillmann, F., Pahl, M., Rafflenbeul, B. and Sterly, H. (eds), Environmental Change, Adaptation and Migration: Bringing in the Region, Springer, London, pp. 186-196.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S. and Hess, J. (2018)**, The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution, World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/29510>.
- Disaster Risk Financing and Insurance Program (2018)**, Developing a Disaster Risk Finance and Insurance Strategy for the Philippines, PowerPoint Slides. [https://www.doe.gov.ph/sites/default/files/pdf/announcements/a\\_plenary\\_04\\_developing\\_disaster\\_risk\\_finance.pdf](https://www.doe.gov.ph/sites/default/files/pdf/announcements/a_plenary_04_developing_disaster_risk_finance.pdf).
- Displacement Solutions (2018)**, The Urgent Need to Prepare for Climate Displacement in Myanmar: Establishing a Myanmar National Climate Land Bank, Displacement Solutions, Geneva. [https://issuu.com/displacementsolutions/docs/dis5757\\_myanmar\\_national\\_climate\\_la](https://issuu.com/displacementsolutions/docs/dis5757_myanmar_national_climate_la).
- Farbotko, C. (2020)**, New Approaches to Climate Change and Migration: Building the Adaptive Capacity of Mobile Populations, Migration Policy Institute, Washington, DC. [https://www.migrationpolicy.org/sites/default/files/publications/tcm2019-climate-communities-farbotko\\_final.pdf](https://www.migrationpolicy.org/sites/default/files/publications/tcm2019-climate-communities-farbotko_final.pdf).
- Fenton, A. (2015)**, 'Microfinance and Climate Change in Bangladesh', in Enhancing Food Security and Resilience to Climate Change: What Role for Microfinance?, University Meets Microfinance Thematic Paper, pp. 7-9. [https://www.e-mfp.eu/sites/default/files/resources/2015/11/UMM%20Bergamo%20Thematic%20paper%202015\\_web\\_0.pdf](https://www.e-mfp.eu/sites/default/files/resources/2015/11/UMM%20Bergamo%20Thematic%20paper%202015_web_0.pdf).
- Fiji Revenue and Customs Service (2019)**, 'Environment & Climate Adaptation Levy (ECAL)'. <https://www.frscs.org.fj/our-services/taxation/business/environmental-levy/>.



- GC Capital Ideas (2020)**, ‘Catastrophe Bonds, Disaster Risk Insurance Facilities and Natural Disaster Funds: Protecting our Planet and the Public Purse’. <https://www.guycarp.com/insights/2020/05/catastrophe-bonds-disaster-risk-insurance-facilities-and-natural-disaster-funds-protecting-our-planet-and-the-public-purse.html>.
- GCF (Green Climate Fund) (2018)**, FP069: Enhancing adaptive capacities of coastal communities, especially women, to cope with climate change induced salinity, Funding Proposal. <https://www.greenclimate.fund/sites/default/files/document/funding-proposal-fp069-undp-bangladesh.pdf>.
- GCF (Green Climate Fund) (2019)**, Gender Policy. <https://www.greenclimate.fund/sites/default/files/document/gcf-gender-policy.pdf>.
- GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH) (n.d.)**, ‘Creating the conditions for money transfers without borders’, Project description. <https://www.giz.de/en/worldwide/38566.html>.
- GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH) (2018)**, Climate change, human mobility and climate risk insurance tools, Scoping Paper, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Bonn and Eschborn. <https://www.giz.de/en/downloads/ScopingPaper-HMCCC-and-CRI-2018.pdf>.
- GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH) (2020)**, Human Mobility in the Context of Climate Change: Implications of the COVID-19 Pandemic in the Eastern Caribbean, Policy Brief, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Bonn and Eschborn. [https://www.adaptationcommunity.net/wp-content/uploads/2021/06/giz\\_2021\\_HMCCC-and-COVID19.pdf](https://www.adaptationcommunity.net/wp-content/uploads/2021/06/giz_2021_HMCCC-and-COVID19.pdf).
- Goh, A. (2012)**, A Literature Review of the Gender-Differentiated Impacts of Climate Change on Women’s and Men’s Assets and Well-Being in Developing Countries, CAPRI Working Paper No. 106, International Food Policy Research Institute, Washington, DC. <http://dx.doi.org/10.2499/CAPRIWP106>.
- Government of Kiribati (2019)**, Kiribati Climate Change Policy. [extwprlegs1.fao.org/docs/pdf/kir193352.pdf](http://extwprlegs1.fao.org/docs/pdf/kir193352.pdf).
- Government of Vanuatu (2018)**, National Policy on Climate Change and Disaster-Induced Displacement. [https://www.iom.int/sites/g/files/tmzbd1486/files/press\\_release/file/iom-vanuatu-policy-climate-change-disaster-induced-displacement-2018.pdf](https://www.iom.int/sites/g/files/tmzbd1486/files/press_release/file/iom-vanuatu-policy-climate-change-disaster-induced-displacement-2018.pdf).
- Gros, C., Bailey, M., Schwager, S., Hassan, A., Zingg, R., Uddin, M., Shahjahan, M., Islam, H., Lux, S., Jaime, C. and Coughlan de Perez, E. (2019)**, ‘Household-level effects of providing forecast-based cash in anticipation of extreme weather events: Quasi-experimental evidence from humanitarian interventions in the 2017 floods in Bangladesh’, International Journal of Disaster Risk Reduction, 41. <https://doi.org/10.1016/j.ijdrr.2019.101275>.
- Guadagno, L. (2016)**, ‘Human mobility in the Sendai Framework for Disaster Risk Reduction’, International Journal of Disaster Risk Science, 7(1), pp. 30-40. <https://doi.org/10.1007/s13753-016-0077-6>.
- Guérin, I. and Kumar, S. (2016)**, ‘Market, Freedom and the Illusions of Microcredit. Patronage, Caste, Class and Patriarchy in Rural South India’, The Journal of Development Studies, 53(5), pp. 741-754. <https://doi.org/10.1080/00220388.2016.1205735>.
- Habtezion, S. (2012)**, Gender and Climate Change Finance, Policy Brief, United Nations Development Programme, New York. [https://www.undp.org/content/dam/undp/library/gender/Gender%20and%20Environment/PB5\\_Africa\\_Gender-and-Climate-Finance.pdf](https://www.undp.org/content/dam/undp/library/gender/Gender%20and%20Environment/PB5_Africa_Gender-and-Climate-Finance.pdf).

- Habtezion, S. (2013)**, Overview of linkages between gender and climate change, Policy Brief, United Nations Development Programme, New York. <https://www.undp.org/content/dam/undp/library/gender/Gender%20and%20Environment/PB1-AP-Overview-Gender-and-climate-change.pdf>.
- Hassan, O. M. and Tularam, G. A. (2018)**, 'The Effects of Climate Change on Rural-Urban Migration in Sub-Saharan Africa (SSA) – The Cases of Democratic Republic of Congo, Kenya and Niger', in Malcangio, D. (ed.), Applications in water systems management and modeling, pp. 3-31, IntechOpen.
- Hochrainer-Stigler, S. (2021)**, 'Changes in fiscal risk against natural disasters due to COVID-19', Progress in Disaster Science, 10(1). <https://doi.org/10.1016/j.pdisas.2021.100176>.
- IDB (Inter-American Development Bank) (n.d.)**, Contingent Credit Facility for Natural Disaster Emergencies. <https://www.iadb.org/document.cfm?id=36994819>.
- IDMC (Internal Displacement Monitoring Centre) (2013)**, Disaster-induced internal displacement in the Philippines: The case of Tropical Storm Washi/Sendong, Internal Displacement Monitoring Centre/Norwegian Refugee Council, Geneva. <https://www.internal-displacement.org/sites/default/files/publications/documents/2013-ap-philippines-DRR-country-en.pdf>.
- IDMC (Internal Displacement Monitoring Centre) (2019)**, Tropical Cyclone Idai: Figure Analysis – Displacement Related to Disasters. <https://www.internal-displacement.org/sites/default/files/inline-files/GRID-2019-Disasters-Figure-Analysis-Idai.pdf>.
- IDMC (Internal Displacement Monitoring Centre) (2021)**, Global Report on Internal Displacement 2021, Internal Displacement Monitoring Centre, Geneva. <https://www.internal-displacement.org/global-report/grid2021/>.
- IFRC (International Federation of Red Cross and Red Crescent Societies) (2019)**, Mongolia: Dzud, Early Action Protocol Summary. <https://reliefweb.int/sites/reliefweb.int/files/resources/DZUD%20EAP-Mongolia.pdf>.
- IFRC (International Federation of Red Cross and Red Crescent Societies) (2020)**, Zambia: Floods, Early Action Protocol summary. [https://reliefweb.int/sites/reliefweb.int/files/resources/EAP2020ZM01\\_Summary.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/EAP2020ZM01_Summary.pdf).
- IFRC (International Federation of Red Cross and Red Crescent Societies) and RCCC (Red Cross Red Crescent Climate Centre) (2020)**, Forecast-Based Financing and Disaster Displacement: Acting Early to Reduce the Humanitarian Impacts of Displacement, Issue Brief, August 2020. [https://reliefweb.int/sites/reliefweb.int/files/resources/RCRC\\_IFRC-FbF-and-Displacement-Issue-Brief.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/RCRC_IFRC-FbF-and-Displacement-Issue-Brief.pdf).
- IISD (International Institute for Sustainable Development) (2019)**, 'Caribbean Leaders Discuss Debt for Climate Adaptation Swap, Caribbean Resilience Fund', 10 October 2019. <https://sdg.iisd.org/news/caribbean-leaders-discuss-debt-for-climate-adaptation-swap-caribbean-resilience-fund/>.
- IISD (International Institute for Sustainable Development) (2021)**, Furthering Gender Equality Through Gender Bonds. <https://www.iisd.org/system/files/2021-03/equality-gender-bonds.pdf>.
- IOM (International Organization for Migration) (2016)**, Planned Relocation in the Context of Environmental Change in Hoa Binh Province, Northern Viet Nam: An analysis of household decision-making and relocation outcomes, International Organization for Migration – Mission in Viet Nam, Ha Noi. [https://publications.iom.int/system/files/pdf/planned\\_relocation\\_en.pdf](https://publications.iom.int/system/files/pdf/planned_relocation_en.pdf).

- IOM (International Organization for Migration) (2017)**, Making Mobility Work for Adaptation to Environmental Changes: Results from the MECLEP global research, International Organization for Migration, Geneva.  
[https://publications.iom.int/system/files/pdf/meclep\\_comparative\\_report.pdf](https://publications.iom.int/system/files/pdf/meclep_comparative_report.pdf).
- IOM (International Organization for Migration) (2018)**, Mapping Human Mobility (Migration, Displacement and Planned Relocation) and Climate Change in International Processes, Policies and Legal Frameworks, Task Force on Displacement, Activity II.2.  
<https://unfccc.int/sites/default/files/resource/WIM%20TFD%20II.2%20Output.pdf>.
- IPCC (2021)**, Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. In Press.
- Kaczan, D. J. and Orgill-Meyer, J. (2020)**, 'The impact of climate change on migration: a synthesis of recent empirical insights', *Climatic Change*, 158(3), pp. 281-300.  
<https://doi.org/10.1007/s10584-019-02560-0>.
- Karim, L. (2011)**, Microfinance and its discontents. Women in debt in Bangladesh, University of Minnesota Press, Minneapolis.
- Kazianga, H. and Wahhaj, Z. (2018)**, Will Urban Migrants Formally Insure their Rural Relatives? Family Networks and Rainfall Index Insurance in Burkina Faso, School of Economics Discussion Papers, No. 1803, University of Kent, Canterbury.  
<https://www.kent.ac.uk/economics/repec/1803.pdf>.
- Ketkar, L. and Ratha, D. (2010)**, 'Diaspora Bonds: Tapping the Diaspora during Difficult Times', *Journal of International Commerce, Economics and Policy*, 1(2), pp. 251-263. <https://doi.org/10.1142/S1793993310000147>.
- Kleiman, G. (2017)**, 'Sovereign bonds to aid refugee crisis', *The Bulletin*, November 2017, 8(10), p. 26, Official Monetary and Financial Institutions Forum (OMFIF), London.  
[https://www.omfif.org/wp-content/uploads/2020/01/BTN\\_11.17.pdf](https://www.omfif.org/wp-content/uploads/2020/01/BTN_11.17.pdf).
- Künzel, V. and Schäfer, L. (2021)**, National Financial Instruments and Mechanisms to Manage Climate Risks and Impacts: Status quo, Challenges and Gaps in Climate Vulnerable Forum Countries in Dealing with Loss and Damage, Germanwatch, Bonn and Berlin.  
<https://www.germanwatch.org/en/20399>.
- Le De, L., Gaillard, J. C. and Friesen, W. (2015)**, 'Remittances and disaster: Policy implications for disaster risk management', *Migration, Environment and Climate Change: Policy Brief Series*, 1(2), International Organization for Migration, Geneva.  
[https://publications.iom.int/system/files/pdf/policy\\_brief\\_series\\_issue2.pdf](https://publications.iom.int/system/files/pdf/policy_brief_series_issue2.pdf).
- Maharjan, A., De Campos, R. S., Singh, C., Das, S., Srinivas, A., Bhuiyan, M. R., Ishaq, S., Umar, M. A., Dilshad, T., Shrestha, K., Bhadwal, S., Ghosh, T., Suckall, N. and Vincent, K. (2020)**, 'Migration and Household Adaptation in Climate-Sensitive Hotspots in South Asia', *Current Climate Change Reports*, 6(1), pp. 1-16. <https://doi.org/10.1007/s40641-020-00153-z>.
- Meenan, C., Ward, J. and Muir-Wood, R. (2019)**, Disaster Risk Finance – a Toolkit, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Bonn and Eschborn.  
[https://www.indexinsuranceforum.org/sites/default/files/Publikationen03\\_DRF\\_ACRI\\_DINA4\\_WEB\\_190617.pdf](https://www.indexinsuranceforum.org/sites/default/files/Publikationen03_DRF_ACRI_DINA4_WEB_190617.pdf).



- Mercy Corps (2019)**, Financing Flood Resilience: An Option to Avert Displacement, Study Brief, Mercy Corps, London. [https://www4.unfccc.int/sites/SubmissionsStaging/Documents/201901151715---MercyCorps\\_ResilienceFinancingBrief.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/201901151715---MercyCorps_ResilienceFinancingBrief.pdf).
- Micale, V., Tonkonogy, B. and Mazza, F. (2018)**, Understanding and Increasing Finance for Climate Adaptation in Developing Countries, Climate Policy Initiative (CPI). <https://www.climatepolicyinitiative.org/wp-content/uploads/2018/12/Understanding-and-Increasing-Finance-for-Climate-Adaptation-in-Developing-Countries-1.pdf>.
- Miles, K. S. and Wiedmaier-Pfister, M. (2018)**, Applying a Gender Lens to Climate Risk Finance and Insurance, InsuResilience Global Partnership Secretariat, Bonn. [https://www.insuresilience.org/wp-content/uploads/2018/11/insuresilience\\_applygender\\_181128\\_web.pdf](https://www.insuresilience.org/wp-content/uploads/2018/11/insuresilience_applygender_181128_web.pdf).
- Mohapatra, S., Joseph, G and Ratha, D. (2009)**, Remittances and Natural Disasters: Ex-post Response and Contribution to Ex-ante Preparedness, Policy Research Working Paper 4972, World Bank. [https://www.unisdr.org/files/12881\\_s4972.pdf](https://www.unisdr.org/files/12881_s4972.pdf).
- Mosello, B., Foong, A., König, C., Wolfmaier, S. and Wright, E. (2020)**, Spreading disease, spreading conflict? COVID-19, climate change and security risks, adelphi, Berlin. <https://www.adelphi.de/en/publication/spreading-disease-spreading-conflict>.
- Müller, C., Sahler, G., Ströh de Martínez, C. and Wiedmaier-Pfister, M. (2018)**, Insurance – a new approach for linking relief, rehabilitation and development: The potential and frontiers of inclusive insurance in the context of conflict- and disaster-induced displacement, Discussion Paper, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Bonn and Eschborn. <https://d-nb.info/1167742052/34>.
- Musah-Surugu, I., Ahenkan, A., Bawole, J. N. and Darkwah, S. A. (2017)**, ‘Migrants’ remittances: A complementary source of financing adaptation to climate change at the local level in Ghana’, International Journal of Climate Change Strategies and Management, 10(1), pp. 178-196. <https://doi.org/10.1108/IJCCSM-03-2017-0054>.
- OECD (Organisation for Economic Co-operation and Development) (2018)**, ‘Blended Finance’. <https://www.oecd.org/dac/financing-sustainable-development/blended-finance-principles/>.
- Pereira, J. (2017)**, Blended Finance: What it is, how it works and how it is used, Oxfam International, Oxford. <https://oxfamlibrary.openrepository.com/handle/10546/620186>.
- Plaza, S. (2019)**, ‘Migration, Remittances and Diaspora resources in Crisis and Disaster Risk Finance’, World Bank Blogs, Blog Post, 18 December 2019. <https://blogs.worldbank.org/peoplemove/migration-remittances-and-diaspora-resources-crisis-and-disaster-risk-finance>.
- Puri, J. and Khan, A. (2019)**, ‘Climate impact bonds and the GCF’, Blog Post, Green Climate Fund Independent Evaluation Unit (GCF IEU), 17 December 2019. <https://ieu.greenclimate.fund/blog/climate-impact-bonds-and-gcf>.
- RCCC (Red Cross Red Crescent Climate Centre) (2020)**, Climate Action: Examples from the Red Cross Red Crescent and partners. [https://www.climatecentre.org/wp-content/uploads/RCCC\\_Climate-Action-V10-2.pdf](https://www.climatecentre.org/wp-content/uploads/RCCC_Climate-Action-V10-2.pdf).
- Reinikainen, P. (2013)**, ‘Mongolia: extreme cold forces families from traditional living to urban slums’, International Federation of Red Cross and Red Crescent Societies (IFRC), 4 March 2013. <https://reliefweb.int/report/mongolia/extreme-cold-forces-families-traditional-living-urban-slums>.

- Restle-Steinert, J. and Hausotter, T. (2019)**, Bottom-Up Innovation for Adaptation Financing: New Approaches for Financing Adaptation Challenges Developed through the Practitioner Labs Climate Finance, adelphi, Berlin. <https://www.adelphi.de/en/publication/bottom-innovation-adaptation-financing>.
- Richmond, M., Choi, J., Rosane, P., Solomon, M., Tonkonogy, B., Molloy, D., Larrain, F. and Jacobowitz Rae, J. (2021)**, Adaptation Finance in the Context of COVID-19: The Role of Development Finance in Promoting a Resilient Recovery', Global Center on Adaptation, Rotterdam. <https://gca.org/wp-content/uploads/2021/01/GCA-Adaption-in-Finance-Report.pdf>.
- Schäfer, L., Jorks, P. and Seck, E. (2021)**, 'Financing Instruments and Sources to Address Loss and Damage from Slow-onset Processes'. Publication Series: Addressing Loss and Damage from Slow-onset Processes, Germanwatch, Bonn. <https://germanwatch.org/en/21067>.
- SEADRIF (Southeast Asia Disaster Risk Insurance Facility) (n.d.)**, 'The SEADRIF Insurance Company: Providing catastrophe risk insurance coverage'. <https://seadrif.org/the-seadrif-insurance-company/>.
- Tenzing, J. D. (2019)**, 'Integrating social protection and climate change adaptation: A review', WIREs Climate Change, 11(2). <https://doi.org/10.1002/wcc.626>.
- TFD (Task Force on Displacement) (2021)**, Plan of Action 2019-2021. [https://unfccc.int/sites/default/files/resource/18092020\\_PDD\\_Updates\\_to\\_TFD.pdf](https://unfccc.int/sites/default/files/resource/18092020_PDD_Updates_to_TFD.pdf).
- Thornton, F., James, S., Dun, O., Farbotko, C., McNamara, K. E., McMichael, C., Coelho, S., Minju Kim, R., Ngo, L., Westbury, T. and Namoumou, F. (2021)**, 'Policy Developments and Options to Address Human Mobility in the Context of Climate Risk in the Pacific Islands Region', Pacific Climate Change Migration and Human Security: Policy Brief Series, International Organization for Migration Fiji, Suva. <https://environmentalmigration.iom.int/policy-developments-and-options-address-human-mobility-context-climate-risk-pacific-islands-region>.
- UN (United Nations) (2020)**, 'Secretary-General's Message', International Mother Earth Day, United Nations. <https://www.un.org/en/observances/earth-day/message>.
- UNDRR (United Nations Office for Disaster Risk Reduction) (2021)**, 'About UNDRR: Funding'. <https://www.undrr.org/about-undrr/funding>.
- UNFCCC (United Nations Framework Convention on Climate Change) (2019a)**, 'Women's Livelihood Bond™ Series | Global'. <https://unfccc.int/climate-action/momentum-for-change/financing-for-climate-friendly-investment/women-livelihood-bond-2>.
- UNFCCC (United Nations Framework Convention on Climate Change) (2019b)**, 'Elaboration of the sources of and modalities for accessing financial support for addressing loss and damage: Technical paper by the secretariat'. <https://unfccc.int/topics/adaptation-and-resilience/workstreams/loss-and-damage-ld/executive-committee-of-the-warsaw-international-mechanism-for-loss-and-damage/expert-group-on-action-and-support/documents>.

- UNGA (United Nations General Assembly) (2015)**, ‘69/283 Sendai Framework for Disaster Risk Reduction 2015–2030’. [https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A\\_RES\\_69\\_283.pdf](https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_69_283.pdf).
- UNGA (United Nations General Assembly) (2018)**, ‘73/195. Global Compact for Safe, Orderly and Regular Migration’, Annex. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N18/451/99/pdf/N1845199.pdf?OpenElement>.
- VisionFund (2017)**, Summary report on the VisionFund “Recovery Lending in Fragile African States affected by El Niño” Project: November 2015 to June 2017. [https://www.visionfund.org/sites/default/files/2019-09/Recovery%20Lending%20in%20Africa\\_FINALREPORT.pdf](https://www.visionfund.org/sites/default/files/2019-09/Recovery%20Lending%20in%20Africa_FINALREPORT.pdf).
- Women’s Environment and Development Organization (2008)**, ‘What it means for women’, Forced Migration Review, 31, p. 56. <https://www.refworld.org/pdffid/50c07c5f2.pdf>.
- World Bank (2017a)**, Kenya Livestock Insurance Program (KLIP), Four Pager. <https://www.financialprotectionforum.org/publication/kenya-livestock-insurance-program-klip>.
- World Bank (2017b)**, Sovereign Climate and Disaster Risk Pooling: World Bank Technical Contribution to the G20. <http://hdl.handle.net/10986/28311>.
- World Bank (2019)**, ‘World Bank Scales Up Emergency Support for Mozambique, Malawi, and Zimbabwe in the Wake of Cyclone Idai’, Press Release, 3 May 2019. <https://www.worldbank.org/en/news/press-release/2019/05/03/world-bank-scales-up-emergency-support-for-mozambique-malawi-and-zimbabwe-in-the-wake-of-cyclone-idai>.
- World Bank (2020)**, COVID-19 Crisis Through a Migration Lens, Migration and Development Brief 32. <https://documents1.worldbank.org/curated/en/989721587512418006/pdf/COVID-19-Crisis-Through-a-Migration-Lens.pdf>.
- World Bank (2021a)**, ‘IDA Lending Terms’. <https://ida.worldbank.org/financing/ida-lending-terms>.
- World Bank (2021b)**, ‘Defying Predictions, Remittance Flows Remain Strong During COVID-19 Crisis’, Press Release, 12 May 2021. <https://www.worldbank.org/en/news/press-release/2021/05/12/defying-predictions-remittance-flows-remain-strong-during-covid-19-crisis>.
- World Food Programme (2019)**, Forecast-based financing (FbF): Anticipatory actions for food security. <https://www.wfp.org/publications/forecast-based-financing-fbf-anticipatory-actions-food-security-2019>.
- Wright, E., Tänzler, D., Rüttinger, L., Melde, S., Milan, A. and Flavell, A. (2021)**, Migration, environment and climate change, Final report, Text 79/2021, Umweltbundesamt (German Environment Agency) Dessau/Roßlau. [https://www.umweltbundesamt.de/sites/default/files/medien/5750/publikationen/2021-05-19\\_texte\\_79-2021\\_migration.pdf](https://www.umweltbundesamt.de/sites/default/files/medien/5750/publikationen/2021-05-19_texte_79-2021_migration.pdf).



## Imprint

### Published by

Deutsche Gesellschaft für  
Internationale Zusammenarbeit (GIZ) GmbH

### Registered offices

Bonn and Eschborn, Germany

Global Programme Human Mobility in the Context of Climate Change

Friedrich-Ebert Allee 32 + 36

53113 Bonn, Germany

Phone +49 (0) 228 44 60-0

<https://www.giz.de/en/worldwide/67177.html>

### As at

March 2022

### Design

DIAMOND media GmbH, Neunkirchen-Seelscheid, Germany

### Photo credits

List of photographers in alphabetical order

© Arthur Daniel: page 32

© GIZ: Page 21

© GIZ / Aaron March: cover, page 29, 30, 40

© GIZ / Britta Radike: page 39

© GIZ / Dr. Horst Vogel: page 24, 42

© GIZ / Felix Ries: page 6, 47, 48, 50

© GIZ / Fouad Bestandji: page 8

© GIZ / Hamish John Appleby: page 35

© Kwavelle Nurse: page 11

© GIZ / Lucas Wahl: page 19

© GIZ / Markus Kirchgessner: page 22, 44

© GIZ / Martin Egbert: page 16

© GIZ / Robert Heine: page 37

© GIZ / Silke Irmischer: page 45

© GIZ / Ute Grabowsky: page 13

### Text

Dennis Tänzler and Tobias Bernstein, adelphi



GIZ is responsible for the content of this publication.

The information and recommendations of the study do not automatically reflect the opinion of BMZ or GIZ.

On behalf of the

German Federal Ministry for Economic Cooperation and Development (BMZ)

