TEXTE
79/2021

Migration, environment and climate change

Final report

German Enviroment Agency

Umwelt Bundesamt

TEXTE 79/2021

Ressortforschungsplan of the Federal Ministry for the
Enviroment, Nature Conservation and Nuclear Safety

Project No. (FKZ) 3717 18 106 0
Report No. FB000423/ENG

Migration, environment and climate change

Final report

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Imprint

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Report completed in:
August 2020

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Publication as pdf:
http://www.umweltbundesamt.de/publikationen

ISSN 1862-4804

Dessau-Roßlau, May 2021

Abstract: Migration, environment and climate change – final report

This final report has been prepared for the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and the German Environment Agency (UBA) as part of the project "Environmental degradation, climate change and migration: Global review of research and forecasts". It summarises the findings of three papers produced during the research project, as well as the knowledge and policy gaps identified, along with approaches and entry points for addressing them.

The first of the three papers is a review of literature on the topic of environmental migration and provides an up-to-date overview of key findings from the growing number of studies exploring the environment-migration nexus – including those examining how different forms of human mobility may support or undermine adaptation to environmental and climate change. Drawing on the literature review, the second paper, titled "Migration, environment and climate change: Impacts", focuses on some of the key ways in which selected environmental phenomena shape human mobility. Further, it also delves into considerations of how other factors (e.g. political, economic, and demographic) come into play, providing insights to inform numerous policy areas, including climate change adaptation. Building on these two papers, the third paper focuses on policy implications and entry points for strengthening responses to human mobility in national and international climate-change adaptation policy and finance.

The authors also organised an expert workshop and an international conference during the course of the project to further develop their findings. In order to ensure a purposeful exchange with experts, the main findings from the three sub-reports were condensed into a discussion paper, which was debated during the expert workshop and the feedback incorporated back into the studies. Finally, an international conference was held to share the studies' findings with participants from around the world (with a special focus on the Caribbean, the Pacific and the Philippines) to exchange knowledge and experiences on this subject in general.

Kurzbeschreibung: Migration, Umweltzerstörung und Klimawandel – Endbericht

Dieser Endbericht umfasst die Ergebnisse des Forschungsvorhabens „Umweltdegradation, Klimawandel und Migration: Globale Bestandsaufnahme von Forschung und Prognosen" im Auftrag des Bundesumweltministeriums (BMU) und des Umweltbundesamtes (UBA). Er beinhaltet die Ergebnisse von drei Teilberichten, die während des Vorhabens erstellt wurden. Ferner werden die Lücken hinsichtlich des bestehenden Wissens und der Politikmaßnahmen identifiziert und Ansätze und Einstiegspunkte ausgewiesen, um diese Lücken zu adressieren.

Der erste Teilbericht leistet eine Bewertung der bisher vorliegenden wissenschaftlichen Erkenntnisse zum Thema Umweltmigration und bietet eine aktuelle Bestandsaufnahme einer steigenden Zahl von Studien, die den Zusammenhang zwischen Umwelt und Migration betrachten. Dies schließt auch Betrachtungen ein, wie unterschiedliche Formen der menschlichen Mobilität Anpassung an Umwelt- und Klimaveränderungen befördern oder behindern können. Basierend auf der Literaturauswertung betrachtet der zweite Teilbericht "Migration, environment and climate change: Impacts" ausgewählte Wege, wie Umweltveränderungen menschliche Mobilität prägen. Zudem wird der Einfluss weiterer z.B.politischer, ökonomischer und demographischer Faktoren auf Politikfelder wie das der Anpassung an den Klimawandel betrachtet.

Vor dem Hintergrund dieser zwei Teilberichte liegt der Fokus des dritten Teilberichtes auf Politikimplikationen und Einstiegspunkten zur Stärkung politischer Antworten auf menschliche

Mobilität im nationalen und internationalen Kontext von Anpassungspolitiken und -finanzierung.

Das Projektteam, das diese Studie verfasst hat, organisierte zudem einen Fachworkshop in Berlin und eine internationale Konferenz in Bonn, die dazu beitrugen, die Projektergebnisse zu erarbeiten. Um einen fruchtbaren Austausch mit den Fachpersonen zu ermöglichen, wurden die Erkenntnisse aus den drei Teilberichten in einem Diskussionspapier aufgearbeitet Die Rückmeldung der beiden Veranstaltungen wurde in die Teilberichte eingearbeitet. Bei der internationalen Konferenz wurden die Ergebnisse mit Teilnehmenden aus verschiedenen Weltregionen geteilt (mit einem besonderen Fokus auf der Karibik, dem Pazifik und den Philippinen), um den Wissens- und Erfahrungsaustausch zu befördern.

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List of abbreviations

BMU	German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
BMZ	German Federal Ministry for Economic Cooperation and Development
COP	Conference of the Parties
DRM	Disaster risk management
DRR	Disaster risk reduction
FAO	Food and Agriculture Organization of the United Nations
GCF	Green Climate Fund
GCM	Global Compact for Safe, Orderly and Regular Migration
GHG	Greenhouse gas
GIZ	German Development Agency
HDI	Human Development Index
IDMC	Internal Displacement Monitoring Centre
IKI	International Climate Initiative
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
NAP	National Adaptation Plan
NC	National Communication
NDC	Nationally Determined Contributions (in Paris-Agreement)
NGO	Non-governmental organisation
SDGs	Sustainable Development Goals
TFD	Task Force on Displacement
UBA	German Environment Agency
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
WIM	Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts

1 Introduction

Migration, environmental and climate change are linked in varied, multi-faceted ways, and the nexus between them is often highly context specific. When people migrate or flee their homes, or indeed when they stay under adverse conditions, their decisions are shaped by a range of factors at personal, community and structural level, including family dynamics, social networks, and demographic and socio-economic conditions.

However, as average global temperatures rise and other ecological crises intensify, environmental degradation and climate change impacts are likely to place people in regions around the world under increased pressure to leave their homes. For example, more are likely to flee in search of immediate safety as extreme weather events become more frequent and intense; others may leave on a temporary or permanent basis as more gradual environmental changes contribute to food, water or livelihood insecurity. In addition, environmental and climate change is undermining the ability of impacted people and communities to improve their situation by migrating. Particularly in least developed countries (LDCs), the erosion of already precarious livelihoods, for example due to falling crop yields, and the depletion of the capital needed for migration is likely to affect many of those for whom mobility or immobility is currently a choice, increasing the prevalence of "trapped" populations. Further, for those who do migrate, most do so within their own country, where the places they migrate to may also be grappling with climate change impacts, as well as other challenges. For example, rural-urban migration and population growth are driving rapid urbanisation in many low and middle-income countries. This can put pressure on already overburdened infrastructure and public services in cities. In the case of coastal cities for example, the resultant demand for land for urban expansion is fueling the expansion of slum-type settlements on urban peripheries in low-lying flood-prone land.

Researchers have taken important steps forward in understanding the migration, environment and climate-change nexus, including the role different forms of human mobility (migration, displacement and planned relocation) play in coping with and adapting to environmental change, including climate change. This deepening knowledge has already resulted in important initiatives to improve policy measures in relevant fields, including climate-change adaptation, at sub-national, national and international level. However, significant gaps remain in terms of the data and evidence available, and our understanding of how the nexus plays out in specific contexts. There is also an urgent need to improve responses at institutional, policy, programme and project level, and increase the financing available for such initiatives and measures, to ensure that human rights and human dignity are protected before, during and after migration occurs.

This final report has been prepared for the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and the German Environment Agency (UBA) as part of the project "Environmental degradation, climate change and migration: Synopsis of the review and forecasts on migration and flight induced by environmental degradation and climate change". Chapters 2 and 3 summarise the findings of the three papers produced during the research project in English and German respectively. Chapter 4 then presents the knowledge and policy gaps identified by the authors, along with approaches and entry points for addressing them. In Chapter 5, we provide some final conclusions on the way forward.

The project at a glance

Three reports were produced during the project "Environmental degradation, climate change and migration: Synopsis of the review and forecasts on migration and flight induced by environmental degradation and climate change". The first of the three papers constitutes a review of available literature on the topic of environmental migration and provides an up-to-date overview of key findings from the growing number of studies exploring the environment-migration nexus – including those examining how different forms of human mobility may support or undermine adaptation to environmental and climate change (Flavell, Milan and Melde, 2020). Drawing on the literature review, the second paper, entitled "Migration, environment and climate change: Impacts", focuses on some of the key ways in which selected environmental phenomena shape human mobility (Flavell, Melde and Milan, 2020). Further, it also delves into considerations of how other factors (e.g. political, economic, and demographic) interact with environmental factors, providing insights to inform numerous policy areas, including climate change adaptation. Building on these two papers, the third paper focuses on the response side and in particular on policy implications and entry points for strengthening responses to human mobility in national and international climate-change adaptation policy and finance (Wright, Tänzler and Rüttinger, 2020).

As part of the process of developing the three papers, the project team organised a workshop and an international conference to encourage feedback from other experts. In order to ensure a purposeful exchange, the main findings from the three reports were condensed into a discussion paper, which was debated during the expert workshop in Berlin on 27 March 2019. The 20 workshop participants included policymakers, researchers, and experts working for relevant organisations and NGOs, and their feedback was incorporated into the studies. The discussion paper was also updated (see Appendix) and distributed at the "International Conference and Networking Event on Climate and Environmental Change and Human Mobility", which took place on 28 June 2019 in Bonn (see the Documentation at the Website of the Federal Environment Agency). It was organised in partnership with the Global Programme of the GIZ "Sustainable Management of Human Mobility in the Context of Climate Change", commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The conference brought together more than 90 participants, including representatives of governments, international organisations, universities, research institutions and NGOs, as well as practitioners working in the field of climate change and human mobility. It therefore provided another opportunity to share and discuss the studies' findings with experts from around the world and to exchange knowledge and experiences on human mobility in the context of environmental and climate change. The regional focus of the conference was on the Caribbean, the Pacific and the Philippines.

2 Summary of the research project

The following chapter provides a summary of the main findings of the three papers produced as part of this research project.

2.1 Literature Review

The first paper produced for this research project sought to answer the question: what knowledge, evidence and data are currently available to inform policymaking related to migration, displacement and planned relocation in the context of environmental and climate change? To this end, it provides a comprehensive literature review of academic journal articles, government reports, and publications by German and international agencies and institutions working in relevant areas.

To prepare the literature review, the author reviewed and evaluated the literature in successive stages. As a first step, a wide range of papers was examined, taking into account the relevance, the scale, the date of publication and the language of the studies[1]. The author then selected a list of studies and publications for more in-depth evaluation on the basis of the following criteria: number of citations, innovative content, quality of methodology and replicability and generalizability of results. The author assessed important findings from this initial review in a structured evaluation matrix, providing information on the sources for each key finding, evaluating their reliability, and briefly outlining potential policy implications.

This evaluation served as the basis for the literature review, which provides the reader with insights into important debates that have shaped research and policy on the nexus between migration, environment and climate change over the past decades. He shows how the history and politics of research in the field nexus have been intertwined since the 1980's, and outlines key considerations with regard to terminology, theoretical approaches, data challenges, and methodology. Finally, the review summarises the main findings from the literature in seven areas to make them accessible for a wider audience.

Key findings

1. Data and prognoses

The literature review shows that the various studies that have attempted to make quantified predictions about the future scale of environmental migration may be criticized due to methodological flaws. The majority of these prognoses looked at migration relating to slow-onset environmental stressors. However, distinguishing the role of slow-onset environmental phenomena in future migration is subject to multiple uncertainties, given the multiple factors at play in decisions to migrate and in long-term development processes. For this reason, the Foresight study (2011) by the UK Government Office for Science explicitly abstained from making any quantified predictions, instead presenting a range of striking data for the numbers of people at risk from various environmental change-related stressors. For example, it estimated that population levels in Low Elevation Coastal Zones (i.e. 'at risk') are set to increase dramatically across varying scenarios in the future, due to a combination of natural population growth and rural-urban migration. A recent 2018 study by the World Bank, "Groundswell –

[1] Key resources for identifying literature to be reviewed were the CLIMIG database maintained by the University of Neuchatel and IOM's research database on the Environmental Portal

Preparing for internal climate migration" found that without ambitious cuts in GHG emissions and "robust development action" in the regions of Sub-Saharan Africa, South Asia, and Latin America climate change could by 2050 force more than 143 million people to move within their countries to escape slow-onset climate change impacts.

Regarding displacement caused by sudden-onset disasters, the literature review highlighted the data and a modelling of disaster displacement compiled by the Internal Displacement Monitoring Centre (IDMC). This points to a clear upward trend in the number of people who are at risk of being displaced within countries by sudden-onset hazards in the future, with explanatory factors including population growth (increased exposure), improvements in disaster preparedness (more people survive disasters, but therefore more are displaced), and improved reporting of disaster impacts since the 1980s (Ginnetti, 2015). Since 2008, IDMC has produced annual estimates for the number of people displaced within their country by sudden-onset events. Although certain caveats must still be born in mind with these figures, IDMC (2019) found that natural disasters have generated 265.3 million "new displacements" between 2008 and 2018, with floods, storms and earthquakes constituting the principal sources. In 2019, there were 24.9 million new displacements due to disasters. This was the highest figure since 2012 and almost three times the 8.5 million displacements caused by conflict and violence that year (IDMC, 2020).

2. Internal and international migration

With regard to how far people migrate, the reviewed literature shows that migration usually occurs within countries and often takes place locally. This can mostly be attributed to the high costs for international migration, immigration restrictions in potential destination countries, and the greater ease with which they can find work and accommodation. There is also evidence that some people may move in a "stepping stones"- pattern, from smaller, nearby towns to larger, more distant cities, as show in the "Where the Rain Falls" research study (Warner et al, 2012). When people migrate internationally, they usually do so across borders to neighbouring countries, rather than overseas.

In general, the literature review finds that many studies provide evidence that gradual environmental change (average temperature, rainfall, rainfall variability) is one of the factors driving internal migration. Seasonal migration out of rural areas during the 'dry season' or the 'flood season' has also been widely documented, not necessarily linked to broader environmental change.

Concerning movements linked to sudden-onset events, the literature review found that they are often complex, multi-stage processes and shaped by a range of micro, meso and macro-level factors. People may flee to the nearest save place immediately after an event to ensure survival. Many people move a few kilometres to camps or to stay with friends and relatives in the surrounding area (they are hardly ever captured in official statistics). Subsequently people may move further afield to find work. Some may then settle permanently at the new site and others may settle far away. When looking at droughts, it was found that movements vary greatly, depending in part on the severity of the drought.

3. Temporary and permanent migration

Migration can be both temporary and permanent. Temporary (often seasonal) migration has been widely documented in response to environmental stressors, and increasingly understood as an integral part of livelihood and/or food security strategies. The fairly recent concept of 'circular migration' has been increasingly applied to studies of environmental migration. It posits that many migration 'trajectories' are composed of a series of movements between origin and destination areas (sometimes over long periods/decades). Migrants develop and maintain strong ties to both, and often bring positive developmental contributions to origin areas beyond remittances. This can include support for climate change/environmental change adaptation.

The review paper shows that disaster-induced displacement is often temporary and people seek to return. However, when disasters leave lasting damage, there is a higher chance that displaced people may decide to permanently migrate or that the government may plan to relocate exposed communities to safety.

Permanent relocation of whole communities by public authorities is widely expected to become increasingly necessary as environmental change processes take hold. While in most cases relocation of this kind will be internal, international relocation may become the only option for a number of low-lying island states, in the face of sea-level rise. Further, there is also a significant risk that climate change mitigation and adaptation policies could result in the need for planned relocation within countries.

4. Forced and voluntary movements

Furthermore, migration can be forced or voluntary. However, the distinction between forced and voluntary movements is blurred in many cases. For example, when it comes to the decision to send a household member elsewhere for work after a disaster. This seems to be a voluntary decision but the circumstances can force households to take this decision to maintain income during this period. Similarly, in the case of autonomous permanent out-migration, some people may move away pre-emptively, before their livelihoods are destroyed, but the question remains whether pre-emptive movement can be classified as 'forced'.

5. Vulnerability and resilience

Reviewing the literature on human mobility as a response to environmental stressors, it was found that multiple studies show that migration can be a successful strategy for adapting to climate change, diversifying sources of income or managing risk, and should not be regarded as a negative outcome of environmental change per se. A possible positive impact of migration can be the reduction of overall exposure to risk of rural households due to family members who undertake seasonal work elsewhere. Diaspora communities also make significant contributions in support of adaptation to environmental change in their origin communities. Remittances are often the first financial support that arrives in the immediate aftermath of disasters, for example.

However, it should also be recognised that migration is not generally the preferred option, and that migration as a response to environmental stressors can also have negative dimensions. For example, with regard to the classic example of remittance-sending by a household member, the vulnerable conditions in which many such migrants find themselves at destination, or the additional strain imposed on those who stay behind ('brain drain', 'lost labour'), are often not

considered. The Foresight study (2011) also brought the issue of "trapped" or "immobile" populations to the fore, emphasising the distinction between those who are unable to migrate (involuntarily immobile, or "trapped populations") and those who choose not to move (voluntarily immobile). Reasons that hinder people to move are for example that they lack financial resources, network or knowledge and skills to do so. Furthermore, the inability to sell their assets and family responsibilities, but also a lack of understanding of the situation are reasons to stay. Sometimes, moving is not considered as an option for example due to cultural attachments.

6. Conflict linkages

There has been a high level of interest among policymakers on the linkages between climate change, migration and conflict, but the evidence paints a mixed picture. For example, the analyses of Thomas Homer-Dixon (1994; 1999) show causal links between environmental factors, migration and conflict. It was found that in areas with resource scarcity, in-migration can lead to tensions and conflict in receiving communities. However, the potential for conflict is determined by a range of contextual factors, and in-migration by itself is rarely found to be a direct cause of conflict. Every conflict is the result of complex interactions between different social, political, economic, demographic and environmental factors and, thus, climate change has been increasingly understood as a "threat multiplier" rather than a direct cause of conflict. Migration from environmentally degraded areas taking place over long timescales means less potential for major tensions, while the potential for conflict increases when large numbers of people migrate over short time frames to communities ill-equipped to absorb them. There remains a lack of evidence regarding conflict potential resulting from large-scale disaster-induced displacement. However, some studies have pointed to increasing potential for conflict when large influxes of refugees come to camps and compete with local communities over access to natural resources.

7. Environmental migration to Europe

Migration and displacement to Europe from other parts of the world has received a lot of attention in the media and the public sphere. While it is clear that changes in the environment and climate are playing an increasing role in displacement and migratory patterns, forecasting the number of people likely to migrate to Europe due to environmental and climate changes is subject to significant methodological uncertainties. These primarily relate to the lack of appropriate data, and the difficulty in accurately determining and quantifying how influential these environmental and climate stressors are in relation to other kinds of migration drivers. Indeed, the complexity and multi-causality of migration decisions and pathways means that these methodological issues are unlikely to be resolved in future. By contrast, there is reliable evidence with regard to the increasing threats posed by environmental change processes within Europe itself, and the potential for future migration and displacement within European countries. There are multiple examples of displacement due to environmental changes within Europe. For example, in 2012, 13,000 people were displaced by wildfires in Spain (Ionesco et al, 2017:45). IDMC showed that in 2017 natural hazards had displaced approximately 66,000 people in Europe. Furthermore, some European countries, like the Netherlands and Germany, will also have to address challenges relating to sea-level rise and related impacts for potential internal displacement.

2.2 Impact Paper

As shown in the literature review, global forecasts of the number of future environmental migrants are subject to critical uncertainties and of limited use. Efforts to understand the interplay of different causal factors, including environmental change, on migration in specific contexts (local, national or regional) are far more valuable to policymakers. As migration is a complex, multidimensional issue, it is also important to consider other key drivers like economic, political, demographic and social trends alongside environmental factors[2], when analysing the nexus between migration, environment and climate change. These include factors such as level of socio-economic development, economic growth, resource scarcity, governance frameworks, population growth, and urbanisation.

The second of the three studies therefore focused on the impacts of environment and climate change on migration, and explored four of the main ways in which environmental change and migration have been linked to date. The analysis also included consideration of how these impact types might develop in the future.

1. Mobility responses to sudden-onset hazards

Displacement risk is based on the hazard itself (type, intensity and frequency), exposure (people located in hazard-prone areas) and vulnerability (sensitivity to hazard impacts). All three components are projected to increase displacement risk in many countries. With regard to the hazard component, climate change is widely expected to increase the frequency and intensity of natural hazards like floods and storms, although not uniformly across continents. In terms of exposure, it is projected to increase in many countries due to population growth in hazard-prone areas – for example, in cities in low-lying coastal areas. In relation to vulnerability, one of the main findings is that disaster-related displacement is more common in countries with a relatively low Human Development Index (HDI), as well as in countries that combine vulnerabilities at multiple levels (individual, community, national). Gender is also often a determinant of vulnerability to sudden-onset hazard events, including through the way gender can condition access to mobility. Gender can also influence levels of vulnerability during disasters and in post-disaster settings. Another key component of vulnerability is capacity to address climate change impacts (often described as 'adaptive capacity').

In the next few decades, the trends towards continued urbanization and population growth mean that displacement risk is likely to continue to increase fastest in urban areas, primarily in low- and middle-income countries. However, public disaster risk reduction (DRR) policies can have a strong influence on mobility outcomes in disaster situations. Early warning systems in combination with clear (and drilled) evacuation plans can go a long way toward reducing fatalities and limiting the impacts of displacement on populations that are often already subject to multiple vulnerabilities. Preparedness measures must take account of specific vulnerabilities within communities, such as education policies and provision, and economic status.

[2] The direct or indirect impact of human activity on the environment and climate through processes such as industrialization and urbanization are among the key drivers of both environmental degradation (such as water or air pollution) and man-made hazards (such as dam failure or nuclear accidents). However, the link between human-induced environmental degradation and hazards and human mobility is beyond the scope of this paper. As a consequence, the paper does not reflect on the linkages between migration and policy issues related to human activities such as environmental legislation or the implementation of health and safety measures.

2. Mobility responses in the context of slow-onset hazards

Slow-onset events, ranging from drought to sea-level rise, can impact human mobility. Human vulnerability shapes mobility responses and can determine whether moving is even an option. At the same time, mobility responses shape future vulnerability. Two examples illustrate these complex relationships. First, sea-level rise can impact human mobility in different ways. While it is often first associated with permanent inundation of land and settlements, there are in fact a range of ways in which sea-level rise impacts human activities and settlements. These include coastal erosion, the salinization of groundwater in coastal areas, and increased vulnerability to flooding from storm surges and the salinization of agricultural land. Planned relocation may be necessary in cases of irreversible degradation/inundation of land. However, determining the point at which land becomes uninhabitable can be contentious. In many cases, people may choose to migrate well before the stage of inundation, as the severity of these other related impacts increases.

Second, various slow-onset environmental changes are already affecting rural livelihoods. In many regions, smallholder crop-based agriculture is dependent on rainfall, with irrigation being either unavailable as an option or financially out of reach. Thus, these smallholders are often very vulnerable to climate change impacts, notable rainfall variability and temperature rise. Climate change often compounds other human drivers of land degradation, such as overly intensive farming. The impacts can be incremental and take place over long timescales, or more immediate, in the case of drought or erratic rainfall. Taking all these factors together, the choices available to migrate depend on the range of macro-, meso- and micro-level factors described in the literature review.

Alongside environmental drivers, broader contextual factors may also shape mobility in rural areas. Economic 'push' and 'pull' factors, such as stagnating rural incomes, changing market dynamics (low producer prices; changes to demand patterns), and the availability of (higher) paid employment in both urban and rural areas, may have a significant influence on decisions to migrate. Demographic factors can also play role, for example, if youth in rural areas are drawn to urban areas by 'social drivers', in particular the prospect of obtaining better education or work opportunities. Political drivers, particularly in relation to governance, are also important to consider. National policies on rural development and climate change adaptation for example could lead to support for rural livelihoods and encourage people to cope or adapt *in situ*. Policies and laws related to land (e.g. land tenure frameworks and land-use policies or building and urban planning policies) can also have major impacts on livelihoods and human mobility.

3. Linkages between environmental change, conflict and mobility

Regarding the linkages between environmental change, conflict and mobility, the impact paper underlined the findings of the literature review: the linkages are complex and time- and context-specific. The wide array of relevant contextual factors makes it impossible to predict future evolutions of the environment-mobility-conflict nexus with any degree of certainty. Nonetheless, environmental change – through its impact on sudden and slow-onset events – looks set to continue to exacerbate a range of potential conflict drivers. Whether human mobility acts as a threat multiplier will depend on many factors, as shown by the analysis of conflicts among pastoralists in Africa.

The effects of in-migration on receiving communities show that tensions are more likely in the case of large-scale influxes taking place over short timeframes, particularly where the influx has

a substantial impact on socio-economic, environmental or cultural systems. Environmental change, conflict and mobility are more likely to be interlinked in complex crises, where climate change can act as a "threat multiplier" to exacerbate the effects of existing conflict drivers.

4. Immobile populations

The analysis related to the fourth impact type, immobile populations, discussed two forms of immobility in the face of environmental stressors: the choice to and the inability to leave. Across the globe the number of people living in areas exposed to sudden- and slow-onset environmental stressors is growing, with key drivers including population growth, climate change and urbanisation. As such, the prevalence of immobility in vulnerable areas is a growing policy concern. The reasons why people do not move away in the light of environmental stressors are diverse, but broadly speaking can be divided into two overarching categories: voluntary immobility (immobile populations) and involuntary immobility (trapped populations). As the impacts of environmental and climate change begin to be felt more strongly, an increasing number of people may be trapped in areas where they are highly vulnerable to environmental stressors. In this regard, the minimization of environmental degradation and of environmental stressors – particularly in rural livelihoods – is an important factor to reduce migration out of necessity.

2.3 Response Paper

The first two papers show that there is already substantial research and evidence to inform responses to human mobility in the context of environmental and climate change. Researchers and practitioners have shown that the design and implementation of policy responses can play a significant role in determining the scale and nature of human mobility in the context of climate change, including whether human mobility has positive or negative outcomes for migrants, and host and destination communities. In the field of climate policy, policymakers can draw on growing knowledge and experience of how all forms of human mobility can both support and undermine efforts to adapt to the impacts of climate change. Applying a human mobility lens to the design and implementation of climate-change adaptation measures can provide a more complete picture of their potential impact, and ultimately help to ensure that they protect people, communities and the natural world more effectively.

Relevant institutions and organisations at international level, as well as initiatives at regional and national level, have identified important areas for action and developed good practices, recommendations and guidance for better integrating migration and mobility into numerous policy areas. In international climate policy, migration has also received increasing political attention over the last decade. Key steps, such as the recognition of the relationships between climate change and different forms of human mobility within the UNFCCC at the Conferences of the Parties (COP) 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 existing methodologies, policies, institutional frameworks, guidance and tools, at national, regional and international level, relevant to displacement in the context of climate change. The

recommendations produced on this 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[3].

The response paper provides policymakers working in the field of climate change adaptation with entry points for integrating responses to human mobility into their work. It also offers preliminary conclusions about how they may respond to important recent developments in international climate policy and finance, as well as new and evolving frameworks and processes in other areas relevant to human mobility and climate change.

Key findings

The authors drew four key findings from the analysis and on that basis developed a number of recommendations for policymakers and international climate finance donors with regard to better integrating human mobility into climate-change adaptation policy, programmes, projects and finance. In this report, these recommendations are presented in the subsequent gap analysis and recommendations chapter.

1. **Considerable scope for integrating human mobility into climate strategies and policies**

One finding from the TFD's work was that human mobility in the context of environmental and climate change was mentioned in 33 Nationally Determined Contributions (NDCs) already submitted to the UNFCCC. That just fewer than a fifth of the NDCs refer to environmental migration provides an important indication that there is still substantial scope for further integrating the challenges and benefits associated with human mobility into climate strategies and policies at national level. Further analysis of these NDCs showed that half of these countries referred to human mobility, including planned relocation, as a necessary adaptation strategy. Fourteen of these 17 NDCs mention existing or planned government interventions to relocate vulnerable groups or communities away from high-risk areas. Other NDCs referred to how climate-change adaptation measures may allow people to remain in situ, the risks associated with climate-change induced human mobility, security risks associated with climate-change induced human mobility, and the implications of human mobility for climate change adaptation finance, and human mobility as a potential prerequisite for or outcome of mitigation measures.

National Adaptation Plans offer a good entry point for bringing considerations related to human mobility into the NDCs and other national climate policies. The response paper reviews guidance and relevant good practices for integrating human mobility throughout the six planning and implementation stages of the NAP process: assessment, prioritising, planning, financing, implementation, and evaluation. Highlighted examples of good practice included national assessments on migration, environment and climate change, new digital tools, strengthening preparedness mechanisms, innovative financing schemes, and participatory community development work.

[3] This report was completed before the TFD Plan of Action for 2019-2021 was released (UNFCCC 2019). However, there are further details pertaining to the 2019-2021 workplan in the footnotes to the recommendations below.

2. Significant co-benefits in systematically adopting a "migration lens" throughout planning, implementation and funding

Climate-change adaptation measures are already improving conditions for migrants, origin and destination communities – for example, by increasing food, water and livelihood security as rainfall patterns become more unpredictable. However, much more can be done to more systematically adopt a "migration lens" during the planning, implementation and funding of measures. More fully understanding how migration is used as an adaptation strategy and the impact of migration strategies on other types of adaptation measures, can increasing the benefits of adaptation policies, programmes and projects for migrants, and home and destination communities, and the positive co-benefits of climate change adaptation measures.

An analysis of major international climate finance donors, notably of the Green Climate Fund, the Adaptation Fund, the Least Developed Countries Fund, and the International Climate Initiative showed that climate funds and financial mechanisms fund only a very small number of programmes and projects that explicitly address migration and human mobility issues. Only a few, mostly recent examples in international climate finance highlight the relationship between environmental migration and climate change as an overall priority. These projects target a range of countries vulnerable to the effects of climate change, such as a number of Pacific island states, and therefore have different focuses regarding climate change adaptation, from coastal protection measures to the provision of more sustainable forms of housing.

Taking steps to more systematically address environmental migration within these programmes and projects, and to raise the profile of the responses to environmental migration within international climate finance funds or financial mechanisms, would contribute to the development of a more holistic approach and play an important role in offering more durable solutions to vulnerable populations.

3. Vulnerable groups and communities require additional support

Already marginalised or vulnerable groups in society require additional support and protection to cope with the slow and sudden-onset impacts of climate change. The lack of disaggregated data in many countries hinders the development of targeted policies that take into account these different groups' needs and vulnerabilities. Data disaggregated by sex and age, and more localised scientific data showing which areas are particularly exposed to extreme weather events and other climate change impacts would be particularly useful in developing targeted responses for different groups. In contexts where data have yet to be improved, consultations with representatives of vulnerable groups and communities can provide important insights to improve the planning and implementation of policies, programmes and projects that concern them. Involving and empowering civil society and diaspora groups in affected countries can also play an important role in this regard.

4. **Coordinated action with other policy areas can lead to better, more integrated responses**

Given the many factors that can influence people's decisions to move, understanding and addressing the links between environmental change, climate change and different forms of human mobility (displacement, migration and planned relocation) will require responses across a range of policy areas. Among them, climate policy has a vital role to play in reducing the impacts of climate change and in strengthening the resilience of migrants, and of origin, transit

and destination communities. Integrated responses that link climate policy with other policy areas can also lead to significant synergies and co-benefits.

Policymakers and other stakeholders working in climate change adaptation and related fields are increasingly recognising that migration can support or undermine adaptation and long-term sustainable development. Mapping how different policies, frameworks and agendas at sub-national, national and international level impact human mobility in the context of climate change can lay the groundwork for an integrated approach across relevant policy areas, leading to improved migration and climate-change adaptation outcomes.

At international level, the processes under the Paris Agreement, the Global Compact for Safe, Orderly and Regular and Migration, the UN Sustainable Development Goals, the Platform on Disaster Displacement and others are making the connections across the migration-climate change-environment nexus and increasing the coherence between these different frameworks and agendas. For example, there has already been some progress in strengthening the links between climate change adaptation policies and DRR/DRM, but there remains substantial scope for bringing together policies, and merging (and expanding) relevant funding streams.

The analysis showed that policies dealing with climate change adaptation, migration, DRR and sustainable development can all contribute to increasing the resilience of vulnerable communities to climate change impacts.

3 Zusammenfassung des Forschungsvorhabens

Das folgende Kapitel gibt eine Zusammenfassung der wichtigsten Ergebnisse der in diesem Forschungsprojekt entstandenen drei Teilstudien.

3.1 Teilbericht I: Literaturrecherche

Die erste Teilstudie, die für dieses Forschungsprojekt erstellt wurde, zielte auf die Beantwortung der Frage ab: Welches Wissen, welche Erkenntnisse und Daten stehen derzeit zur Verfügung, um die Politik im Nexus von Migration, Vertreibung und geplanten Umsiedlungen im Kontext des Umwelt- und Klimawandels zu beraten? Zu diesem Zweck bietet sie eine umfassende Literaturrecherche über wissenschaftliche Zeitschriftenartikel, Regierungsberichte und Veröffentlichungen deutscher und internationaler Einrichtungen und Institutionen, die im jeweiligen Bereich tätig sind.

Zur Vorbereitung der Literaturrecherche haben die Verfasserinnen und Verfasser die Literatur in mehreren Schritten gesichtet und bewertet. In einem ersten Schritt wurde eine Vielzahl von Arbeiten untersucht, wobei die Relevanz, der Umfang, das Erscheinungsdatum und die Sprache der Studien berücksichtigt wurden. Die Verfasserinnen und Verfasser wählten dann eine Liste von Studien und Publikationen für eine eingehendere Bewertung anhand folgender Kriterien aus: Anzahl der Zitate, innovativer Inhalt, Qualität der Methodologie und Replizierbarkeit sowie Generalisierbarkeit der Ergebnisse. Sie bewerteten wichtige Ergebnisse dieser ersten Überprüfung in einer strukturierten Bewertungsmatrix, indem sie Informationen über die Quellen für alle wichtigen Ergebnisse lieferten, ihre Zuverlässigkeit bewerteten und mögliche politische Auswirkungen kurz skizzierten.

Diese Analyse diente als Ausgangspunkt für die Literaturrecherche, die den Leserinnen und Lesern Einblicke in wichtige Debatten gewährt, die Forschung und Politik über den Nexus von Migration, Umwelt und Klimawandel in den letzten Jahrzehnten geprägt haben. Sie zeigen, wie Geschichte und Politik der Forschung in diesem Themenkomplex seit den 1980er Jahren miteinander verflochten sind, und skizzieren wichtige Überlegungen in Bezug auf Terminologie, theoretische Ansätze, datentechnische Herausforderungen und Methodologien. Schließlich fasst der Überblick die wichtigsten Erkenntnisse aus der Literatur in sieben Themenfeldern zusammen, um sie einem breiteren Publikum zugänglich zu machen.

Wichtige Ergebnisse

1. Faktenlage und Prognosen

Die Literaturrecherche zeigt, dass die verschiedenen Studien, aus denen quantifizierbare Vorhersagen über das zukünftige Ausmaß der Umweltmigration gemacht wurden, aufgrund ihrer methodologischen Mängel stark kritisiert worden sind. Die Mehrheit dieser Prognosen betrachtete die Migration im Zusammenhang mit schleichend einsetzenden Umweltstressfaktoren. Die Differenzierung der Rolle von schleichend einsetzenden Umweltphänomenen bei der künftigen Migration ist jedoch mit mehreren Unsicherheiten behaftet, da viele Faktoren bei Migrationsentscheidungen und in langfristigen Entwicklungsprozessen eine Rolle spielen. Aus diesem Grund verzichtete die Foresight-Studie (2011) des britischen Wissenschaftsministeriums ausdrücklich auf quantifizierbare Prognosen und präsentierte stattdessen eine Reihe von aussagekräftigen Fakten über die Anzahl der von unterschiedlichen Umweltstressfaktoren gefährdeten Personen. So hat die Studie beispielsweise geschätzt, dass die Bevölkerungszahl in den niedrig gelegenen Küstenzonen (d.h. " bedroht ") in den verschiedenen Zukunftsszenarien aufgrund einer Kombination aus natürlichem Bevölkerungswachstum und Land-Stadt-Migration drastisch zunimmt. Darüber hinaus ergab

eine Studie der Weltbank aus dem Jahr 2018, "Groundswell - Preparing for internal climate migration", dass, ohne ambitionierte Einschnitte bei den Treibhausgasemissionen und "robuste Entwicklungsmaßnahmen" in den Regionen Subsahara-Afrika, Südasien und Lateinamerika, der Klimawandel bis 2050 mehr als 143 Millionen Menschen zwingen könnte, innerhalb ihrer Heimatländer zu migrieren, um den langsam einsetzenden Auswirkungen des Klimawandels zu entfliehen.

Hinsichtlich der Vertreibung durch plötzlich auftretende Katastrophen hat die Literaturrecherche die vom Internal Displacement Monitoring Centre (IDMC) erstellten Daten und ein Modell der Vertreibung bei Katastrophen beleuchtet. Dieses deutet auf einen deutlichen Anstieg der Zahl der Menschen hin, die in Zukunft Gefahr laufen, durch plötzlich auftretende Gefährdungen innerhalb ihrer Heimatländer vertrieben zu werden. Dies wird unter anderem auf das Bevölkerungswachstum (erhöhte Gefährdung), die Verbesserung der Katastrophenvorsorge (mehr Menschen überleben Katastrophen, aber es werden mehr vertrieben) und eine verbesserte Berichterstattung über die Auswirkungen von Katastrophen seit den 80er Jahren (Ginnetti, 2015) zurückgeführt. Seit 2008 erstellt die IDMC jährliche Prognosen über die Zahl der in ihrem Land durch plötzlich auftretende Ereignisse vertriebenen Menschen. Obwohl bei diesen Zahlen noch gewisse Einschränkungen zu beachten sind, stellte die IDMC (2019) fest, dass Naturkatastrophen zwischen 2008 und 2018 265,3 Millionen "neue Vertreibungen" verursacht haben, wobei Überschwemmungen, Stürme und Erdbeben die Hauptursachen darstellen.

2. Binnenmigration und internationale Migration

Im Hinblick darauf, wie weit Menschen migrieren, zeigt die überprüfte Literatur, dass Migration in der Regel innerhalb von Ländern geschieht und oft auf lokaler Ebene stattfindet. Dies ist im Wesentlichen auf die hohen Kosten für die internationale Migration, Einwanderungsbeschränkungen in potenziellen Zielländern und die leichtere Suche nach Arbeit und Unterkunft zurückzuführen. Es gibt auch Anzeichen dafür, dass sich einige Menschen in einem "Sprungbrett"-Muster bewegen und zwar von kleineren, nahe gelegenen Städten in größere, weiter entfernte Städte, wie die Ergebnisse der Studie Where the Rain Falls zeigen (Warner et al, 2012). Wenn Menschen international migrieren, dann meistens in Nachbarländer und nicht ins fernere Ausland.

Die Literaturübersicht stellt im Allgemeinen fest, dass zahlreiche Studien den Beweis erbringen, dass eine langsame Umweltveränderung (Durchschnittstemperatur, Niederschlag, Niederschlagsvariabilität) einer der treibenden Faktoren der Binnenmigration ist. Die saisonale Migration aus ländlichen Gebieten während der "Trockenzeit" oder der "Hochwasserzeit" ist ebenfalls umfassend dokumentiert und nicht unbedingt einer tiefgreifenden Umweltveränderung geschuldet.

Hinsichtlich der Migrationsbewegungen im Zusammenhang mit plötzlich auftretenden Ereignissen stellte die Literaturrecherche fest, dass es sich oft um komplexe, mehrstufige Prozesse handelt, die von einer Reihe von Faktoren auf Mikro-, Meso- und Makroebene bestimmt werden. Menschen fliehen unmittelbar nach einem Ereignis an den nächsten sicheren Ort, um ihr Leben zu retten. Viele Menschen ziehen in ein einige Kilometer entferntes Lager oder zu Freunden und Verwandten in der Umgebung (diese werden nur selten in der offiziellen Statistik erfasst). In der Folge kann es vorkommen, dass Menschen weiter wegziehen, um Arbeit zu finden. Einige werden sich in der Folge dauerhaft am neuen Standort ansiedeln und wieder andere in einer entfernteren Gegend. Bei Dürren zeigte sich, dass die Bewegungen stark variieren, was teilweise von der Schwere der Dürre abhängig ist.

3. Temporäre und permanente Migration

Migration kann sowohl temporär als auch dauerhaft sein. Temporäre (oft saisonale) Migration wurde als Reaktion auf Umweltstressfaktoren umfassend dokumentiert und zunehmend als integraler Bestandteil von Strategien zur Sicherung der Lebensgrundlage und/oder der Ernährungssicherheit aufgefasst. Das relativ neue Konzept der "zirkulären Migration" wurde zunehmend auf Studien zur Umweltmigration angewendet. Darin wird die Annahme vertreten, dass viele Migrationsbewegungen aus einer Abfolge von Bewegungen zwischen Herkunfts- und Zielgebiet bestehen (manchmal über lange Zeiträume/Dekaden). Migrantinnen und Migranten entwickeln und pflegen starke Beziehungen zu beiden Gebieten und leisten oft einen, nicht nur in Form von Geldtransfers, positiven Beitrag zur Entwicklung der Herkunftsgebiete. Dazu kann auch die Unterstützung bei der Anpassung an den Klimawandel und an Umweltveränderungen gehören.

Die Studie zeigt, dass katastrophenbedingte Vertreibung oft nur vorübergehend ist und Menschen versuchen, in ihre Heimat zurückzukehren. Wenn Katastrophen jedoch dauerhafte Schäden verursachen, besteht eine höhere Wahrscheinlichkeit, dass Vertriebene sich für eine dauerhafte Abwanderung entscheiden oder dass sich die Regierung dafür entscheidet, gefährdete Bevölkerungsgruppen in Sicherheit zu bringen.

Angesichts der zunehmenden Umweltveränderungen wird davon ausgegangen, dass eine dauerhafte Umsiedlung ganzer Bevölkerungsgruppen seitens der Behörden immer dringlicher wird. Während es sich in den meisten Fällen um innerstaatliche Umsiedlungen handelt, kann die internationale Umsiedlung aufgrund des Anstiegs des Meeresspiegels für eine Reihe von niedrig gelegenen Inselstaaten als die einzige Option in Betracht gezogen werden. Darüber hinaus besteht auch ein erhebliches Risiko, dass aufgrund der Klimaschutz- und Anpassungsmaßnahmen planmäßigen Umsiedlung innerhalb der Länder erforderlich werden.

4. Erzwungene und freiwillige Umsiedlungen

Darüber hinaus kann Migration erzwungen oder freiwillig sein. Die Unterscheidung zwischen erzwungenen und freiwilligen Umsiedlungen ist jedoch in vielen Fällen unscharf. So zum Beispiel wenn es um die Entscheidung geht, ein Mitglied eines Haushalts nach einer Katastrophe zur Arbeit an einen anderen Ort zu schicken. Diese Entscheidung scheint freiwillig zu sein, jedoch kann es aufgrund der Umstände vorkommen, dass die Haushalte diese Entscheidung zur Sicherung ihres Einkommens während dieses Zeitraums zwangsläufig treffen müssen. Ebenso können im Falle einer eigenständigen dauerhaften Abwanderung einige Menschen vorzeitig wegziehen, noch bevor ihre Lebensgrundlagen zerstört sind. Indessen bleibt zu klären, ob die präventive Abwanderung als "erzwungen" einzuordnen ist.

5. Vulnerabilität und Widerstandsfähigkeit

Bei der Überprüfung der Literatur über menschliche Mobilität als Reaktion auf Umweltstressfaktoren zeigte sich, dass zahlreiche Studien belegen, dass Migration eine erfolgreiche Strategie zur Anpassung an den Klimawandel, zur Erschließung alternativer Einkommensmöglichkeiten oder zum Risikomanagement sein kann und nicht als negatives Resultat von Umweltveränderungen per se angesehen werden sollte. Ein möglicher positiver Effekt der Migration kann die Verringerung der Gesamtbelastung von Haushalten in ländlichen Gebieten aufgrund von Familienangehörigen sein, die andernorts Saisonarbeit verrichten. Diasporagemeinschaften leisten zudem wichtige Unterstützung bei der Anpassung an Umweltveränderungen im Herkunftsland. Rücküberweisungen sind oft die erste finanzielle Hilfe, die z. B. unmittelbar nach Katastrophen eintrifft.

Allerdings sollte auch berücksichtigt werden, dass Migration im Allgemeinen nicht die vorrangige Lösung ist und dass Migration als Reaktion auf Umweltstressfaktoren auch negative

Auswirkungen haben kann. Im Hinblick auf das klassische Beispiel eines Geldtransfers durch ein Familienmitglied werden beispielsweise die prekären Bedingungen, unter denen sich viele dieser Migrantinnen und Migranten im Zielgebiet wiederfinden, oder die zusätzlichen Belastungen für diejenigen, die zurückbleiben ("brain drain", "lost labour"), oftmals nicht berücksichtigt. Die Foresight-Studie (2011) rückte auch die Frage der „trapped population“ oder „nicht-mobilen“ Bevölkerungsgruppen in den Vordergrund und betonte die Unterscheidung zwischen denen, die nicht migrieren können (unfreiwillig nicht-mobile Bevölkerungsgruppen, oder „trapped population“) und denen, die nicht gewillt sind umzusiedeln (freiwillig nicht-mobil). Die Bewegungshindernisse sind z.B. der Mangel an finanziellen Mitteln, Netzwerken oder Wissen und Fähigkeiten. Zudem sind die fehlende Möglichkeit, ihre Vermögenswerte zu verkaufen, familiäre Verpflichtungen, aber auch ein mangelndes Verständnis der Situation Gründe zum Bleiben. Mitunter wird Migration nicht als Option betrachtet, z.B. aufgrund kultureller Bindungen.

6. Konfliktzusammenhänge

Die politischen Entscheidungsträgerinnen und Entscheidungsträger zeigen ein großes Interesse am Nexus von Klimawandel, Migration und Konflikt, allerdings ergeben die Fakten ein gemischtes Bild. So zeigen beispielsweise die Analysen von Thomas Homer-Dixon (1994; 1999) kausale Zusammenhänge zwischen Umweltfaktoren, Migration und Konflikt. Wie sich herausstellte, kann die Einwanderung in Regionen mit Ressourcenknappheit zu Spannungen und Konflikten im Aufnahmeland führen. Das Konfliktpotenzial wird jedoch durch eine Reihe von Faktoren bestimmt, und Zuwanderung an sich ist selten eine der unmittelbaren Ursachen von Konflikten. Jeder Konflikt ist das Ergebnis komplexer Wechselwirkungen zwischen verschiedenen sozialen, politischen, wirtschaftlichen, demographischen und ökologischen Faktoren, so dass der Klimawandel zunehmend als "Bedrohungsmultiplikator" und nicht als direkte Ursache von Konflikten verstanden wird. Abwanderung aus ökologisch geschädigten Gebieten, die über einen langen Zeitraum stattfindet, bedeutet weniger Potenzial für große Spannungen, während das Konfliktpotenzial zunimmt, wenn eine große Zahl von Menschen über einen kurzen Zeitraum in Gegenden abwandert, die unzureichend in der Lage sind, sie aufzunehmen. Es mangelt an Erkenntnissen über das Konfliktpotenzial, das sich aus einer massiven katastrophenbedingten Vertreibung ergibt. Einige Studien haben jedoch auf ein zunehmendes Konfliktpotenzial hingewiesen, wenn große Flüchtlingsströme in Lager kommen und mit örtlichen Bevölkerungsgruppen um den Zugang zu natürlichen Ressourcen konkurrieren.

7. Umweltmigration nach Europa

Oft wird über die Rolle von Flucht und Migration aus anderen Weltregionen nach Europa berichtet. Diese Trendaussagen sind für den Fall der Umweltmigration in ihrem Ausmaß nicht robust zu unterlegen, was vor allem auf das Fehlen geeigneter Daten und die Komplexität der Abgrenzung zwischen Umweltfaktoren und von anderen Faktoren zurückzuführen ist. Hingegen gibt es fundiertere Aussagen zu der Bedeutung in Europa selbst. Es gibt zahlreiche Beispiele für Vertreibungen aufgrund von Umweltveränderungen in Europa. Beispielsweise wurden 2012 in Spanien 13.000 Menschen durch Waldbrände vertrieben (Ionesco et al., 2017:45). Die IDMC zeigte, dass im Jahr 2017 durch Naturgefahren rund 66.000 Menschen in Europa vertrieben wurden. Darüber hinaus müssen einige europäische Länder wie die Niederlande und Deutschland auch die Herausforderungen im Zusammenhang mit dem Meeresspiegelanstieg und daraus potentiell resultierende Binnenvertreibung angehen.

3.2 Teilbericht II: Wirkungsanalyse

Wie in der Literaturrecherche dargestellt, unterliegen globale Prognosen über das Ausmaß der zukünftigen Umweltmigration großen Unwägbarkeiten und sind von begrenztem Wert. Bemühungen, das Zusammenspiel verschiedener kausaler Faktoren, einschließlich Umweltveränderungen, bei der Migration in bestimmten Kontexten (lokal, national oder regional) zu verstehen, sind für die politischen Entscheidungsträgerinnen und Entscheidungsträger von weitaus größerem Wert. Da Migration ein komplexes, mehrdimensionales Thema ist, ist es bei der Analyse des Nexus von Migration, Umwelt und Klimawandel außerdem wichtig, andere Schlüsselfaktoren wie wirtschaftliche, politische, demografische und soziale Trends neben Umweltfaktoren zu berücksichtigen. Dazu gehören Faktoren wie der Grad der sozioökonomischen Entwicklung, Wirtschaftswachstum, Ressourcenknappheit, Governance-Richtlinien, Bevölkerungswachstum und Urbanisierung.

Die zweite der drei Teilstudien konzentrierte sich daher auf die Auswirkungen von Migration, Umwelt und Klimawandel und untersuchte vier der wichtigsten Aspekte, wie Umweltveränderungen und Migration bis dato miteinander zusammenhängen. Die Analyse umfasste auch Überlegungen darüber, wie sich diese Auswirkungen in Zukunft entwickeln könnten.

1. Mobilitätsmaßnahmen bei plötzlich auftretenden Gefährdungen

Das Vertreibungsrisiko ergibt sich aus der Gefahr selbst (Art, Intensität und Häufigkeit), der Gefährdung (Menschen wohnhaft in gefährdeten Bereichen) und der Vulnerabilität (Anfälligkeit für Gefährdungseinflüsse). Alle drei Komponenten dürften das Vertreibungsrisiko in vielen Ländern erhöhen. Was die Gefahr selbst betrifft, so wird erwartet, dass der Klimawandel die Häufigkeit und Intensität von Naturgefahren wie Überschwemmungen und Stürmen erhöhen wird, wenn auch nicht auf allen Kontinenten gleichmäßig. Hinsichtlich der Gefährdung wird in vielen Ländern mit einem Anstieg aufgrund des Bevölkerungswachstums in gefährdeten Gebieten gerechnet - zum Beispiel in Städten in tiefliegenden Küstengebieten. Im Hinblick auf die Vulnerabilität ist eine der wichtigsten Ergebnisse, dass katastrophenbedingte Vertreibungen in Ländern mit einem relativ niedrigen Human Development Index (HDI) sowie in Ländern, in denen Vulnerabilitäten auf verschiedenen Ebenen (individuell, gemeinschaftlich, national) gebündelt sind, häufiger sind. Gender ist oft ein bestimmender Faktor für die Vulnerabilität für plötzlich auftretende gefährliche Ereignisse, auch aufgrund davon, wie Gender den Zugang zu Mobilität beeinflussen kann. Gender kann ferner die Vulnerabilität bei Katastrophen und nach Katastrophenfällen beeinflussen. Eine weitere Schlüsselkomponente der Vulnerabilität ist die Fähigkeit, die Auswirkungen des Klimawandels zu bekämpfen (oft als "Anpassungsfähigkeit" bezeichnet).

In den nächsten Jahrzehnten dürften die Vertreibungsrisiken aufgrund der sich fortschreitenden Urbanisierung und des Bevölkerungswachstums in den städtischen Gebieten, vor allem in Ländern mit niedrigem und mittlerem Einkommen, am stärksten zunehmen. Maßnahmen der öffentlichen Katastrophenvorsorge (DRR auf Englisch) können jedoch einen starken Einfluss auf die Mobilität in Katastrophenfällen haben. Frühwarnsysteme in Verbindung mit genauen (und erprobten) Evakuierungsplänen können einen großen Beitrag dazu leisten, die Zahl der Todesopfer zu reduzieren und die Auswirkungen der Vertreibung auf die Bevölkerung zu begrenzen, die oft bereits mehrfach gefährdet ist. Bei den Vorbereitungsmaßnahmen müssen spezifische Schwachstellen innerhalb der Bevölkerung, wie Bildungspolitik und -versorgung, sowie der ökonomische Kontext Berücksichtigung finden.

2. Mobilitätsmaßnahmen im Kontext von langsam einsetzenden Gefährdungen

Langsam einsetzende Ereignisse, die von Dürre bis zum Anstieg des Meeresspiegels reichen, können die menschliche Mobilität beeinträchtigen. Die menschliche Vulnerabilität formt die Bewegungsreaktionen und kann bestimmen, ob Mobilität überhaupt eine Option ist. Gleichzeitig prägen Mobilitätsentscheidungen die zukünftige Vulnerabilität. Zwei Beispiele veranschaulichen diese komplexen Wirkungszusammenhänge. Erstens kann der Anstieg des Meeresspiegels die menschliche Mobilität auf unterschiedliche Weise beeinflussen. Obwohl er oft zuerst mit einer permanenten Überschwemmung von Land und Siedlungen in Verbindung gebracht wird, gibt es in der Tat eine Reihe von Möglichkeiten, wie der Meeresspiegelanstieg die menschlichen Aktivitäten und Siedlungen beeinflusst. Dazu gehören die Küstenerosion, die Versalzung des Grundwassers in den Küstengebieten und die erhöhte Vulnerabilität gegenüber Überschwemmungen durch Sturmfluten sowie die Versalzung von Landwirtschaftsflächen. Geplante Umsiedlungen können im Falle einer irreversiblen Degradierung / Überschwemmung von Land notwendig sein. Die Festlegung des Zeitpunktes, an dem das Land unbewohnbar wird, zu bestimmen, kann allerdings umstritten sein. In vielen Fällen können sich die Menschen dafür entscheiden, lange vor der Überflutung zu migrieren, da die Auswirkungen der anderen damit verbundenen Probleme immer gravierender werden.

Zweitens wirken sich verschiedene langsam einsetzende Umweltveränderungen bereits auf die Lebensgrundlagen der Landbevölkerung aus. In vielen Regionen ist der kleinbäuerliche Ackerbau von Niederschlägen abhängig, während Bewässerung nicht möglich oder finanziell unerschwinglich ist. Daher sind diese Kleinbäuerinnen und Kleinbauern oft sehr vulnerabel gegenüber den Auswirkungen des Klimawandels, beträchtlichen Niederschlagsschwankungen und Temperaturanstiegen. Der Klimawandel verschärft oft andere menschliche Einflussfaktoren auf die Bodendegradation, wie z.B. eine zu intensive Landwirtschaft. Die Auswirkungen können sich schrittweise ergeben und über einen langen Zeitraum oder unmittelbarer im Falle von Trockenheit oder unregelmäßigen Niederschlägen auftreten. Zusammengenommen hängen die zur Verfügung stehenden Möglichkeiten zur Migration von den in der Literaturübersicht beschriebenen Faktoren auf Makro-, Meso- und Mikroebene ab. Zusammenfassend lässt sich sagen, dass die zur Verfügung stehenden Möglichkeiten für die Migration von den in der Literaturübersicht beschriebenen Faktoren auf Makro-, Meso- und Mikroebene abhängen.

Neben den Umwelttreibern können auch breitere kontextuale Faktoren die Mobilität in ländlichen Gebieten beeinflussen. Wirtschaftliche "Push"- und "Pull"-Faktoren, wie stagnierende ländliche Einkommen, sich ändernde Marktdynamiken (niedrige Erzeugerpreise; Änderungen der Nachfragemuster) und die Verfügbarkeit von (höher) bezahlten Arbeitsplätzen sowohl in städtischen als auch in ländlichen Gebieten, können einen erheblichen Einfluss auf die Migrationsentscheidungen haben. Demographische Faktoren können auch eine Rolle spielen, wenn beispielsweise Jugendliche in ländlichen Gebieten von "sozialen Treibern", insbesondere die Aussicht auf eine bessere Ausbildung oder bessere Arbeitsmöglichkeiten, in städtische Gebiete gezogen werden. Auch politische Faktoren, vor allem in Bezug auf die Verwaltung, sind zu berücksichtigen. Nationale Politikmaßnahmen zur ländlichen Entwicklung und Anpassung an den Klimawandel könnten beispielsweise zu einer Unterstützung der Lebensgrundlage im ländlichen Raum führen und die Menschen ermutigen, sich vor Ort mit den Problemen auseinanderzusetzen oder sich anzupassen. Politikmaßnahmen und Gesetze im Landsektor (z.B. Bodenbesitzverhältnisse und Landnutzungsrichtlinien oder Gebäude- und Stadtplanungspolitik) können ebenfalls erhebliche Auswirkungen auf die Lebensgrundlagen und die menschliche Mobilität haben.

3. Zusammenhänge von Umweltveränderungen, Konflikten und Mobilität

Was die Zusammenhänge zwischen Umweltveränderungen, Konflikten und Mobilität betrifft, so unterstreicht das Wirkungspapier die Ergebnisse der Literaturrecherche: Die Zusammenhänge sind komplex sowie zeit- und kontextbezogen. Die Vielzahl relevanter kontextualer Faktoren macht es unmöglich, zukünftige Entwicklungen des Nexus von Umwelt, Mobilität und Konflikt zuverlässig vorherzusagen. Dennoch dürften Umweltveränderungen - durch ihre Auswirkungen auf plötzliche und langsam eintretende Ereignisse - eine Reihe potenzieller Konflikttreiber weiter verschärfen. Ob die menschliche Mobilität als Bedrohungsmultiplikator wirkt, hängt von vielen Faktoren ab, wie die Konfliktanalyse unter den Pastoralisten in Afrika zeigt.

Die Folgen der Zuwanderung auf die Aufnahmegesellschaften verdeutlichen, dass Spannungen wahrscheinlicher sind, wenn massive Zuwanderung in kurzer Zeit stattfindet, insbesondere wenn die Zuwanderung erhebliche Auswirkungen auf sozioökonomische, ökologische oder kulturelle Strukturen hat. Umweltveränderungen, Konflikte und Mobilität sind eher in komplexen Krisen miteinander verknüpft, in denen der Klimawandel als "Bedrohungsmultiplikator" auftritt und die Auswirkungen bestehender Konflikttreiber verschärft.

4. Nicht-mobile Bevölkerungsgruppen und „trapped population“

Die Analyse in Bezug auf den vierten Wirkungstyp, nicht-mobile Bevölkerungsgruppen, diskutierte zwei Formen der Nicht-Mobilität hinsichtlich von Umweltstressfaktoren: die Entscheidung zum Verlassen einerseits und die Unfähigkeit zum Verlassen andererseits. Weltweit wächst die Zahl der Menschen, die in Gebieten leben, die plötzlichen und langsam einsetzenden Umweltstressfaktoren ausgesetzt sind, wobei die Schlüsselfaktoren Bevölkerungswachstum, Klimawandel und Urbanisierung sind. Daher ist die Zunahme der Nicht-Mobilität in gefährdeten Gebieten ein immer größeres politisches Problem. Die Gründe, warum Menschen im Hinblick auf Umweltstressfaktoren nicht wegziehen, sind vielfältig, lassen sich aber im Großen und Ganzen in zwei übergreifende Kategorien einteilen: freiwillige Nicht-Mobilität (nicht-mobile Bevölkerungsgruppen) und unfreiwillige Nicht- Mobilität („trapped population“). Da die Auswirkungen von Umwelt und Klimawandel immer deutlicher zu spüren sind, kann es vorkommen, dass eine wachsende Zahl von Menschen in Gebieten gefangen ist, in denen sie sehr anfällig für Umweltstressfaktoren sind. Insofern ist die Minimierung der Umweltzerstörung und der Umweltstressfaktoren - insbesondere im ländlichen Raum - ein wichtiger Faktor, um erzwungene Abwanderung zu begrenzen.

3.3 Teilbericht III: Durch Anpassungspolitik auf die Herausforderungen reagieren

Die ersten beiden Teilstudien des Forschungsvorhabens zeigen, dass es bereits umfangreiche Forschungsarbeiten und Erkenntnisse gibt, um Antworten auf Muster menschlicher Mobilität im Zusammenhang mit Umwelt- und Klimawandel zu identifizieren. Diese Forschung verdeutlicht, dass die Konzeption und Umsetzung von Politikmaßnahmen eine bedeutende Rolle bei der Bestimmung des Umfangs und der Art der menschlichen Mobilität im Zusammenhang mit dem Klimawandel spielen kann. Dies betrifft auch die Frage, ob die menschliche Mobilität positive oder negative Auswirkungen auf die Migrierenden sowie auf Aufnahme- und Zielgesellschaften hat. Im Bereich der Klimapolitik können politische Entscheidungen auf ständig wachsende Kenntnisse und Erfahrungen darüber zurückgreifen, wie alle Formen der menschlichen Mobilität die Bemühungen zur Anpassung an die Auswirkungen des Klimawandels unterstützen oder auch untergraben können. Gelingt es, die Perspektive menschlicher Mobilität bei der

Konzeption und Umsetzung von Anpassungsmaßnahmen an den Klimawandel einzubringen, dann kann ein umfassenderes Bild ihrer Wirkungen vermittelt werden. Auf diese Weise kann auch dazu beigetragen werden, dass Menschen, Bevölkerungsgruppen und die Natur besser geschützt sind.

Relevante Institutionen und Organisationen auf internationaler Ebene sowie Initiativen auf regionaler und nationaler Ebene haben wichtige Handlungsfelder identifiziert und Übersichten über gute Praktiken, Empfehlungen und Leitlinien zur besseren Einbindung von Migration und menschliche Mobilität in eine Vielzahl von Politikbereichen entwickelt. In der internationalen Klimapolitik hat das Thema Migration in den letzten zehn Jahren zudem zunehmende politische Aufmerksamkeit erfahren. Wichtige Schritte, wie die Anerkennung der Beziehungen zwischen dem Klimawandel und verschiedenen Formen der menschlichen Mobilität im Rahmen der Klimarahmenkonvention (UNFCCC) auf der Vertragsstaatenkonferenz (COP) in Cancun im Jahr 2010, haben den Weg für die Einrichtung einer Task Force on Displacement (TFD) im Rahmen des Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (WIM) auf der COP21 in Paris geebnet. Der erste TFD-Arbeitsplan (2016-2018) konzentrierte sich darauf, einen aktuellen Überblick über die verfügbaren Daten und die bestehenden Methodologien, politischen Maßnahmen, institutionellen Rahmenbedingungen, Leitlinien und Instrumente auf nationaler, regionaler und internationaler Ebene zu geben, die für das Thema Vertreibung im Kontext des Klimawandels von Bedeutung sind. Die auf dieser Grundlage erarbeiteten Empfehlungen wurden von den Parteien auf der COP24 in Katowice verabschiedet. Das Mandat der TFD wurde um weitere fünf Jahre verlängert[4].

Das Response-Papier bietet politischen Entscheidungsträgerinnen und -trägern, die im Bereich der Klimawandelanpassung tätig sind, Ansatzpunkte für die Integration von Maßnahmen zu menschlicher Mobilität in ihre Arbeit. Es enthält ferner erste Schlussfolgerungen darüber, wie auf wichtige aktuelle Entwicklungen in der internationalen Klimapolitik und –finanzierung reagiert werden kann. Gleiches gilt mit Blick auf neue und sich ständig weiterentwickelnde Rahmenbedingungen und Prozesse in anderen, für die menschliche Mobilität und den Klimawandel wichtigen Bereichen.

Wichtige Erkenntnisse des Berichts

Aus der Analyse lassen sich vier Kernergebnisse ziehen. Diese bilden auch die Grundlage, um eine Reihe von Empfehlungen für politische Entscheidungen inklusive der internationalen Klimafinanzierung zu entwickeln. Diese Empfehlungen umfassen auch Vorschläge, wie menschliche Mobilität besser in die Strategien, Programme, Projekte und Finanzierungsinstrumente zur Anpassung an den Klimawandel integriert werden kann.

1. Es besteht erheblicher Spielraum für die Integration der menschlichen Mobilität in Klimastrategien und Politikmaßnahmen

Eine Erkenntnis aus der Arbeit der TFD ist, dass menschliche Mobilität im Kontext von Umwelt und Klimawandel in 33 nationalen Klimabeiträgen (NDCs) Erwähnung finden, die beim Klimasekretariat eingereicht wurden. Dass sich knapp ein Fünftel der NDCs auf Umweltmigration bezieht, ist ein wichtiger Hinweis darauf, dass es noch viel Spielraum gibt, um die mit der menschlichen Mobilität verbundenen Herausforderungen und Vorteile weiter in die Klimastrategien und -politiken auf nationaler Ebene zu integrieren. Eine weitere Analyse dieser NDCs ergab, dass die Hälfte der Länder menschliche Mobilität, einschließlich geplanter Umsiedlungen, als notwendige Anpassungsstrategie bezeichnete. Vierzehn dieser NDCs

[4] Dieser Bericht wurde fertiggestellt, bevor der neue TFD-Arbeitsplan veröffentlicht wurde. Weitere Einzelheiten zum Arbeitsplan 2019-2021 finden Sie jedoch in den Fußnoten zu den nachstehenden Empfehlungen.

erwähnen bestehende oder geplante staatliche Maßnahmen zur Umsiedlung gefährdeter Gruppen oder Bevölkerungsgruppen außerhalb von Hochrisikogebieten. In anderen NDCs wurde darauf hingewiesen, wie Anpassungsmaßnahmen an den Klimawandel den Verbleib der Menschen vor Ort ermöglichen können. Hier wird auch Bezug genommen auf Risiken im Zusammenhang mit der durch den Klimawandel induzierten menschlichen Mobilität, auf Sicherheitsrisiken in diesem Zusammenhang und auf die Auswirkungen menschlicher Mobilität auf die Finanzierung der Anpassung an den Klimawandel sowie auf die menschliche Mobilität als mögliche Voraussetzung für oder Ergebnis von Minderungsmaßnahmen hin.

Die Nationalen Anpassungsplan-Prozesse bieten einen guten Ausgangspunkt, um Überlegungen zur menschlichen Mobilität in die NDCs und andere nationale Klimaschutzmaßnahmen einzubringen. Das Response Paper überprüft die Leitlinien und relevanten bewährten Verfahren für die Integration der menschlichen Mobilität in den sechs Planungs- und Umsetzungsphasen des NAP-Prozesses: Bewertung, Prioritätensetzung, Planung, Finanzierung, Durchführung und Bewertung. Herausgehobene Beispiele von bewährten Verfahren bilden nationale Bewertungen zu Migration, Umwelt und Klimawandel, neue digitale Instrumente, Stärkung von Vorsorgemaßnahmen, innovative Finanzierungssysteme und partizipatorische Entwicklungsarbeit auf der Ebene lokaler Gemeinschaften.

2. Die systematische Einführung einer spezifischen Migrationskomponente bei Planung, Durchführung und Finanzierung kann erhebliche Vorteile bieten

Viele Anpassungsmaßnahmen an den Klimawandel verbessern bereits die Bedingungen für Migrierende sowie Herkunfts- und Aufnahmegemeinschaften - zum Beispiel durch die Verbesserung der Sicherheit von Nahrung, Wasser und Lebensgrundlagen allgemein, z.B. angesichts zunehmend schwierig vorhersehbarer Niederschläge. Planung, Durchführung und Finanzierung von Maßnahmen bieten indes noch erheblichen Handlungsspielraum, um eine zielgerechte Migrationskomponente einzuführen, um ihren Nutzen für Migrierende sowie deren Heimat- und Aufnahmegemeinschaften und die positiven Zusatznutzen von Anpassungsprojekten an den Klimawandel zu erhöhen.

Eine Analyse bedeutender internationaler Klimafinanzierungsansätze, insbesondere des Green Climate Fund, des Adaptation Fund, der Internationalen Klimaschutzinitiative und des Least Developed Countries Fund, ergibt, dass Klimafonds und Finanzierungsmechanismen bislang nur eine sehr geringe Anzahl von Programmen und Projekten finanzieren, die sich explizit mit Fragen der Migration und der menschlichen Mobilität befassen. Nur wenige, meist aktuelle Beispiele der internationalen Klimafinanzierung verdeutlichen den Zusammenhang zwischen Umweltmigration und Klimawandel als übergeordnete Priorität. Diese Projekte zielen auf eine Reihe von Ländern ab, die für die Auswirkungen des Klimawandels anfällig sind, wie z.B. eine Reihe von pazifischen -Inselstaaten. Die Projekte haben auch unterschiedliche Schwerpunktsetzungen bei der Anpassung an den Klimawandel – von Küstenschutzmaßnahmen bis hin zur Gewährleistung nachhaltiger Gebäude.

Maßnahmen zur systematischeren Auseinandersetzung mit der Umweltmigration im Rahmen dieser Programme und Projekte und zur Stärkung des Profils der Maßnahmen zur Umweltmigration im Rahmen internationaler Klimafinanzfonds oder weiterer Finanzierungsmechanismen können zur Entwicklung eines ganzheitlicheren Ansatzes beitragen und eine wichtige Rolle bei der Bereitstellung nachhaltigerer Lösungen für gefährdete Bevölkerungsgruppen spielen.

3. Gefährdete Gruppen und Gemeinschaften benötigen zusätzliche Unterstützung

Bereits heute marginalisierte oder gefährdete Gruppen in der Gesellschaft benötigen zusätzliche Unterstützung und Schutz, um die langsamen und plötzlichen auftretenden Auswirkungen des Klimawandels zu bewältigen. Der Mangel an aufgeschlüsselten Daten in vielen Ländern behindert die Entwicklung gezielter Strategien, die den Bedürfnissen und Vulnerabilitäten dieser verschiedenen Gruppen Rechnung tragen. Nach Geschlecht und Alter aufgeschlüsselte Daten und stärker lokalisierte wissenschaftliche Daten, die zeigen, welche Gebiete besonders stark von extremen Wetterereignissen und anderen Auswirkungen des Klimawandels betroffen sind, wären besonders nützlich für die Entwicklung gezielter, auf einzelne Zielgruppen ausgerichtete Initiativen. In Bereichen, in denen die Datenbasis noch nicht verbessert wurde, können Konsultationen mit gefährdeten Gruppen und Gemeinschaften wichtige Erkenntnisse liefern, um die Planung und Durchführung von Politikmaßnahmen, Programmen und Projekten zu verbessern. Auch die Einbeziehung und Stärkung der Zivilgesellschaft und der Diasporagemeinden in den betroffenen Ländern kann in dieser Hinsicht eine wichtige Rolle spielen.

4. Koordinierte Aktionen mit anderen Politikbereichen können zu besseren, stärker aufeinander abgestimmten Maßnahmen führen

Angesichts der vielen Faktoren, die die Entscheidungen von Menschen zur Mobilität beeinflussen können, wird die Adressierung des Nexus von Umweltveränderungen, Klimawandel und verschiedener Formen der menschlichen Mobilität (Vertreibung, Migration und geplante Umsiedlung) ein integriertes Handeln einer Reihe von Politikbereichen erfordern. Unter ihnen spielt die Klimapolitik eine entscheidende Rolle bei der Minderung der Auswirkungen des Klimawandels und bei der Stärkung der Widerstandsfähigkeit von Migrierenden sowie der Herkunfts-, Transit- und Aufnahmegemeinschaften. Ganzheitliche Lösungsansätze, die die Klimapolitik mit anderen Politikbereichen verbinden, können ebenfalls zu erheblichen Synergien und Zusatznutzen führen.

In der politischen Diskussion derer, die sich mit der Anpassung an den Klimawandel und angrenzenden Bereichen befassen, wird zunehmend anerkannt, dass Migration die Anpassung und eine langfristige nachhaltige Entwicklung unterstützen oder untergraben kann. Gelingt es, die Auswirkungen unterschiedlicher Politikmaßnahmen, Handlungsrahmen und Agenden auf die menschliche Mobilität im Zusammenhang mit dem Klimawandel adäquat darzustellen – und zwar auf subnationaler, nationaler und internationaler Ebene - kann dies die Grundlage für einen integrierten Ansatz in allen relevanten Politikbereichen bilden, der zu besseren Ergebnissen bei der Adressierung von Migration und Anpassung an den Klimawandel führt.

Auf internationaler Ebene stellen vor allem die Prozesse im Rahmen des Pariser Abkommens, des Global Compact for Safe, Orderly and Regular and Migration, der UN Sustainable Development Goals, der Platform on Disaster Displacement den Nexus von Migration, Klimawandel und Umwelt her. Hier kann angesetzt werden, um die Kohärenz zwischen diesen verschiedenen Regelwerken und Agenden zu erhöhen. So hat es beispielsweise bereits einige Fortschritte bei der Stärkung der Verbindungen zwischen der Anpassungspolitik an den Klimawandel und der Katastrophenvorsorge sowie dem Katastrophenmanagement (DRR/DRM) gegeben. Allerdings bleibt noch erheblicher Spielraum für die Zusammenführung von Maßnahmen und die Zusammenführung (und Erweiterung) relevanter Finanzmittelströme.

Die Analyse zeigt schließlich, dass Politikmaßnahmen in den Bereichen Anpassung an den Klimawandel, Migration, DRR und nachhaltige Entwicklung dazu beitragen können, die Widerstandsfähigkeit gefährdeter Gemeinschaften gegenüber den Auswirkungen des Klimawandels zu erhöhen.

4 Gap analysis and recommendations

This chapter summarises the knowledge and policy gaps identified throughout the three papers, and presents recommendations for policymakers at all governance levels, international institutions, international climate finance donors, as well as the research community to address them.

4.1 Addressing data and knowledge gaps

Informed policymaking relies on data being readily available to understand how climate and environmental change affects migration. In situations where multiple factors are at play – as is often the case in situations when environmental and climate change influence people's decisions to leave their homes – strengthening the data and knowledge base are essential steps in developing effective response strategies and providing targeted assistance and protection to affected communities.

Although policymakers can already draw on many solid research findings, guidance documents and good practices to develop responses to human mobility in the context of environmental and climate change, there is still an urgent need to improve data collection and strengthen the evidence base across more countries and regions. In its report to the Parties at COP24, the Task Force on Displacement called on governments to "enhance research, data collection, risk analysis, and sharing of information, to better map, understand and manage human mobility related to the adverse impacts of climate change, in a manner that includes the participation of communities affected and at-risk of displacement related to the adverse impacts of climate change" (UNFCCC, 2018).

The following chapter outlines some key data and knowledge gaps, and offers recommendations to national governments and international donors to address them.

Improving the availability of data in general

At present, significant data gaps limit policymakers' understanding of numerous aspects of the migration-environment and climate-change nexus (IOM, 2016). To address these challenges, the International Organization for Migration (IOM) has called for "comparable quantitative, longitudinal, disaggregated and georeferenced data **…** to assess how different forms of mobility can be a beneficial adaptation strategy and what potential risks need to be minimized" (IOM, 2018).

The data challenge is particularly acute in developing countries, which are both the most vulnerable to the impacts of climate change and the most under-resourced to develop the evidence base and policies required to strengthen the resilience of people in-situ, support safe, orderly and regular migration, and help receiving communities. While there is data available for the number of people displaced internally by disasters (IOM, 2018; IDMC, 2019), there is still a lack of long-term historical ('longitudinal') data to understand gradual, more long-term changes in the environment and their impact on the movement of people. More data are also required to understand internal and temporary movements in response to slow-onset climate change and environment degradation, which constitute a large proportion of environmental migration.

Big data and digitalisation are beginning to play an important role in strengthening data in contexts where it has been lacking (IOM, 2020 a, b). For example, open access tools such as the Hot OpenStreetMap Tasking Manager are speeding up the process of mapping key data in emergency or other humanitarian mapping scenarios (Humanitarian OpenStreetMap Team, 2019). Others are making data more accessible to decision-makers and responders, such as

IOM's Flow Monitoring platform, which visualizes migration flow data, helping to track and monitor displacement and population mobility (IOM, 2019). New approaches in this area come with major opportunities for improving the availability of data, but also bring new challenges with regard to respecting privacy rights. Digitalisation is also creating new opportunities and challenges for migrants, and is therefore playing an increasing role in shaping migration decisions and patterns[5] .

For more information on data challenges, see Sections 6.1 and 6.2 of the Literature Review. For more information on the opportunities and challenges of digitalisation, see Section 3.4.1. in the third paper of this series "Migration, environment and climate change: Responding via climate change adaptation policy".

Recommendations

Finance longitudinal, cross-country comparative studies that allow for the collection and analysis of information on the links between human mobility, environmental degradation and climate change.

Support research and analysis on internal migration, temporary movements, the duration, and distance of displacement due to disasters (including cross-border displacement) as well as enable the collection of information on stocks[6] of displaced persons.[7]

Enable research focusing on the impacts of slow-onset changes in the environment and climate, such as droughts, sea-level rise, groundwater recession, species extinction in flora and fauna, pollution of water, air and soil.[8]

Support initiatives to investigate and expand the possibilities that digitalisation and big data offer in terms of improving the availability of data on aspects of the migration, environment and climate change nexus.

Support further study and analysis to investigate the links between other factors and migration. These include environmental factors, such as the effects of climate change on water and food scarcity, and the impact of soil erosion on soil fertility; political factors, such as evolving governance structures at all levels and the role of projects, treaties and conventions (at regional or international level etc.) in different policy areas; socio-economic factors, such as demographic growth, trade and agricultural schemes (at different levels), and access to education, healthcare, jobs or social welfare; and technology-related factors, such as technological change and digitalisation.

[5] Digitalisation also provides migrants with greater access to information and services. This is having a range of positive effects, from easing migrants' communication with diaspora groups and friends and family at home, mobile phone alerts to warn vulnerable communities about incoming disasters, or digital money transfer options that allow migrants to send remittances back to relatives more cheaply. However, there are also downsides – for example, human traffickers are using mobile phones, social media and recruitment portals to expand their activities, and social media networks have also accelerated the spread fake news and hate speech to negatively sway public opinion against migrants.

[6] Defined as "the total number of (international) migrants present in a given country at a particular point in time" (https://unstats.un.org/unsd/statcom/48th-session/documents/BG-4a-Migration-Handbook-E.pdf" \t "_blank: 9).

[7] Partially addressed in the TFD Plan of Action for 2019-2021 in Activity 3 "Prepare a user-friendly knowledge product on nexus situations (climate change/disaster and conflict/violence)" and Activity 5 "Prepare a technical briefing on approaches to avert, minimise and address loss and damage in relation to disaster displacement -(UNFCCC, 2019: 2, 3).

[8] Partially addressed in the TFD Plan of Action for 2019-2021 in Activity 4 "Prepare a user-friendly knowledge product on displacement related to climate change in the context of slow onset events" (UNFCCC, 2019: 2).

Improving the availability of data for specific sub-groups

Already marginalised or vulnerable groups in society are likely to require additional support and protection to cope with environmental change, including the slow and sudden-onset impacts of climate change. Such groups may include demographic groups, for example women, men, children and older people, as well as marginalised ethnic or religious groups, people facing persecution on account of their political views or activities (e.g. environmental activists, journalists, or civil society groups), people living with disabilities, people living in poverty and other vulnerable groups in society that lack the social or financial capital to cope with natural hazards or with long-term livelihood, food or water insecurity. Communities that are highly dependent on natural resources and/or ecosystem services for their livelihoods may be especially vulnerable, particularly if they lack access to state services or have high illiteracy rates.

The lack of statistics disaggregated by sex, age and other relevant factors in many countries currently limits understanding of the vulnerability, resilience and needs of these specific sub-groups. This in turn hinders the development of targeted policies and projects that take into account the needs and vulnerabilities of different groups of migrants.

Recommendations:

Support and fund initiatives to collect, share and use disaggregated data sets that can increase understanding about why different vulnerable groups may choose to stay or to migrate, their migration patterns, and how they are affected by environmental and climate change. Initiatives to digitalise data and harness big data are also opening up new opportunities and challenges in this regard.[9]

Consult with key representatives of vulnerable communities to better understand how policies, programmes and projects will affect them. Taking an inclusive, rights-based, conflict-sensitive approach and consulting with affected communities in advance to understand their needs and concerns can significantly improve outcomes, in particular in complex situations, such as the last-resort option of planned relocations when entire communities are permanently moved out of high-risk areas.

Create mechanisms to involve and empower civil society organisations and diaspora groups from affected countries. This can play an important role in strengthening the voice of affected communities and therefore in ensuring better responses to their needs and concerns.

Improving the availability of data and analysis on the links between migration and environmental and climate change in specific contexts

Given the multiple factors at play in situations of both forced and voluntary migration, the nature of the migration, environment and climate change nexus can vary significantly between regions, countries and even localities. As such, global figures and analyses can only ever be of limited use. Efforts to strengthen the evidence base for policy should therefore focus on understanding the interplay of different factors in specific contexts (local, national or regional).

9 Partially addressed in the TFD Plan of Action for 2019-2021 in Activity 2 "Prepare TFD factsheets providing an annual overview of global disaster displacement: gender disaggregated data of numbers, analysis by region, livelihood and income group, hazard context" (UNFCCC 2019: 2).

Recommendations:

Particularly in regions highly exposed to environmental and climate changes, **support and invest in initiatives to improve the granularity of the data and risk maps for impacts,** such as extreme weather events, sea-level rise, changing rainfall patterns, water scarcity and reduced soil fertility. This can support efforts to understand which areas are most at risk and which areas are safe for people to move to.

Invest in assessments mapping the migration, environment and climate-change nexus at regional, national and sub-national level. Such assessments can provide an overview of the relevant data and analysis for a particular country or region, and map the competencies and roles of relevant institutions, in order to identify potential focal points and channels for inter-ministerial cooperation.[10]

Commission climate and fragility risk analyses for conflict-prone regions. This can pave the way to a fuller understanding of conflict drivers across borders and support efforts to achieve more durable peacebuilding solutions[11].

4.2 Addressing gaps in national climate policy and strategies

There is significant scope for further integrating the challenges and benefits associated with human mobility into climate policies and strategies at national level. As of October 2019, fewer than one in five countries had mentioned either migration, displacement or planned relocation in the context of environmental or climate change in their Nationally Determined Contributions (NDCs). Of the countries that did address human mobility in their NDC, almost all made reference to human mobility in the context of climate risks and adaptation to them.

While climate-change mitigation policies increase the chances that globally people will continue to be able to lead dignified lives in-situ, adaptation policies aim to strengthen resilience to climate risks in specific places or contexts. As such, adaptation policies, such as the National Adaptation Plans (NAPs) prepared under the UNFCCC, can provide a good entry point to address the relationship between human mobility and resilience to climate and environmental changes. They can firstly do this by including measures to reduce the impact of environmental stressors on communities, thus minimising the pressure to migrate, averting displacement, and the need for planned relocations. Secondly, they can consider and facilitate migration as an important adaptive strategy for coping with environmental and climate change. Assessing which challenges and co-benefits human mobility may present for climate-change adaptation can also provide policymakers with a more complete picture of adaptation policy impacts, paving the way to improved overall outcomes.

Given the many factors that can influence people's decisions to move, responses are required in many fields to address the different forms of human (im)mobility (displacement, migration and planned relocation, trapped and immobile population) linked to environmental and climate change. Gaining an overview of the particular constellation of national institutions, frameworks and policies relevant to climate policy, and indeed the broader migration, environment, climate change nexus, in each country remains a challenge. Beyond climate policies, policies in other key

[10] Partially addressed in the TFD Plan of Action for 2019-2021 in Activity 13 "Assist Parties in assessing the risk of displacement, including through technical support and sharing of tools and practices", which can support the development of these kinds of assessments (UNFCCC, 2019: 4).

[11] "Shoring up stability: Addressing Climate & Fragility Risks in the Lake Chad Region" is the most comprehensive climate and fragility assessment of a specific region to date (Vivekananda et al, 2019). The report offers entry points and guidance for addressing climate-fragility risks in the Lake Chad region and beyond, as well as model for future climate-fragility studies.

areas such as disaster risk reduction or management (DRR/DRM) and national economic development plans are also likely to frame and address human mobility related to environmental and climate change. The success of national approaches also depends on supporting subnational governments in addressing implementation gaps at local level. As such, mapping exercises showing relevant roles and responsibilities across government can be useful and lay the groundwork for more effective and integrated approaches.

The recommendations below also build on the Task Force on Displacement's recommendations to:

"Adopt and implement national and subnational legislation, policies, and strategies recognizing the importance of integrated approaches to avert, minimize, and address displacement related to adverse impacts of climate change and issues around human mobility, taking into consideration human rights and other relevant international standards, and with inter-ministerial and cross-sectoral inputs, with the participation of relevant stakeholders;"

"Integrate human mobility challenges and opportunities into national planning processes, including nationally determined contributions and national adaptation plans, as appropriate, by drawing upon available tools, guidance, and good practices;"

"Protect and assist persons internally displaced in the context of climate change, and strengthen efforts to find durable solutions, taking into account the Guiding Principles on Internal Displacement and other relevant international standards;"

"Facilitate orderly, safe, regular and responsible migration and mobility of people, by considering the needs of migrants and displaced persons, communities of origin, transit and destination, and by enhancing opportunities for regular migration pathways, including through labour mobility, in accordance with international labour standards, in the context of climate change." (UNFCCC, 2018)

For more information, see Chapter 3 of the third paper in this series "Migration, environment and climate change: Responding via climate change adaptation policy. For guidance and good practices for integrating migration, displacement and planned relocation into National Adaptation Plans, see in particular Section 3.4.

Recommendations:

Consider the migration dimension in key climate policy documents, such as the NDCs and NAPs Such considerations should take into account migrants, origin and destination communities, as well as people who cannot or do not want to move out of environmentally degraded areas or areas highly exposed to climate risks. [12]

Use National Adaptation Plans as an entry point for ensuring greater consideration of human mobility in the NDCs and other national climate policies. Preparing a national assessment mapping

[12] This recommendation, as well as this subsequent two, will be partially addressed by Activity 17 of the TFD Plan of Action for 2019-2021. In it, the TFD aims to "Collaborate with the Least Developed Countries Expert Group and the Adaptation Committee to raise awareness of the importance of integrating consideration of human mobility in the context of climate change", in order to increase "Consideration of human mobility challenges in relevant national planning processes, including the process to formulate and implement national adaptation plans" (UNFCCC 2019: 6).

the nexus between environmental and climate change and human mobility can provide the groundwork for such efforts.[13]

Ensure that other core policy documents, such as national economic development plans, take into account and address the links between migration, environment and climate change.[14]

Strengthen the links between climate change adaptation and DRR/DRM policies by supporting existing initiatives, evaluating the options for bringing together policies, and merging (and expanding) relevant funding streams.[15]

Designate a focal point for environmental and climate change migration within a government or institution to act as an important first step towards creating dedicated projects and programmes. A national assessment mapping the nexus between environmental and climate change and human mobility can also prove helpful in this regard, by providing an overview of relevant government institutions and identifying a suitable department or agency for this role.

Support local governments in implementing national policies and strategies related to the human mobility, environment and climate change nexus. This can include providing technical and financial assistance to help local authorities draw up their own action plans to avert, minimise and address displacement due to environmental and climate change, as well as capacity building to better understand and evaluate the nexus in their particular context.[16]

4.3 Addressing gaps in project planning and funding

Countries mentioning migration either in general or as a priority issue in their NDCs have not yet necessarily matched these priorities with specific programmes and projects. Many climate change adaptation projects implicitly address migration drivers, as of October 2019. However, there were only a few, mostly recent examples in these countries' international climate finance portfolios (notably of the Green Climate Fund, the Adaptation Fund, the Least Developed Countries Fund and the International Climate Initiative) that explicitly highlight the relationship between environmental migration and climate change as an overall priority.

Adopting a "migration lens" during the planning and implementation of climate-change adaptation projects can serve to strengthen the protection and resilience of migrants, and their home and receiving communities, and increase the positive impact of climate-change adaptation measures overall. There is considerable scope for adopting a more systematic approach to factoring human mobility into climate-change adaptation project planning and implementation.

At present, vulnerable countries do not have the resources and capacities to develop and implement long-term approaches to tackling the migration, environment and climate-change nexus. International climate finance donors are well-placed to help address this funding gap – for example by updating their funding and investment criteria and by creating dedicated funding

[13] Partially addressed in the TFD Plan of Action for 2019-2021 in Activity 16 "Facilitate to make available supplementary guidelines on integrating human mobility into relevant national planning processes, including the process to formulate and implement national adaptation plans, as appropriate" (UNFCCC 2019: 6).

14 Partially addressed in the TFD Plan of Action for 2019-2021 in Activity 9 "Facilitate the assessment of economic impacts of displacement in the context of climate change at the national level" (UNFCCC 2019: 4).

[15] Partially addressed in the TFD Plan of Action for 2019-2021 in Activity 7 "Raise awareness on integrating displacement in the context of climate change into national laws, policies and strategies, including on disaster response, building on mappings and lessons learned" and Activity 14 "Support Parties in integrating displacement risk into DRR strategies and combining action on DRR and climate change" (UNFCCC 2019: 5).

[16] Partially addressed in the TFD Plan of Action for 2019-2021 in Activity 12 "Provide capacity-building opportunities using relevant training materials on migration, environment and climate change" and Activity 13 "Assist Parties in assessing the risk of displacement, including through technical support and sharing of tools and practices" (UNFCCC 2019: 5).

streams to promote the more systematic consideration of human mobility in climate change adaptation programmes and projects.

The recommendations below complement the Task Force on Displacement's recommendations to: "strengthen preparedness, including early warning systems, contingency planning, evacuation planning, and resilience building strategies and plans, and develop innovative approaches, such as forecast-based financing, to avert, minimize and address displacement related to the adverse impacts of climate change."

For more information, see Chapter 3 of the third paper in this series "Migration, environment and climate change: Responding via climate change adaptation policy. For guidance and good practices for integrating migration, displacement and planned relocation into project planning and international climate finance portfolios, see in particular Sections 3.3 and 3.4.

Recommendations:

Encourage climate-change adaptation projects to formulate distinct project elements related to migration. These may aim to provide better analysis and/or better responses to the nexus between environmental migration and climate change adaptation in specific contexts. Disaster risk reduction and early warning systems, as key elements, can help to increase resilience and reduce the need to move.[17]

Commission interim evaluations of ongoing programme and project activities related to environmental migration and climate change, as these can provide other countries facing similar challenges with valuable insights and lessons learned to inform the development of their climate finance portfolios. Preliminary insights need to be communicated carefully, but they can be used to communicate good practices, lessons learned and outline specific co-benefits in this area that can serve as input for proposals in the realm of climate change adaptation.[18]

Address the funding gap for measures that strengthen communities' preparedness to face the sudden and slow-onset impacts of environmental degradation and climate change. These measures can enable people to remain in-situ, save lives and reduce damage at a far lower financial and social cost than crisis responses measures.[19]

Increase access to finance for climate change adaptation, including projects and programmes that respond to migration or displacement in the context of environmental and climate change. In cases where communities are highly vulnerable to the impacts of climate change, this may include, as a last resort, relocating people to safer areas.

Secure additional financing for climate change adaptation and migration within development finance. Measures to adapt to climate change, and to respond to the migration, environmental and climate change network can result in significant development gains. Conversely, measures to tackle poverty and promote sustainable development contribute to climate change adaptation and support people before, during and after they migrate. It is important to increase general

[17] Partially addressed in the TFD Plan of Action for 2019-2021 in Activity 20 "Identify opportunities for accessing existing funding and develop guidance on preparing project proposals on averting, minimising and addressing displacement related to climate change to the GCF, other funds and donors" (UNFCCC 2019: 7).

[18] Partially addressed in the TFD Plan of Action for 2019-2021 in Activity 6 "Compile selected good practice case studies and lessons learnt of relevant projects/programmes that have integrated climate-related mobility for the purpose of improving design of project proposals and access to funding" (UNFCCC 2019: 3).

[19] Partially addressed in the TFD Plan of Action for 2019-2021 in Activity 15 "Support Parties in strengthening their understanding of preparedness for displacement related to the adverse impacts of climate change, including early warning systems, contingency planning, evacuation planning and resilience-building strategies and plans, and support Parties in developing innovative approaches to preparedness, for example forecast-based financing" (UNFCCC 2019:6).

community resilience and apply holistic and integrative approaches to consider the needs of all parts of the population (e.g. in receiving communities)

Review and update the funding and investment criteria of climate funds and financial mechanisms, such as the Green Climate Fund or the International Climate Initiative (IKI), with the migration, environment and climate-change nexus in mind.

Create dedicated funding streams for addressing human mobility in the context of environmental and climate change. Such an approach could offer concrete guidance on how to address migration in climate-change adaptation projects.

Allocate sufficient time and funding for consultations with communities about planned measures. Preparing consultation processes and working in cooperation with affected communities can help to ensure that measures address their particular needs and concerns, helping to improve outcomes, avoid social conflict and protect human rights.

4.4 Addressing gaps in responses at regional level

Regional mechanisms can play an important role in strengthening responses to human mobility in the context of environmental and climate change. They may strengthen action by pooling knowledge or resources, addressing drivers that stretch across national borders, supporting existing initiatives at national level, or amplifying regional concerns at other levels. In regions where cooperation is lacking, existing regional institutions and networks can provide the framework and mechanisms for increasing regional cooperation.

There are already successful examples of regional cooperation complementing and reinforcing national policies and strategies that address the links between human mobility and environmental and climate change. These include mechanisms to increase freedom of movement, ensure mutual aid in the event of disasters, and raise finance for climate change adaptation or DRM. Strengthened regional cooperation can also strengthen initiatives and action right through from the international level to the local level. For example, the Pacific small island states have coordinated at regional level to strengthen their collective voice in relevant international forums, such as the UNFCCC and the UN Security Council. At the other end of the spectrum, regional transhumance agreements to facilitate the cross-border movement of livestock have reduced the risk of local conflicts among pastoralist groups, and between pastoralist groups and sedentary farming communities.

For examples of good practices related to regional cooperation, see Chapter 3 of the third paper in this series "Migration, environment and climate change: Responding via climate change adaptation policy. For more information about the impacts of climate change on pastoralist communities, see Section 3.3 of the second paper in this series "Migration, environment and climate change: Impacts".

Recommendations:

Particularly in vulnerable regions, **provide technical and financial assistance to new and emerging regional networks or institutions** in areas relevant to the migration, environment and climate-change nexus and support established ones in building capacity in these areas.

Create formats and mechanisms to allow regional institutions, agencies and networks to share experiences of successful cooperation with regard to migration, environment and climate change. These can be of use both within regions and between regions – particularly between those where regional cooperation has yielded significant benefits and regions where regional cooperation has yet to be developed.

Establish and strengthen focal points for migration, environment and climate change within regional institutions, to ensure better cooperation across and with focal points at sub-national, national and international level.

Support the peaceful movement of pastoralists, for example via transhumance agreements to facilitate the cross-border movement of livestock. In addition, support measures, such as conflict-settling mechanisms, may be necessary. Initiatives that can be considered in this context include temporal or geographically flexible property rights – e.g. pastoralists may hold rights to graze on a specific site only during certain months of the year.

4.5 Addressing coordination gaps between international policy processes

As migration, environmental and climate change do not stop at national borders, national governments also need to cooperate at international level to develop effective responses and solutions. There are already numerous frameworks, processes and mechanisms in place at international level that touch on aspects of the nexus between migration, environment and climate change, such as the Paris Agreement, the Global Compact for Safe, Orderly and Regular Migration (GCM), the UN 2030 Agenda and Sustainable Development Goals, and the Platform on Disaster Displacement.

Although some steps have been taken to strengthen coordination and coherence at policy and institutional level, further action is required both within the UN system and beyond to identify synergies and make the connections across relevant processes and frameworks. In the international climate policy arena, the Task Force on Displacement under the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (WIM) serves as a mechanism for bringing together climate-change adaptation specialists with experts in other policy areas, such as migration policy, disaster risk reduction and management, humanitarian aid. There has also been some progress made in strengthening cooperation between the climate change adaptation and DRR/DRM communities.

For more information, see Chapter 4 of the third paper in this series "Migration, environment and climate change: Responding via climate change adaptation policy".

Recommendations:

Support further analysis examining how different policy frameworks can address human mobility in the context of environmental and climate change, and mapping the synergies between them.[20]

Strengthen the links between climate change adaptation and DRR/DRM frameworks and processes by supporting existing initiatives, evaluating the options for bringing together policies, and merging (and expanding) relevant funding streams.

Support the work of the Task Force on Displacement, which is already acting as a mechanism within the UNFCCC to bring together experts at the international level. The Task Force on Displacement will continue to serve as a mechanism for bringing together climate-change adaptation specialists with experts in other policy areas, such as migration policy, disaster risk reduction and management, and humanitarian aid.[21]

Provide support for initiatives and mechanisms that allow UN entities to work together across the nexus between migration, the environment and climate change. Important synergies could be achieved by coordinating relevant environmental, climate and development policies and activities.

[21] See the TFD Plan of Action for 2019-2021 (UNFCCC 2019).

5 Way forward

The deepening climate and ecological crises require concerted, global action on many fronts, not least to protect people and communities who are exposed to their effects and may as a result face increasing pressure to leave their homes. Many of those most vulnerable live in countries that have historically contributed little to global greenhouse gas emissions and which are the least equipped to cope with the impacts of climate and environmental change. The international community therefore has a responsibility to act before, during and after migration to protect human dignity and rights in these places. This entails a responsibility to preserve the natural world and functioning ecosystems, to increase the chances that people will be able to lead dignified lives in-situ and to reduce environmental drivers of conflict. It entails a responsibility to support high-risk communities to adapt, or, as a last resort, to relocate them to safer areas; and it entails a responsibility to protect people when they do migrate. It also entails a responsibility to help those who cannot or choose not to migrate.

Responding to the migration, environment and climate-change nexus requires an evidence-based approach. Migration is often an emotionally charged topic, and the issue of environmental migration has been sensationalised in the past, due to an often-narrow focus on figures that conjure visions of millions of future 'climate refugees'[22] on the move and waiting at borders. In addition to the many problems associated with such forecasts and numbers, they can also be used by governments to advocate for restrictive migration policies. However, effective measures to support those affected by environmental and climate change rely on a comprehensive understanding of the nuances of the issue, including the positive and negative outcomes of human mobility in different places and contexts. As such, inclusive approaches that allow communities a role in designing and planning responses not only protect human rights and preserve and human dignity; they also ensure better outcomes and are more likely to contribute to long-term social cohesion and sustainable development.

Delving deeper into the complexities of this issue should not preclude action, however. Given the remaining gaps in knowledge, there has been a tendency for response measures to focus on support for more research and analysis. While more country or region-specific assessments of the migration, environment and climate-change nexus are needed to support the development of specific recommendations and targeted measures, there is already a wealth of information, analysis and guidance available to support stronger consideration of migration in the financing, planning and implementation of policies, programmes and projects in relevant policy fields. There are also new frameworks and initiatives emerging to bring together the relevant policy communities at national and international level. In international climate policy, the Task Force on Displacement is playing an important role in this regard, as it continues its mandate for at least a further five years and brings together the relevant institutions, governments, donors and stakeholders to implement the activities in its next workplan for 2019-2021.

The studies produced as part of this research project aim to support policymakers in taking the next steps towards action. They provide a structured overview of recent and important findings about human mobility in the context of environmental and climate change, a more detailed

[22] The term 'environmental/climate refugee', is always placed in inverted commas in the reports in this series as there is no legal grounding for it in international law, nonetheless it focuses much-needed attention on the protection challenges related to this form of human mobility.

qualitative analysis of important "impact types", and, in the field of climate change adaptation, entry points and recommendations for action.

The migration, environment and climate change nexus in the COVID-19 pandemic

The reports for this project were concluded before the outbreak of the COVID-19 pandemic in December 2019. As the virus has spread around the world, the measures to contain the virus, including lockdowns and border controls, as well as their secondary effects on consumption patterns and economies around the world, have disrupted and interrupted migration patterns with profound implications for migrants, and their home and host communities. The pandemic therefore opens up a new and evolving area for research and policy action with regard to the migration, environment and climate change nexus.

In May 2020, we note that first efforts are already underway to analyse and examine this new situation, with some selected reading suggestions provided below.

Further reading:

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A Appendix: Discussion paper produced for the International Conference and Networking Event on Migration, Environment and Climate Change in Bonn on 28 June 2019

A.1 Evidence base and forecasts

There is an emerging consensus among academics that environmental factors can play an important role in influencing migration, but they often exert their influence on human mobility indirectly, by exacerbating other drivers (economic or political drivers, for instance). Climate change impacts are already occurring at the moment and in the future, and changes to our environment, caused by sudden-onset events, slow-onset processes or increasing temperatures, are likely to become increasingly important drivers of migration globally.

Thesis 1: Although data collection and analysis can still be improved, policy-makers can already draw on solid research findings, guidance and best practices to develop responses to human mobility in the context of environmental and climate change in many policy areas, including climate change adaptation.

- Despite the complexity and multi-dimensional nature of the field of environmental migration, in recent years there has been a marked improvement in the qualitative understanding of the challenges that affected and vulnerable communities are likely to face as the climate changes in different regions, and how migration and mobility are both supporting and undermining their efforts to adapt to the impacts of climate change[i].
- These research findings have underpinned the development of recommendations, guidance and tools for responding to human mobility in the context of environmental change as well as increasing resilience and reducing push factors for migration. These provide approaches for improving the data, evidence and knowledge that decision-makers base policy and programmes on, as well as for designing, implementing and evaluating measures so as to ensure the most benefit to migrants and communities of origin, transit and destination. An overview of over 200 of these tools and sets of guidance was produced under the workplan of the UNFCCC Task Force on Displacement[ii].
- The Intergovernmental Panel on Climate Change (IPCC) has most recently confirmed 1 degree Celsius of warming, with linked effects that need to be handled now already. Future warming can at least partially still be averted, but its impacts also need to be addressed in terms of adaptation.[iii]

Thesis 2: Global forecasts of the number of future environmental migrants are subject to critical uncertainties and of limited use. Efforts to understand the interplay of different causal factors, including environmental change, on migration in specific contexts (local, national or regional) are far more valuable to policymakers.

- Many of the best-known quantified predictions about the future global scale of environmental migration have had methodological weaknesses and been subject to critical uncertainties[iv]. Reliable evidence on existing environmentally driven migration to Europe is

scarce, primarily due to the complexity of singling out environmental drivers among other drivers (multi-causal nature of most migration).

- Environmental migration, similar to migration more generally, usually occurs within countries or regions. There is evidence that some people moved in a 'stepping stones' pattern, from smaller, nearby towns to larger, more distant cities[v].
- The Groundswell study by the World Bank provides projections of future internal migration[vi] depending on the policy approach in three regions of the world, but do not include cross-border movements. Thus overall figures are likely going to be higher than those prognoses.

A.2 Migration, environment and climate change: impacts

Environmental changes have an impact on human mobility in diverse, complex and often subtle ways. Any given context is also likely to be characterised by multiple economic, political, demographic and social trends and drivers of migration that are all interlinked. Increasing resilience therefore requires a comprehensive approach covering many areas of policy, including climate change adaptation, disaster risk reduction, development cooperation, humanitarian aid, migration policy and the involvement of non-state actors such as diaspora communities. This section addresses the four 'impact types' of mobility and immobility responses to environmental and climate events, and links to conflict examined in closer detail for the project.

A.2.1 Mobility responses to sudden-onset hazards

Thesis 3: Public disaster risk reduction policies and climate adaptation policies are important elements of a comprehensive policy approach to climate-change related migration. Financing and implementing early warning systems and the formulation of evacuation and contingency plans reduce vulnerability to sudden-onset natural hazards, decrease the duration of displacement and increase overall resilience.

- The linkages between vulnerability and hazard-induced displacement are complex. Vulnerability, including gender, shape (im)mobility, and in turn mobility shapes vulnerability.
- Disaster risk reduction (DRR) policies taking a rights-based approach have a strong influence on mobility outcomes in disaster situations and can reduce the pressure to migrate. Early warning systems as well as evacuation and contingency plans can go a long way toward reducing fatalities and limiting the impacts of displacement on populations that are often already subject to multiple vulnerabilities.
- It is hard to assess how drivers of displacement risk will evolve into the future, and of course much will depend on contextual factors. However, it seems likely that – due to continued urbanisation and population growth – displacement risk of affected populations due to sudden-onset hazards will continue to increase fastest in urban areas, primarily in (low-lying) low- and middle-income countries.

A.2.2 Mobility responses in the context of slow-onset hazards

Thesis 4: The degree to which alternative options are available in the context of slow-onset hazards (such as climate change adaptation measures) is a key factor in analysing vulnerability and mobility the climate changes. Planned relocation may be necessary – as a measure of last resort – in cases of irreversible degradation/inundation of land.

- Slow-onset events, ranging from drought to sea-level rise, impact human mobility in complex ways. People´s vulnerability, including gender aspects, shape mobility responses and indeed can determine whether moving is even an option. Increasing resilience based on protection principles can provide opportunities to remain, making mobility just one among several adaptation options. At the same time, mobility responses shape future vulnerability.
- Sea-level rise impacts human mobility in different ways. While permanent inundation of land and settlements is often the image conjured up by the concept of sea-level rise, there are in fact a range of ways in which sea-level rise impacts human activities and settlements. For example, coastal communities regularly experience the effects of sea level rise well before permanent inundation, including through frequent flooding and salinization that affect the habitability of the place. In many cases, people will use mobility as a response well before the stage of inundation, as the severity of other related impacts increases.
- Relocation should generally be considered a last resort, due to the sizeable challenges it poses, both for the population to be moved and the population at the destination. Relocation needs to be carried out in an inclusive way, ensuring human rights protection and considering gender issues. Providing sustainable livelihoods at destination is a particular challenge.

A.2.3 Linkages between environmental change, conflict and mobility

Thesis 5: Climate change, (forced) migration and conflict are more likely to be interlinked in complex crises, where climate change exacerbates the effects of existing conflict drivers (threat multiplier). The case of pastoralists is a particular one, as their livelihoods are based around mobility.

- The linkages between environmental change, conflict and mobility are complex. Inadequate governance or indeed situations of prolonged conflict or persecution can be important drivers of migration, and are often interwoven with environmental drivers, leading to prolonged 'complex crises'. Conversely, with regard to the effects of migration on conflict, studies of the effects of in-migration on receiving communities have found that tensions are more likely in the case of large-scale influxes taking place over short timeframes, particularly where the influx modifies existing socio-economic, environmental or cultural balances.
- Pastoralists move herds in line with seasonal changes along established routes (often across international borders) to ensure adequate access to water and pasture. Increasingly recurrent drought and other climate change impacts, in conjunction with diverse political and demographic factors (political marginalisation, land-use restrictions, land grabbing,

population growth, etc.) are leading to pressure on pastoralist livelihoods, as they struggle to adapt to less predictable weather cycles and longer journeys to get to water points and grazing pasture for their herds[vii].

- The multidimensional character of conflicts also influences the context in which pastoralists live. In addition to the impacts of climate change, other factors may influence the nature of conflicts between pastoralists, as well as conflicts between pastoralists and other groups. Observations have shown that the increasing militarisation of conflicts in the Sahel can also be explained by other factors such as easier access to small arms in the region.

A.2.4 Immobile populations

Thesis 6: As the impacts of climate change begin to be felt more strongly, an increasing number of people that are highly vulnerable to environmental changes will be unable to move.

- Across the globe the number of people living in areas exposed to sudden- and slow-onset environmental stressors is growing, with key drivers being population growth, climate change and urbanisation. However, many people do not move away from areas exposed to environmental stressors.
- The reasons why people do not move away from environmental stressors are diverse, but broadly speaking can be divided into two overarching categories. Non-migration in the face of environmental stressors can be the result of choosing to stay (voluntarily/immobile), or being unable to leave (involuntarily immobile or 'trapped').
- Climate/environmental change is likely to increase the prevalence of 'trapped' populations, through erosion of livelihoods (falling crop yields, for instance) resulting in depletion of the capital needed for migration. This process could affect many of those for whom immobility is currently a choice. The threshold for 'inhabitability', defining the 'tipping point', is subject to discussion and merits a comprehensive, rights-based approach taking gender concerns into consideration.

A.3 Responding to human mobility in the context of environmental and climate change

The effectiveness of governance and policy responses will be an important factor determining the scale, nature and impact of current and future migration related to environmental and climate change. Establishing distinct policy, programme or project elements addressing the migration – environment - climate-change nexus could maximize benefits and minimize risks associated with environmental change and related human (im)mobility, thereby increasing the resilience of vulnerable or marginalised groups likely to be displaced or be trapped in precarious situations.

Thesis 7: There is still substantial scope for further integrating the challenges and benefits associated with human mobility into climate policies at national level.

- In all, 33 out of 181 countries referred to migration in the context of environmental change in their Nationally Determined Contributions (NDCs) submitted to the UNFCCC. These NDCs frame migration in five main ways. Around half of the NDCs refer to migration either: (1) as a risk, (2) as related to adaptation in general, (3) as a co-benefit of adaptation funding (as adaptation measures may play a role in averting or minimising displacement) or (4) as a potential prerequisite for or outcome of mitigation measures[viii]. 17 of the NDCs refer to migration (5) as a challenge to be addressed by relocating vulnerable populations to areas less exposed to hazards.
- Initial analysis of National Adaptation Plans (NAPs) and the most recent National Communications (NCs) for these 33 countries showed that there has been some progress towards integrating these new priorities related to human mobility into climate change adaptation policy planning and relevant supporting documents, but there is significant scope for improvement.
- Only two of the 33 countries have taken the important step of integrating migration or human mobility related issues in their NDC, NAP and NC, and even in these cases there are still substantial benefits to be drawn from further integrating the issue into climate policy planning – namely by developing and implementing specific projects or project components that address migration and displacement issues.
- NDCs and NAPs form only part of country's approach to tackling the climate change - environment - migration nexus, and it is therefore important to look beyond them to also consider how initiatives stemming from other policy documents, such as national economic development plans, may address environmental and climate-change related migration.

Thesis 8: Already marginalised or vulnerable groups in society are likely to require additional support and protection to cope with the slow and sudden-onset impacts of climate change. These groups should be taken into consideration and ideally consulted throughout the planning and implementation of policies, programmes and projects.

- Groups requiring additional support may include certain demographic groups, such as children and older people, marginalised ethnic or religious groups, people living with disabilities, people living in poverty or other vulnerable groups in society that lack the social or financial capital to cope with natural hazards or with long-term livelihood, food or water insecurity. Communities that are highly dependent on ecosystem services may be especially vulnerable, particularly if they lack access to state services or have high illiteracy rates.
- The lack of statistics that are disaggregated by sex and age is a particular concern since this limits understanding of the vulnerability, resilience and needs of specific sub-groups. This information is crucial in order to improve response strategies and provide effective, targeted/tailored support and assistance to affected populations.
- Taking an inclusive, rights-based approach and consulting with people from communities in high-risk areas to understand their needs and concerns can significantly improve the outcomes of projects and programmes aiming to address the migration – environment –

climate-change nexus. Involving and empowering civil society and diaspora groups in affected countries can also play an important role in this regard.

Thesis 9: Beyond climate policy, there are entry points for addressing the migration-environment-climate change nexus in many other areas of policy at national and international level. Better understanding and articulating how these policies, frameworks and agendas impact human mobility in the context of climate change, and increasing the coherence between them, can improve migration and climate change adaptation outcomes.

- Just as migration decisions and the migration-environment-climate change nexus are influenced by a range of factors alongside climate change impacts (e.g. socio-economic factors affecting livelihood security), responses to human mobility in the context of climate change are important in many areas beyond climate policy. Strengthening resilience in high-risk areas requires a comprehensive approach spanning many different areas of policy.
- National and international institutions, policies, frameworks and agendas related to environmental, migration, disaster management, human rights, labour standards, education and training, gender, health, sustainable development and humanitarian aid policies all shape migration and displacement in the context of environmental and climate change. Actions in all these areas can serve to strengthen the resilience of vulnerable communities, but different policy areas are more relevant for particular timeframes (i.e. from short-term disaster management to long-term sustainable development).
- Initial mappings of relevant agendas and frameworks at national[ix] and international[x] level were undertaken in 2018 as part of the workplan of the UNFCCC Task Force on Displacement. Findings included:

5. The human mobility and climate change nexus could be better addressed at national level by stepping up efforts to connect the climate/environment and human mobility communities, particularly during the policy development process; and
6. That UN entities can achieve important synergies by working together across the nexus between climate change, the environment and migration to avert, minimise and address displacement, e.g. by coordinating relevant policies and activities in the environmental and development sector.

Thesis 10: Formulating dedicated project components or climate-related funding streams related to migration could be a valuable step forwards in raising the profile of the responses to environmental migration among international climate funds or financial mechanisms.

- Our analysis of climate funds and financial mechanisms showed that only a very small number of the programmes and projects they funded explicitly address migration and human mobility issues. Greater efforts are needed to ensure that responses to human mobility and climate change are supported by climate change adaptation financing streams.
- International climate funds or financial mechanisms are funding numerous projects that address key issues highly relevant to the migration - environment - climate-change nexus,

such as projects strengthening livelihood security. Formulating distinct project elements related to migration for such projects could be a valuable step towards a holistic approach that also considers human mobility, and in raising the profile of the responses to environmental migration among international climate finance funds or financial mechanisms.

- Analysis of the 33 NDCs that mention migration shows that there is still a mismatch between priorities related to migration in the NDCs and the specific programmes and projects being funded by international climate funds in those countries. There are only a few, mostly recent examples in international climate finance portfolios (notably of the Green Climate Fund, the Adaptation Fund, the International Climate Initiative and the Least Developed Countries Fund) that highlight the relationship between environmental migration and climate change as an overall priority. This is also the case in the area of disaster risk reduction and management.

- In this context, creating dedicated funding streams for averting, minimising and addressing displacement in the context of the adverse impacts of climate change would also play an important role in offering more durable solutions to those groups most affected. This option has an important role to play in potential solutions and can offer valuable entry points for offering concrete guidance for climate finance activities on how climate change projects could address migration.

- While in time it may be possible to mainstream "a migration lens" across all projects and programmes, creating a focal point[23] for environmental and climate change migration within a government or institution serves as a valuable first step toward creating dedicated projects and programmes. For example, these focal points could support policymakers looking address environmental migration by coordinating the preparation of national assessments on migration, environment and climate change, and monitor progress across a range of relevant indicators.

- An absolutely critical barrier to action is that many vulnerable countries do not have the resources and capacities to develop and implement long-term approaches to tackling the migration – environment – climate change nexus. Climate funds and financial mechanisms should consider reviewing and updating their funding and investment criteria with this nexus in mind. For example, in the case of the Green Climate Fund, a policy briefing on this subject would be a valuable first step.

Thesis 11: Lessons need to be drawn from existing climate change adaptation projects with relevance for migration to inform the next round of NDCs and the development of project portfolios of main climate funds and financing mechanisms.

- Although the few climate change adaptation projects with specific migration components are mainly still in the early phases of implementation, initial or interim assessment of their progress could offer valuable insights, not least to inform the next generation of updated or

[23] The focal point (e.g. ministry) is likely to be different in every country.

expanded NDCs. They could also provide other countries facing similar challenges with important information and best practices to inform the development of their climate finance portfolios.

- Preliminary insights need to be communicated carefully, but they can be used to outline specific co-benefits in this area that can serve as input for GCF proposals in the realm of climate change adaptation. To this end, interim evaluations of what works and what does not work are needed and should be commissioned.
- Analysing the gender dynamics of a given context has been shown to have a positive influence on the outcomes of climate change adaptation programmes. Such experiences from other policy areas suggest that systematically assessing the different coping capacities of women and men when developing and implementing programmes can also have a positive effect on migration policy.

Thesis 12: Policies in the areas of climate (NDCs and NAPs), environment and development are conceived at national level. However, the international community has a "common but differentiated responsibility" to support (developing) countries in planning and implementing relevant programmes, projects and activities such as climate change adaptation programmes, including those that can play a role in averting, minimising and addressing displacement related to environmental and climate change.

- Countries already experiencing the impacts of climate change require support from the international community to build up the necessary financial, human, technical and institutional capacity to implement policies to protect natural resources that form the basis of livelihoods, to safeguard the functioning of ecosystems, to prevent disasters, and to protect human rights (e.g. in resource extraction, production and consumption).
- To this end, it is especially important to increase climate finance, and particularly climate change adaptation finance, at the levels committed to in Paris in 2015 ($100 billion a year from 2020), to increase its support for multilateral support mechanisms, such as the NDC Partnership, and to strengthen relevant international and multilateral frameworks – such as the Compact for Migration, the SDGs, the Platform on Disaster Displacement and environmental agreements.

[i] See for example: Laczko, F. and C. Aghazarm [eds.] (2009) Migration, Environment and Climate Change - Assessing the Evidence, IOM, Geneva. Available from http://publications.iom.int/system/files/pdf/migration_and_environment.pdf. ; Warner, K., & Afifi, T. (2014). Where the rain falls: Evidence from 8 countries on how vulnerable households use migration to manage the risk of rainfall variability and food insecurity. Climate and Development, 6(1), 1-17; Melde, S, F. Laczko and F. Gemenne [eds.].(2017). Making Mobility Work for Adaptation to Environmental Changes - Results from the MECLEP global research. IOM, Geneva.

[ii] UNHCR (2018): Mapping of existing international and regional guidance and tools on averting, minimizing, addressing and facilitating durable solutions to displacement related to the adverse impacts of climate change. https://unfccc.int/sites/default/files/resource/WIM%20TFD%20II.4%20Output.pdf (29.11.2018)

[iii] For example: "Trends in intensity and frequency of some climate and weather extremes have been detected over time spans during which about 0.5°C of global warming occurred (medium confidence)." IPCC (2019: 4).

[iv] Early research tended to focus on identifying the extent to which migration can be attributed to environmental factors, or identifying populations in areas at risk from environmental stressors. Extrapolations based on these types of study provided alarming predictions about the scale of future movements, but were generally flawed in terms of methodological rigour (Myers, 1993; 1997; 2002;. They have been termed "alarmist" (Suhrke, 1994) and "maximalist", being based on high-end climate/environment forecasts/impacts, and the assumption that all people facing such impacts would migrate in response. Examples of such forecasts include the Myers' forecast in 2002 that there would be 200 million environmental migrants by 2050 and Christian Aid's forecast (based on an interview with Myers) that there would be 300 million environmental migrants by 2050.

[v] The Where the Rain Falls research study (Warner et al, 2012) found evidence that some people moved in a 'stepping stones' pattern, from smaller, nearby towns to larger, more distant cities. See: Warner, K. et al (2012), "Where the rain falls: climate change, food and livelihood security, and migration". Care France and UN University – Institute for Environment and Human Security.

[vi] In 2018, the World Bank published results in its 'Groundswell' report, based on a global-scale study which uses a gravity model to examine future internal environmental migration, an interesting development in environmental migration research but only focused on internal migration. See: Kumari Rigaud, K., De Sherbinin, A., Jones, B., Bergmann, J., Clement, V., Ober, K., Schewe, J., Adamo, S., McCusker, B., Heuser, S., and Midgley, A.. (2018). Groundswell: Preparing for Internal Climate Migration. Washington, DC: The World Bank.

vii IOM (2010): Pastoralism at the Edge – Effects of drought, climate change and migration on livelihood systems of pastoralists and mobile communities in Kenya. IOM: Kenya.

viii This aspect is evident in two NDCs. Tunisia's NDC states that the impacts of mitigation measures on sustainable development may include "population stabilization and prevention of rural depopulation"; China's NDC states that the country will "proactively promote the development of hydro power under consideration of ecological and environmental protection as well as inhabitant resettlement".

ix See: IOM (2018a): Mapping Human Mobility and Climate Change in Relevant National Policies and Institutional Frameworks. https://unfccc.int/sites/default/files/resource/20180917%20WIM%20TFD%20I.1%20Output%20final.pdf (19.11.2018).

x See: IOM (2018b): Mapping Human Mobility (Migration, Displacement and Planned Relocation) and Climate Change in International Processes, Policies and Legal Frameworks. https://unfccc.int/sites/default/files/resource/WIM%20TFD%20II.2%20Output.pdf (11.12.2018).