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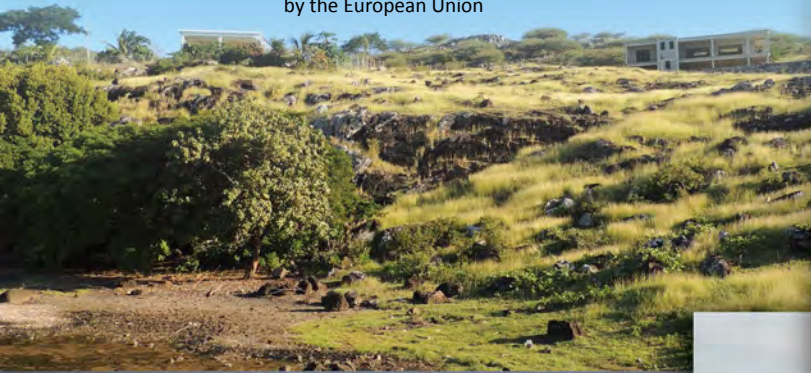


IOM's Global Migration Data Analysis Centre
GMDAC



International Organization for Migration

This project is implemented by the International Organization for Migration



MAKING MOBILITY WORK FOR ADAPTATION TO ENVIRONMENTAL CHANGES

Results from the MECLEP global research

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IOM is committed to the principle that humane and orderly migration benefits migrants and society. As an intergovernmental organization, IOM acts with its partners in the international community to: assist in meeting the operational challenges of migration; advance understanding of migration issues; encourage social and economic development through migration; and uphold the human dignity and well-being of migrants.

Migration, Environment and Climate Change: Evidence for Policy (MECLEP) is a three-year project funded by the European Union, implemented by the International Organization for Migration (IOM) through a consortium with six research partners. The project aims to contribute to the global knowledge base on the relationship between migration and environmental change, including climate change. The innovative research aims to formulate policy options on how migration can benefit adaptation strategies to environmental and climate change. The six project countries are the Dominican Republic, Haiti, Kenya, Mauritius, Papua New Guinea and Viet Nam.

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Results from the MECLEP global research

Susanne Melde, Frank Laczko and François Gemenne (eds.)

Climate change and migration are among the most pressing policy issues of our time. The international community has been slow, however, to recognize the many ways in which the two phenomena are interrelated. Fortunately, a number of significant developments have occurred in recent years:

- Since 2015, migration has figured prominently in global response frameworks to disasters and the adverse effects of climate change. Such frameworks – including the 2015 *Sendai Framework on Disaster Risk Reduction*, the *Nansen Protection Agenda on Cross-border Displacement*, and the *Paris Agreement* on climate change – recognize the agency, rights and knowledge of migrants, while at the same time highlighting the vulnerabilities linked to displacement.
- Further, the 2016 *New York Declaration for Refugees and Migrants* recognizes the environment as a driver of migration and proposes several policy options in addressing how the environment, climate change and disasters can affect large-scale human movements.
- The *Migrants in Countries in Crisis (MICIC) Principles*, adopted in 2016, also give explicit attention to persons affected by disasters.
- The preparations for the *Global Compact on Migration for Safe, Orderly and Regular Migration* include specific thematic consultations on migration and the environment, underlining how the environment can influence human

mobility and how states are recognizing the links between these areas.

These developments are entirely in keeping with efforts by the International Organization for Migration (IOM) and many of its international and national partners to have migrants included in these and other global policy processes on disasters and climate change.


One of the key commitments of IOM is to help to link research and policy in support of our Member States. This is well illustrated in the IOM-led project, “Migration, environment and climate change: Evidence for policy” (MECLEP), which focuses on six pilot countries around the world: the Dominican Republic, Haiti, Kenya, the Republic of Mauritius, Papua New Guinea and Viet Nam. Funded by the European Union and realized through a consortium of world-class academic institutions, this MECLEP research report is one of the first comparative and quantitative studies on migration as an adaptation strategy to environmental and climate change. It is hoped that the report will further foster understanding of how human mobility can be an adaptation strategy, and increase knowledge of which vulnerabilities need to be addressed to reduce the risk of displacement and other challenges associated with environmental degradation and disasters.

IOM reiterates its commitment to facilitate the integration of migration in climate change and environmental policies, as well as mainstreaming environmental and climate factors in mobility frameworks at national, regional and global levels.

Human mobility in the context of environmental and climate change is no longer a future scenario

but already a reality in many countries. Now more than ever, evidence is needed in order to tailor policy responses to the realities on the ground. IOM expects that this publication will contribute to the much needed evidence base that States have been calling for in international climate change negotiations. Through the evidence presented

in the report, it is hoped that policymakers and the general public will come to acknowledge that migration is not necessarily a mishap, but rather a valid adaptation strategy in response to changes in the environment – an approach that can bring important benefits.



William Lacy Swing
Director General



Acknowledgements

Over the course of its three years of implementation, the MECLEP project built on the input and contributions by a number of individuals, institutions and governments. The authors would therefore like to thank the members of the Technical Working Groups in the six pilot countries, the Dominican Republic, Haiti, Kenya, the Republic of Mauritius, Papua New Guinea and Viet Nam, for their guidance on the research and policy recommendations in each of the countries. The research and production of this report would furthermore not have been possible without the financial support of the European Union, IOM and IOM Development Fund.

We are indebted to the work of both our local research teams and the individuals who took the time to answer the questionnaires and participated in key informant interviews and focus groups. We would like to thank the survey team of Pedro Juan del Rosario in the Dominican Republic; IOM Haiti, in particular Peter Kioy, Emmanuelle Deryce, Jean-Sebastian Jerome, Muhammad Aswad, Belen Michel Torino and Presler Jean; John Connell and Nancy Lutkehaus who conducted the research in Papua New Guinea; George Odipo, George Odwe, Martin Oulu and Elmard Omollo of Drylands Ltd. in Kenya; Riad Sultan, who led the survey for Empretec Mauritius; and the School for Social Research at Can Tho University in Viet Nam, led by Dr Tran Thi Phung Ha and Dr Nguyen Hong Tin.

The research consortium was the main driver behind the conceptualization and implementation of the research for this report and contributed with insightful inputs and comments: Jeanette Schade and Kerstin Schmidt of the University of Bielefeld; Nathalie Perrin, Julia Blocher, Sara Vigil and Luka De Bruyckere of the University of Liège; Han Entzinger and Peter Scholten, Erasmus University Rotterdam; Jorge Mora, Allen Cordero and Guillermo Lathrop for FLACSO Costa Rica; and Koko Warner, Andrea Milan, Noemi

Cascone, Markus Schindler and Robert Oakes of UNU-EHS. The following experts represented our associate partner institutions: Etienne Piguet, Institute of Geography, University of Neuchâtel; Wilfredo Lozano, Centro de Investigaciones y Estudios Sociales (CIES), Iberoamerican University, Dominican Republic; and Le Anh Tuan, Research Institute for Climate Change, DRAGON Institute, Can Tho University, Mekong, Viet Nam. We had very fruitful discussions over the past three years, which greatly enriched this report.

This research was made possible by the excellent liaison work of the Focal Points at IOM in the respective countries: Gina Gallardo, Shakendy Vasquez and Alicia Sangro Blasco in the Dominican Republic; Claire Emmanuelle Pressoir and Darlee M. Elisabeth Labranche in Haiti; Paul Gitonga in Kenya; Reshma Cunnoosamy in the Republic of Mauritius; Agi Hoire, Wonesai Sithole and Carol Casasa in Papua New Guinea; and Jobst Koehler, Anh Nga Vu, Thi Ngoc Thu Tran and Paul Priest in Viet Nam. We would like to express our gratitude to other colleagues at IOM who supported the project throughout: in particular Sieun Lee, for her outstanding work both during her time on the project and thereafter, Jill Helke, Frank Laczko, Dina Ionesco, Julianna Martinez, Eva Mach, Lina Kelpsaitte, Julian Tangermann, Ana Alicia Dipierri, Lawreen Mkado, Mariam Traoré Chazalnoel and Daria Mokhnacheva. We would also like to thank Thomas Mertz at IOM's GMDAC for the beautiful graphs in the data analysis (see chapter 5) and Irene Leonardelli for her editorial assistance in finalizing the report. We are also grateful to Jennifer Hollings for liaising with the European Commission in Brussels.

Finally, we would like to recognize Valerie Hagger, Maria Paula Subia, Ann Rose Lozano and Frances Solinap of the IOM Publications Unit, as well as Janice Ruth de Belen for copy-editing the report and Mel Torres for doing the layout.



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Acronyms

COP	Conference of the Parties
CRI	Climate Risk Index
DRR	Disaster risk reduction
DTM	Displacement Tracking Matrix
EACH-FOR	Environmental Change and Forced Migration Scenarios
EWS	Early warning systems
GIS	Geographic information systems
GMDAC	Global Migration Data Analysis Centre
GDP	Gross domestic product
GNI	Gross national income
HDI	Human Development Index
IDMC	Internal Displacement Monitoring Centre
IDP	Internally displaced person
INDC	Intended Nationally Determined Contribution
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
MECLEP	Migration, environment and climate change: Evidence for policy
ND-GAIN	Notre Dame Global Adaptation Index
NELM	New Economics of Labour Migration
NAP	National Adaptation Plan
NGO	Non-governmental organization
SIDS	Small island developing States
TWG	Technical Working Group
UN	United Nations
UNDP	United Nations Development Programme
UN DESA	United Nations Department of Economic and Social Affairs
UNFCCC	United Nations Framework Convention on Climate Change
UNU-EHS	United Nations University Institute for Environment and Human Security



Papua New Guinea. © 2016 IOM (Photo: Muse Mohammed)

Executive summary

This comparative report of six countries (Dominican Republic, Haiti, Kenya, Republic of Mauritius, Papua New Guinea and Viet Nam) empirically tests how migration can benefit or undermine adaptation to environmental and climate change. Prepared in the framework of the EU-funded “Migration, environment and climate change: Evidence for policy” (MECLEP) project, the report builds on desk reviews, household surveys and qualitative interviews in the six countries. The surveys are representative for the respective survey sites. The pilot countries selected face many environmental events and account for diverse migration scenarios, representing different contexts and levels of human development. Most policy frameworks in the countries recognize the challenges of displacement and planned relocation, but hardly any recognize the benefits of migration as an adaptation strategy, with the exception of Haiti and Kenya.

Three types of human mobility

The report discusses adaptation effects by looking at **three forms of human mobility**: migration, displacement and planned relocation. In this study the term “migration” is used in a broad sense to mean people moving within or outside their country for a variety of reasons. First, **migration** is studied, considering people who may move for a range of purposes, for example in search of employment or education, or to reunite with family members. The second type of movement is **displacement**, understood as forced movement due to a disaster. Third, **planned relocation** concerns communities that had to be moved to a safer place in light of irreversible changes to their environment or hazards such

as volcanic eruptions. The study analyses the impact of migration on adaptation, by comparing migrant and non-migrant households on sites in both origin and destination areas of migrants.

The report finds that **migration can be a positive adaptation strategy**. In Haiti, seasonal migration has been associated with less vulnerability, which could be due to both migrant households generally being more resilient, or the positive implications of the move for reducing vulnerability.

Confirming the findings of other studies, **displacement** in Haiti has been found to be a **challenge for adaptation** in that the most vulnerable groups are more prone to displacement and displacement increases vulnerability further. However, evacuation, or affected populations having to leave their homes, is in itself an important protection mechanism.

Planned relocation, as case studies in the Dominican Republic, Papua New Guinea and Viet Nam show, can both reduce harm and entail benefits, but also lead to new vulnerabilities. The **implications of planned relocation processes for adaptation** of the affected communities are **thus mixed**, with reducing the threat to life by moving populations out of harm’s way an obvious benefit. However, a lack of sustainable livelihoods may lead to an increased level of vulnerability to future hazards and potentially undermine human development more generally.

The concept of “**trapped populations**” was found to be particularly applicable to households **in the Dominican Republic, Kenya and the Republic of Mauritius**. Our findings show as in similar studies that in particular **the poorest are the most vulnerable to disasters and environmental change**.

In Haiti and Viet Nam, those who responded that they had to stay and could not migrate belonged to **the most affluent households**. In Haiti, households from the highest income quintiles were better able to **adapt in situ**. Whether people can move or not is thus context-dependent, not just based on income levels.

Implications of different types of migration for adaptation

In all five countries surveyed,¹ households **already used migration as a strategy to increase preparedness for future hazards**, and thus resilience. Migration is further linked to a higher likelihood of adopting preventive measures, including migration and other actions such as using better building materials.

In all countries surveyed, migrant households perceived a positive and, to a lesser degree, negligible impact of migration on income and employment, highlighting how mobility can represent an **income diversification strategy**, including in the context of environmental degradation and climate change. **Migration is important for poverty reduction** as remittances are mostly being spent on basic necessities, in particular food. **The potential impact of remittances on adaptive capacity to better resist hazards is less than on poverty reduction.**

At least 40 per cent of migrant households in all five countries surveyed **learned new skills** through migration, and – to a lesser degree – applied them and taught them to others.

Migrant households further considered the effects of mobility on **health conditions and education** as mostly positive or having no impact at all. Therefore in these cases **migration entailed benefits for adapting** to environmental and climate change by improving the state of health, likely through better access to health care as well as education.

One of the three most important areas where migrant households fared less well compared with non-migrant households is housing materials (i.e.

the robustness of a residence's walls). In relation to **housing materials, migration thus potentially undermines adaptation**, despite the movement in itself potentially fostering adaptation by helping the migrant move out of harm's way. Migrant households are also more often **discriminated against** and excluded from employment, health care and education and are more likely to face **security incidents**. This can **hamper adaptation** when migrants cannot access the social services needed for human development more generally and better preparedness and resilience to future hazards.

Policy recommendations

1. Time to act now: Maximizing migration as an adaptation strategy to environmental stress

Integrating migration as an adaptation option into environment and climate change policies:

In particular, internal migration having a positive impact on national efforts to adapt to climate change is not fully recognized. Existing policies tend to consider migration as a failure to adapt; thus, policymakers should factor the benefits of migration more systematically into their efforts to address environmental and climate change.

Sharing good practice policy examples: The MECLEP study discovered some examples of innovative practices which seek to maximize the benefits of migration, for example in the Draft Migration Policy of Haiti and Kenya's National Climate Change Adaptation Plan.

2. Fostering policy coherence through data collection, research and capacity-building

Preparing national assessments on migration, environment and climate change:

A useful way of fostering more coherent policies is to prepare a national assessment report on all existing data, research and policy relating to migration and the environment.² Bringing this information together in one place, in partnership with national stakeholders from different policy spheres, helps to raise awareness and foster dialogue about the interlinkages between different policy areas.

1 No quantitative survey took place in Papua New Guinea. All observations there are based on qualitative research (see Chapter 4 for an explanation).

2 See <http://environmentalmigration.iom.int/country-profiles>

It is further recommended that Technical Working Groups (TWGs) be established. In each of the six pilot countries such groups comprised policymakers, academics and civil society representatives at the national level. The TWGs guided the work of the local consultants preparing national assessments and provided key data and documents. This also contributed to bridge policy silos.

Collecting data on internal migration: Surveys designed to answer developmental and environmental questions often do not include questions about migrants. A good practice in this regard is the recommendation of the draft Migration Policy of Haiti to include a migration module in the census, and to facilitate data collection and research on internal migration and people affected by disasters as recommended in the case of the Republic of Mauritius.

Building capacities to enhance understanding of the migration–environment nexus: In the framework of the MECLEP project, the first-ever training manual on migration, environment and climate change was developed and tested.³ The training conducted in the MECLEP pilot countries addressed the need to increase the knowledge of government representatives to mainstream migration into adaptation plans and across all relevant policy areas.

3. Prioritizing vulnerable groups

Prevention: Reducing the risks of displacement and increasing resilience: Displacement poses high risks. Financing disaster risk reduction and resilience measures should thus be considered a priority to prevent or minimize displacement.

Developing and managing early warning systems: In many countries, early warning systems seemed to be lacking and/or not reaching the populations included in the surveys. Therefore the capacities, both in terms of human and financial resources, of local authorities should be strengthened. Participatory development of evacuation plans and dissemination of information to the population, including migrants, in different languages and formats are important to avoid harm to life and property.

Integrating gender concerns: Policy responses should be developed through a gender lens and take into consideration how men, women, boys, girls and the elderly may be affected differently by both hazards and migration.

Protecting trapped populations: Governments should upscale and increase financing of programmes and policies that aim to reduce the risk of hazards and increase the resilience of vulnerable communities, particularly the poorest and most vulnerable both in areas of origin and destination.

Sharing good practices for locally driven and rights-based planned relocations: Measures that could increase the benefits of relocation include: early planning of the move; adequate funding and political support; and consulting the affected population to enable locally driven solutions, including viable income-generating activities for both men and women and the surrounding population in the new location.

Integrating migration into urban planning to reduce challenges for migrants and communities of destination: Migration in the context of environmental degradation and disasters is often linked to larger processes of urbanization, but local authorities lack information for adequate urban planning. In the case of the Republic of Mauritius, a data collection mechanism was recommended to inform local authorities about the magnitude of new arrivals. Issues such as lower housing standards, discrimination against migrants in terms of access to employment and social services such as health care and education, and higher levels of insecurity need to be addressed by policies.

3 See <http://environmentalmigration.iom.int/training-manual>



Rodrigues, Republic of Mauritius. © 2016 Riad Sultan



1. Introduction

François Gemenne, Frank Laczko, Susanne Melde and Sieun Lee

In recent years, human mobility has repeatedly been discussed as an adaptation strategy in the context of climate change. This notion has been supported by increasing empirical research results (Piguet and Laczko, 2014), which show that migration is not always the last resort for populations confronted with environmental changes (IOM, 2014:65–70). The International Organization for Migration (IOM), the leading intergovernmental agency on migration and the UN Migration Agency since September 2016, has promoted a more positive and balanced view of migration,⁴ acknowledging human mobility as a beneficial adaptation strategy to environmental pressures since its early work on migration and the environment (IOM, 1992:46).

The inclusion of the need for better understanding of and cooperation on migration, displacement and planned relocation as part of the Cancún Adaptation Framework of the United Nations Framework Convention on Climate Change (UNFCCC) in 2010 has become a priority in international negotiations on climate change. Yet how migration can reinforce and benefit adaptation had not been tested empirically in a quantitative and comparative approach. This was the key purpose of the “Migration, environment and climate change: Evidence for policy” (MECLEP) project.

This report summarizes the key findings of three years of research that sought to understand: (a) how migrants affect their own vulnerability and adaptation and that of the communities of origin and destination and (b) when migration leads to

4 IOM’s three objectives in managing environmental migration are: (a) to minimize forced and unmanaged migration as much as possible; (b) where forced migration does occur, to ensure assistance and protection for those affected and to seek durable solutions; and (c) to facilitate the role of migration as an adaptation strategy to climate change (IOM, 2014b: xii).

positive results. The findings are comparative, as desk reviews, surveys and qualitative research were conducted in six countries with a common but differentiated methodology.

1.1. The international policy framework

The nexus of migration as an adaptation strategy to environmental and climate change has been recognized only fairly recently at the national and global levels. Early discussions on the link between the environment and migration were led by environmentalists advocating for improved policies (IOM, 1992:9). The migration–environment nexus was discussed among IOM Member States in 2007,⁵ the same year that IOM became an Observer to the UNFCCC. Since then, the Organization has focused on advocating for the inclusion of human mobility in climate change policies. It has also worked towards the inclusion of environmental factors in migration policies at all levels, and particularly at the international level via technical input and support to the UNFCCC,⁶ working in partnership with a broad range of relevant actors⁷ and with IOM Member States.

In 2010, the Cancún Adaptation Framework of the UNFCCC for the first time recognized the

5 Migration and environment was selected as a topic of the Ninety-fourth Session of the IOM Council in 2007 and, subsequently, at the Third session of the Standing Committee on Programmes and Finance (SCPF) in 2008. To learn more about IOM’s institutional engagement, see IOM Outlook on Migration, Environment and Climate Change (2012), Brief 2: http://publications.iom.int/system/files/pdf/mecc_outlook.pdf

6 First inter-agency side event on human mobility was held at COP14 in Poznan.

7 For example, the Climate Change, Environment and Migration Alliance (CCEMA) and the Advisory Group on Climate Change and Human Mobility. See www.ccema-portal.org/article/read/members and <https://environmentalmigration.iom.int/human-mobility-context-climate-change-unfccc-paris-cop21>



relationships between different forms of human mobility and climate change by calling on States to commit to:

Measures to enhance understanding, coordination and cooperation with regard to climate change induced displacement, migration and planned relocation, where appropriate, at the national, regional and international levels (14. (f), COP Decision 1/CP.16, UNFCCC, 2010)

Two years later, in 2012, at the Eighteenth Conference of the Parties (COP) of the UNFCCC in Doha, States' further underlined the need for better evidence on:

...how impacts of climate change are affecting patterns of **migration, displacement and human mobility** (Paragraph 7 (a) (vi), Doha decision 3/CP.18, UNFCCC, 2012).

The Cancun Adaptation Framework, the Doha Decision and, subsequently, the Warsaw Decision on the Warsaw International Mechanism for Loss and Damage associated with climate change impacts⁸ gave the political push and backing to further advance understanding and provide evidence on the complex link between environment and human mobility, encompassing migration, displacement and planned relocation. The MECLEP project focused on the three types of mobility directly and firstly referred to in the Cancun Adaptation Framework, despite planned relocation not having been explicitly mentioned in the 2012 Doha Decision.

With high-level and technical support preceding COP21 in 2015,⁹ the Paris Agreement was adopted with a reference to the rights of migrants in its preamble. The COP21 Decision on Loss and Damage further advanced from the Doha Decision and mandated the creation of a Task Force on Displacement:

...requests the Executive Committee of the Warsaw International Mechanism to establish, [...] a task force [...] to develop recommendations for integrated approaches to avert, minimize and address **displacement** related to the adverse impacts of climate change. (Paragraph 49, Decision on Loss and Damage, COP21 Decision 1/CP.21, UNFCCC, 2016)

The Task Force on Displacement¹⁰ offers a key policy space to discuss and develop policies and actions to provide support to environmental migrants and those displaced by climatic factors.

Displacement and – to a lesser degree – migration and planned relocation were also integrated into several key international policy frameworks. In 2015, the Sendai Framework on Disaster Risk Reduction 2015–2030 was adopted, acknowledging not only the particular vulnerabilities of migrants in disasters but also their contributions to building resilience, as well as the need to develop policies on planned relocation where prevention is not sufficient. Displacement further figured prominently in the Nansen Agenda for the Protection of Cross-border Displaced Persons in the Context of Disasters and Climate Change, endorsed by 109 States in October 2015, which is being implemented through the establishment of the Platform on Disaster Displacement.

Furthermore, the September 2016 New York Declaration for Refugees and Migrants recognized the environment and climate change as drivers of migration and displacement (Ionesco and Mach, 2016). The 2030 Agenda for Sustainable Development, adopted in 2015, also includes migrants across its 17 goals, and migration has for the first time been incorporated into mainstream development policy, providing opportunities to address migration–environment and development issues.

At the regional level, the 2013 Staff Working Document by the European Commission referred explicitly to migration as an adaptation strategy. The document called for better evidence on the impact of migration on adaptation to climate change, the development of different policy options and policy coherence by linking adaptation strategies to migration management more generally. Countries in the Pacific region prioritize planned relocation as adaptation to environmental and climate change (Gharbaoui and Blocher, 2016).

Despite the recognition of migration, displacement and planned relocation in the context of disasters and other hazards at the

8 IOM led joint advocacy efforts at COP18 in Doha, and provided joint technical submissions on human mobility in the context of loss and damage from climate change. See <http://unfccc.int/resource/docs/2012/smsn/igo/106.pdf>

9 See <http://environmentalmigration.iom.int/human-mobility-cop21>

10 IOM is a member of the Task Force on Displacement. See http://unfccc.int/adaptation/groups_committees/loss_and_damage_executive_committee/items/9978.php

international and, to a lesser degree, regional levels in recent years, national policies tend to consider migration as a failure to adapt (Warner et al., 2014 and 2015). The MECLEP project was therefore developed in response to calls for improved understanding of different forms of mobility as adaptation to environmental change. The project provides useful evidence and helps to enhance understanding of the ongoing work of the Task Force on Displacement.

1.2. Migration, environment and climate change: Evidence for policy

The MECLEP project was conducted between 2014 and early 2017 in six pilot countries: Dominican Republic, Haiti, Kenya, the Republic of Mauritius, Papua New Guinea and Viet Nam. The project comprised both a research component and a policy component, intrinsically related to each other. Research led to capacity-building activities and policy developments with local decision makers.

The project had three research objectives:

- a. First, as reflected in the very name of the project, a key goal was to **provide evidence for informed policy development on environmental migration**. The six pilot countries were chosen based on the willingness of national authorities to participate in the project, among other reasons (cf. Chapter 3). This ensured that research results would be integrated into national policies and policy components factored into research.
- b. Second, the project sought to provide concrete evidence on **how migration can serve as an adaptation strategy**. Increasingly, it has been recognized that migration does not always signal a failure to adapt, but could also be used by migrants and local populations as a strategy to adapt to environmental transformation. Though this bears important policy consequences, it is not yet clear exactly *how* migration can support adaptation. In particular, MECLEP attempted to clarify the necessary conditions for population mobility to unlock its adaptation potential. For this

reason, particular emphasis has been put on the *relationship between migrants and their communities of origin*: does the migration of some increase the adaptive capacity of those left behind (e.g. through the sending of remittances) or does it increase their vulnerability?

- c. Third, MECLEP also sought to provide **new quantitative empirical data**. Though research on environmental migration has significantly grown in recent years, much of this research has been qualitative, leaving the door wide open for quantitative estimates and predictions. Thus, a key objective of the project was also to produce more robust quantitative data through large-scale household surveys.

The project focused in particular on the different ways that mobility could support – or hinder – adaptation. The decision to migrate is based on a number of factors that are difficult to disentangle. The goal was not so much to find out how many people move as a consequence of environmental degradation, but how the different types of migration impact the vulnerability of the migrants themselves and the communities of origin and destination. Thus, a key research question of the project was: **“What are the impacts of migration, in whatever form, on adaptation?”**. The project looked into the implications of migration for adaptation, rather than the impacts of environmental change on migration and this report summarizes the key elements that can help provide an answer to the question.

The project was led by IOM, in partnership with the following institutions which oversaw research in a particular pilot country:

- Erasmus University Rotterdam: Viet Nam
- Facultad Latinoamericana de Ciencias Sociales (FLACSO): Dominican Republic
- United Nations University Institute for Environment and Human Security (UNU-EHS): Haiti
- University of Bielefeld: Kenya
- University of Liège: Republic of Mauritius
- University of Versailles Saint-Quentin-en-Yvelines: Papua New Guinea

1.3. The structure of this report

Chapter 2 outlines the conceptual approach taken by the project. How was “adaptation” and “maladaptation” defined? How was the migration–adaptation nexus tested? Literature on the migration–development nexus is vast, but there is limited research on the migration–adaptation nexus.

Chapter 3 describes the national and regional contexts of the six pilot countries of the project. What are the natural hazards faced by populations in these countries? Which policies have been implemented to encourage or discourage migration? This chapter stems from national assessments produced over the course of the project, in preparation for the conduct of household surveys.

Chapter 4 details the methodology of the project. A key innovative aspect was that the project yielded comparative quantitative data on migration as adaptation to environmental change and other hazards through the administration of a large-scale household survey in five countries (Dominican Republic, Haiti, Kenya, Republic of Mauritius and Viet Nam). Notwithstanding some adjustments to fit the local context, a similar methodology was implemented at all research sites, in order to ensure the comparability of results.

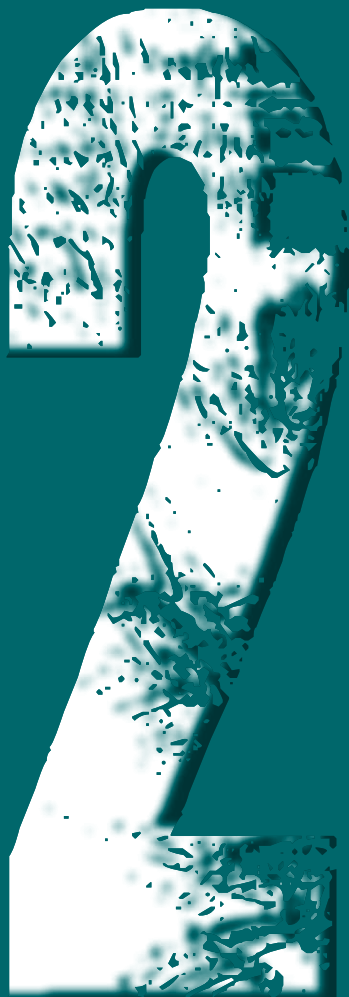
Chapter 5 presents key findings across the six pilot countries. The first part of the chapter looks at the impacts of specific types of mobility on adaptation: (voluntary) migration, (forced) displacement, and planned relocation, that is, the movement of a community organized directly by the authorities. In this study, “migration” is understood in broad terms, from voluntary to forced movements (cf. Chapter 2). While a distinction is made between

displacement and planned relocation and other types of migration, in the analysis of survey data “migrant households” were deemed to be any household with a “migration experience” – be it migration, displacement or planned relocation. The second part of the chapter studies the collective empirical findings for all types of mobility, and addresses issues such as the effects on income, livelihoods, housing, access to social services and pre-existing socioeconomic vulnerability, as well as the role of remittances or possible discrimination in employment or education. Most movements recorded in the sample were internal, long-term migration. In the Dominican Republic, Viet Nam and – to a lesser degree – the Republic of Mauritius, it is the poorest who move. Migrant households are not necessarily in the same socioeconomic position as non-migrant households and can be both better and worse off. Overall, among remittance-receiving households, the lower the household income, the larger the share of remittances in that household’s income. Lastly, remittances are predominantly used for poverty reduction (e.g. to secure basic needs) instead of long-term investments that could have a positive influence on the community’s development and potential adaptive capacity. Many migrants perceived the impact of migration to be mostly positive and acquired new skills and knowledge that they could use and pass on.

Chapter 6 takes a prospective approach, looking at the policy implications of the interactions between environmental change, migration and adaptation in the context of climate change. The chapter sheds light on the role of policies in shaping future population movements, and how such movements will affect the adaptation of host communities of migrants or the people they had left behind.



Haiti. © 2014 IOM (Photo: Susanne Melde)



2. Conceptual approach¹¹

François Gemenne, Julia Blocher and Susanne Melde

Key definitions used in the report

Migration

Migration is understood here in broad terms, encompassing both voluntary and forced movement, short-term (at least three months) and long-term (at least 12 months). This report considers both internal and international migration.

When referring to “migrant households”, all three types of movement (migration, displacement and planned relocation) are included in the analysis. To avoid confusion between migration and the other two types recorded in the surveys (displacement and planned relocation), the report sometimes refers to “human mobility” for the sake of clarity in the analysis when all three types of mobility are meant.

Displacement

Displacement is understood here as forced migration in the context of disasters.

Planned relocation

“[P]ermanent (or long-term) movement of a community (or a significant part of it) from one location to another, in which important characteristics of the original community, including its societal structures, legal and political systems, cultural characteristics and worldviews are retained: the community stays together at the destination in a social form that is similar to the community of origin” (Campbell, 2010:58–59). It is considered a movement of last resort and is most often conducted by authorities.

Trapped populations

“[P]opulations who do not migrate, yet are situated in areas under threat, [...] at risk of becoming ‘trapped’ [or having to stay behind], where they will be more vulnerable to environmental shocks and impoverishment.” In particular households with a low income level and few alternative livelihood options and social capital are understood to be “trapped” (Foresight, 2011; also cited in IOM, 2014a).

Adaptation

“In human systems, the process of adjustment to actual or expected climate and its effects, which seeks to moderate harm or exploit beneficial opportunities.” (IPCC, 2014).

Conceiving of migration as part of adaptation processes has long been an implicit feature of migration studies. Early migration thinkers characterized migration as a process aimed at adjusting to changes (including Ravenstein, 1889; Ratzel, 1903; Huntington, 1945; Wolpert, 1966). Ravenstein (1889), described migration as “life and progress”, whereas a sedentary population meant “stagnation”. Ratzel (1903) was concerned

with competition for space and resources due to growing populations, and considered natural barriers as potential obstacles to mobility.

In the context of increased attention to the potential impacts of climate change, since the 1980s “environmental migration” has become a more complex and nuanced area of study. Scholars extended their view that sudden and recurrent environmental factors influence seasonal and regular short-term mobility (Chhetri, 1987; Findley, 1994). Others characterized climate change as provoking migration outside

¹¹ This chapter draws from an article previously published in F. Gemenne and J. Blocher, “How can migration serve adaptation to climate change? Challenges to fleshing out a policy ideal”, *Geographic Journal* (2017).

of “normal” migration patterns (Glantz, 1991; Rosenzweig and Hillel, 1993). Some scholars even suggest that climate change had led to the forced displacement of societies and subsequent fall of empire (Orlove, 2005; cf. Magnan et al., 2016). Many scholars today agree that climate change has the potential to erode the resilience of communities, modifying not only the number of migrants but the characteristics of pre-existing patterns as well. Resource-based rural livelihoods are the most affected by way of their household production and consumption (Obokata, Veronis and McLeman, 2014).

Migrants are often portrayed as victims of climate change in public discourse. Political agendas can lead to oversimplifying migration as an issue of competition and tensions (Boswell, Geddes and Scholten, 2011; Blocher, 2016), while linking migration to endemic conflict, disease, crime and resource scarcity (McLeman, 2014). In contrast, scholarly evidence – including the work presented in this report – shows that in the face of environmental and climatic stress, mobility in numerous forms is a common household strategy aimed at supporting basic needs and livelihood strategies (Hampshire, 2002; Foresight, 2011; Piguet, 2013). Most environmentally induced migration takes place within countries, while a minority of such movements may involve crossing borders. Yet a United Nations (UN) review of national policy positions and priorities for international migration revealed that most governments tend to focus migration policies on reducing pressures to migrate, managing authorized movements and controlling irregular flows (UN DESA Population Division, 2013a). Climate change adaptation measures – and development cooperation and finance in general – are sometimes viewed as means to reduce migration pressures, particularly for rural and hazard-exposed populations (Clemens, 2014).

Considering scholarly research in the school of New Economics of Labour Migration (NELM), the current predominant theoretical approach to migration studies, there is much empirical evidence to show that migration is an adaptation strategy which households use to diversify and support their livelihood strategies (Massey et al., 1998; Castles and Miller, 2003; McLeman and Smit, 2006; Bardsley and Hugo, 2010; Black

et al., 2011b; IPCC, 2014). It can be a way to reduce population pressures in climate-prone places (Lonergan, 1998; Gray, 2009; McLeman and Hunter, 2010), while migrants already living outside vulnerable areas provide important resources to help communities adapt and respond to climate change, as well as economic (de Haas, 2008) and social (de Haas, 2007 and 2009; Levitt and Lamba-Nieves, 2011) change.

However, the application of the adaptation–migration nexus to the field of environmental and climate change, although often debated, has not been empirically tested, nor has the policy apparatus needed to deliver this potential been developed and assessed (Adger, 1999; McLeman and Smit, 2006; Barnett and Webber, 2010a). A global governance strategy capable of delivering on the potential of migration to resilience-building does not exist (Bettini and Andersson, 2014). Additional empirical evidence should serve as a basis to respond to these needs (Foresight, 2011). This is the foundation of the conceptual approach of this project.

2.1. Testing the potential of migration as an adaptation strategy

For the public and many decision makers, migration is still commonly perceived as a failure to adapt. Lack of consensus on definitions and terms (Hillmann et al., 2015), and confusion over basic concepts in discussions of migration as it pertains to adaptation, make it difficult to promote the issue in development policies and the implementation of adaptation measures. A key challenge facing scholars today is to flesh out the relationship between migration and adaptation, beyond wishful thinking of migration as a positive adaptation strategy.

MECLEP makes the argument that migration can affect adaptation in different ways. **“Adaptation for whom?”** is a key framing question here. Indeed, what may be a positive outcome for some may be detrimental for others. In this regard, migration could also qualify as maladaptation, defined as “a process that directly results in increased vulnerability to climate variability and change, and/or significantly undermines capacities or opportunities for present and future adaptation”

(IOM, 2014a:18). In order to answer the question of “adaptation for whom?”, the project looked at two relevant population groups: households with a migrant and households without a migrant.¹² Migration impacts need to be considered from the viewpoint of the **migrants** themselves, of the **communities of origin** and of the **communities of destination**.

2.1.1. Migrants

The traditional view is that people affected by environmental changes use migration to adapt *themselves* to such changes, including adverse environmental conditions. Yet it is important to stress that migration at large, and not only migration triggered by environmental changes, can have an impact on adaptation. Focusing only on “environmental migrants” – migrants whose mobility is related to environmental changes – would therefore appear as a limitation when studying the potential of migration for adaptation.

Migration is a common response to extreme vulnerability, which can result from hazards or erosion of resources over time. In fragile environments and for resource-based livelihoods, the effects of such pressures can be severe. Migration can therefore be a way to preserve life and satisfy basic needs. As noted above, migration can contribute to building household and individual resilience by way of diversification of income sources. Migration can be conceived as a livelihood insurance strategy (Foresight, 2011). In case studies of migration in the Plurinational State of Bolivia, Senegal and the United Republic of Tanzania, outmigration was linked to periods of time around hazards and was a strategy employed with the aim of diversifying livelihoods, increasing resilience and reducing vulnerability to environmental change. Residents in these case study countries identified a drastic change or “tipping point” that threatened local livelihoods (Tacoli, 2011a).

Migration has the potential to improve conditions for migrants. Access or lack of access to various social and economic assets is important. According to the Environmental Change and

Forced Migration Scenarios (EACH-FOR) project, apparently “successful” migrants were often the young and socially mobile (Jaeger et al., 2009). The potential opportunities provided by migration outweighed the costs. The older and more established members of a society were found to be less able or likely to choose to migrate, because they would risk losing their relatively advantageous social stature. Social capital is therefore clearly a key factor in migratory outcomes.

One study carried out in northern Burkina Faso found that cultural factors were essential in determining why groups may adopt different livelihood strategies in the context of a changing environment (Nielsen and Reenberg, 2010). In some contexts, such as in some small island states and West African cultures, migration is an important rite of passage into adulthood for young males. In parts of West Africa, young men who do not attempt to migrate can be seen as lazy and unadventurous, even undesirably feminine (Jónsson, 2011). The pursuit of lucrative employment abroad, whether successful or not, can be seen as a household and personal achievement.

Migration is, however, a risky strategy. It can demonstrably fail to increase the resilience of the household. Similarly, it may negatively affect the migrant. In a number of case studies, including in Ghana and the United Republic of Tanzania, migration was found to be an “erosive” coping strategy for vulnerable households that employed migration but did not build up their resilience (Warner and Afifi, 2014). Existing studies have posited that migrants often suffer a relatively lower socioeconomic status in comparison with their hosts or previous status in the community of origin (Czaika and de Haas, 2012). Furthermore, migration in the short term may not contribute to the ability to rely on existing strategies to cope with stress: for example, in cases where the migrating family member is unable to find adequate employment and living conditions and is less able to subsist in the host community. Migrants may also contribute a significant proportion of their income to their household, leaving themselves in relative poverty. Migrants may also contribute to processes that shift labour demand in the area

¹² The study used the household as the unit of analysis, and did not look at isolated individuals (see Chapter 4 on methodology).

of destination, exacerbating competition and potentially affecting local economies (positively or negatively).

2.1.2. Communities of origin

While migration can be a key tool for the development and adaptation of origin communities (Banerjee, Black and Kniveton, 2012), it can also represent huge deprivation of workforce and assets for those who had been forced or had opted to stay. Members of populations who stay behind can suffer considerably from the departure of those who have decided to migrate. Women, in particular, are often left with the burden of caring for elderly relatives and children. They may suffer isolation, deprivation and emotional turmoil, including fears over migrant loved ones not returning (Abdurazakova, 2011).

Yet literature on migration and development has long recognized human mobility as a meaningful development strategy for areas of origin. The potential of migration to promote sustainable development is usually materialized through the mobilization of migrant networks and the transfer of remittances, both of a financial and social nature. The skills, knowledge and behaviours migrants transfer between receiving and sending areas, along with political and civic practices, bargaining and identities – broadly referred to as social and political remittances – provide critical knowledge and networks that enhance development in the areas of origin (Barnett and Webber, 2010a and 2010b; Levitt and Lamba-Nieves 2011; ADB, 2012). In addition, migration alleviates population pressure, in turn easing strain on limited resources such as land or water, facilitating risk reduction and ultimately offering those who stay better chances of survival (Mink, 1993; Scheffran et al., 2012).

Literature on the role of migrant networks in development has not yet fully explored the role of migrants in supporting adaptation processes. While many migrant networks engage in overseas mobilization to support their country or region of origin, their potential for adaptation remains undefined. Migrant networks can improve resilience to climatic crises and vulnerability reduction through humanitarian and development

projects, better access to information, lobbying in the political sphere and of course by channelling donations and remittances of emigrants (Barnett and Webber, 2010a; ADB, 2012).

An important method of intervention for migrant individuals and networks is the sending of remittances to relatives back home on a regular basis, which can greatly improve the latter's resilience to risks, whether climatic or other shocks (Adger et al., 2002; Gubert, 2002; Scheffran et al. 2012). Financial and social remittances support the development of communities of origin in a number of ways (Gubert, 2002; de Haas, 2005). Remittances play a crucial role in poverty alleviation and development: they are much more stable capital flows than overseas development aid or foreign direct investment (Yang and Choi, 2007). Some works address how they could support the livelihoods of communities (Adger et al., 2002; Scheffran et al., 2012) or provide insurance against risks (Gubert, 2002). Most studies, however, focus on the impact of remittances on development and peacebuilding, whereas more limited attention has been paid to their impact on vulnerability reduction and adaptation to environmental changes. Remittance transfers can indeed foster adaptation, in three main ways:

- a. First, they can bolster an income diversification strategy. Households expect to secure a source of revenue in times of hardship through a migrating family member, thereby compensating for the loss of agricultural incomes. In addition, remittances can support investment in productive assets and intangible assets (such as education). They can foster more sustainable agricultural practices and can be instrumental to the diversification of the rural economy (Yang and Choi, 2007; Barnett and Webber, 2010a). Yet migration also tends to increase social inequality (Schade, Faist and McLeman, 2016). All three case study countries reviewed by Tacoli (2011a) confirm this: the most vulnerable households were those that did not receive remittances.
- b. Second, they can provide support in the wake of environmental hazards. Natural disasters usually trigger waves of solidarity

among emigrant groups (Yang, 2008). They can provide resources, information and capacities to help communities in the short term. They can also organize political action to implement long-term risk alleviation strategies or support diaspora mobilization in the wake of environmental hazards such as flooding, drought or earthquake (ADB, 2012). Diaspora philanthropy can be channelled by a large array of organizations, including NGOs, places of worship and hometown associations. They can also follow informal channels of interpersonal networks. This latter form of philanthropy is facilitated by the existence of online social networks and the use of new communications technology.

- c. Finally, migrants can convey knowledge to home communities, as has been widely studied in migration and development literature (see de Haas, 2007 and 2009; Levitt and Lamba-Nieves, 2011). By acquiring new skills and knowledge during their time away, migrants can fill important gaps when they return. They can pass on knowledge either by returning temporarily and training others, or when they return permanently and help to build capacities in origin communities.

2.1.3. Communities of destination

The effect of migration on people and communities are diverse. Yet the dominant narrative on the impacts of migration on the community of destination, in the context of environmental change, is one of competition, tensions and conflicts. According to a UN review of an array of policies of low- and middle-income nations, the proportion of policies to reduce migration to urban centres, especially larger cities, rose from 51 per cent in 1996 to 73 per cent in 2005¹³ (UN DESA Population Division, 2006). Unfavourable attitudes towards migration were evident in Poverty Reduction and Development Strategy Papers from across Africa (DFID, 2013). Migrants are commonly used as “scapegoats” for a host of larger socioeconomic structural issues, which is an inescapable reality in today’s divisive political climate.

13 These numbers address migration in general, not environmental migration specifically.

Overall, migration is often presented as a threat rather than as a driver of adaptation in communities of destination. Migration flows are perceived as putting pressure on urban areas, promoting the spread of crime and HIV/AIDS, stimulating land degradation and reinforcing both rural and urban poverty (Black et al., 2006). The concept of environment-related migration may have acquired an additional unwanted character because it arose at a time when migrants and asylum seekers were increasingly being viewed in a negative light. Casting environmental migrants as failures played into negative and commonly held pre/misconceptions of migrants and helped reinforce – and enable – growing anti-immigrant and anti-asylum seeker sentiment (Loneragan, 1998). This narrative fit well with discourse surrounding mounting mistrust of asylum seekers, as European citizens lamented being “flooded” with and “overwhelmed” by interlopers (Boswell, Geddes and Scholten, 2011). These terms are used in current political discourse around the world. The popularization of migration as a failure of adaptation is today evidenced by the continued use of threat terminology regarding migrants (Oels, 2011).

Current empirical research highlights very important and potentially maladaptive migration flows towards areas that are highly vulnerable to the impacts of climate change, such as burgeoning coastal and deltaic cities (Foresight, 2011). Migrants may increase their own vulnerability in areas of destination that are exposed to recurrent risks or where there are pre-existing structural vulnerabilities and population pressures (de Sherbinin, Schiller and Pulsipher, 2007). Poor governance, insufficient understanding of the impacts of climate change and other hazards, and lack of effective early warning systems (EWS) for extreme weather events can cause extreme vulnerability (Ginnetti et al., 2013). High rates of migration to already densely populated and low-lying urban areas can contribute to increasing vulnerability and increased disaster risk (Oakes, Milan and Campbell, 2016). Thus vulnerabilities are further exacerbated by the increasing scale and frequency of natural disasters.

Environmental factors – for example, temperature and rainfall variability that may affect natural resources and exacerbate pressures that



contribute to tensions – have been noted to occasionally lead to localized conflicts. However, there is little empirical evidence that points to a direct link, as social and political factors remain paramount contributors to such conflict. Researchers and practitioners have become aware of inequalities between migrants and members of host communities, as well as the barriers migrants face with regard to the full fulfilment of their rights more broadly, including in obtaining employment, access to adequate and dignified living conditions, and security of tenure. This is underlined by the case of pastoralist groups in East Africa, who are coming into increased contact with each other due to rarefication of pasture and water resources. Scarcity and changes of ownership of land, and reductions in grazing land and grazing rights, may have combined to trigger flare-ups in localized tensions (Nyaoro, Schade and Schmidt, 2016). O’Loughlin et al. (2012) found a non-linear relationship between temperature and conflict in East Africa between 1990 and 2009; much warmer than normal temperatures raise the risk of violence, whereas average and cooler temperatures have no effect.

However, there is a vast body of literature that must be recognized, professing the benefits of migration, as a component assisting a wider sociocultural phenomenon of adaptation, for building resilience in the community of destination. First, as noted, initial works on migration viewed it as an adjustment to the imbalances of the labour market (Ravenstein, 1885; Lee, 1966). In growing urban areas in particular, migrants provide new skills and may fill demographic gaps, in particular those related to ageing populations (Foresight, 2011). Second, recent works on multiculturalism and migration policies have highlighted the cultural benefits of migration for diversity (Boese, 2009). Positive outcomes are witnessed in education, inclusiveness and innovation when people of diverse backgrounds and views are integrated. A final, and related, point is that because of the diversity that accompanies migrant communities, migration acts as a vehicle for transfers of knowledge and technologies, and thus can help spur growth and development (Castles, 2002; Freeman and Kessler, 2008). Migrants are a self-selecting group, and have been shown to be more

entrepreneurial and risk-taking compared with the average population (Jaeger et al., 2010).

2.2. Building on existing knowledge

2.2.1. Defining migration, displacement, planned relocation and adaptation

Migration related to environmental and climatic changes have been viewed through the lens of a number of disciplines. Initially dominated by the natural sciences (Massey et al., 2010; Morrissey, 2009), the debate over the issue has since been polarized between the environmental sciences and migration studies (Morrissey, 2009; Castles, 2011; Gemenne, 2011). Such polarization has contributed to the affirmation of oversimplified accounts of how ecological changes are interlinked with mobility (Bettini and Andersson, 2014). Promoting migration as adaptation is widely seen as a potential matter of environmental policy, in terms of suppressing the “root causes of migration” (see a discussion of the political discourse around migration in the introduction to this chapter). The authors of this chapter argue that such policy needs to account for all dimensions of migration. When assessing the success of migration for adaptation, it is not only the situation of migrants that needs to be considered, but also that of the communities of origin – this is the whole rationale of the MECLEP project.

2.2.1.1. Migration

Migration is understood here in broad terms, given the diversity of types of internal and cross-border migration and variable accompanying effects on individuals and households. This report considers both internal and international migration, as the former is likely to represent the lion’s share of migration related to climatic and environmental changes (Hugo, 1996), while the latter is currently the primary preoccupation of policymakers (UN DESA Population Division, 2013a). The “cause(s)” of migration was deliberately not considered in this report, in order to encompass the outcome of all types of migration for whatever reason. While the study focused on the social, economic and political outcomes of migration, the ecological

outcomes of migration were not addressed. Yet this is undoubtedly a critical point in the sustainability of migration flows as well as the long-term sustainability of healthy and productive environments at destination and origin areas (cf. Hugo, 1996; Carr, 2009).

In many ways, academic work on migration and climate change adaptation is compared to previous work on migration and development. It is important to go beyond direct impacts – of remittances on income, for example – to consider indirect effects on wider economic development, social growth, health outcomes, power structures, inter alia (de Haas, 2010). Furthermore, the potential maladaptive effects of migration on multiple sides of migration systems must be considered holistically. The field of environmental migration can be distinctive and contributes to previous knowledge as it focuses on how rapid anthropogenic climate change, and environmental changes at large, may affect the modalities of migration as well as the ability of households and communities to move to improve their lives.

2.2.1.2. Displacement

Displacement is understood here as forced migration, that is migration under constraint in the context of disasters, where neither the conditions of migration nor the destination or timing are freely chosen by migrants. Hugo (1996) has shown that the distinction between (voluntary) migration and (forced) displacement was not as clear-cut as thought, and that these two terms represented two ends of a continuum rather than discrete categories. However, they require different policy responses, and this is the reason why they are being treated as distinct in this report.

2.2.1.3. Planned relocation

Among the three types of movement considered in this report, planned relocation is probably the less studied aspect. Planned relocation is defined in this report as:

[P]ermanent (or long-term) movement of a community (or a significant part of it) from one location to another, in which important

characteristics of the original community, including its societal structures, legal and political systems, cultural characteristics and worldviews are retained: the community stays together at the destination in a social form that is similar to the community of origin” (Campbell, 2010:58–59).

This community-based definition is considered more adequate than merely focusing on infrastructure and housing (see for instance “a process whereby a community’s housing, assets, and public infrastructure are rebuilt in another location” (World Bank, 2010:77)). While not all relocations may involve entire communities but only a number of households (see for instance Sobhee (2016) on the Republic of Mauritius), the majority of such movements tend to involve entire villages and other community structures (Leckie and Simperingham, 2015:35). The Foresight (2011:176) report’s definition further refers to the element of involving authorities or in some cases community organizations, understanding planned relocation “as the movement of people, typically in groups or whole communities, as part of [a] process led by the state or other organization, to a predefined location.” In addition to often involving the movement of community structures (whether physical or sociocultural, political or legal) and authorities/other actors in conducting the process, relocations are measures only used as a last resort when no other mitigation or adaptation is feasible in light of hazards which render the original location uninhabitable. Thus, it can be considered a rather extreme form of movement when no alternatives exist.

Despite the need for cross-border relocations, in particular in low-lying Pacific Island States, having received greater media attention, existing research shows that relocations take place mostly within countries (see Campbell et al., 2005:22–24; Foresight, 2011:176–177; Chun, 2014a and 2014b; UN Viet Nam, 2014; Entzinger and Scholten, 2015; Fitzpatrick, 2015; Leckie and Simperingham, 2015; Melde, 2015; Ranque and Quetulio-Navarra, 2015; Thomas, 2015; Sou, 2015). Domestic relocations can take place locally, in-situ or at the substate level (Gharbaoui and Blocher, 2016).

Building on work in particular by Ferris (2012 and 2013:32), four types of planned relocation can be distinguished:

- a. Reactive relocation after a natural hazard if return is not feasible;
- b. Preventive relocation from high-risk zones before a disaster happens;
- c. Relocation as a component of larger adaptation projects, such as dam-building to protect populations from flooding and sea-level rise; and
- d. Relocation as a component of major mitigation projects, such as the extension and protection of carbon sinks (forest programmes) and the exploration of renewable energy sources (Schade et al., 2015:3).

This report analyses in particular categories (a) and (b) on reactive and preventive relocation processes. Types (c) and (d) have been far less researched (with the exception of Vigil (2015) for (d) for instance) but go beyond the scope of the research conducted as part of the MECLEP project. A considerable body of literature examines development-forced displacement and resettlement.

Policy-oriented research highlights that relocation can conceptually be considered to represent either a form of adaptation or disaster risk reduction (DRR)¹⁴ (Weerasinghe, 2014:6; Brookings and UNHCR, 2015), or possibly both. Reducing exposure to hazard risks certainly entails the reduction of possible harm, which is part of the definition of adaptation.

2.2.1.4. Trapped populations

Populations who cannot move have been a particular concern in environmental migration literature. The influential Foresight report (2011:25) defined them as “populations who do not migrate, yet are situated in areas under threat, [...] at risk of becoming ‘trapped’ [or having to

stay behind], where they will be more vulnerable to environmental shocks and impoverishment.” In particular households with a low income level and few alternative livelihood options and social capital are understood to be “trapped” (Foresight, 2011; also cited in IOM, 2014a). Populations without the means to move out of hazardous areas require particular attention due to their low capacities to cope with adverse environmental conditions.

2.2.1.5. Adaptation and maladaptation

The concept of adaptation emerged from the world of evolutionary biology (Williams, 1966: vii). The Intergovernmental Panel on Climate Change (IPCC, 2014) defines adaptation as “the process of adjustment to actual or expected climate and its effects, which seeks to moderate harm or exploit beneficial opportunities.” The concept has since been applied in the social and political sciences in numerous fields. Facets of the impact of migration on cultural and social exchange and adaptation have been extensively explored by social scientists, generally for specific target communities (for an early example, see Chhetri, 1987).

The term can imply a beneficial change in response to certain stimuli, in the sense of evolutionary fitness (cf. Magnan et al., 2016). Such changes are only positive insofar as the stimuli remain gradual and incremental. Rapidly changing conditions have in the past lead to failures to adapt because shifting natural resource allocations inherently produces sets of “winners and losers” (Adger, 1999). Adaptation, a process or series of actions taken to *adjust to* and moderate adverse changes, is dynamic and non-directional. Adaptation is a longer-term phenomenon for whole populations influenced by the aggregate behaviour of individuals (Williams, 1966). It is thus distinct from “coping,” which is defined as: “the use of available skills, resources, and opportunities to address, manage and overcome adverse conditions, with the aim of achieving *basic functioning* of people, institutions, organizations, and systems *in the short to medium term*” (IPCC, 2014; emphasis added).

Climate change and its impacts are likely to modify not only the number of migrants but

14 “The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events” (UNISDR, 2009).

also the characteristics of pre-existing patterns, to the potential of environmental degradation to erode resilience¹⁵ and adaptive capacities. Positive adjustments are yielded through two mechanisms. First, migration can contribute to building resilience to recover from unavoidable shocks. Second, it may increase adaptive capacities, defined as the ability – of individuals, communities, and whole societies – to anticipate and transform structure, functioning or organization to better survive hazards and other erosive changes (IPCC, 2012b:72). A few key caveats to our definition of adaptation arise:

- a. First, migration may not be the first or most appropriate strategy chosen, and is unlikely to be relied on solely (Brown, 2008). People move short and long distances within the larger frame of their responses to the world around them, an evolving relationship largely shaped by subjective and non-environmental factors (Faist and Schade, 2013).
- b. Second, perceptions, cultural values and norms are paramount. Grothmann and Patt (2005) posit that the perceived ability to employ adaptation strategies successfully may be as important as objective ability. Indeed, other authors cited in this chapter suggest that household conditions and “profiles” (Warner and Afifi, 2014) are more important to migratory decision-making and migratory outcomes than other external pressures.
- c. Third, adaptation is a highly non-linear process, and is not necessarily “adaptive” in the commonly used positive sense. Maladaptation refers to initiatives, such as policy, plan or project initiatives, that had initially been designed for adaptation but are actually at high risk of inducing adverse effects. These effects can be either on the system in which initiatives had been developed, or on another connected system, or both. As noted by Magnan et al. (2016:7): “Adverse effects can be environmental,

sociocultural, institutional and/or economic, and they result from the insufficient consideration of the future impacts of climate change and related uncertainty in the design phase of the initiative.”

One should systematically consider both direct and indirect vulnerability to climate-related pressures (Magnan et al., 2016:7). However, there is little consensus on a standard threshold by which vulnerabilities can be considered “caused” by climate change. It is also important to recognize that adaptation measures may simply reduce in-situ pressures by transferring them onto another ecologically or socioeconomically connected “system” (cf. Juhola et al., 2016; Magnan et al., 2016). In the context of this report, the other parts of the “system” would plainly be communities of origin or destination. Indeed, when conceived as a strategy, migration can be “successful” only if it increased the ability to rely on existing livelihood and other adaptation strategies (Tacoli, 2011b; Warner and Afifi, 2014). Strategies to respond to changes are not temporally static. Practitioners often find it easy to consider “coping” as a short-term strategy that mitigates harm, and therefore may be seen as adaptive. However, in many cases, coping can prove to be maladaptive in the long term. The success of migration as an adaptation strategy depends on the long-term effects of migration. This report, in most cases, was unable to draw comprehensive conclusions on these long-term consequences – and it also did not predict the future. Further longitudinal research should be conducted to investigate the impacts of migration on adaptation in the long run.

2.2.2. State of the art

When hazards hit and when vulnerabilities are high, migration is essential to preserving life and satisfying basic needs. Recent figures suggest 26 million people, on average, are displaced every year by sudden-onset natural hazard-induced disasters (IDMC, 2016). In addition, environmental degradation and climatic changes can erode livelihoods over time. While numerous case studies link increased mobility to periods of environmental stress (Tacoli, 2011a; Ginnetti et al., 2013), many scholars underline that

15 “The ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions” (IPCC, 2012a:5).

socioeconomic factors overwhelmingly account for why people are imminently vulnerable to any shock (Ginnetti et al., 2013). Researchers have explored why households perceive themselves to be imminently at risk. Ezra and Kiros (2001), for example, demonstrated through a multilevel analysis of 2,000 households in 40 villages in Ethiopia that the perceived local vulnerability to a food crisis was a key factor in migration decision-making.

According to the NELM approach, migration is a household risk management strategy (Stark and Levhari, 1982; Stark and Bloom, 1985). Among natural resource-dependent rural and agricultural households in particular (Obokata, Veronis and McLeman, 2014), internal and cross-border migration can be employed to address income gaps and insure against livelihood shocks (Lee, 1966; Stark and Levhari, 1982; Lucas and Stark, 1985; Gubert, 2002; Foresight, 2011). Migration is conceived as a voluntary decision taken as part of strategies aimed at building capacities to confront unfavourable conditions in the longer term (Jaeger et al., 2009), and not exclusively as a last-resort decision for resource-dependent societies (Hampshire, 2002). Wolpert (1966) is often cited for demonstrating that large-scale internal migration in the United States in the 1930s during the so-called “Dust Bowl”, a series of dust storms, was in response to environmental stress. However, the timing and outcomes of migration during this period were distinguished by the types of capital households had available – and therefore their adaptive capacities and vulnerabilities (McLeman and Smit, 2006).

The relationship between environmental drivers and household migration propensities is dynamic. The occurrence of natural hazards and the availability of natural resources are changing, accelerated by climate change (Stocker, Dahe and Plattner, 2013). Social and political components of exposure and sensitivity to environmental factors also evolve (Turner et al., 2003), as well as the individual attributes of household members. Perhaps unsurprisingly, results from empirical studies have varied. Using a multilevel approach to migration histories in Burkina Faso from 1960–1998, Henry, Boyle and Lambin (2003) demonstrated that people from

drier regions were more likely to engage in both temporary and permanent migration to other rural areas, but that short-term moves to distant destinations decreased with rainfall deficits. Van der Geest (2011) compared a time series of north–south internal migration and average annual rainfall in Ghana, suggesting that migration can be reduced at times of most pronounced environmental stress or hazards. In her review of case studies of international and internal migration related to drought, desertification and soil degradation in the Sahel, Jónsson (2010) echoed van der Geest’s assertion that this behaviour must be seen as part of the “normal” internal and temporary migration patterns in mobile regions. Jónsson furthermore underlined that these patterns were manifestations of social and cultural considerations.

An important element of the household migration decision-making process appears to be the disposition of various capital required to migrate. One notable project, “Where the Rain Falls” (hereinafter referred to as the Rainfalls project), links rainfall patterns and human mobility further, distinguishing household “profiles” of environmental migration (Warner and Afifi, 2014). While the decision of resource-dependent households to invest in the migration of a household member may be correlated with rainfall in the eight countries studied, the “success” of migration as defined by the authors was often related to contextual conditions and household attributes prior to movement. A number of other studies highlighted that the capacity to migrate varied with (changing) household economic resources, resulting in a U-shaped relationship between deviation from average rainfall variability and migration flows (Feng, Kruger and Oppenheimer, 2010; Nawrotzki, Riosmena and Hunter, 2013). For example, in an analysis of the drought-prone state of Durango in Mexico between 1951 and 1991, increased rainfall was positively correlated with migration to the United States (Kniveton et al., 2008). During times of relative abundance of natural resources, households free up the resources necessary for a family member to migrate. Households that lack the resources to migrate are less mobile during times of peak environmental stress, choosing instead to prioritize immediate and basic necessities.

While planned relocation has received comparatively little attention in international climate change negotiations, many governments around the world have conducted or are planning the movement of communities out of harm's way (McAdam, 2010; Foresight, 2011:177; Ferris, 2012:4 and 2013:31; Edwards, 2013; Chun, 2014a and 2014b; UN Viet Nam, 2014; Weerasinghe, 2014:11; Brookings and UNHCR, 2015:3–4; Entzinger and Scholten, 2015 and 2016; Mitchell, 2015; Pierre, 2015; Ranque and Quetulo-Navarra, 2015; Thomas, 2015; Vithanagama et al., 2015; Connell and Lutkehaus, 2016; Gharbaoui and Blocher, 2016; Monson and Fitzpatrick, 2016:198, 242, 252; Sobhee, 2016; Wooding and Morales, 2016; Ionesco, Mokhnacheva and Gemenne, 2017). This includes our relocation case studies in the Dominican Republic (Cordero Ulate and Lathrop, 2016), Viet Nam (Entzinger and Scholten, 2016) and Papua New Guinea (Connell and Lutkehaus, 2016). The Republic of Mauritius (Sobhee, 2016) and Kenya (Nyaoro, Schade and Schmidt, 2016) are considering the relocation of certain communities as a last resort, while the movement of internally displaced persons (IDPs) after the 2010 earthquake in Haiti to more permanent shelters could be considered a form of relocation as well (see Pierre, 2015).

In addition to the relatively little attention planned relocation is receiving in international policy discussions compared with migration and in particular displacement, scholarship on the topic often assumes that few insights on planning relocation exist. However, important good practices and lessons learned can be derived from five types of existing research:

a. Most importantly, existing practices (McAdam, 2015:32) emphasizing the need for adequate consultation of the communities to be moved (Oliver-Smith and de Sherbinin, 2014); the very high costs of relocation projects (Foresight, 2011:179); the influence of gender, age, class and ethnicity on vulnerability impacting relocation programmes; the need for adequate legal frameworks (Oliver-Smith and de Sherbinin, 2014; Brookings and UNHCR, 2015:10–11; Schade et al., 2015); land tenure schemes impacting relocation outcomes (Oliver-

Smith and de Sherbinin, 2014; Brookings and UNHCR, 2015:21–22; Fitzpatrick, 2015; Melde, 2015 and forthcoming; Gharbaoui and Blocher, 2016; Monson and Fitzpatrick, 2016); and the need to take long-term income-generating activities into consideration (McAdam, 2010; Foresight 2011:179; Edwards, 2013; Lipset, 2013; Weerasinghe 2014; Brookings and UNHCR, 2015; Melde, 2015:5; Vithanagama et al. 2015; IOM, forthcoming);

- b. Literature on development-induced displacement and resettlement, such as for the construction of hydropower dams and other large infrastructure, highlighting the need for early planning and careful selection of the relocation site (see Oliver-Smith, 2009; Bennett and McDowell, 2012; Oliver-Smith and de Sherbinin, 2014; Weerasinghe, 2014:16);
- c. DRR programmes to reduce exposure to hazards and increase the resilience of communities;
- d. Evacuations, which are often very immediate and short-term in nature and conducted by national disaster management Authorities, where a *Comprehensive Guide for Planning Mass Evacuations in Natural Disasters (MEND Guide)* has been developed (Global CCCM Cluster, 2014); and
- e. Historical examples underlining the need to take rapid population growth, competition over scarce resources and possible resultant tensions into consideration (McAdam, 2015).

A gap in literature pertains to how relocation experiences have impacted – positively or negatively – affected populations' adaptation to hazards (Melde, forthcoming).

Empirical studies suggest a complex and nuanced relationship between environmental factors and mobility. In public debates, however, migration remains mostly presented as the undesirable outcome of a failure to adapt. In debates around the UNFCCC, emphasis is placed on displacement and migration of vulnerable populations as a foregone conclusion. The presentation of migration as a problematic phenomenon is

evidenced by a policy focus on influencing the modality, volume and geographic bounds of migration rather than seeking to facilitate human mobility for the potential positive outcomes of migration (Black et al., 2011a; DFID, 2013). As discussed in Chapter 3, the selected pilot countries recognize the challenges of displacement and planned relocation, but tend to overlook the potential benefits of migration as an adaptation strategy. Misconceptions and mounting distrust of migrants and asylum seekers is likely to have contributed to this view (Bosswick, 2000; Morrissey, 2012), which often similarly applies to internal migrants from other regions of a country.

The disconnect between empirical research and public debates often observed today may lead to policy responses on migration and adaptation that may not necessarily promote positive,

sustainable and inclusive development. At best, this gap helps induce the creation of governance mechanisms and institutional structures that may tend to be one-sided in its focus on challenges (cf. Chapter 3 for the six pilot countries), and thus not sufficiently suited to recognize the opportunities presented by migration (Blocher, 2016; Gemenne and Blocher, 2017). At worst, the disconnect reinforces policy mechanisms based on fear narratives of the past and encourages policymakers to support potentially maladaptive policy responses aimed at preventing migration (Black et al., 2011a). In today's complex and globalized world, better appreciation of the impacts of climate change on mobility in all its forms – alongside a clear and evidence-based understanding of migration processes – has never been more important.



Kenya. © 2011 IOM (Photo: Brendan Bannon)



3. National and regional contexts

Susanne Melde and Irene Leonardelli

3.1. Introduction

This chapter presents the migration, environment and adaptation context of the pilot countries from across the globe: the Dominican Republic, Haiti, Kenya, the Republic of Mauritius, Papua New Guinea and Viet Nam. In addition to the interest of the respective governments, the countries were selected based on the diversity of migration patterns and the environmental events they face. Four out of the six are small island developing States (SIDS), which face diverse yet particular challenges and vulnerabilities. The Dominican Republic and Republic of Mauritius are upper-middle-income countries (World Bank, 2015a), ranking 101st and 63rd in the Human Development Index (HDI) respectively (UNDP, 2015b and 2015c); while Papua New Guinea and Haiti rank 158th and 163rd respectively (UNDP, 2015f and 2015g).

In comparison, Viet Nam and Kenya are relatively large, populous countries with about 93.5 million and 46.1 million inhabitants in 2015, respectively. They are lower-middle-income developing countries (World Bank, 2015a). Kenya ranks 145th in the HDI, which; its ranking, along with its gross national income (GNI) per capita, has improved slightly over the last 15 years (UNDP, 2015d). Viet Nam ranks 116th in the HDI.

Among the four SIDS, Haiti and the Dominican Republic are the most populous, with about 10.7 million and 10.5 million inhabitants respectively; in the Caribbean, only Cuba has a larger population than these two countries. Papua New Guinea is the third most populous SIDS in the study, with a population of 7.6 million in 2015. This also makes the country the most populous in the Pacific, accounting for 70 per cent of the region's inhabitants. Papua New Guinea is among the most

ethnically diverse countries in the world; more than 800 languages are spoken in the country. This diversity, however, has implications for land tenure and governance, and explains the relative lack of internal migration. In terms of population size, the Republic of Mauritius is the smallest in the project sample, with 1.3 million inhabitants in 2015 (UN DESA Population Division, 2015c).

While information on both migration dynamics and environmental change is widely available for the six countries studied, research on the links between migration and environmental stressors is scarce and limited. In recent years, several studies have focused on the dynamics and challenges related to displacement due to natural hazards and the evaluation of different relocation programmes. The detailed and timely data collected in the aftermath of the earthquake in Haiti in 2010 (see for example Lamour, 2011; Pierre, 2011; Courbage et al., 2013; Bradley et al., 2014; IOM, 2015b), or the studies conducted in the context of the relocation of the inhabitants of Carteret islands (see, among others, Rakova, 2007 and 2014; Box, 2009; Edwards, 2013), are examples of such important research activities. However, there is still a lack of reliable data and policy-oriented research assessing the extent to which environmental change may influence migration patterns and if and how migration may be an adaptation strategy in the context of climate and environmental change.

This chapter aims to provide the national and regional contexts for the countries studied. The following section gives an overview of the environmental specificities and migration dynamics that characterize the six MECLEP countries; the main challenges as well as the capacity of each country to respond to those challenges are outlined. Section 3.3, meanwhile,

focuses on the different forms of mobility and the challenges related to the links between migration and environmental change. Section 3.4 summarizes the areas and circumstances in which people are most vulnerable to natural hazards and environmental stressors in general, indicating which groups seem to be most affected and exposed. Section 3.5 provides an analysis of the policy frameworks of the six countries, outlining when and how the links between different forms of mobility and the environment are addressed. Finally, section 3.6 presents preliminary findings and some initial policy and research recommendations to inform data analysis.

3.2. Environmental characteristics and migration and different response capacities

A number of environmental challenges affect the six pilot countries studied. Papua New Guinea and Haiti¹⁶ face all kinds of environmental events, both slow- and fast-onset, whereas other countries are affected by a less diverse range of disasters and gradual environmental changes (Naser, 2015; Pierre, 2015; Dang, Leonardelli and Dipierri, 2016; Nyaoro, Schade and Schmidt, 2016; Sobhee, 2016; Wooding and Morales, 2016).

Like many other islands in the Pacific region increasingly affected by climate change, Papua New Guinea faces a very challenging environmental situation, with droughts, earthquakes, floods, tsunamis, tropical cyclones and volcanic eruptions being the most frequent natural disasters (Government of Papua New Guinea, 2010; Australian Bureau of Meteorology and CSIRO, 2014; PNG NDC, 2015). Sea-level rise also greatly affects the coastline of the country and several of its low-lying small islands (Australian Bureau of Meteorology and CSIRO, 2014).

Haiti and the Dominican Republic are not only greatly exposed to natural hazards and slow-onset processes like all countries in Central America and the Caribbean, but are also particularly exposed to water-related extreme-weather events as their island is directly located within the hurricane belt. In Haiti, frequent tropical

storms, floods and landslides, together with prolonged periods of drought and deforestation, significantly damage the environment and the agricultural sector in particular (UNFPA, 2010; Gütermann and Schneider, 2011; OXFAM, 2014). Moreover, the country is still suffering from the impact of several hurricanes that occurred in 2007 and 2008 and the earthquake in 2010 that resulted in 20,000 fatalities and displaced over 1.5 million people (IOM, 2015b). In 2016, Hurricane Matthew hit southern Haiti, leaving 546 people dead and displacing more than 140,000 (IOM, 2016f). Similarly, the Dominican Republic is exposed to catastrophic events such as storms, cyclones, hurricanes, floods, tsunamis and earthquakes (Gómez de Travesedo and Ramírez, 2009; Portorreal, 2011) and to a wide range of slow-onset processes such as sea-level rise, desertification, ocean acidification and salinization, coastal erosion and increasing temperatures (Gutiérrez, 2006; Gómez de Travesedo and Ramírez, 2009; Wielgus et al., 2010). Again, agriculture and livestock, together with fishing, are the most affected livelihoods (Gómez de Travesedo and Ramírez, 2009).

The Republic of Mauritius is less affected by natural hazards in comparison with the other five countries. However, like many other SIDS and small islands around the world, the Republic of Mauritius acutely suffers from the consequences of climate change. Sea-level rise, increasing temperatures, ocean acidification and land degradation are significantly damaging the agricultural, fishing and livestock sectors of the country while increasing the risk of health hazards and water shortages (Sobhee, 2004; UNFCCC, 2014b; MMS, 2014).

In recent years, droughts and desertification have become more frequent and seasonal weather patterns less predictable in all of central and eastern Africa, with strong impacts on soil fertility and thus on the agricultural sector. In Kenya, these changes have negatively impacted food security, hampering farmers' and pastoralists' ability to recover after periods of drought (SEI, 2009; Mude et al., 2009). Some parts of the country are also prone to flooding, particularly riverine floods, and landslides (Government of Kenya, 2002 and 2010; UNEP, 2009).

16 Except volcanic eruptions in the case of Haiti.

Viet Nam is very much exposed to tropical storms, typhoons and hurricanes, which often trigger flooding and landslides (Nguyen, 2007; Hays, 2008; IPONRE, 2009; Taho, Takagi and Esteban, 2014). In recent years, the country has also been increasingly affected by sea-level rise, drought, coastal erosion and salinization, which are damaging rice paddies and fish production, especially in the Mekong River Delta region – one of the most populated regions of the country and the most important for rice and fish production (Warner et al, 2009; UNDP, 2012 and 2015a; ADB, 2013). This is not surprising considering that globally south and east Asia is the region most vulnerable to extreme natural events, accounting for the highest disaster-induced displacement figures (IDMC, 2016).

According to the Long-term Climate Risk Index (CRI) (Kreft et al., 2014 and 2016), between 1994 and 2013, Haiti and Viet Nam were among the 10 most vulnerable countries to extreme weather events (e.g. storms, floods and heat waves), both in terms of fatalities and economic losses incurred (see Figure 1). Interestingly, Haiti’s neighbouring country, the Dominican Republic, ranked slightly differently, possibly indicating a better capacity to manage the impacts of extreme weather events. It is interesting to note that while Haiti and Viet Nam remained among the most vulnerable countries to natural hazards, the other four MECLEP pilot countries – and Kenya and the Republic of Mauritius in particular – had grown more resilient. This is according to global long-term CRI comparisons between the 20-year periods of 1994–2013 and 1996–2015.

Figure 1: Long-term CRI rankings for MECLEP pilot countries

Country	Rank in 2015 (Study conducted in 1994–2013)	Rank in 2017 (Study conducted in 1996–2015)
Haiti	3	3
Viet Nam	7	8
Dominican Republic	8	11
Papua New Guinea	47	55
Kenya	70	85
Republic of Mauritius	81	117

Source: Kreft et al., 2014 and 2016.

Despite the high degree of vulnerability of the six pilot countries, the level of preparedness to adapt to climate change varies substantially. The World Risk Index 2016¹⁷ ranked Papua New Guinea among the 10 countries worldwide most susceptible to risk linked to extreme gradual and sudden environmental events and with the least capacity to cope or adapt; the Republic of Mauritius and Viet Nam were similarly assessed to be very vulnerable (see Figure 2).

Figure 2: World Risk Index 2016 rankings for MECLEP pilot countries

Country	Rank
Papua New Guinea	10
Republic of Mauritius	13
Viet Nam	18
Haiti	21
Dominican Republic	27
Kenya	74

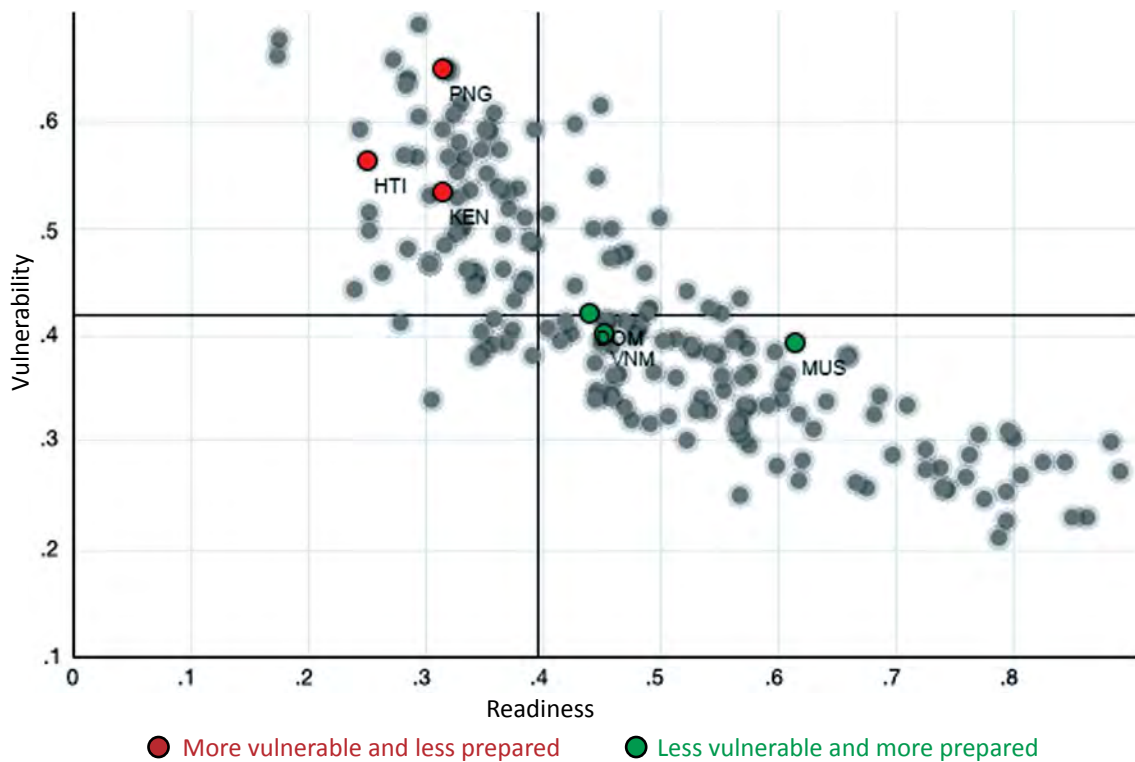
Source: Bündnis Entwicklung Hilft and UNU-EHS, 2016.

¹⁷ The index ranks 171 countries using four indicators: exposure to sudden and slow-onset hazards, susceptibility, lack of coping capacities and lack of adaptive capacities (Bündnis Entwicklung Hilft and UNU-EHS, 2016).

The Notre Dame Global Adaptation Index (ND-GAIN, 2017) came to a different conclusion regarding the ability to adapt to climate change in economic, governance and social terms. In 2015, Haiti, Papua New Guinea and Kenya were among the most vulnerable and less prepared countries. Viet Nam and the Dominican Republic were also considered vulnerable to environmental and climate change, but were deemed to be better able to address the challenges. The Republic of Mauritius was considered less vulnerable to the

impacts of climate change and yet at the same time had better response capabilities (see Figure 3). Hence, gaps in both policy and implementation exist in four of the six countries studied, while Viet Nam and the Republic of Mauritius seem to have adapted to challenges more adequately. The ND-GAIN data for 2015 show that the level of vulnerability is not automatically an indication of how well prepared countries are to address the adverse effects of environmental degradation and climate change as an exacerbating factor.

Figure 3: ND-GAIN matrix for MECLEP pilot countries, 2015



Source: ND-GAIN, 2017.¹⁸

It is equally important to note that all three indices presented assess the levels of vulnerability and capacities to respond of the six countries differently. A review of policy frameworks in the countries paints yet another, different picture (see section 3.5). However, it is clear that all countries are exposed to slow and fast-onset environmental events.

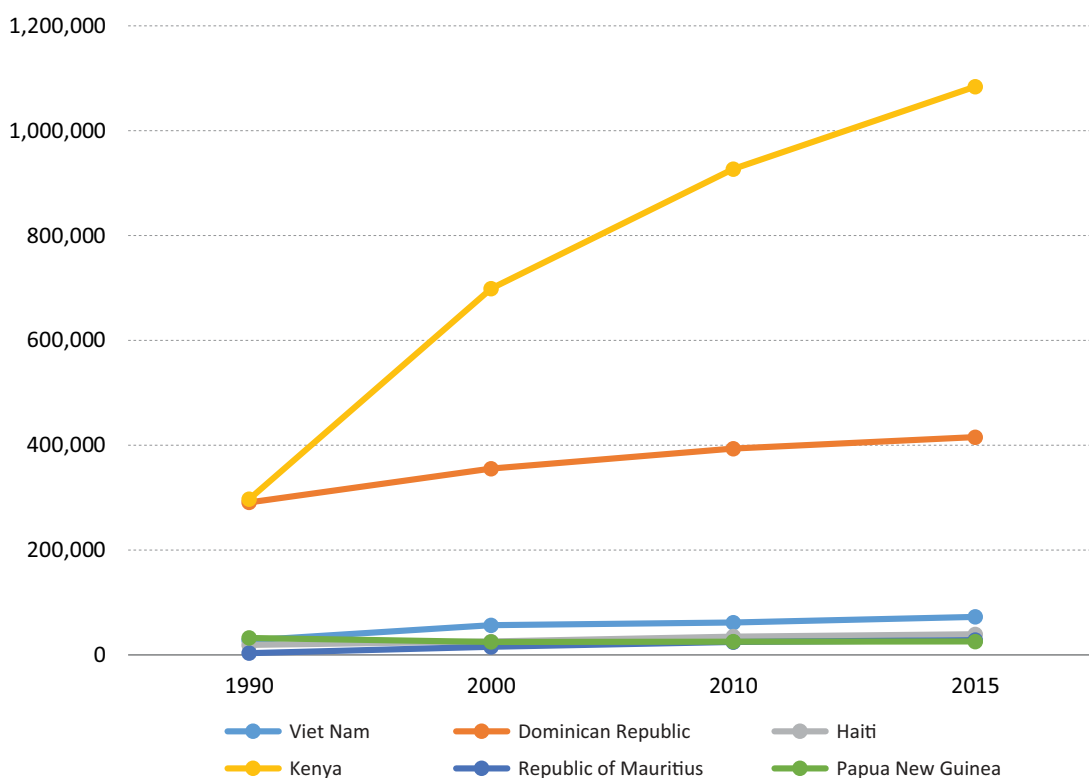
The six countries studied also account for different migration scenarios. Internal movements play a role in all countries, although to a limited degree in Papua New Guinea. Migration patterns are particularly diverse in Kenya, with pastoralism, internal movements and internal displacement due to conflict, disasters and development projects. In addition, there are large-scale refugee movements into the country – Kenya hosts about 550,000 refugees from neighbouring countries (UNHCR, 2016) –, as well as general immigration and emigration (IOM, 2015a; Nyaoro, Schade and Schmidt, 2016). In Papua New Guinea, international immigration and emigration levels are negligible. Data from the UN Department of

18 Vulnerability measures a country's exposure, sensitivity and capacity to adapt to the negative effects of climate change. ND-GAIN measures overall vulnerability by considering six life-supporting sectors: food, water, health, ecosystem service, human habitat and infrastructure. Readiness measures a country's ability to leverage investments and convert them to adaptation actions. ND-GAIN measures overall readiness by considering three components: economic readiness, governance readiness and social readiness (ND-GAIN, 2017).

Economic and Social Affairs (UN DESA) Population Division indicate that in absolute numbers only Kenya and the Dominican Republic host important numbers of immigrants (see Figure 4). At the same time Viet Nam, the Dominican Republic, Haiti and Kenya are net emigration rather than net immigration countries. Many of the nationals of these countries residing or leaving to go abroad are diaspora members, especially in the case of Haiti, Viet Nam and the Dominican Republic, supporting human development through transfer of money, knowledge and ideas to their home

communities and family members. International remittances play a significant role in Haiti, where they accounted for 24.7 per cent of the national GDP in 2015; in the Dominican Republic (where they represented 7.7% of the GDP in 2015); and in Viet Nam (where they constituted 6.7% of the GDP) (World Bank, 2016). In Papua New Guinea and the Republic of Mauritius, the numbers of immigrants and emigrants are similar, and both are relatively low compared with figures for the other MECLEP countries (see Figure 5). However, in the Republic of Mauritius, the number of immigrants is significant in relation to the population size.

Figure 4: International migrant stocks, 1990–2015



Source: Own elaboration based on UN DESA Population Division (2015a) data.

Figure 5: Net number of migrants, both sexes combined

Country	2000–2005	2005–2010	2010–2015
Viet Nam	-772,000	-878,000	-200,000
Dominican Republic	-153,000	-154,000	-153,000
Haiti	-140,000	-138,000	-150,000
Kenya	25,000	-189,000	-50,000
Republic of Mauritius	-19,000	-12,000	0
Papua New Guinea	0	0	0

Source: UN DESA Population Division, 2015c.

Overall and confirming findings at the global level (UNDP, 2009), internal migration movements, including displacement both due to disasters (cf. next section) and, in Kenya and Papua New Guinea, conflict, are the most significant type of migration of concern to the six countries (see UN DESA Population Division, 2013b; Bell et al., 2015; Naser, 2015; Pierre, 2015; Dang, Leonardelli and Dipierri, 2016; Nyaoro, Schade and Schmidt, 2016; Sobhee, 2016; Wooding and Morales, 2016).

In addition to natural population increase, rural–urban movements can contribute to increasing urbanization. Urbanization rates are particularly high in the Dominican Republic, increasing by almost 20 percentage points over the past 15 years (UN DESA Population Division, 2015b). For 2015, the UN DESA Population Division (2015b) estimated that nearly four out of five persons lived in urban areas in the Dominican Republic. In Haiti, the urbanization rate increased by almost 25 percentage points between 2000 and 2015, reaching almost 60 per cent in 2015 (UN DESA Population Division, 2015b). Urbanization rates are relatively low in Viet Nam (33.6%) – although growing very fast in recent years –, Kenya (25.6%) and Papua New Guinea (13%) compared to the world average of about 50 per cent (UN DESA Population Division, 2015b). Papua New Guinea and the Republic of Mauritius had until recently negative urbanization rates, which could be due to population growth in rural areas or return movements from cities. As in all countries except the Republic of Mauritius, urbanization rates are expected to increase over the next years (UN DESA Population Division, 2015b). Given the large size of the populations in these countries (Papua New Guinea is the most populous country in the Pacific), internal migrants moving to urban areas will likely put further pressure on infrastructure in cities; at the same time, migrants may potentially move to areas at risk of flooding, landslides and other environmental events. This is particularly true in the case of Viet Nam, where rural-to-urban movements – and especially towards the main cities of Ho Chi Minh City and Hanoi – are leading to the expansion of slums in areas that are very much exposed to natural disasters (Thanh, Anhand and Phuong, 2013). Similarly, in the Republic of Mauritius, studies carried out on the situation of people migrating from the outer

island of Rodrigues to the main island of Mauritius also point out the precarious and dangerous situation of migrants’ new settlement where, among other risks, the lack of hygienic provision and poor treatment of waste and water could trigger the proliferation of diseases (IOM, 2010a, 2011a and 2012). Environmental degradation and the exacerbating effects of climate change are very likely to continue to help trigger internal movements.

3.2. Different forms of mobility as adaptation to environmental change and natural hazard

Research on the links between migration and environmental factors is overall scarce in all six MECLEP countries. Nonetheless, migratory movements in the context of environmental degradation and climate change occur in all countries (for a summary, see Naser, 2015; Pierre, 2015; Dang, Leonardelli and Dipierri, 2016; Nyaoro, Schade and Schmidt, 2016; Sobhee, 2016; Wooding and Morales, 2016). This confirms that environmental migration is a reality, and not a future scenario, within these vulnerable countries.

All six countries have been affected – although to a far smaller extent in the Republic of Mauritius – by new internal displacement due to natural hazards. According to data by the Internal Displacement Monitoring Centre (IDMC, 2016; see Figure 6), Viet Nam faced the new displacement of more than 2 million people internally between 2008 and 2015, followed by Haiti which saw large-scale forced movements due to the devastating earthquake in 2010.¹⁹ Kenya has also faced disaster-induced displacement of more than 500,000 people in the past eight years. In the Dominican Republic and in Papua New Guinea, displacement due to natural disasters has affected fewer people and has happened less frequently, but still thousands have been displaced almost every year from 2008 to 2015.

Information available in relation to the situation of IDPs forced to move because of natural

¹⁹ It is important to note that some people may have been displaced multiple times.

disasters suggests that people often tend to reside in shelters for the time strictly necessary and return to their homes as soon as the main risks seem to have been avoided. In the case of Viet Nam, reconstruction of houses seems to be the first priority after a natural disaster. However, often because of a lack of financial means, reconstruction of damaged or destroyed houses tends to respond to immediate needs rather than focus on long-term resilience. For this reason, communities in certain areas are constantly and repetitively exposed to the same risks, and are growing more and more vulnerable (Bocchini, 2014).

In cases where houses are too damaged or completely destroyed and there are no resources to rebuild them, people may remain in IDP camps or government-run care centres indefinitely. The living conditions of IDPs in protracted displacement are often poor and problematic, as IDP camps are not thought to host people for very long periods of time and thus often lack adequate services and infrastructure. In Papua New Guinea, at least 15,000 people from Manam island live

in government-run care centres in a situation of protracted displacement with limited access to food, water, sanitation, health care and adequate housing (IDMC, 2014; Connell and Lutkehaus, 2016). Similarly, in the Dominican Republic, thousands of people still live in “provisional” huts built in 1979 to host those displaced by Hurricane David; at least 600,000 people were displaced by the hurricane’s passage (Wooding and Morales, 2016). In Haiti, the situation is even more problematic as at least 55,107 people displaced after the earthquake in 2010 still live in IDP camps close to urban areas, particularly the capital Port-au-Prince (Pierre, 2015; IOM, 2016b). Despite the efforts of the government, IOM and other international humanitarian organizations to provide basic services in IDP sites and even to implement relocation programmes for part of the population, the situation in many camps remains very challenging: extreme poverty mingles with very problematic sanitary conditions, high rates of unemployment and criminal activity, social marginalization and problematic forced evictions (Courbage et al., 2013; Amnesty International, 2015; Pierre, 2015).

Figure 6: People newly displaced internally by disasters

Country	2008	2009	2010	2011	2012	2013	2014	2015	2008–2015
Viet Nam	105,590	186,900	441,849	230,000	15,000	1,040,389	68,689	9,600	2,098,017
Haiti	138,761	9,910	1,572,710	500	85,900	1,169	6,500	1,500	1,816,950
Kenya	10,100	91,686	53,786	19,045	97,626	180,282	1,368	105,000	558,893
Papua New Guinea	75,000	1,000	–	–	75,000	54	21,186	–	172,240
Dominican Republic	8,925	–	–	16,900	43,383	14,252	11,544	28,000	123,004
Republic of Mauritius	–	–	–	–	–	–	–	1,400	1,400

Source: IDMC, 2016; emphasis by authors.

Note: There were no recorded displacements during years represented in the table without data.

Planned relocation, meaning “permanent voluntary migration, with an emphasis on rebuilding livelihoods in another place” (IOM, 2014a) of a community or group to a new location, most often organized by authorities in the context of environmental and climate change, is relatively common in the six countries studied. This is especially the case for governmental programmes

that aim to move people and communities living in areas exposed to environmental degradation to safer zones as a last resort. The number of people relocated in the context of different slow-onset processes and sudden-onset events varies. Such relocation is still in the planning stages in the Republic of Mauritius (Sobhee, 2016); in Papua New Guinea, only a few households have

been relocated though the Government plans to relocate significantly more (see for instance McAdam, 2010; Edwards, 2013; Gharbaoui and Blocher, 2016; Connell and Lutkehaus, 2016), while in the Dominican Republic entire communities have moved (Wooding and Morales, 2016). Tens of thousands of people have been relocated in Haiti (Pierre, 2015) and Viet Nam (CCFSC, 2009 and 2012; UN Viet Nam, 2014; Entzinger and Scholten, 2015).

3.4. Vulnerability mapping

The agricultural sector seems to be the most affected by environmental factors in all six MECLEP countries; for this reason, those who depend on agriculture-related activities for their livelihood are often the ones who mostly suffer from the detrimental consequences of hazards and environmental stressors. In Viet Nam, the Mekong River Delta region – one of the most highly populated regions of the country – produces more than 50 per cent of the country's staple food (Minh, 2000) while accounting for about 40 per cent of the cultivated land of the country (Warner et al., 2009). The sharp increase in frequency of severe floods, coastal erosion and salinization processes over the past 40 years has had great detrimental consequences for the region, negatively impacting agricultural fields and resulting in the evacuation and relocation of thousands of families (Entzinger and Scholten, 2015).

Sudden-onset events and slow-onset processes also affect breeding activities. In Kenya, for instance, pastoralists are the ones most acutely affected by droughts as these events force them to change their routes and are “intrinsicly linked to the loss of livestock, their primary source of subsistence, and the loss of access to land, resources and markets” (IDMC, 2014). Fish production and marine biodiversity are also increasingly damaged by environmental events. In the Republic of Mauritius, an IOM (2011a) study of fishermen migrating from Rodrigues island to the main island Mauritius revealed that the drivers of migration for the group were both economic and environmental. Migration was mostly triggered by a sharp decline in fisheries

resources and the vulnerability of the agricultural sector in the island of Rodrigues.

However, in all the six countries studied, the vulnerability of people to environmental and climate change does not depend exclusively on the frequency and nature of shocks and stresses in different regions, or on people's dependency on the livelihoods affected. In fact, people who are geographically, economically, politically and culturally marginalized tend to be more vulnerable to environmental and climate change as they lack the knowledge and resources to develop adaptation and mitigation tools. In Viet Nam, ethnic minority groups living in poor conditions in the north of the country, and particularly in mountainous areas, have significantly suffered the consequences of droughts and excessive rainfall as they have very low levels of hazard preparedness (UNDP, 2012). Similarly, in the context of the earthquake that struck Haiti in 2010, people who were living in poverty or extreme poverty were the most affected as their precarious settlements got destroyed and they remained without basic services such as water, food, toilets and sanitation (Gütermann and Schneider, 2011; Courbage et al., 2013; Sherwood et al., 2014).

Discrimination on the basis of ethnicity, class, gender and disability may also heighten vulnerability to climate and environmental change (Christiaensen and Subbarao, 2004; Ghenis, 2016). For instance, women are often more affected than men by environmental and climate change: this has been reported as being the case particularly in Haiti and Kenya. Violence and abuse targeting women in IDP camps have been major issues in the aftermath of the Haiti earthquake in 2010 (IOM, 2010b). In Kenya, women are particularly vulnerable because of their household responsibilities and their economic marginalization: women, in fact, have very limited control and access over land and they often need to walk long distances to fetch firewood for energy and water (AfDb, 2007). Women's household responsibilities may be further aggravated when male members of the household migrate (Melde, 2015; Nyaoro, Schade and Schmidt, 2016).

3.5. Existing policy responses on migration and the environment

The beneficial opportunities of an active policy to manage migration have been recognized only in recent years at the policy level in the six countries surveyed and among the general public. Hence, very few countries have developed policies specifically focusing on migration as a positive adaptation strategy, while the challenges related to population movements, and in particular displacement, in the context of environmental and climate change are recognized.

In the six MECLEP countries, climate change adaptation, disaster risk reduction (DRR) and general development plans and policies tend to focus on moderating the effects of climate change and disasters through in-situ environmental planning programmes, evacuation in case of disasters and planned relocation as a last option (see Kelpsaite and Mach, 2015; Sobhee, 2016). This mirrors the challenges displacement and planned relocation pose for these countries that are relatively vulnerable to environmental hazards.

In the context of Intended Nationally Determined Contributions (INDCs²⁰), Haiti is the only country which recognizes that migration has potentially positive implications and needs to be managed through planned urban development (Government of Haiti, 2015). With regard to National Adaptation Plans (NAPs),²¹ the Governments of the Dominican Republic, Kenya and Viet Nam have included references to migration (Kelpsaite and Mach, 2015). However, only Kenya mentions migration as a positive strategy to adapt to environmental change, particularly in relation to pastoralists who are dealing with climate change effects on their livelihoods and move to urban areas (Government of Kenya, 2010 and 2016). In this respect, the

Kenyan authorities highlight the importance of proper climate-resilient urban development and planning (Government of Kenya, 2010 and 2016), but also recognize the challenges that pastoralists face in terms of settlements and administrative boundaries, conflict and land alienation (Government of Kenya, 2012). The Dominican Republic's Strategic Plan for Climate Change (PECC) 2011–2030 mentions migration and encourages “the development of programmes to address migration and climate refugees” (Government of the Dominican Republic, 2011:14) – though the term has no legal basis in international refugee law – but at the moment does not have any plan or policy focusing specifically on this issue.

For its part, the Government of Viet Nam, despite implementing relocation programmes when absolutely necessary, generally focuses on in-situ adaptation solutions (Dang, Leonardelli and Dipierri, 2016). Viet Nam thus does not foster migration as a possible adaptation strategy in itself. The Government of the Republic of Mauritius, in its National Report (2013), highlights the importance of migration, and particularly of labour migration, within the context of climate change and regional integration. However, in its INDC, the Republic of Mauritius stresses how action plans should “mitigate any propensity of migration of its population” (Government of the Republic of Mauritius, 2015). Being a densely populated island nation with limited land surface areas which are less exposed to environmental and climate change, migration is not necessarily considered as desirable and is often deemed a last resort for adaptation. In a similar vein, in its INDC, the Government of Papua New Guinea, treats mobility in the context of environmental and climate change as a potential hazard (Government of Papua New Guinea, 2015).

The MECLEP countries thus seem to prioritize increasing resilience in affected areas and reducing displacement and disaster risks. Recognizing migration as one among several adaptation options is still, to a great extent, lacking: one way to counteract this trend would be to provide evidence on how certain types of mobility can support adaptation and increase resilience in the context of environmental and climate change.

20 INDCs indicate the measures that countries aim to take after 2020 in the framework of the new global climate agreement adopted at the COP 21 meeting of the UNFCCC in December 2015.

21 NAPs enable Parties to develop and implement strategies to address medium- to long-term needs, and are broader and cross-cutting (UNFCCC, 2014a). The Plans facilitate planning by building on the existing adaptation activities and ensuring that the implementation of climate change adaptation is coordinated with the UNFCCC and national sustainable development objectives, policies and programmes (UNFCCC, 2015).

Migration cannot only be integrated into climate change adaptation and development planning; the environment can also be considered in migration policies. One example is the draft migration policy of Haiti, which calls for the integration of mobility into adaptation and DRR programmes, including by adding a migration module to the census. Moreover, the policy also points out how migrants could potentially be able to foster adaptation through the transfer of skills, funds and know-how in programmes to be developed (Government of Haiti, 2015). In conclusion, displacement and planned relocation are a reality in the six countries and policy frameworks exist to guide these processes in the context of environmental degradation and climate change, at least as a last resort.²² However, any potential contributions of mobility to adaptation to environmental and climate change are hardly recognized, thus potentially impacting on a comprehensive approach in the age of migration.

3.6. Conclusion: Context is key, research limited and policies matter

The six MECLEP pilot countries are all vulnerable to environmental and climate change; they are all exposed to a wide range of sudden-onset disasters and slow-onset processes, albeit to varying frequencies and intensities. As discussed throughout this chapter, environmental and climate change influence migration patterns in all six countries to a certain extent, especially if displacement due to natural hazards and planned relocation are taken into consideration. Most often, environmental factors combine and add to other drivers of migration, particularly of an economic nature.

However, research on the links between migration and the environment is scarce, partial or not updated in the context of the six countries studied. Despite the fact that in recent years innovative monitoring systems have started collecting information on the number and situation of IDPs on a regular basis (for example, IOM's Displacement Tracking Matrix (DTM) in Haiti and Papua New Guinea), little is known about people moving in the context of slow-onset processes. As migration is multicausal, the environment is difficult to pinpoint as a reason to migrate in the case of slow-onset events, especially very gradual processes such as sea-level rise and temperature increase. More importantly, research focusing on migration as an "adaptation strategy" to environmental and climate change is scarce or non-existent in the six pilot countries.

Moreover, currently only displacement and – to a certain extent – planned relocation in the context of environmental and climate change are adequately addressed in the migration and environmental policy framework of the six MECLEP countries. Policies mentioning migration due to environmental stressors often refer to it as a negative outcome, as a failure to adapt, rather than as a positive coping strategy. Also, such policies do not indicate concrete strategies and actions to address this type of movement (Kelsaite and Mach, 2015).

Therefore the next chapters analyse the new, innovative datasets collected in the framework of the MECLEP project in five of the six pilot countries.

22 Less so with regard to refugee policies on displacement across borders; only Kenya hosts a considerable number of refugees from other countries. Drought may be one of the reasons for the displacement of people across borders in the Horn of Africa (UNHCR, 2011; Schrepfer and Caterina, 2014), albeit not recognized in the international refugee regime. Refugees can also be exposed to long periods of lower precipitation than usual in the refugee camps. In addition, camps themselves are known to impact the environment. Little is known about how these links are included in the overall refugee policy though.



Mekong River Delta, Viet Nam. © 2015 IOM (Photo: Susanne Melde)



4. Empirical research and methodology

Julia Blocher and Andrea Milan

4.1. Background

The MECLEP research approach builds on earlier multi-country empirical research projects on migration and global environmental change, in particular, those that compared a number of case studies (cf. EACH-FOR and Rainfalls projects). The MECLEP study focuses on six case study countries and has built the largest database in the field of environmental change and migration to date.

First, the EACH-FOR project was carried out from 2007 through 2009 by a consortium of researchers who conducted case studies in 23 countries worldwide. The objective of EACH-FOR was not only to study the causes of forced migration with respect to environmental degradation and climate change, but also to provide plausible future migration scenarios. From an empirical point of view, EACH-FOR took an exploratory approach and analysed the relationship between all forms of environmental degradation and forced migration (Jaeger et al., 2009; Warner et al., 2009; Warner, 2011).

Several important lessons learned from EACH-FOR were taken into account in the design of the Rainfalls project, which was carried out between 2011 and 2013. Notably, the Rainfalls project focused on the climatic variable that was most widely cited in EACH-FOR case studies as a push factor for migration: rainfall variability. It explored the interrelationships among rainfall variability, food and livelihood security, and human mobility in a diverse set of research sites in eight countries worldwide (Warner and Afifi, 2014).

Building on lessons learned from the above-mentioned projects as well as from broader literature (Piguet, 2010; Kniveton, Smith and Black, 2012; Obokata, Veronis and McLeman,

2014), the MECLEP project sought to strengthen the current body of migration knowledge in environment and migration studies with new evidence on the relationship between the environment, climate change and migration. In line with the New Economics of Labour Migration (NELM) and Sustainable Livelihood Approach (SLA), this project looked at migration as part of broader adaptation and livelihood strategies at the household level (Kniveton et al., 2008; de Haas, 2010:245; Milan, 2016:22).

The research component of the project had multiple objectives. Ahead of the surveys, a first objective was to complete national assessments for each of the six case study countries. These assessments involved a review of the literature and current research relevant to environment-related migration phenomena in the country. The assessments served as an important exercise in compiling and assessing existing data and policies (cf. Chapter 3). Second, the project provided quantitative indicators of the overall conditions and circumstances in which migration benefits households in the context of environmental and climate change.

The MECLEP project presented a number of challenges to the research consortium, due to the need to reconcile the demand for comparable data and the practicalities of acquiring useful information from diverse contexts (see also Rademacher-Schulz et al., 2012 and Chapter 3 of this report). The section that follows provides an overview of the research methodology underlying the household-level surveys as well as the qualitative component of the MECLEP research. The overall framework described below was then tailored to the context and unique characteristics of each case study.

4.2. Key elements of the research approach

An overall research framework encompassing quantitative and qualitative components was developed to address the key research question: **“How does migration, displacement and relocation benefit or pose challenges for adaptation to environmental and climate change?”**

In order to answer this research question, the team conducted six case studies²³ worldwide. To ensure some comparability across the six case study countries, the consortium adopted an overarching framework and adapted it to the context of each case study. Pre-testing of the households and surveys, informed by national assessments (cf. Chapter 3), was carried out in all countries – in most cases just before the surveys were conducted. As the key forms of mobility varied across the six case study countries, the study did not focus on solely one form of migration. In some countries, the main focus was on displacement; in others, on internal migration – often for work – or planned relocation.

Studying the link between environmental change and migration in the context of climate change posed a number of conceptual and methodological issues. As noted in the previous chapters, what may be considered short-term coping²⁴ or positive adaptation in the medium term may ostensibly be harmful to others, or maladaptation²⁵ in the long term (for a longer discussion, see Gemenne and Blocher, 2017).

23 A case study is “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident...The case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis.” (Yin, 2013:18).

24 See Chapter 2 of this report.

25 As defined in the MECLEP Glossary: “Maladaptation is a process that directly results in increased vulnerability to climate variability and change, and/or significantly undermines capacities or opportunities for present and future adaptation” (IOM, 2014a:18).

The MECLEP consortium decided that in order to comprehensively study all sides of the migration system, a combined approach that considered the impacts of migration on households in both origin and destination areas was preferable (Gemenne and Blocher, 2017). Households were taken as the main point of analysis for the survey, while the qualitative component considered community effects. A focus on households enabled analysis of all types of households – origin, destination, return and whole-household in-migration – and the effects of migration on those households. Typically, past studies of “environmental migration” focused primarily on the drivers of migration from areas facing environmental risks, with few exceptions (e.g. Findlay, 2011; Van der Geest, 2011). This study, by contrast, focused on the impact of mobility (migration, displacement and planned relocation) on households in both areas of origin and destination. The study also focused on migrants who may move for non-environmental reasons, but whose migration may have a significant impact on the receiving area. It is understood that some, if not all, areas in the case study countries can be considered in some ways origin, transit and destination areas. In light of this complexity, case study areas were not explicitly coupled with their most common origin or destination areas (so-called “migration corridors” or “migration pathways”). Given the available resources and time allocated for this project, directly tracking migrants from climate-affected origin areas to multiple destination areas was deemed unfeasible and counter to the decision to study the impact of multiple forms of mobility on adaptation. Survey sites were selected based on an agreed list of criteria, as detailed below, and the construction of the surveys allowed for origin and destination areas to be connected and analysed *ex post*.

In line with Piguet (2013)’s theoretical argument on the importance of re-embedding the environment into mainstream migration studies, without trying to shed light specifically on “environmental migrants,” the research consortium chose not to limit its attention to any one cause of migration, in order to encompass the outcomes of all types of migration, for whatever reason, and their implications for the environment.

Site selection

The MECLEP case study countries were spread out across four continents and had a wide range of physical geographies. The research partners and TWGs, which consisted of representatives of different ministries, civil society organizations and academia, determined site selection for each study country. Major consideration was given to capacity-building and developing methodologies conjointly with local TWGs, IOM offices, and local and national authorities in each country.

Two to four individual research sites were selected in each case study for survey enumeration. Sites were selected according to the following criteria:

- a. **Physical characteristics:** Each site was affected by at least one environmental hazard (flood, earthquake, volcanic eruption, hurricane) or longer-term environmental change (drought, saltwater intrusion, land degradation). Chosen hazards were either likely to be exacerbated by climate change, as in the case of floods and storms, or were analogous to climate change impacts, as in the case of king tides (which could be likened to sea-level rise). Volcanic eruptions, albeit not related to climate change, are a current source of environmental devastation and inhabitability around the world. A mix of environmental hazards among case study countries was part of the criteria for site selection, in order for the project to comprehensively address numerous environment- and climate-related stimuli. A mix of (peri-) urban spaces and smaller villages or rural areas was preferred.
- b. **Migration patterns:** Each site was characterized by already existing population flows associated with migration, displacement or relocation. The sites were either origin or destination areas for migrants or have some elements of both and/or of transit.²⁶ Households that had a “migration experience” (i.e. a household from which a person, present or absent, has migrated, been displaced or relocated within the past 10 years) were distinguished from non-migrant households.

26 For more detail, see Gemenne and Blocher, 2016.

- c. **National interest:** The presence of partners was a key criterion and was deemed integral to achieving the capacity-building goal of the project. These relationships were facilitated by a strong connection with IOM country offices and TWGs, comprising policymakers from different ministries, as well as representatives from civil society and academia (Melde, 2016:2). Local researchers and enumerators were employed for each case study.

Quantitative component: Representative household survey

The survey had a strong quantitative focus and it was designed with a balance between in-depth understanding of each case study and cross-country comparability of households. Surveys were statistically representative for each research area, at the district level, but it should be noted that the results were not representative of the countries as a whole. Sampling strategies for survey enumeration were developed with information about the target population’s size and composition from census and other data. In particular, spatial inequality, which should be reflected in unbiased sampling, was investigated through community surveys and by consulting a country’s GINI coefficient²⁷ where possible.

A simple survey construction was intended to make data analysis clearer and provide more comparable results across the case study countries, with each question producing one clear variable. The survey took into consideration that some sites had faced a specific environmental event (e.g. the 2010 earthquake in Port-au-Prince, Haiti), while others experienced slow-onset environmental changes (droughts and other forms of environmental degradation). Questions sought to distinguish household conditions before and after key environmental changes with reference to 10 years ago. The only exception to the 10-year reference was Haiti. Affected households there were asked about conditions before the 2010 earthquake – framed as “before the event” – while households in unaffected areas (Les Gonaïves and

27 A measurement of the income distribution of a country’s residents and therefore of income inequality. Available from data.worldbank.org/indicator/SI.POV.GINI

Table 1: Site selection and characteristics

Country	Dominican Republic	Haiti	Kenya	Republic of Mauritius	Viet Nam	Papua New Guinea *	
Site characteristics	<p>Jimani - a province near the border with Haiti that has been hit by a number of hazards, including lake expansion and flooding; has witnessed displacement and outmigration over time</p> <p>Guaricano - peri-urban area bordering the capital Santo Domingo; mainly receives migrants, including those affected by hurricanes, floods, and droughts</p>	<p>Port-au-Prince - severe earthquake in 2010; post-displacement and sending international migrants</p> <p>Les Gonaïves - hit by severe floods in 2004 and 2008; over time has witnessed complex in-migration and outmigration, as well as post-displacement and return</p> <p>La Marmelade - degradation of soil fertility in recent years; complex migration</p>	<p>Kisumu county - experiences hazards, especially flooding, as well as periodic flooding near Lake Victoria</p> <p>Kitui county - experiencing severe climate and environmental hazards, particularly droughts and flash floods; significant outmigration</p> <p>Nairobi county - mainly receiving migrants; new migrants especially arriving in the outskirts</p>	<p>Port-Louis region, including the Baie du Tombeau capital area; both receiving migrants and sending internationally</p> <p>Flic en Flac/Tamarin/Bambous of the Black River district - coastal areas some distance from the capital; people engage in frequent, small-scale movements</p> <p>Rodrigues - autonomous, smaller island mainly sending migrants</p>	<p>Ho Chi Minh City - a large city primarily receiving migrants from the Mekong Delta area, which it borders</p> <p>Long An - a rural province; some parts are primarily sending migrants to Ho Chi Minh, others are resettlement areas for flood-affected populations</p> <p>Ca Mau - a rural province facing severe soil erosion and pollution degradation to shrimp farming and fishing, also a resettlement zone; both migrant-receiving and -sending</p>	<p>Manam island - source of displacement due to a volcanic eruption</p> <p>Asuramba, Mangem and Potsdam "care centres" for internally displaced communities coming from approximately 15 villages on Manam Island</p> <p>Madang province - local and provincial officials and a limited number of mainland inhabitants were engaged</p>	
Selection criteria	<p>Increasingly prone to environmental and climatic events over the last 5–10 years</p> <p>Variety of forms of livelihoods and levels of well-being</p> <p>Purported linkage between changing climate, livelihoods and human mobility patterns</p> <p>Variety of forms of migration</p> <p>Risk of coastal inundation and storm surges</p> <p>Ability to inform key policies on how migration, displacement and planned relocation can contribute to adaptation (i.e. link to policy priorities of the government)</p>	<p>Increasingly prone to environmental and climatic events over the last 5–6 years</p> <p>Variety of forms of livelihoods and levels of well-being</p> <p>Purported linkage between changing climate, livelihoods and human mobility patterns</p> <p>Variety of forms of migration</p> <p>Risk of coastal inundation and storm surges</p> <p>Ability to inform key policies on how migration, displacement and planned relocation can contribute to adaptation (i.e. link to policy priorities of the government)</p> <p><i>Practical:</i> region is situated less than an hour away from the IOM local office</p>	<p>Reportedly among the areas of the country most affected by hazards, especially dryness/drought and flooding</p> <p>Increasingly prone to environmental and climatic events over the last 5–10 years, especially severe, prolonged drought and flash flooding</p> <p>Variety of forms of livelihoods and levels of well-being</p> <p>Purported linkage between changing climate, livelihoods and human mobility patterns (many are linked to humanitarian concerns)</p>	<p>Increasingly prone to environmental and climatic events over the last 5–10 years</p> <p>Variety of forms of livelihoods and levels of well-being</p> <p>Purported linkage between changing climate, livelihoods and human mobility patterns</p> <p>Variety of forms of migration</p> <p>Risk of coastal inundation and storm surges</p> <p>Ability to inform key policies on how migration, displacement and planned relocation can contribute to adaptation (i.e. link to policy priorities of the government)</p>	<p>Variety of forms of livelihoods and levels of well-being (inequality)</p> <p>Both destination and origin areas of migration witnessing the complexity of migration</p> <p>Impacted by a variety of climate change and environmental changes, mainly hydrological, and especially long-term degradation</p> <p>Ability to inform key policies on how migration, displacement and planned relocation can contribute to adaptation (i.e. link to policy priorities of the government)</p>	<p>Presence of displacement due to sudden-onset hazards; in this case, a volcanic eruption. The coastal area where IDPs are temporarily settled is increasingly prone to beach erosion, degradation of fishing resources and storms over the last 10 years</p> <p>Ability to inform key policies on how migration, displacement and planned relocation can contribute to adaptation (i.e. link to policy priorities of the government)</p> <p><i>Practical:</i> other relocation sites considered in Bougainville were more affected by political tensions</p> <p><i>*NB No survey was conducted, only qualitative interviews.</i></p>	

La Marmelade) were asked about “10 years ago”. See an explanation of the time frame, below, and additional details on the criteria for site selection, above.

Section 1 of the household survey collected information on the makeup of the household and focused on its socioeconomic profile. Within an overall MECLEP vulnerability framework, some of the chosen indicators of vulnerability were adapted to the context of each case study in order to get meaningful questions for the local context without compromising cross-country comparability. These indicators included elements of food security, access to finance and levels of infrastructural development (e.g. housing materials).

Section 2 collected the full migration history of all present and absent members who contributed to/ relied upon the resources of each sampled household in the last 10 years. It provided researchers with quantitative data on migration patterns in the research areas—including the type, duration and date(s) of migration—a prerequisite to assess impacts. In addition, section 2 explored some sociocultural aspects of migration decision-making, such as place attachment, attitudes towards migration and the importance of social networks.

Section 3 focused on the perceived overall financial, economic and social impact of migration at the household level. This section also looked at financial remittances and their use, as well as at the type of skills migrants learned at the destination and whether they used them and/or taught them to others upon return.

The methodological strength of the survey emerged from a combined analysis **of data from the three sections**. The first section enabled comparisons of the current situation of the household with the situation before and after a natural hazard occurred, or with respect to 10 years ago. The second afforded an understanding of the different forms of migration, identified in the main research question, which have had an impact on the situation of the household in the last 10 years. If the household has had a migratory experience in the last 10 years, the third section enabled exploration of the extent and types of

impact migration has had. As the MECLEP Haiti case study showed (Milan et al., 2015:4 and 2016:21–37), a combined analysis of the three sections allowed researchers to understand the circumstances under which one or more forms of human mobility worked better than the option not to migrate, and for which household profiles in terms of vulnerability (see also Campbell, Oakes and Milan, 2016; Milan et al., 2015; Milan, Oakes and Campbell, 2016; Oakes, Milan and Campbell, 2016).

Qualitative component: Addressing community-wide effects

A semi-structured interview guide (grid) was developed as a complement to the survey. The purpose of the qualitative component of the project was to study community-wide characteristics, shocks and features influencing individual households’ adaptation to environment- and climate-related hazards. Case study leaders chose to conduct key informant interviews with community members (Haiti), or to carry out a combination of group and individual expert interviews (Dominican Republic, Kenya, the Republic of Mauritius, Papua New Guinea and Viet Nam). In the latter group of countries, a mix of focus groups and key informant interviews was chosen in part due to the importance of customary governance and leadership structures in community sociocultural dynamics. Interviewees included government officials, community leaders, elders, civil society actors and youth leaders, with consideration for age and gender balance.

In most case studies, qualitative interviews were conducted in tandem with the household surveys. Key informant interviews helped to reinforce the site selection and sampling strategies for survey enumeration, and to better understand community-wide circumstances.

Community-wide factors relevant to the research question included the legal and policy frameworks enabling or hindering migration (especially border policies, labour migration policies and planned relocation programmes), other intervening sociocultural and environmental obstacles, the influence of social networks, including charitable

or aid-based organizations to poverty reduction and resilience-building (which may increase or decrease migration capacities), and social protection schemes, inter alia.

While localized shocks had been reported at the household level, in order to accurately and comprehensively address the potential benefits and risks associated with human mobility, the project assessed the presence of systematic risks and shocks (such as measured or perceived intervening factors, structural market risks and the impacts of natural hazard-induced political shocks like localized conflicts or development-induced evictions). The qualitative component was adapted to each case study based on the need to address the local cultural and political context.

4.3. Methodological strategies

Guidance on sampling strategies

Due to the paucity of available secondary data on target populations in many contexts, determining an appropriate sample had been challenging. In this project, the national assessments (cf. Chapter 3) helped build evidence on migration patterns and characteristics, and environment- and climate-related considerations, to develop the sampling strategy for each context.

Confidence level

The project team aimed at conducting surveys with a sample that would guarantee a 95 per cent confidence level and 5 per cent margin of error in all case study sites. However, due to resource constraints, a minimum of 90 per cent confidence level and 5 per cent margin of error were deemed acceptable and recommended to the consortium. Ultimately, a 95 per cent confidence level and 5 per cent margin of error was achieved for almost all areas; for Haiti, the confidence level was 99 per cent.

In addition to the primary objective of ensuring the statistical representativeness of the survey for the research areas, the team decided to ensure that between 30 per cent and 70 per cent of households interviewed included a member

who migrated within the last 10 years. In areas where information on the total population was incomplete, techniques to over-sample migrant households were devised to ensure that the survey data included the desired elements. Where up-to-date census or other secondary data was not available to develop a sampling strategy for the household surveys, the team estimated the total population using unmanned aerial vehicles such as drones for aerial images. In the Haiti case study, for example, the IOM survey team used drone images of the city of Les Gonaïves and the mountainous municipality of La Marmelade to select sub-blocks for conducting the survey in 2015 (Melde, 2016:3). Of note is that the approval of authorities and local communities was an important prerequisite for using this tool. This technique could be used in other contexts where data for sampling is insufficient, in particular in light of growing informal settlements and demographic growth of the population to be surveyed.

Operational definitions of concepts and terminology

For the quantitative component, certain concepts, specific language and terminology used in the household survey were adapted for local understanding. In addition, questions referring to phenomena (e.g. volcanic eruptions) that were not relevant to all case studies were omitted in countries not affected.

Defining migration

Importantly, the research team agreed upon a working definition of “migrant” or “migration” in order to have comparable data. In particular, in certain contexts a migrant was presumed to mean an international migrant, while the conceptual framework of this project sought to also consider **internal migration, displacement and relocation** (cf. Chapter 2). For the purpose of this empirical study, a migrant was defined as: “A person who has moved outside its previous district of residence within 10 years and for at least three months, excluding family visits and trips for touristic purposes” (see the full survey in the Annex).²⁸

²⁸ In the case of the Republic of Mauritius an additional category was added to account for temporary displacements, lasting three to five days, in order to account for those movements, which would otherwise not have been captured by this temporal scale.

Table 2: Survey strategies

Country	Dominican Republic	Haiti	Kenya	Republic of Mauritius	Viet Nam
Research area	<ul style="list-style-type: none"> Jimani (metropolitan area and province) Guaricano district (borders Santo Domingo city) 	<ul style="list-style-type: none"> Port-au-Prince (metropolitan area) Les Gonaïves (commune/arrondissement) La Marmelade (commune/arrondissement) 	<ul style="list-style-type: none"> Kisumu county (Kisumu East, Seme and Nyakach and Kisumu Central) Kitui county (Lower Yatta, Mutomo subcountry and Kyuso/Tseikuru) Nairobi county (Mathare, Kibera, Langata, Embakasi) 	<ul style="list-style-type: none"> Port-Louis (metropolitan area, including Baie du Tombeau) Flic en Flac/Tamarin/Bambous (communes) Rodrigues (metropolitan area and autonomous district) 	<ul style="list-style-type: none"> Ho Chi Minh City (district 7, an urban and central area) Long An province (Vinh Lot and Vinh Thanh communes) Ca Mau province (Dat Mui and Tan An communes)
Number of households in the research area (Sampling frame)	<p>Total: 10,081</p> <ul style="list-style-type: none"> Jimani: 3,783 Guaricano: 6,298 	<p>Total: 666,922</p> <ul style="list-style-type: none"> Port-au-Prince: 566,481 Les Gonaïves: 93,084 La Marmelade: 7,357 	<p>Total: 7,419</p> <ul style="list-style-type: none"> Kisumu: 2,977 Kitui: 2,113 Nairobi: 2,329 	<p>Total: 980</p> <ul style="list-style-type: none"> Port-Louis: 680 Flic en Flac/Tamarin/Bambous: 100 Rodrigues: 991 	<p>Total: 106,928</p> <ul style="list-style-type: none"> Ho Chi Minh City: 74,278 Long An: 12,430 Ca Mau: 20,220
Final sample size (households (hhs) surveyed)	<p>Total: 1,037</p> <ul style="list-style-type: none"> Jimani: 503 Guaricano: 534 	<p>Total: 1,937</p> <ul style="list-style-type: none"> Port-au-Prince: 666 Les Gonaïves: 661 La Marmelade: 610 	<p>Total: 1,854</p> <ul style="list-style-type: none"> Kisumu: 599 Kitui: 472 Nairobi: 582 	<p>Total: 1,130</p> <ul style="list-style-type: none"> Port-Louis: 690 Flic en Flac/Tamarin/Bambous: 200 Rodrigues: 240 	<p>Total: 1,232</p> <ul style="list-style-type: none"> Ho Chi Minh City: 400 Long An: 411 Ca Mau: 421
Sampling strategy*	<p>Jimani: (statistically) random sampling based on maps and data from the 2002 census obtained from the Oficina Nacional de Estadística as well as Google maps.</p> <p>Guaricano: selection of a site with more migrants based on data from the 2010 Census; the sector of Batey Estrella was selected due to its manageable size.</p>	<p>Data was drawn from the 2012 census as well as remote sensing (drones).</p> <p>Port-au-Prince: (statistically) random sampling of residential buildings, based on buildings census: hhs 99% confidence with error of 5%</p> <p>Les Gonaïves: systematic sample, 99% confidence with error of 5%</p> <p>La Marmelade: systematic sample, 99% confidence with error of 5%</p>	<p>A TWG helped to identify population data and GIS was used to map the corresponding enumeration areas (EAs).</p> <p>For all areas, (statistically) random sampling of EAs; sampling allocation is proportional to the total population of each county's respective population, adjusted to ensure 30% migrant households.</p> <p>95% confidence with error of 5% was achieved in all areas.</p>	<p>Combination of stratified, systematic and random sampling based on 2011 census.</p> <p>Predetermined region-based sample size was proportional to the site's respective population and ensured 50% migrant households. The region-based sample size was further allocated to subregions according to their population density (migrant and non-migrant) as provided by the 2013 census.</p> <p>95% confidence and 5% margin of error was achieved in all areas.</p>	<p>Random sampling based on population data from the General Statistics Office, in survey sites that cover destination and origin areas of migration and have been impacted by climate change, environmental changes.</p> <p>95% confidence and 5% margin of error was achieved in all areas.</p>
<i>*NB In all cases, surveys were representative for the research area.</i>					

Table 2: Survey strategies (continued)

Country	Dominican Republic	Haiti	Kenya	Republic of Mauritius	Viet Nam
Data collection period	June 2015	January–April 2015	July–August 2016	June–July 2016	May–June 2015
Adaptation (if any) of the survey content to the local context or supplementary questions – See survey reports for additional information	<p>Regarding the migration history of the household</p> <ul style="list-style-type: none"> Temporal division was between now versus 10 years ago 	<p>Regarding socioeconomic profile</p> <ul style="list-style-type: none"> Access to electricity means having electricity for at least six hours a day Access to drinking water means access to treated water Question whether the household owns an air conditioner, a gas cooker or a water tank <p>Regarding migration history of the household</p> <ul style="list-style-type: none"> Temporal division between now and before the natural hazard (earthquake) instead of 10 years ago 	<p>Regarding socioeconomic profile</p> <ul style="list-style-type: none"> Question on marital status Question whether the household owns household furniture Question whether the household is part of a community policing/security group <p>Regarding migration history of the household</p> <ul style="list-style-type: none"> Question whether migrant has learned fishing or pottery while away 	<p>Regarding socioeconomic profile</p> <ul style="list-style-type: none"> Question whether the household was affected by torrential rain Question whether the household owns a washing machine, an air conditioner or a water tank Additional option in list of preventive measures to natural hazards: “Government took action” <p>Regarding migration history of the household</p> <p>Additional types of migration:</p> <ul style="list-style-type: none"> Displacement due to conflict Displacement due to development or environmental conservation Pastoralist movement (with livestock) 	<p>Regarding socioeconomic profile</p> <ul style="list-style-type: none"> Question on ethnic group Question whether the household owns an air conditioner, a gas cooker or a fridge <p>Regarding migration history of the household</p> <ul style="list-style-type: none"> Internal migration broken down into: to another province/ city, to another district, to another area within the district (relocation)

In practice, the district level was adapted to the local context and defined as a governmentally demarcated territorial unit labelled as a district/county/neighbourhood, with the exception of displacement and relocation, which may indeed take place geographically in the same district (cf. Cernea, 2005, in which displacement was described as dislocation rather than in terms of physical space).

Defining a household

Due to potentially different understandings of extended families, the research team agreed upon a definition of “household” that was used in all case studies: “A group of persons who share the same living accommodation, who pool some or all of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food” (see Annex). People (mainly women) who moved for either family formation (marriage) or family reunification were not classified as migrants (but a relevant question was inserted to identify them *ex post*, if desired). Newly formed households (within 10 years) were not grouped separately. The respondent to the survey was generally the head of household (often an elder male member). S/he responded on behalf of the entire household; in this person’s absence, the researchers interviewed another household member of adult age (18+ years old). Information on who responded on behalf of the household was recorded because of the potential bias related to his/her personal views.

In considering the subjective importance of migration when either several members of the household migrated or one person migrated several times, the overall impact of all migration movements was analysed (as in Haiti²⁹) or that of the migration of the household reference person (as in Viet Nam). However, the *predominant type of migration* was used in comparative assessments and the first migration referred to in Section 2 of the survey.

29 In Haiti, “predominant” was defined as the migration movement that prevailed numerically. For example, a household with three short-term movements and one long-term movement was described as predominantly characterized by short-term movements.

4.4. Challenges and limitations

Building on other multi-country studies in the field, MECLEP has developed the largest database in the field of environmental change and migration to date. Since research was conducted in six countries spread across the globe, comparing migration across these countries proved challenging. Researchers confirmed that livelihood strategies manifested themselves in very distinct ways in different environments and sociocultural contexts, as did mobility patterns.

The MECLEP research consortium found a number of points in common among households in research areas in small island states and individual coastal survey sites in the Dominican Republic, Haiti, the Republic of Mauritius and Papua New Guinea. Households in these areas also proved quite different from those in larger and more populous research sites in Kenya and Viet Nam. Similarly, households in rural sites had points in common with households in similar areas, as did households in (peri-)urban areas; however, context matters a great deal. This represents a weakness in the approach, which could be addressed in future research by selectively considering survey sites with more comparable environments. Although this issue was considered at the beginning of the project, the MECLEP consortium agreed to a global and more inclusive site selection that covered multiple types of environments.

To meet the challenges presented by the complexity of the research approach, the research consortium was prompted to make a number of methodological choices,³⁰ leading to time-related and space-related limitations in the study (see also Skeldon, 1990:11–26; Milan, 2016:34–36).

As one author noted, “it takes data to make data”, and the availability of secondary data was limited. The paucity of basic data on a population can be a significant hindrance to developing a survey and sampling strategy. Ultimately and unfortunately, in the case of Papua New Guinea, this proved to be an impenetrable barrier. Because the team was

30 For additional resources on the rationale behind these choices, see Gemenne and Blocher, 2016 and 2017.

not able to design a scientific and representative survey, among other reasons, the case study in Papua New Guinea focused on qualitative interviews to address the research question.

Moving to primary data collection, human mobility is complicated to measure, especially in highly mobile contexts where few human movements are characterized by a clear change of residence. In addition to circular migration patterns, households are sometimes bi-local, with two usual places of residency in different districts, and it is hard to capture their dynamics of human mobility by recording their movement from one place to the other in a single household survey.

Time frame/threshold

As noted above, this project considered whether specific, time-bound environmental hazards influenced migration patterns, as well as how gradual environmental changes may influence mobility.

The team conducted the study at one point in time, which had several implications for the interpretation of survey results. First, there was the possibility that respondents inaccurately answered questions about the past, both because they could not remember the situation they lived in years ago and, even when asked about the current situation vis-à-vis 10 years ago, people tended to respond based on the most recent events. Recall issues may have been exacerbated by the fact that a household representative responded on behalf of the entire household. Second, comparing the current situation of households with the situation before a hazard/10 years ago created another challenge: household composition changes over time and accounting for it when looking at data on the past poses methodological challenges. Finally, when a household received and sent remittances, the option of what was numerically more important was chosen.

Anthropogenic climate change is, by definition, a long-term shift in average or expected temperatures and precipitation for a climate system, which is *in addition* to other natural climate variability that has been observed over comparable time periods (IOM, 2014a:19). Climate change may multiply and accelerate existing climatic and environmental hazards in

the medium and long term. Defensible local observations of shifts in climate may be made over a few decades at minimum, and indeed short-term changes are not necessarily representative of shifts over a much longer timescale. However, researchers argue long recall periods can create errors in memories of migration experience among return migrants, whereas information on current outmigrants or return migrants living elsewhere must be collected from a proxy respondent and is therefore subject to its own set of problems (de Brauw and Carletto, 2012:13). There is some evidence to suggest that retrospective migration histories can be of sufficient accuracy for most research purposes (Smith and Thomas, 2003). Given these important but contradictory considerations, a 10-year time period was recommended to the research consortium. In some cases, the main environmental event of interest in the survey, described above, happened less than 10 years ago.

Inclusion of absent migrants

The household survey sought information about present and absent members who contribute to/rely upon household resources and who remain important for the adaptive capacities of the household. Due to limited resources, migrant household members were not tracked down to respond to the surveys; the survey respondent served as a proxy. This incurred challenges: when someone moved out permanently, s/he became part of another household, as per the definition of “household”. Therefore the movement may have been recorded twice if the person’s new household was interviewed as well. The consortium chose this approach rather than looking only at out-movements, because of the goal to look holistically at movements in each area. This is a problem without a perfect solution. Conducting a household survey instead of an individual survey also implied the loss of important information on intrahousehold dynamics, including gender inequalities. Survey questions were therefore crafted to mitigate this concern; one such question was whether women or men were the primary recipients of remittances. This enabled comparisons along gender lines, for example, considering female-versus male-headed households, as in the Haiti study described in this report.

4.5. Way forward

The MECLEP database is the largest cross-national empirical study of its kind to date. An important strength of the project is that the quantitative component enabled researchers to distinguish between different types of mobility (migration, displacement, relocation and return) as well as different types of migration-influenced areas (origin, destination, transit and mixed areas). In addition, both objective and subjective information on the impacts of different types of mobility on adaptation were collected. That is, through the assessments and surveys, objective data was collected on the impacts of migration and complemented by questions on its (perceived self-reported) impacts.

The next generation of empirical research on migration in the context of environmental change could integrate the methodology developed through the MECLEP project with several complementary research methods.

The MECLEP research approach looked at the present and near past. One of most promising approaches to simulating possible future migration patterns under different climatic and environmental scenarios is agent-based modelling of migration (Smith et al., 2008; Pigué, 2010; Kniveton, Smith and Wood, 2011; McLeman, 2013; Smith, 2014; Oakes, Milan and Campbell, 2016), which would be a perfect complement to the MECLEP methodology.

Another interesting development in recent literature that could complement the methodology presented in this chapter is the analysis of the interactions between changes in temperature, rainfall patterns and vegetation trends by combining geographic information systems (GIS) and remote sensing methods with in-depth fieldwork on migration on a local scale (Brandt et al., 2014).

More innovative methodologies such as experimental economics-based approaches in migration studies (McKenzie and Yang, 2012), as well as the use of mobile phone data to track population mobility (Bengtsson et al., 2011; Wesolowski et al., 2013; Lu et al., 2016), could also be complementary to the quantitative analysis that the MECLEP research methodology allows for. Other qualitative methods such as the Q method could be used to understand subjective understandings of migration (Oakes, Milan and Campbell, 2016).

Last but not least, empirical research on migration, climate change and environmental change continues to be largely gender-blind (Gioli and Milan, forthcoming). Few empirical studies to date have studied the relationship between climate change, environmental change and migration from a gender perspective, mostly in South Asia (Gioli, Khanand and Scheffran, 2014; Bhatta et al., 2015; Velan and Mohanty, 2015; Tiwari and Joshi, 2016). Most other case studies in the field do not go beyond disaggregating data by sex and highlighting women-specific vulnerabilities. The next generation of research on migration and global environmental change should integrate a gender perspective through three key determinants of migration patterns and outcomes: power relations within communities and within households; access to social networks and migrant support systems; and labour markets both at origin and destination. While the MECLEP database can provide some insights into these questions, a more in-depth mapping of local contexts and dynamics, guided by specific research questions, would be required to explore these issues. To investigate these dynamics and consider all sides of the migrant system, projects should build on quantitative efforts with in-depth qualitative evidence over multiple points in time.



Enriquillo Lake, Dominican Republic. © 2014 IOM (Photo: Susanne Melde)



5. Implications of migration, displacement and planned relocation for adaptation: Empirical results

Susanne Melde, Luka De Bruyckere, Sara Vigil and François Gemenne³¹

5.1. Introduction

Different forms of mobility differ in their implications for benefiting or undermining adaptation to environmental and climate change. This empirical chapter analyses how migration, displacement and planned relocation, as well as human mobility more generally, impact adaptation. As defined in Chapter 2, adaptation is understood as “the process of adjustment to actual or expected climate and its effects, which seeks to moderate harm or exploit beneficial opportunities”. The focus of the analysis in this chapter will thus be on reducing harm, understood as coping, and any positive implications that adaptation may have.

Section 5.2 considers migration in general, displacement and planned relocation in the context of environmental degradation. The findings from the six pilot countries indicate that while displacement increases vulnerability as expected, planned relocation can entail more ambiguous outcomes and create new vulnerabilities despite harm from the original hazard having been reduced/averted. The high risks associated with displacement confirm the need for investing in reducing the risk of disasters and increasing resilience of the most vulnerable. While planned relocation is not mentioned by the UNFCCC’s Warsaw International Mechanism for

Loss and Damage, existing literature and findings can inform planned relocation to decrease vulnerability and harm and make relocation sustainable to prevent forced displacement in the future. “Trapped populations” who cannot move and immobile populations who will not move require particular attention.

Section 5.3 focuses on the different types of impacts of mobility – be it migration, displacement or planned relocation – on adaptation. When not referring to the type of movement, “migrant household”, “migration” or “mobility” is understood to refer to the ensemble of “migration experience”, be it migration for different reasons, displacement or relocation (cf. Chapter 4). Since movements recorded in the surveys concerned mostly long-term migration and short-term migration, findings are particularly applicable for those movements. Certain forms of migration more generally can entail beneficial outcomes for the households involved and thus reduce the harm that hazards may inflict. Migration generally has been linked to increased resilience of households in different forms, either by reducing vulnerability, by less vulnerable households sending migrants, and/or by migrant households being more likely to take preventive measures against future hazards. Migration should thus be considered as one of the options to address displacement risks and environmental stress and not as a failure to adapt.

31 The authors would like to thank Thomas Mertz and Lawreen Mkado for their research assistance in preparing most of the graphs.

5.2. Types of mobility recorded in the surveys and links to vulnerability and adaptation to environmental and climate change

Key findings

- The large majority of mobility recorded in the surveys was internal, and only few across borders. In terms of duration, most movements in the sample were long-term migration, followed by short-term movements. Seasonal migration in Haiti was associated with lower levels of vulnerability, either due to households with a migrant being less vulnerable or migration impacting positively on reducing exposure to hazards.
- Displacement was mainly studied in Haiti. The analysis of the survey data confirmed findings of similar studies, as those displaced demonstrated a high level of vulnerability. Displacement thus challenges adaptation by creating new harms and vulnerabilities, with little or no potential positive implications. Potential benefits for adaptation could only be achieved by avoiding displacement in the first place.
- Cases of planned relocation were studied in the Dominican Republic, Viet Nam and Papua New Guinea. Outcomes for adaptation were at best ambiguous. While the move of communities mitigated loss and damage, new vulnerabilities were created that undermine the sustainability of relocation processes.
- Households that would like to move but could not (i.e. “trapped” households) were among the poorest in the Dominican Republic, Kenya and the Republic of Mauritius. In the case of Haiti and Viet Nam, many households that “had to stay” were among the most affluent. While they may not be “trapped” as they had the means to migrate if they wanted to, other factors such as home ownership and social obligations could have led to their perception of their inability to move.

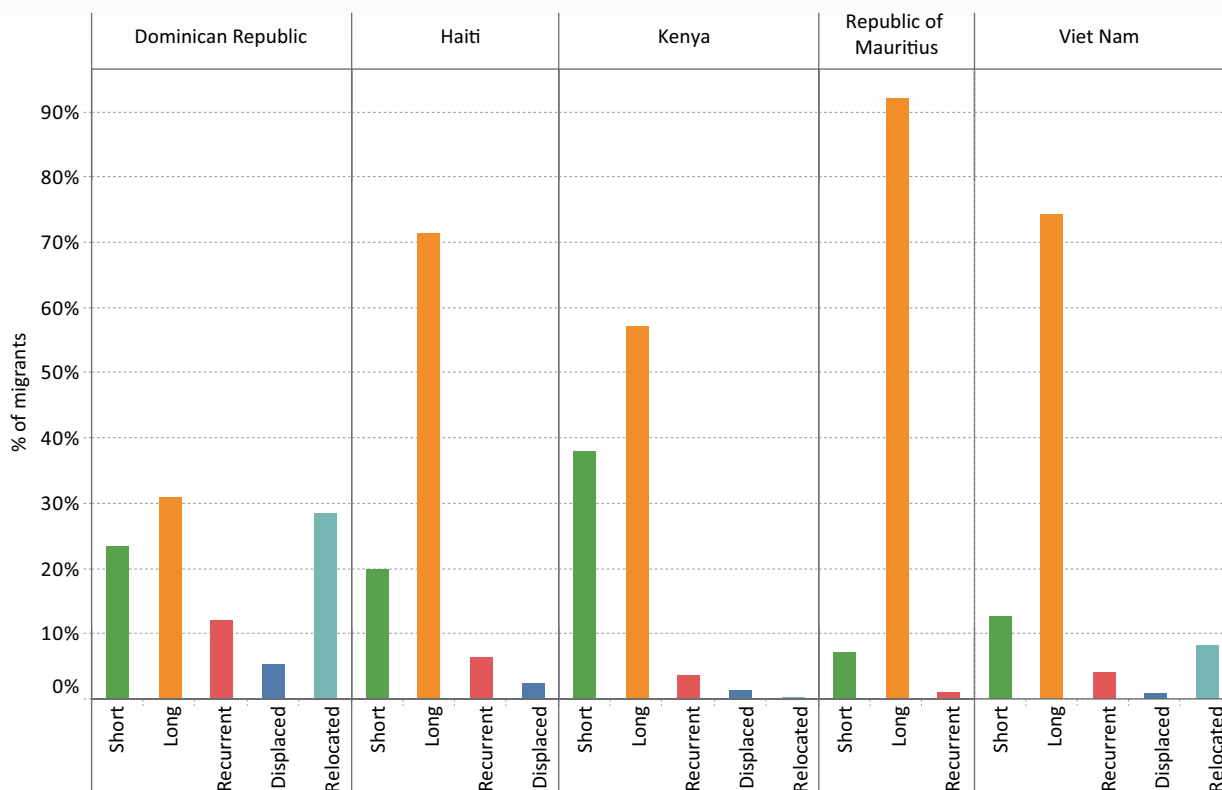
The MECLEP questionnaire distinguished between several types of mobility:

- Migration was divided into three types of movements: short-term movements of at least three months to one year; long-term migration of at least one year; and recurrent/seasonal migration for durations of at least three months up to one year.
- Disaster-related displacement (as opposed to conflict displacement, which was not taken into consideration in the surveys) with no other choice than to flee; and
- Relocation by the authorities.

Figure 7 highlights that most movements – whether within countries or across borders – recorded in the sample³² concerned long-term migration, followed by short-term movements. Displacement was covered in the surveys conducted in Haiti: in Port-au-Prince because of the earthquake in 2010 and in the city of Les Gonaïves because of the floods in 2004 and 2008 (see Milan et al., 2016). In Kenya, displacement affected only 1.2 per cent of the sample and in Viet Nam 0.8 per cent, making displacement not the most paradigmatic case in these countries. Cases of relocation were recorded in the Dominican Republic, Viet Nam and Papua New Guinea. No surveys were conducted in Papua New Guinea (cf. Chapter 4); nonetheless, qualitative findings revealed important insights (see Connell and Lutkehaus, 2016), as discussed in the section on planned relocation below.

32 This included all persons who moved over the past 10 years for at least three months, not just households with at least one migrant.

Figure 7: Types of mobility in migrant households surveyed, internal and international (%)

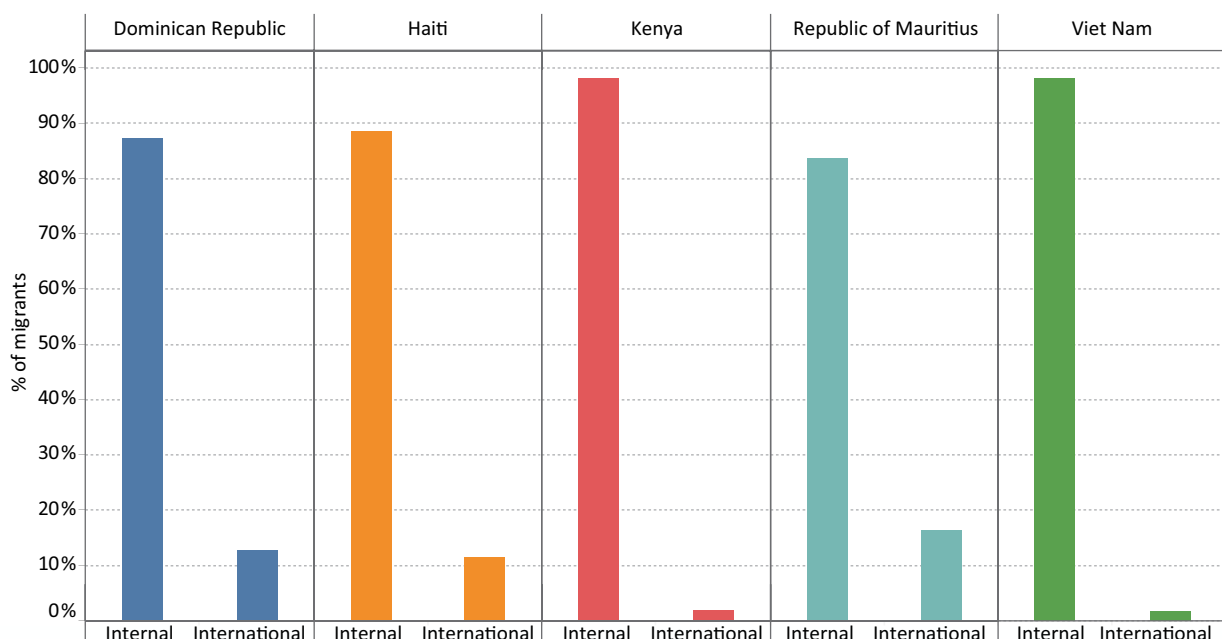


Source: MECLEP household surveys, 2015 and 2016.

Figure 8 highlights that by far the most important type of movement concerned mobility within countries. More than four out of five migrants surveyed moved within the country; only a

minority crossed borders. The findings are thus particularly applicable to internal movements in the case studies.

Figure 8: Internal and international mobility recorded in the sample



Source: MECLEP household surveys, 2015 and 2016.

Dominican Republic

In the Dominican Republic, 12.3 per cent of all households surveyed indicated that one or more member(s) had migrated over the past 10 years. This was the smallest proportion recorded among all case study countries. Of all internal movements, 23.5 per cent were short term (3 months to 1 year); long-term migration of more than one year accounted for 20.9 per cent. Seasonal or recurrent movement (i.e. movement several times for at least 3 months but less than 1 year) made up 8.7 per cent of internal movements, while 7 per cent was related to natural disasters. Government-assisted relocation accounted for most internal movements at 40.9 per cent. International movement was mostly long term (44.4%). Short-term moves and seasonal or recurrent movement each accounted for 27.8 per cent of international migration (Cordero Ulate and Lathrop, 2016).

Haiti

Among the Haitian households surveyed, 24 per cent had at least one migrant who moved between 2005 and 2015. The majority (74%) moved within the country, while 26 per cent moved abroad. In terms of duration, nearly three out of four (72%) internal movements were long term (over 1 year). Short-duration moves (3 months to 1 year) accounted for about a fifth (19%) of internal movements. Seasonal or recurrent movements accounted for only a small proportion (6%), while internal movements resulting from natural disasters made up 3 per cent. The majority (70%) of international migrants moved for a longer period of time. About a fifth (21%) of international movements was short term; 7 per cent was seasonal or recurrent; and 2 per cent was related to disasters (Milan et al., 2016).

Kenya

In Kenya, one or more members of 24.6 per cent of sampled households migrated during the 10 years prior to the survey. These numbers varied greatly among counties. In Kitui county, only 16.9 per cent of households surveyed had a member who migrated during the above-mentioned 10-year period. In Kisumu the figure was similar at 17.3 per cent. In Nairobi county, the figure stood

at 40.4 per cent. Migrants who moved away for a short period of time (3 months to 1 year) accounted for 37.6 per cent. The majority (56.8%) moved for a period of over 1 year, while 3.7 per cent engaged in seasonal movement. Six migrants (1.2%) were reported to have been displaced by a natural disaster and one migrant had been relocated by the government.

Republic of Mauritius

In the Republic of Mauritius, 50.3 per cent of the households surveyed were migrant households. Only 6.3 per cent of migrants moved away for a short period (3 months to 1 year). The majority (91.8%) moved for longer than a year. Eight migrants (0.5%) engaged in back-and-forth seasonal movement of three months to one year. Disaster displacement accounted for 1.4 per cent of all movements. At least one member of 10.1 per cent of all households had moved abroad during the last 10 years (Sultan, 2017).

Viet Nam

Sixty-five per cent of the households surveyed in Viet Nam were migrant households – the highest proportion across the countries studied. It should be noted here that this was the result of the selection process. The sample included a relocation project, the village of Vinh Loi, which meant that all respondents from Vinh Loi had a migration background, thereby raising the average.

During the last 10 years, among all migrants, 12.7 per cent moved for a period of three months to one year. The majority (74.3%) engaged in long-term movements of more than a year. Of these migrants 9.5 per cent moved abroad, while 3.9 per cent returned periodically (3 months to 1 year) as seasonal migrants. Only 14 migrants (0.8%) were displaced by a natural disaster. The government relocated or assisted 8.1 per cent of migrants during their return.

Papua New Guinea

No quantitative survey took place in Papua New Guinea. All observations are based on qualitative research (see Chapter 4 for an explanation).

5.2.1. Displacement versus seasonal migration: The case of vulnerability in Haiti

Hazards force increasing numbers of people around the world to leave their homes. IDMC (2016) estimated that on an annual basis since 2008 more than 25 million people have been newly displaced by disasters. In the six MECLEP pilot countries, more than 4.6 million persons

were displaced between 2008 and 2015 (own calculations based on IDMC, 2016; see Chapter 3). Haiti was the focus of our research on displacement because, in addition to the 2010 earthquake that displaced almost 1.6 million people, floods had also affected Les Gonaïves in 2004 and 2008. For this case study of Haiti, the UNU-EHS developed a multidimensional vulnerability index (Milan et al., 2015 and 2016; see Table 3).

Table 3: Dimensions and indicators of the vulnerability index as applied in Haiti

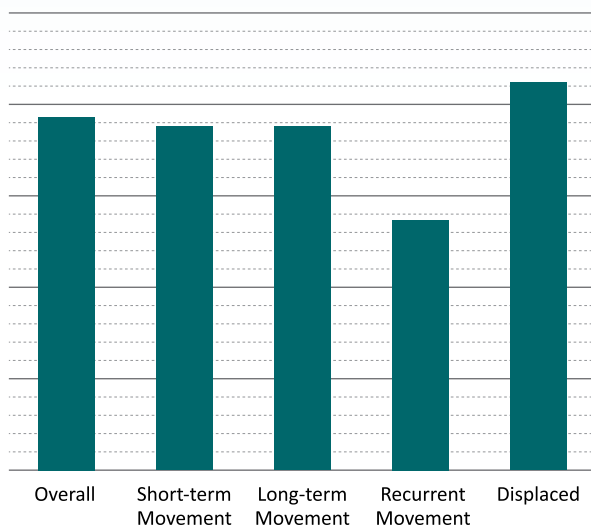
Dimensions	Indicators
Economic	<ol style="list-style-type: none"> 1. Less than two sources of income 2. Dependency ratio is below the sample mean 3. Household head is unemployed or inactive 4. Household owns neither house nor land 5. Household owns less than two assets
Education	<ol style="list-style-type: none"> 1. Household head is illiterate 2. At least one child in school age is attending school
Health and Nutrition	<ol style="list-style-type: none"> 1. Household has no access to health care 2. Household has a permanently sick or injured member 3. Household has no access to drinking water at least once a week 4. Household does not have enough food for three meals a day
Housing and Environment	<ol style="list-style-type: none"> 1. Household has taken no measures against future hazards 2. Household has no access to electricity 3. Dwelling's walls and roof are not made from resilient materials 4. Household exposed to environmental hazards in past 10 years
Social Capital	<ol style="list-style-type: none"> 1. Household is not a member of an organization 2. Household has no access to a mobile phone 3. Household cannot count on somebody for help 4. Household has no access to formal credit
Social Inclusion	<ol style="list-style-type: none"> 1. Household has had security issues in the last year 2. Household has experienced discrimination 3. Household has no access to informal credit

Source: Milan et al., 2015:3.

The research on Haiti showed that households with members displaced internally were the most vulnerable group (see Figure 9). This confirmed similar research findings on the vulnerability to displacement of the poorest in Haiti (Courbage et al., 2013; Sherwood et al., 2014). Displacement amounts to a mere coping strategy in light of

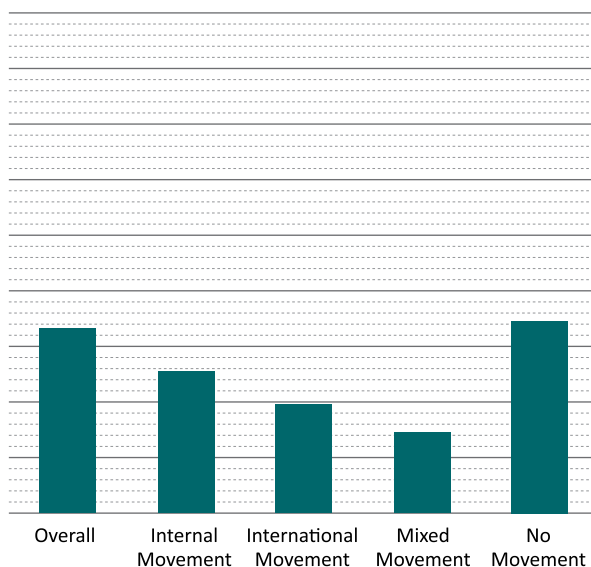
hazards, which increases vulnerability in the medium- and long-term. In terms of implications for adaptation, displacement may only reduce harm inflicted by hazards by reducing exposure, but without entailing any benefits. Potential benefits for adaptation could only be achieved by avoiding displacement in the first place.

Figure 9: Vulnerability by type of movement in Haiti



Source: Milan et al., 2015:4.

Figure 10: Vulnerability: Internal and international movement in Haiti



Source: Milan et al., 2015:4.

Although the difference is minor, the vulnerability index that has been developed for Haiti shows that migrant households are generally less vulnerable than non-migrant households (see Figure 10). This holds true for both households with an internal migrant and households with an international migrant, as well as for those with both internal and international movements, excluding displacement related to natural disasters as mentioned previously. Seasonal or recurrent migration is mostly related to the low vulnerability of households, while short-term

migration is associated with higher vulnerability. Furthermore, international migrants who move for a short period of time are more likely to come from a more vulnerable household (Milan et al., 2015 and 2016). Those less vulnerable may be able to send a member of the household elsewhere and thus are less vulnerable in the first place. Although direct causality is difficult to ascribe, these findings indicate that recurrent movements could be an option to decrease the vulnerability of households to impacts related to environmental degradation and disasters, provided that they are able and willing to move. It has to be acknowledged though that the direction of causality is not clear and migration can lead to less vulnerability and vulnerability can increase the likelihood of movement, in particular displacement.

5.2.2. Relocation and adaptation to environmental and climate change: Ambiguous outcomes

In case studies of Papua New Guinea, Viet Nam and the Dominican Republic, the impact of relocation had been ambiguous and “shift[ed] vulnerabilities” (Chun, 2014a:3 and 2014b). In Papua New Guinea, about 11,000 inhabitants of the island of Manam off the northern coast of the main island were evacuated by the authorities due to a series of volcanic eruptions at the end of 2004 and the beginning of 2005. While some residents moved on their own (IDMC, 2015:54), the majority of the affected villages were relocated to three major camps – referred to as “care centres” – at former plantations in the nearby coast of the province of Madang (Connell and Lutkehaus, 2016; see photo 1). A second, more long-term relocation has been in the planning stages since 2006.

Positive implications of the first move are, in particular, protection from the risk of new volcanic eruptions and better access to local markets and social networks, since the affected communities had been relocated to the Papua New Guinea mainland. Furthermore, Manam islanders have been able to plant crops several times a year and have passed on this knowledge to surrounding communities. However, the relocated populations are exposed to new



Photo 1: Settlements in Mangem Care Centre hosting former residents of Manam Island, Papua New Guinea.
© 2016 IOM (Photo: Muse Mohammed)

hazards such as occasional flooding, droughts and landslides that they did not face on Manam island. Health care is deteriorating, there is limited land available for a growing population and El Niño is contributing to food insecurity. While some of these challenges may be related to obstacles to sustainable development faced by relocated and local populations more generally, inequalities are increasing. Compared with populations in surrounding communities, Manam islanders do not have adequate awareness and local knowledge of some of the new hazards they face (Connell and Lutkehaus, 2016). Thus while relocation has helped Manam islanders avoid further exposure to volcanic eruptions (except for the few people who decided to move back against the advice of the local government), the relocated communities are increasingly vulnerable to other shocks. The planned second relocation could help address some of these issues if the move is well designed and implemented.

In the Dominican Republic, the relocation of the village of Boca de Cachón, in the province of Independencia close to the border with Haiti, equally demonstrates the reduction of potential

exposure to hazards and the emergence of new challenges that undermine the sustainability of the move. In 2011, rising levels of Lake Enriquillo due to high levels of precipitation prompted the authorities to relocate residents of Boca de Cachón a few kilometres away to higher ground (see photo 2). The move enabled the community to better prepare for the impending flooding of their village. Although relocation helped improve Boca de Cachón residents' access to health and education compared to 10 years ago, households in Independencia that were not relocated and did not have a migrant still had better access to these services. In addition, relocation had negatively impacted the economic opportunities of the affected households (Cordero Ulate and Lathrop, 2016). The new plots of land assigned to families (see photo 3) are too small for grazing. Moreover, the community of Nuevo Boca de Cachón, as the new village is called, is situated further away from the main road to Jimaní, the provincial capital of Independencia. This means fewer income opportunities for villagers who used to sell their own produce along the road leading to the provincial capital. This reinforces the findings of other studies that adequate



Photo 2: The relocation site, Nuevo Boca de Cachón, Dominican Republic.
© 2015 IOM (Photo: Susanne Melde)

income-generating activities are fundamental for the sustainability of relocations (see McAdam, 2010; Foresight, 2011:179; Edwards, 2013; Lipset, 2013; Weerasinghe, 2014; Brookings and UNHCR, 2015; Melde, 2015:5; Vithanagama et al., 2015; IOM, 2016a). In comparison, migrant households interviewed in the Guaricano area

of Santo Domingo, the capital of the Dominican Republic, reported better economic opportunities compared to before, but they were less likely to be prepared for future hazards (Cordero Ulate and Lathrop, 2016). The relocation of Boca de Cachón helped to reduce exposure to the hazard of rising lake levels and improved access to fundamental



Photo 3: Land plots in the relocation site, Nuevo Boca de Cachón, Dominican Republic.
© 2015 IOM (Photo: Susanne Melde)



Photo 4: Coastal erosion in a fishing village in the Mekong River Delta, Viet Nam.
© 2015 IOM (Photo: Susanne Melde)

services, but it also had a negative impact on the livelihoods of the affected population.

The Government of Viet Nam has engaged in large-scale relocation over approximately the past 20 years (cf. Chapter 3). The “Living with Floods” policy is particularly relevant in the Mekong River Delta in light of floods, landslides, frequent storms, river bank and coastal erosion, and salinization affecting rural communities (UNDP, 2012; Chun, 2014a and 2014b; Entzinger and Scholten, 2015 and 2016; see Photo 4). The policy allows for the acquisition of houses in relocation sites identified by the local authorities. It also includes a focus on sustaining livelihoods; therefore, most relocations take place within short distances. In Nam Can district in Ca Mau province, an estimated 4,000 households were relocated to a new site only about a kilometre away. This allowed the community to continue to rely on farming and agriculture as their source of income, but did not enable income diversification. Vulnerability to the impact of hazards on livelihoods thus remained (Entzinger and Scholten, 2015 and 2016). At the same time, it has been reported that hardly any housing loans had been repaid, indicating that the relocation had created a new dependency on such loans (UN Viet Nam, 2014; Chun, 2014a).

Drawing on our three case studies, three main factors seem to explain the success or lack thereof of past relocations:

- a. First, the type of relocation and consequently the available time frame seem to determine the outcome. Preventive relocations – such as under the immediate threat of volcanic eruptions on Manam island in Papua New Guinea; the frequent storms and erosion in the Mekong Delta in Viet Nam; and rising lake levels and the associated threat of flooding in the village of Boca de Cachón in the Dominican Republic – led to fast action by the authorities. By contrast, the second relocation of Manam islanders to a more permanent location in Papua New Guinea has been pending for more than a decade.
- b. Linked to the urgency of the hazard necessitating relocation as a last resort, the second determining factor is the political will to plan, finance and conduct the movement. In the case of the Dominican Republic, the president decided to assist the community. The armed forces were tasked with building the new village and the movement took place in a considerably shorter time frame. In Viet Nam, the authorities have vast experience in conducting relocation and aim to build on research to inform their programmes.

c. A third important factor for long-term solutions for adaptation concerns sustainable livelihood options. Income-generating activities need to be taken into consideration in the planning stages, in particular by consulting the local population through participatory processes. In the Dominican Republic, The relocation site Nuevo Boca de Cachón undermined the affected community's previous livelihood of animal farming, increasing the vulnerability of the population. In the relocation case in Viet Nam, a community mostly living off fishing was moved further inland due to coastal and river erosion. The resulting transportation costs incurred by fishermen to reach their boats on the river approximately equalled the income fishing generated. The distance made the move away from the shore unsustainable for the concerned population. In addition, women reported not having any source of income, contributing to their marginalization. A solution to this challenge is to provide training in new skills, as conducted by authorities in the city of Can Tho. New skills as part of broader development approaches can help the relocated communities (and migrants more generally) to build up alternative sources of income, thus enabling the sustainability of the move (Entzinger and Scholten, 2015 and 2016). Community-led consultation processes could help ensure the viability of available income-generating activities (Oliver-Smith and de Sherbinin, 2014; Weerasinghe, 2014:16). Long-term and sustainable outcomes for relocation clearly necessitate consulting the concerned population about livelihoods.

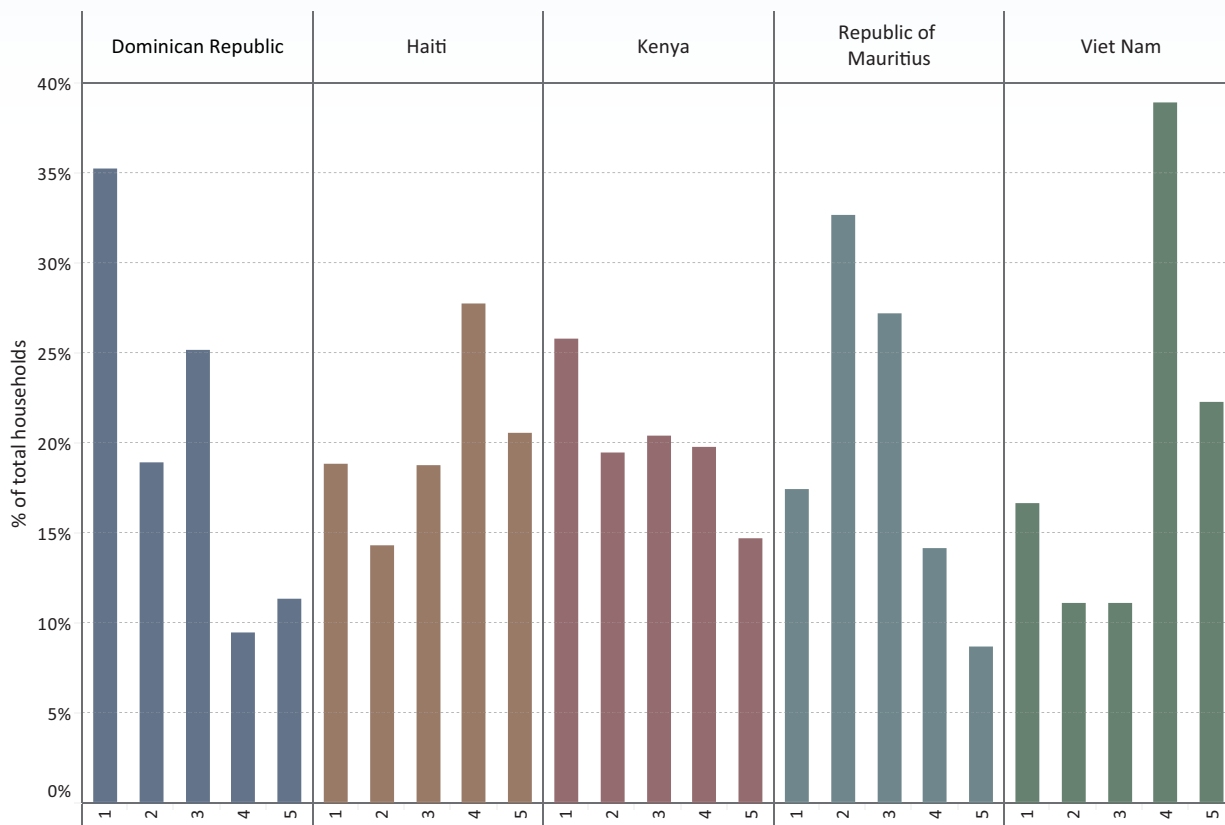
In conclusion, the relocation of communities helps to “moderate harm” as one part of how adaptation is understood in this report. “Beneficial opportunities” created are considerably fewer, but do exist. The protection of life and potential benefits then need to be weighed against a potential “maladaptation”, which is defined as an action to address vulnerability to climate (and environmental) stresses that creates or increases vulnerability in other areas (e.g. through the

creation of new vulnerabilities, as underlined by case studies in the Dominican Republic and Papua New Guinea). New or increased vulnerabilities can be addressed by using the existing evidence base from past and current relocations to inform policy responses (Melde, forthcoming; see also Chapter 2). In the Mekong River Delta in Viet Nam, the relocation of communities led to subsequent migration patterns to urban areas. Increased understanding of the impact of relocation on affected communities' capacity to adapt to environmental stress can contribute to knowledge on the formation of migration corridors to urban areas and thus on rural–urban migration more generally (Entzinger and Scholten, 2016).

5.2.3. Having to stay or trapped populations: An issue beyond income?

Not all populations can – or want – to move. Groups of people who cannot move although they want to because they are exposed and vulnerable to hazards are understood as “trapped”. Income levels, a lack of alternative income-generating activities and social networks are all risk factors associated with becoming trapped (Foresight, 2011). Nonetheless, the survey data questions some of these assumptions. Figure 11 shows all non-migrant households by income quintiles which responded that they “had to stay” when asked why no one in the household had moved (question 2.03, see Annex). Households that for whatever reason “had to stay” were considered proxies for trapped households. In line with previous findings, in most countries a large share of poorer households “had to stay” and were thus trapped (35% of the lowest income quintile in the Dominican Republic and more than 25% in Kenya); this requires particular attention in policy responses. Data on the Republic of Mauritius showed that trapped households were more likely to be affected by an environmental event (Sultan, 2017), highlighting how trapped populations may be particularly exposed and in need of measures to increase household resilience.

Figure 11: Households that “had to stay” as proxy for trapped populations (per income quintile)



Source: MECLEP household surveys, 2015 and 2016.

Note: Quintile 1 represents households earning the lowest 20 per cent of income, while quintile 5 represents households with the highest 20 per cent of income.

Remarkably, in Haiti and Viet Nam, the largest share of households which responded that they had to stay belonged to income quintile four, followed by the highest income quintile five. In this case, affluent households may have voluntarily decided that they could not move, for instance because they were unwilling to abandon their property. These households were not “trapped” per se, as their income level and possibly savings and home and land ownership indicated that they had the necessary resources to leave. Income is therefore not the only factor influencing whether people will leave a place or stay and potentially become trapped. The survey gave households that did not move an option to indicate whether they “had to stay” or “decided to stay/never thought of moving”. Households that gave the latter response were considered proxies for “immobile populations” (Foresight, 2011), meaning those that decide to remain. However, households in the higher income quintiles also responded that

they “had to stay” rather than “decided to stay”, likely indicating that they did not perceive the issue to be a question of choice. The reasons why households felt they could not move were not investigated, only those that related to why they responded that they had to stay.

It would be important to study if vulnerability to hazards is only linked to income (or lack thereof) or also other factors such as home ownership and savings, which means people have to adapt in situ without possibly wanting to migrate or that being the best available option. In the study of households in the Mekong River Delta of Viet Nam, certain hazards such as storm surges and extreme tides were not positively related to migration,³³ meaning those events did not increase the likelihood of people moving out of the area. Entzinger and Scholten (2016) further

³³ Displacement observations were too few to draw conclusions.

considered that some events captured in the survey in Viet Nam may have occurred so rarely that they did not lead to any movement. Home and land ownership and social obligations could play a role in why people feel they cannot move when they seem to have a choice between moving and not moving, unlike the poorest segments of society. Different ways to adapt and cope, the latter meaning to overcome hazards in the short- and medium-term (cf. Chapter 2), in addition to migration, had already been described, for example in the case of droughts during the Dust Bowl in the 1930s in the United States (McLeman, 2016:218–219).

Populations who would like to move but could not are usually understood as “trapped populations”. These communities face a high level of exposure to hazards and have little resources to leave a place on their own and increase their own resilience – and are therefore forced to stay. Besides low income levels, home ownership, social obligations and an attachment to the land and local culture are other reasons that may prompt people to stay. More research is needed on whether the decision to stay among higher-income groups is really a decision or is felt as a lack of choice, as well as whether it concerns in-situ adaptation.

Similar to the findings by income groups, in Haiti research showed that households that did not move were the most vulnerable (see Figure 10, vulnerability index). Migration could be one of the ways to reduce the vulnerability of households in several dimensions. In Haiti, households with no migrants were particularly vulnerable because they had fewer assets. As Table 3 shows, these households were vulnerable in the “housing and environment” dimension, meaning they were exposed to hazards and had inadequate housing resilience and preventive measures, as well as in the “health and nutrition” dimension. Nonetheless, in addition to migration, other factors that may affect resilience – understood as the ability to anticipate and recover from hazards (cf. Chapter 2) – would need to be studied further.

In summary, in Haiti, seasonal migration in particular had been found to be related to decreased vulnerability. This form of mobility can

thus be considered as an adaptation strategy in the context of this Caribbean island nation and can be extrapolated to other cases.

Confirming previous research findings, displacement is linked with increased vulnerability both before and after the forced movement takes place. It can be considered as a way of coping with environmental stress, as moving at least helps to prevent fatalities from occurring in extreme cases of hazards. Nonetheless, displacement remains difficult to conceptualize as adaptation and should rather be seen as a challenge to adaptation, which governments in the six pilot countries are already addressing in their programmatic and policy frameworks, including through planned relocation.

Planned relocation entails mixed outcomes for adaptation; it reduces loss and damage on the one hand but also leads to new vulnerabilities on the other. If not adequately planned and conducted based on locally driven solutions, planned relocation could even amount to a form of maladaptation in the long run if new hazards, vulnerabilities and inequalities are not taken into account. Diversifying sustainable livelihood options is vital for the sustainability of the relocation and for preventing the return of relocated community members to their exposed previous residences.

Populations who would like to move but do not have the resources and ability to do so are considered “trapped”. In the Dominican Republic, Kenya and the Republic of Mauritius, trapped populations generally belonged to the lowest income quintiles and thus did not have the resources to move. They may be particularly vulnerable and tend to lack resilience to hazards. By contrast, in Haiti and Viet Nam, households that “had to stay” largely belonged to the highest income quintiles four and five. This indicates the need for further research into why certain households, despite not being “trapped” per se, feel they cannot move and whether not moving remains a choice or a necessity and what the implications for adaptation in these communities are.

5.3. Mobility as adaptation to environmental and climate change?

Understanding how different forms of mobility can help reduce loss and damage and increase benefits associated with a changing environment is at the core of the MECLEP research. This section analyses different dimensions of how mobility, regardless of whether it concerns migration, displacement or relocation, can potentially affect adaptation outcomes. As we have seen in section 5.2, most of the movements recorded in the surveys concerned long-term migration. The findings are thus mostly attributable to those movements, although important variations may exist according to the types of mobility, as discussed in the previous section.

This part starts by considering how mobility can help households prepare for future disasters, through a move out of hazardous areas, sending a family member to work elsewhere and increasing knowledge of how to prevent the impact of hazards in the future. The section also analyses how well early warning systems (EWS) worked in the five countries (Dominican Republic, Haiti, Kenya, the Republic of Mauritius and Viet Nam). The second subsection compares the effects of socioeconomic factors on migrant and non-migrant households to see if they are related to movement or general development issues in the countries studied. The third subsection looks specifically at the sending of financial and social remittances, which is considered to be the most obvious benefit of mobility. The fourth part considers the perceived and recorded impact of mobility on different categories of well-being.

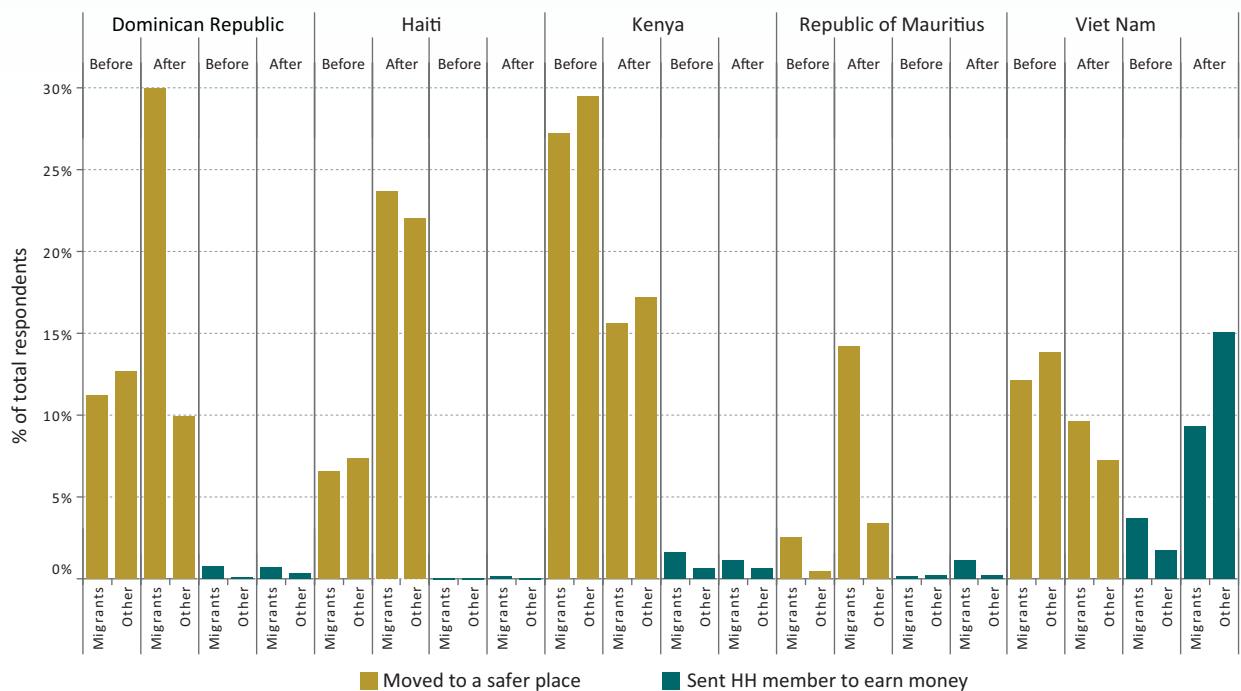
5.3.1. Migration as a measure to prevent exposure to future hazards

Key findings

- Households reported resorting to migration as an adaptation strategy to future hazards, among other preventive measures taken.
- EWS on hazards have not reached the large majority of households in the Dominican Republic, Haiti and the Republic of Mauritius. This applies to migrant and non-migrant households alike.

As highlighted in Chapter 3 on the country contexts, all six pilot countries are regularly affected by slow and fast-onset environmental events. Therefore, the survey featured the question “in the last year, has your household taken any [...] of these measures to prevent impacts of future hazards?” (question 1.52, see Annex). The multiple choice answers were then compared to 10 years ago or before the event (question 1.53), which in Haiti meant the earthquake that occurred in 2010. Among the options, two focused on movements: “relocated to a safer place” as a proxy for moving to a safer place, and “sent a household member outside the village to earn money.” Interestingly, moving out of harm’s way was a strategy adopted in all five countries surveyed, as illustrated in Figure 12. The figure compares migrant households (“migrants”) with non-migrant households (“other”).

Figure 12: Proportion of households that chose migration as a precautionary measure against future hazards



Source: MECLEP household surveys, 2015 and 2016.

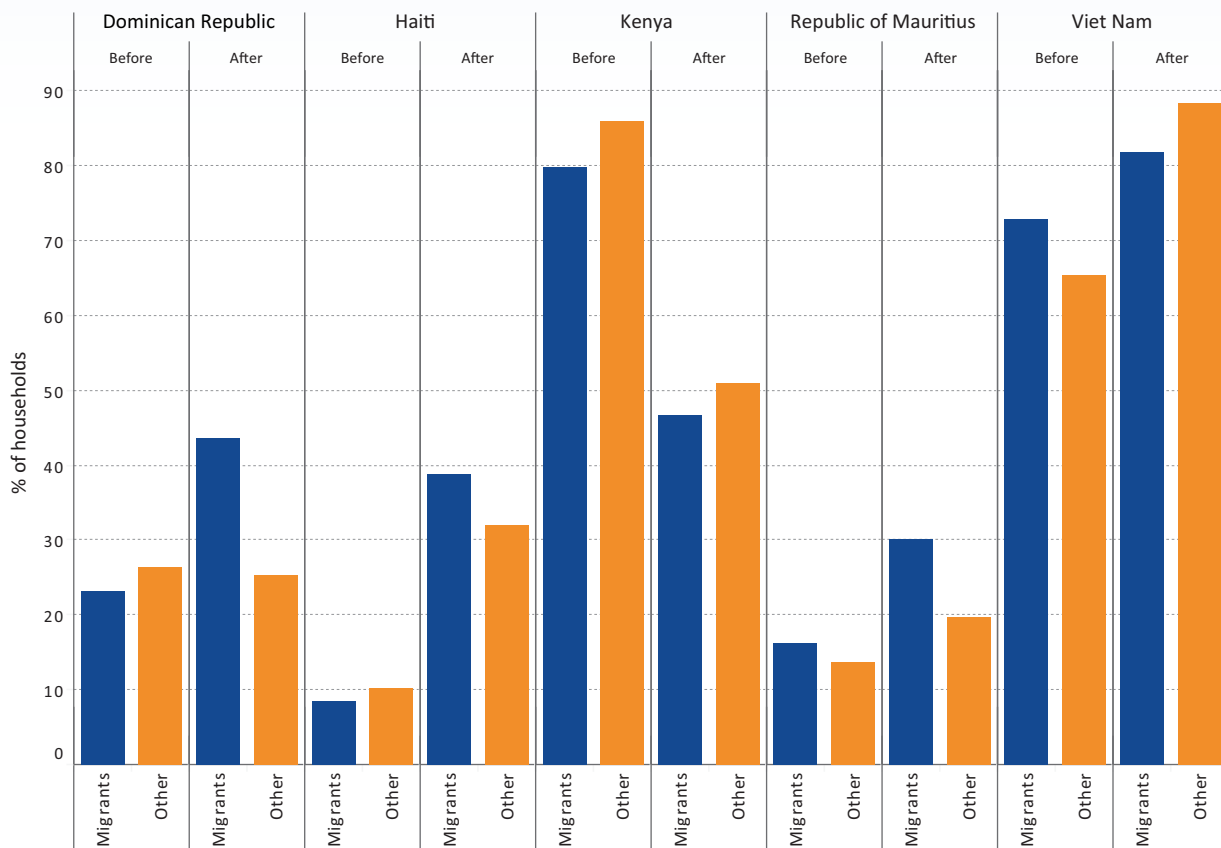
Except for Kenya, migrant households in all the other pilot countries were more likely to have opted to move to a safer place than non-migrant households over a 12-month period prior to the survey. In Kenya 10 years ago more than 25 per cent of households had used migration to avoid exposure to future hazards.³⁴ By contrast, in the year prior to the survey in 2016, only about 15 per cent of households continued to choose this option. However, migration remained the most important adaptation strategy, followed by construction using safer building materials and income diversification (Odipo et al., 2017). This could indicate that migration as a strategy to increase resilience is either less accessible these days or less necessary than a decade ago. The latter is more unlikely, since hazards and disasters are globally believed to be increasing in frequency and intensity. In the Dominican Republic and Haiti, the proportion of households that had

moved away from hazardous areas increased substantially. In the Dominican Republic, this was probably due to the relocation case studied; in Haiti, due to the increased frequency of environmental events necessitating movements, including displacement.

The option of sending a household member to work elsewhere had been used in particular by households in Viet Nam’s Mekong River Delta (see Figure 12). According to Entzinger and Scholten (2016), households there used migration as an income diversification strategy more generally, not just in the context of environmental degradation. Nonetheless, respondents seemed to be aware that mobility, in particular a move to urban areas, can be a strategy to increase resilience to reduced livelihood options in origin communities affected by riverbank erosion, cyclones and floods.

³⁴ While migrant households’ movements recorded in the surveys only took place during the 10 years prior to the survey, some may have had members that migrated even before the 10-year period or moved at about the same time.

Figure 13: Proportion of households that took precautionary measures against future hazards



Source: MECLEP household surveys, 2015 and 2016.

Figure 13 depicts the proportion of households that had taken at least one precautionary measure against future hazards. In the 12 months prior to the surveys, at least every fifth household interviewed had at least one member who moved elsewhere, used safer building materials, constructed physical barriers around the house/farm (such as dykes or walls), diversified economic activities or sent a household member elsewhere to earn money. The proportion of households that took preventive measures was particularly high in Viet Nam: at least four out of five migrant households and almost 90 per cent of non-migrant households. Except in Kenya and Viet Nam, migrant households were more likely to have prepared for future hazards than non-migrant households. Thus migration can be associated with increased resilience, in particular of migrant households, to future hazards through preventive measures taken, which however vary from one context to another and are probably linked to exposure countries face more generally. In the survey form, one of the potential

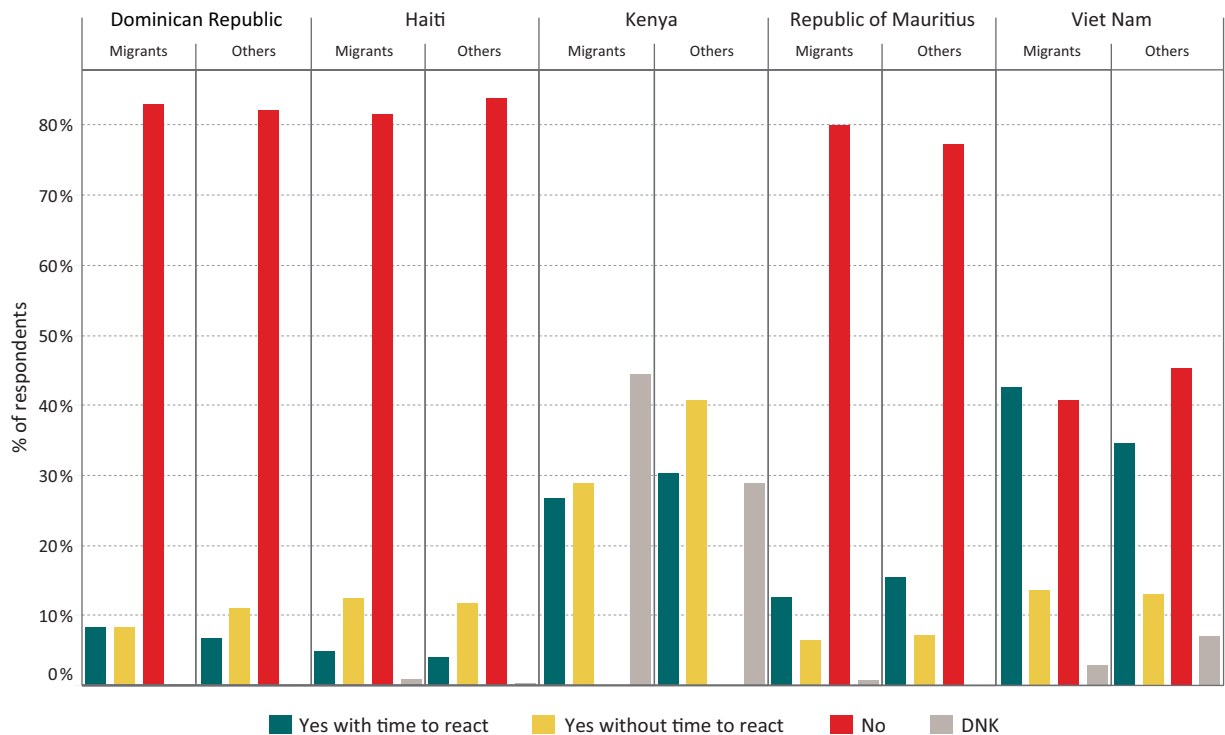
answers to the question on preventive measures households took against future hazards was moving out of areas exposed to environmental events as discussed above. The responses show that adaptation through mobility as an active and conscious strategy is already occurring in all five pilot countries.

EWS against hazards play an important role in reducing risks, loss and damage. Figure 14 shows the proportion of households that had been affected by hazards over the past 10 years, had received warnings and had enough (shown in green) or too little (yellow) time to react. The figure also shows households that received no warnings at all (red). In all the countries surveyed with the exception of Kenya, at least three out of four households (migrant and non-migrant households alike) did not receive an official warning of an impending hazard. Thus they were not able to evacuate or take any other last-minute preventive measures to reduce the potential impact of hazards on life and property.

In Kenya, all households either received a warning or answered “don’t know”. There were nearly identical proportions of households that received a warning and had sufficient time to prepare for the disaster and those that did not have enough time to protect their belongings. However, more than 40 per cent of non-migrant households did not have time to prepare for the impact of the hazard, compared with 30 per cent of households that did. Only Viet Nam had higher figures: nearly

43 per cent of migrant households and about 35 per cent of non-migrant households had sufficient time to act and prepare between the issuance of the early warning and the impact of the disaster (e.g. floods and cyclones) occurring. Yet in contrast to the situation in Kenya, in Viet Nam less than half of households received no warning at all. The role of the authorities and online services such as weather applications in Kenya and Viet Nam could thus be studied in more detail as good practice for other countries (see Odipo et al., 2017).

Figure 14: Warnings received prior to hazards



Source: MECLEP household surveys, 2015 and 2016.

In summary, households reported the use of migration as a strategy to adapt to future hazards, among other measures taken to prevent loss and damage. However, in some countries, a large majority of households (migrant and non-migrant households alike) reported that they did not receive official warnings of impending hazards, which may have allowed them to avoid exposure to harm and danger.

5.3.2. The socioeconomic profile of migrant households

Key findings

- The socioeconomic situation of the countries studied varied significantly:
 - » The countries ranked between 63rd (Republic of Mauritius) and 163rd (Haiti) place in the Human Development Index (cf. Chapter 3).
 - » Unemployment rates in 2015 ranged from 2 per cent (Viet Nam) to 62.1 per cent (Haiti).

- In the Dominican Republic, Viet Nam and, to a lesser degree, the Republic of Mauritius, it was actually the poorest who moved in the context of environmental degradation and hazards, which might be due to the fact that migration occurred predominantly internally. The analysis thus counters findings from other studies that migrants do not represent the poorest segments of societies.
- The effect of mobility on the income levels of migrant households was mixed across countries and seemed to be context-specific.
- In most countries a large number of households perceived a positive and, to a lesser degree, negligible impact of migration on income and employment, highlighting how mobility can represent an income diversification strategy. The perceived effects on migrants and their families slightly differed from reported figures.

As discussed in Chapter 3, the Republic of Mauritius, the Dominican Republic and Haiti are

small island developing States (SIDS) that have specific vulnerabilities. The Republic of Mauritius had the highest level of human development of the five countries surveyed, while Haiti had the lowest (UNDP, 2015d, 2015f and 2015g; cf. Chapter 3).

Republic of Mauritius

In the Republic of Mauritius, the unemployment rate stood at 7.6 per cent in 2015 (UNDP, 2015c). According to the survey, the average age of the household head of migrant households was 42.3 years old, which was a little over seven years younger than the then-average age of the household head of non-migrant households. Non-migrant households tended to have more employed members than migrant households. Lastly, more migrant households faced environmental and climatic hazards (e.g. floods, drought, cyclones, torrential rain, landslides and wildfires) than non-migrant households (see Table 4 below, excerpt from Sultan, 2017).

Table 4: Households affected by environmental and climatic events during the last 10 years

Environmental and climatic events	Migrant households (%)			Non-migrant household (%)			Non-migrant household: who had to stay (%)		
	Several times	Once	No	Several times	Once	No	Several times	Once	No
Drought	12.68	24.82	62.5	13.52	9.61	76.87	17.39	8.7	73.91
Landslides	1.76	10.56	87.68	0.53	2.49	96.98	0	4.35	95.65
Wildfires	2.82	13.91	83.27	0.89	2.49	96.62	1.09	3.26	95.65
Volcanic eruption	0	0	0	0	0	0	0	0	0
Floods	14.61	34.68	50.7	13.88	25.8	60.32	18.48	36.96	44.57
Cyclone	19.37	23.59	57.04	20.28	14.95	64.77	21.74	14.13	64.13
Storm surge	1.94	2.29	95.77	1.6	4.09	94.31	1.09	4.35	94.57
Riverbank erosion	0.88	1.23	97.89	0.36	2.67	96.98	1.09	4.35	94.57
Earthquakes	0	0	0	0	0	0	0	0	0
Torrential rain	13.91	42.43	43.66	14.77	34.88	50.36	23.91	38.04	38.04

Source: Sultan, 2017:28.

Dominican Republic

In 2013, the GDP of the Dominican Republic grew by 4.1 per cent (BCRD, 2014). In 2015, 15 per cent of the total labour force was unemployed (UNDP, 2015b). The characteristics of households differed significantly in the two districts studied: Jimaní and Guaricano. In Jimaní, the majority of heads of

migrant households were unemployed (60.8%), while only 50 per cent of heads of non-migrant households were unemployed. In Guaricano, the opposite was true: 88.9 per cent of heads of migrant households had a job, while 53 per cent of heads of non-migrant households were unemployed (Cordero Ulate and Lathrop, 2016).

Currently, fewer Dominican households have debts compared to 10 years ago. In Jimaní, the decrease has been sharper among non-migrant households. In Guaricano, more migrant households than non-migrant households have paid off their loans (Cordero Ulate and Lathrop, 2016).

Haiti

Haiti is the poorest country in the Western Hemisphere (UNDP, 2015f). While the country's GDP grew by 4.3 per cent in 2012 and 2013, this did not translate into significantly improved employment opportunities, poverty reduction or reduced inequalities (World Bank, 2014). In 2015, 62.1 per cent of the population older than 15 years was employed (UNDP, 2015f).

Kenya

Kenya is a highly unequal country. On average, 46 per cent of the population lives below the national poverty line (World Bank, 2015b). In 2015, 61.1 per cent of the population older than 15 years was employed (UNDP, 2015d). Overall,

the survey found that the financial situation of Kenyan households, both migrant and non-migrant, had improved between 2006 and 2016. Over this 10-year period, the savings rate improved for both groups, but savings increased slightly more for migrant households. However, at the same time the proportion of migrant households with debts increased (Odipo et al., 2017).

Viet Nam

In Viet Nam, the unemployment rate was only 2 per cent (UNDP, 2015e). The survey established a positive relationship between erosion, cyclones and floods and migration, mostly in the long term. However, the proportion of households that had experienced a natural hazard was lower among migrant households, demonstrating that migration was influenced by factors other than environmental change. As shown on Table 5, migrant households surveyed generally had easier access to informal credit as opposed to non-migrant households (Entzinger and Scholten, 2016).

Table 5: Access to services in Viet Nam

	Migrant households	Non-migrant households
Land ownership	27%	40%
House ownership	52%	51%
Family member in poor health	23%	15%
Sufficient access to food	64%	75%
Sufficient access to drinking water	38%	45%
Sufficient access to electricity	51%	59%
Facing security problems	17%	9%
Has experienced discrimination	9%	4%
Can seek help from friends etc.	80%	80%
Access to formal credit	19%	22%
Using informal credit	24%	17%

Source: Entzinger and Scholten, 2016:25.

The relationship between monthly income 10 years ago and migration was negative: the higher a household's income, the lower the probability

of migration (Entzinger and Scholten, 2016). This points to possible in-situ adaptation possibilities for the more affluent households.

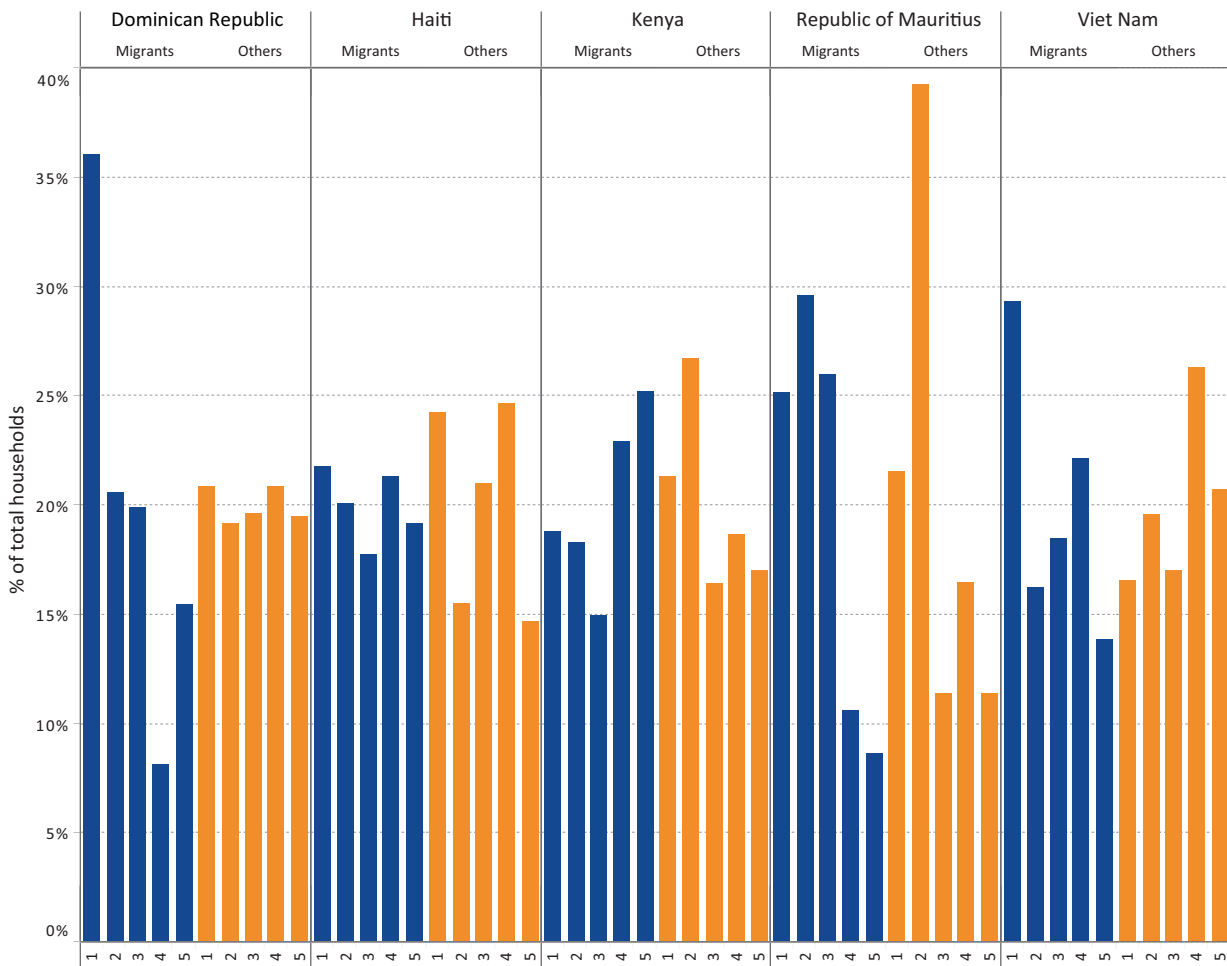
Income distribution among migrant and non-migrant households: The poor migrate as well

Figures 15a and 15b highlight the distribution of migrant and non-migrant households by income quintiles 10 years ago and at the time of the survey, referred to as “before”³⁵ and “after” in subsequent graphs. In the Dominican Republic, Viet Nam and, to a lesser degree, the Republic of Mauritius, it was the poorest who moved,

35 “Before” denotes the 12 months preceding 10 years ago or when the event occurred, and “after” the 12 months preceding the surveys which were conducted in 2015 and 2016.

as migrant households belonged to the lowest income quintiles before migration (see Figure 15a). This could be due to migration among the sample population being mostly internal. Internal migration is more accessible than international migration; the latter excludes the poorest as it usually requires a certain amount of resources, whether for transportation, housing and other required investments when changing one’s place of residence. Migrant households represented the lowest income quintile in the Dominican Republic and Viet Nam, contradicting findings from other studies that migrants do not represent the poorest segments of societies.

Figure 15a: Income distribution among migrant and non-migrant households: “before” (per income quintile)



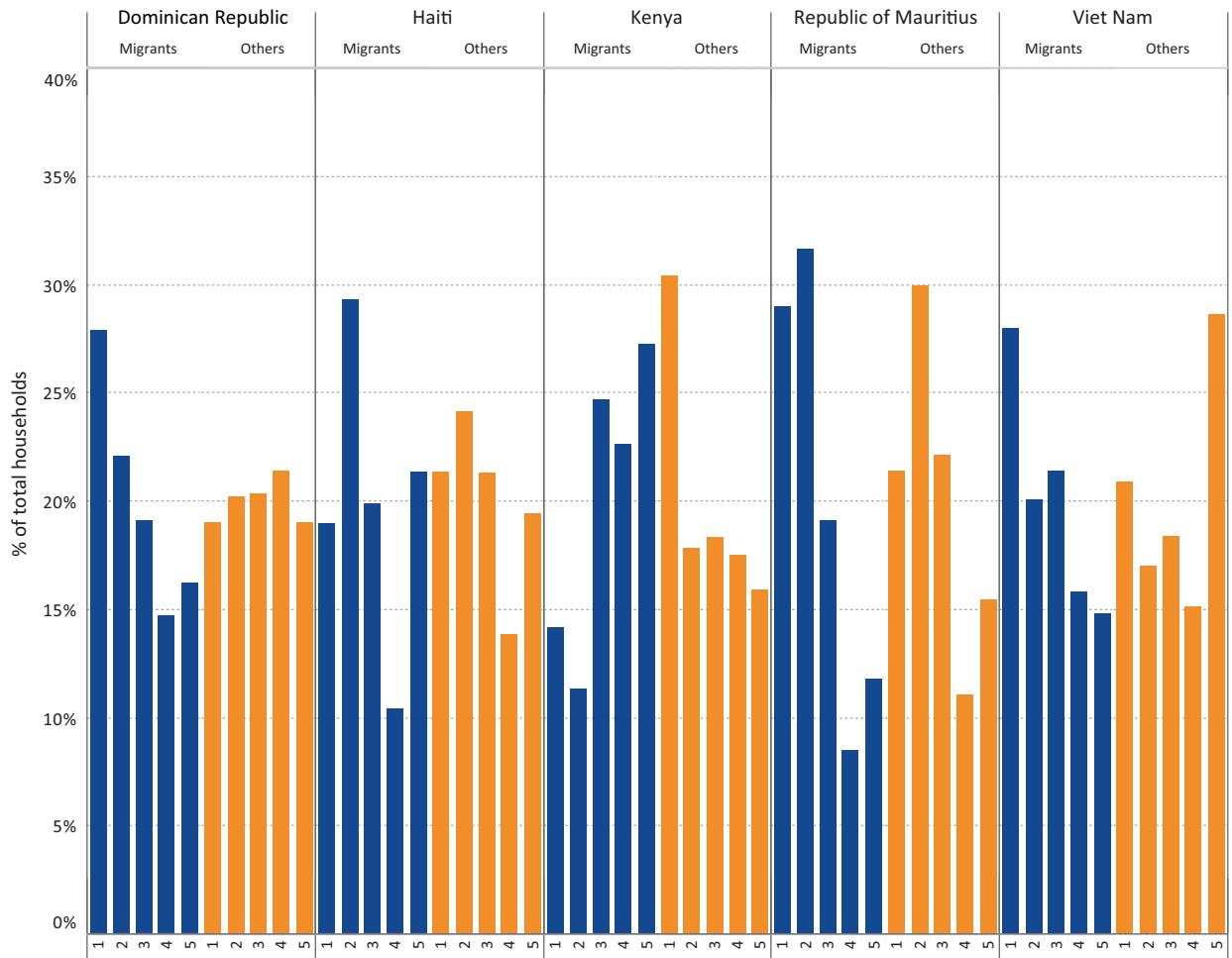
Source: MECLEP household surveys, 2015 and 2016.

Note: Quintile 1 represents households earning the lowest 20 per cent of income and quintile 5 the households with the highest 20 per cent of income.

In the Republic of Mauritius, the relative income of migrant households seemed to have decreased further after migration, as more households were categorized under the lower income quintiles than before (see Figure 15b). This could be linked to migrants engaging more often in lower-paid economic sectors such as informal trading, which is in turn linked to lower income levels (Sultan, 2017). The lower socioeconomic status of migrants than the surrounding community of

destination has been found in other studies as well (cf. Chapter 2). In the sampled populations in the Dominican Republic and Viet Nam, the proportion of migrant households in the lowest income quintile decreased over time. This could indicate that migration helped to reduce poverty by diversifying income sources. The effect of mobility on income levels of migrant households was mixed across countries and seemed to be context-specific.

Figure 15b: Income distribution among migrant and non-migrant households: “after” (per income quintile)



Source: MECLEP household surveys, 2015 and 2016.

The surveys did not only ask questions on objective indicators, such as income and employment. Section 3 of the questionnaires (see Annex) asked households with at least one migrant about the perceived impact of migration (internal and international, short-term, long-term,

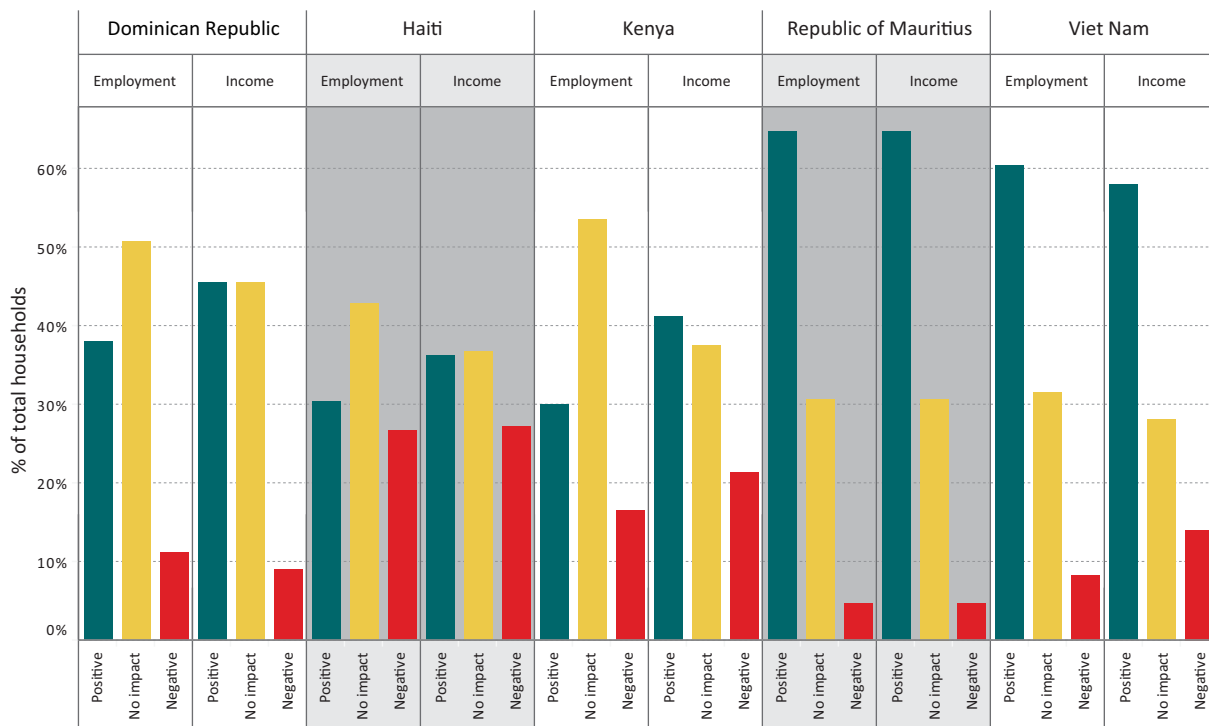
seasonal migration, displacement and relocation, whichever applied) on several dimensions, including income and employment (see Figure 16). In the Dominican Republic, Haiti and Kenya, the effects on income were rated more positively (depicted in green) compared with the impact on

employment levels. Perceived effects on income were thus noticeable, which highlights how mobility can represent an income diversification strategy. However, when compared with reported changes in income levels (see Figures 15a and 15b), only in Kenya and the Dominican Republic were there more households in higher income quintiles after migration.

In the Dominican Republic and Haiti, respondents who indicated that migration had a negligible impact on their household's employment level

(51% and 42% respectively) outnumbered those who considered the effects to be positive (38% and 30% respectively). In the Dominican Republic, migration having a more positive effect on income than employment levels could be linked to the relatively high unemployment levels of households in the relocation site in Jimaní. Nonetheless, in both the Dominican Republic and Kenya, nearly two out of five and three out of 10 households respectively considered the effects of mobility beneficial for employment and thus income diversification (see Figure 16).

Figure 16: Perceived impact of migration on income and employment



Source: MECLEP household surveys, 2015 and 2016.

In Haiti, more households actually had less income than before, which was reflected in the highest rate of negative impacts of migration on income in the sample countries (27%). Nonetheless, 36 per cent of migrant households rated the impact of mobility on incomes as positive. The effects for the two dimensions of income and employment were particularly highly rated as

positive in the Republic of Mauritius (65%) and Viet Nam (58%; see Figure 16), despite actual income distribution in the Republic of Mauritius having shifted to lower quintiles (see Figures 15a and 15b). Subjective implications for migrants and their families may thus slightly differ from reported figures.

5.3.3. Remittances: Impacts on origin communities

Key findings

The impact of financial remittances on income

- The impact of remittances on the community of origin varied across countries, which complicates drawing generalizable conclusions. While in Viet Nam mostly low-income households surveyed received remittances, in Kenya remittances were mainly sent to high-income households.
- Overall, among households receiving remittances, the lower the household income, the larger the share of remittances in that household's income.

Use of financial remittances

- Remittances remain a lifeline for poor households as they are spent mostly on basic necessities, such as food.
- Financial transfers only enable some long-term benefits through investments in education and savings, for instance. The potential to impact on adaptive capacity to resist hazards in the longer term is however less than on poverty reduction since long-term impacts are more limited.

Social remittances

- Mobility enabled many households to learn new skills, which can then be applied or taught. This can help to foster adaptive capacity in vulnerable households.

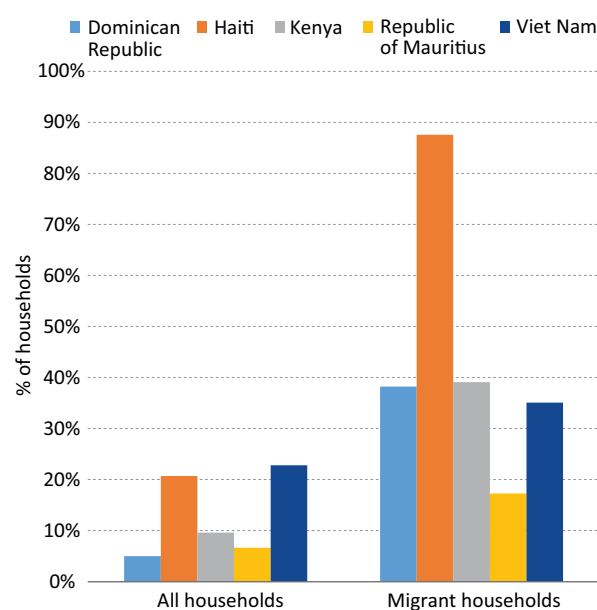
5.3.3.1. The impact of financial remittances on income

Among all MECLEP countries, the country with the largest share of remittance-receiving households³⁶ was Viet Nam, where nearly 23 per cent of households received remittances in the year before the survey was conducted. This was associated with the high number of

³⁶ In the Dominican Republic and Haiti a significantly higher proportion of households indicated receiving remittances, without stating the actual amount. For these countries questions 1.14 and 1.16 were used (see Annex), indicating whether remittances were part of the household's income. In the other countries, more households indicated the amount of remittances received so these numbers were the basis for the number of households receiving remittances.

migrant households in the country. Haiti was a close second; while it had fewer migrant households, nearly 21 per cent of all households in the country received remittances. As can be expected from general remittance patterns in the pilot countries, when considering only migrant households, Haiti had the largest proportion of remittance-receiving households (87.6%), followed by Kenya (39%) and the Dominican Republic (38.2%). In the Republic of Mauritius (7%) and the Dominican Republic (5%), very few households overall received remittances. Even among households with members who migrated, the proportion of Mauritian households receiving remittances (17%) was only half as large as in the other countries (see Figure 17). In the Dominican Republic, the low number of households receiving remittances was probably due to the fact that in one survey site (Jimaní) many households were relocated by the government, meaning there was no community of origin to send remittances to.

Figure 17: Share of households receiving remittances



Source: MECLEP household surveys, 2015 and 2016.

Socioeconomic profile of households receiving remittances

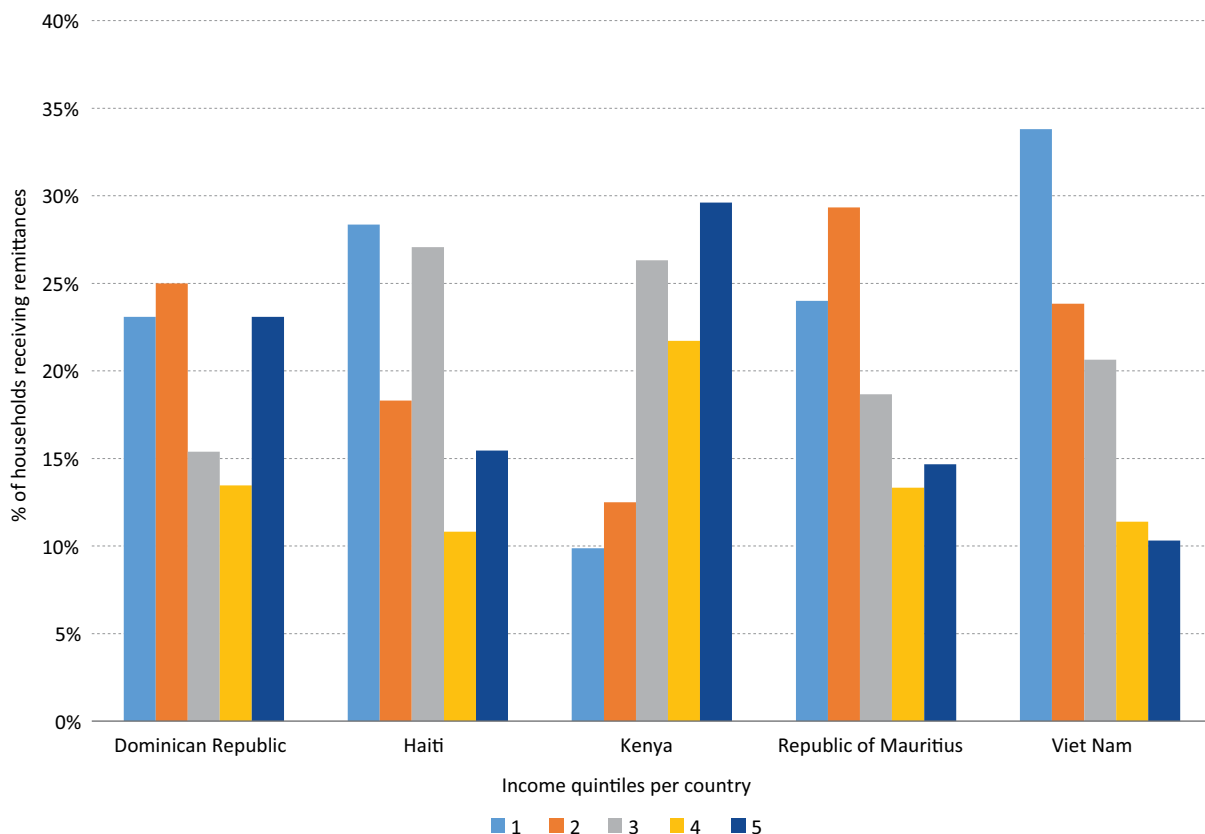
To analyse the potential impact of remittances on the community of origin, it is imperative to consider the socioeconomic profile of the households receiving remittances. Important variations across countries exist, making drawing

generalizable conclusions from the five pilot countries difficult. Low-income households that rely on remittances for a large share of their resources will most probably use remittances to fulfil basic needs. High-income households receiving remittances could use these funds for longer-term investments, which could benefit adaptation strategies. It should be noted that the higher a household's income, the smaller the chance that remittances are part of that household's income.

In Viet Nam, where the largest proportion of households received remittances, lower-income households accounted for the biggest group of remittance recipients. Financial transfers thus play a role in poverty reduction in Viet Nam. In Kenya, the relation between receiving remittances and socioeconomic profile was nearly positive: apart

from a deviation in the fourth income quintile, the higher a household's income, the more likely that household receives remittances. In the Dominican Republic and Haiti, the relationship was not linear but low-income households (income quintile 1 and 2 in the Dominican Republic and income quintile 1 in Haiti) remained the group most likely to receive remittances. In the Republic of Mauritius, where few households received remittances, the relation between socioeconomic profile and remittances was not straightforward; however, richer households generally were less likely to receive remittances (see Figure 18). Mobility likely increases inequality among households in Kenya, where higher-income groups receive remittances. In the Republic of Mauritius, Viet Nam, the Dominican Republic and Haiti remittances help to address poverty.

Figure 18: Remittances according to socioeconomic profile (per income quintile)



Source: MECLEP household surveys, 2015 and 2016.

The aggregated numbers of remittances as a share of income revealed few differences between countries. However, when taking the socioeconomic profile of the households into account, certain differences became apparent

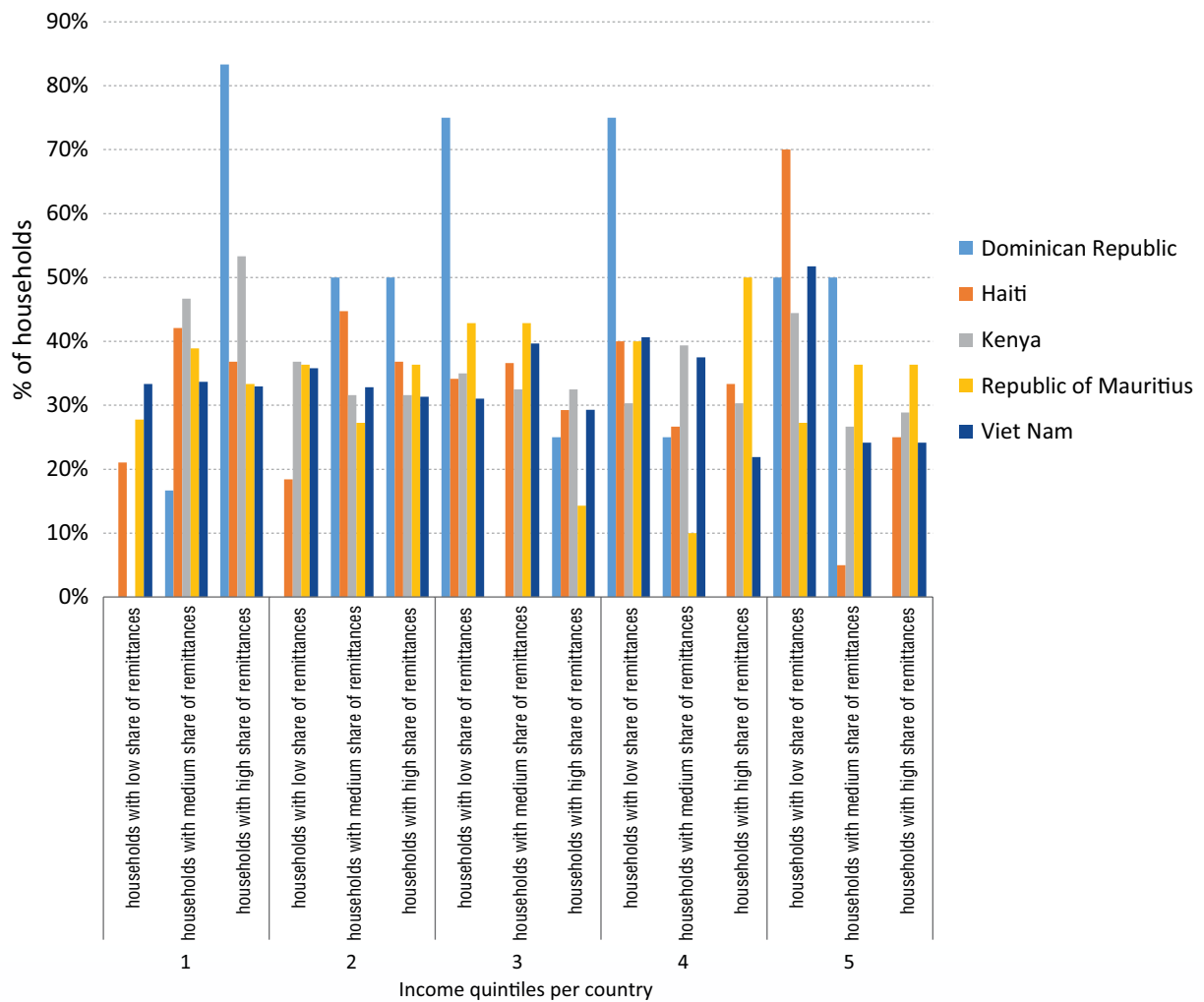
(see Figure 19). Among low-income households receiving remittances, these remittances made up a large share of household income (between 33% in the Republic of Mauritius and Viet Nam and 83% in the Dominican Republic). In Kenya and

the Dominican Republic, the higher the share of remittances in a household's income, the more likely that household belonged to the low-income group.

In all countries, the group of medium-income households (third income quintile) that received a small share of their income in the form of remittances was larger than those that received a large share. Among many high-income households receiving remittances – except in Haiti – remittances represented less than a third of their income. The fourth income quintile revealed that in the Dominican Republic and Viet Nam, the relation between the proportion of remittances relative to a household's income and the number of high-income households receiving remittances was negative: the lower the share of remittances in a household's income, the more likely that household belonged to the

high-income group. This relation was strongest in the Dominican Republic, where not a single high-income remittance-receiving household indicated that remittances represented a high share of its income. Among high-income households benefiting from remittances, between 75 per cent (fourth income quintile) and 50 (fifth income quintile) per cent received a low share of their income in the form of remittances. This seems to indicate that high-income households are more likely to adapt in situ, without significant support in the form of remittances. While the number of high-income households (fourth and fifth income quintile) with a high proportion of remittances was smaller than those with a low proportion in Haiti and Viet Nam, there was no straightforward relation between share of remittances and number of high-income households. In the Republic of Mauritius, neither can such a relationship be distinguished.

Figure 19: Remittances as a share of income according to socioeconomic profile (per income quintile)



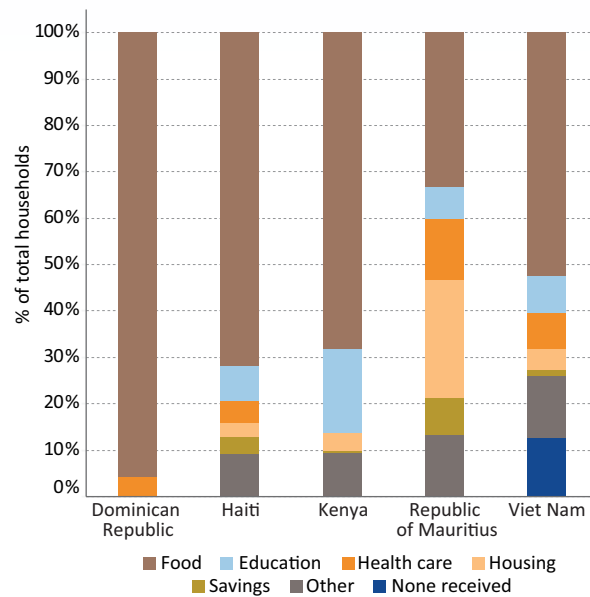
Source: MECLEP household surveys, 2015 and 2016.

Overall, among households receiving remittances, the lower the household income, the larger the share of remittances in that household's income. This relation was strongest in the Dominican Republic. However, since only 52 Dominican households (5%) received remittances and only 24 reported the amount of remittances, this relation was not significant. In Kenya, most households that received remittances were high-income households. In the Republic of Mauritius and Viet Nam – the latter being the country with the largest number of households receiving remittances – most remittance-receiving households were low-income households.

5.3.3.2. Use of remittances: Remittances leading to socioeconomic improvements

The monetary and social transfers of migrants are considered important contributions, particularly in times of disasters. When asked what migrant households spent most of their remittances on over the past 12 months, food was the most prevalent answer (see Figure 20). In comparing the five countries, the impact of remittances on food security was most important in the Dominican Republic, where more than 95 per cent of migrant households spent the bulk of remittances on food, and least important in the Republic of Mauritius, where the proportion of households that spent remittances mostly on food was only 34 per cent. Nonetheless, in the Republic of Mauritius still one in three households found the monetary transfers through migration decisive for being able to serve sufficient meals every day. Education (depicted in blue), health care (orange) and housing (light orange) were the most important services migrant households spent remittances on after food. These findings indicate that, as established in literature, remittances remain a lifeline for households. The prevalence of the use of remittances for food in all countries indicates the importance of remittances for poverty reduction. At the same time, they enable long-term investments in areas such as education and savings (green), but to a lesser extent. This potential could be strengthened further through specific programmes.

Figure 20: Items and services households spent most remittances on in the previous 12 months



Source: MECLEP household surveys, 2015 and 2016.

When considering all options that remittances can be used for, in most countries apart from Haiti, a relatively large share of households spent remittances on housing (see Figure 21). For instance in Kenya, 45 per cent of households surveyed in the capital Nairobi and 44 per cent in Kisumu spent remittances on housing. In the Dominican Republic, Haiti and Kenya more than 30 per cent of households used remittances for transport. In all countries apart from Kenya, a significant proportion of households – from 28 per cent in the Republic of Mauritius to 46 per cent in the Dominican Republic – spent remittances on health care (see Figure 21).

However, in the longer term, the socioeconomic status of households is not improved when remittances are spent on basic services. When used for education, setting up a business, savings or sponsoring another migrant worker, the human development of a household could improve, thereby enhancing the adaptive capacity of the household to hazards. A significant proportion of Kenyan households used remittances for setting up a business or investing in an existing one, although this remains limited to 7 per cent of households. In Viet Nam, 2.5 per cent

of households used remittances for business-related purposes. In the Republic of Mauritius, this figure was at 1.3 per cent. In all countries, savings were enhanced by remittances. In the Republic of Mauritius, up to 24 per cent of households that received remittances saved a part of their remittances. In Haiti, the proportion of such households was at 13 per cent. In all other countries, less than 10 per cent of households that received remittances were able to set a share aside. The most important investment of remittances that could lead to long-term human development and thus possibly adaptive capacity is in education. In the Republic of Mauritius and Viet Nam, more than 20 per cent of households that received remittances spent part of it on education. In Kenya and the Dominican Republic, the figure was at less than 10 per cent. In Haiti, 46 per cent of households used part of their remittances for education – more than any other service apart from food. There were four times as many households which spent remittances on education than agriculture.

Education was a more important expenditure than agriculture in all five countries apart from Kenya, where 14.5 per cent of households that received remittances spent a portion on agriculture, as opposed to only 5 per cent of households that spent on education. However, in Kenya the proportion of households that spent the bulk of remittances on education was much higher than the proportion of households that spent on agriculture³⁷ (see Figure 20). A hypothesis is that in case of relatively high costs of education, the bulk of remittances a household receives are used for this purpose. Another likely explanation is that only higher education is expensive, which links back to Kenyan remittance-receiving households mostly being in higher-income groups. This would imply that those households spending most remittances on education are mostly higher-income households. With regard to measures implemented to address environmental change, only a very small portion of remittances was used for disaster relief, recovery and preparedness (see Figure 21). Dominican Republic had the highest proportion of households (4%) that spent remittances on disaster relief.

37 While a larger percentage of Kenyan households spent a *part* of their income on agriculture compared with education, a much larger percentage spent *most* remittances on education as opposed to agriculture.

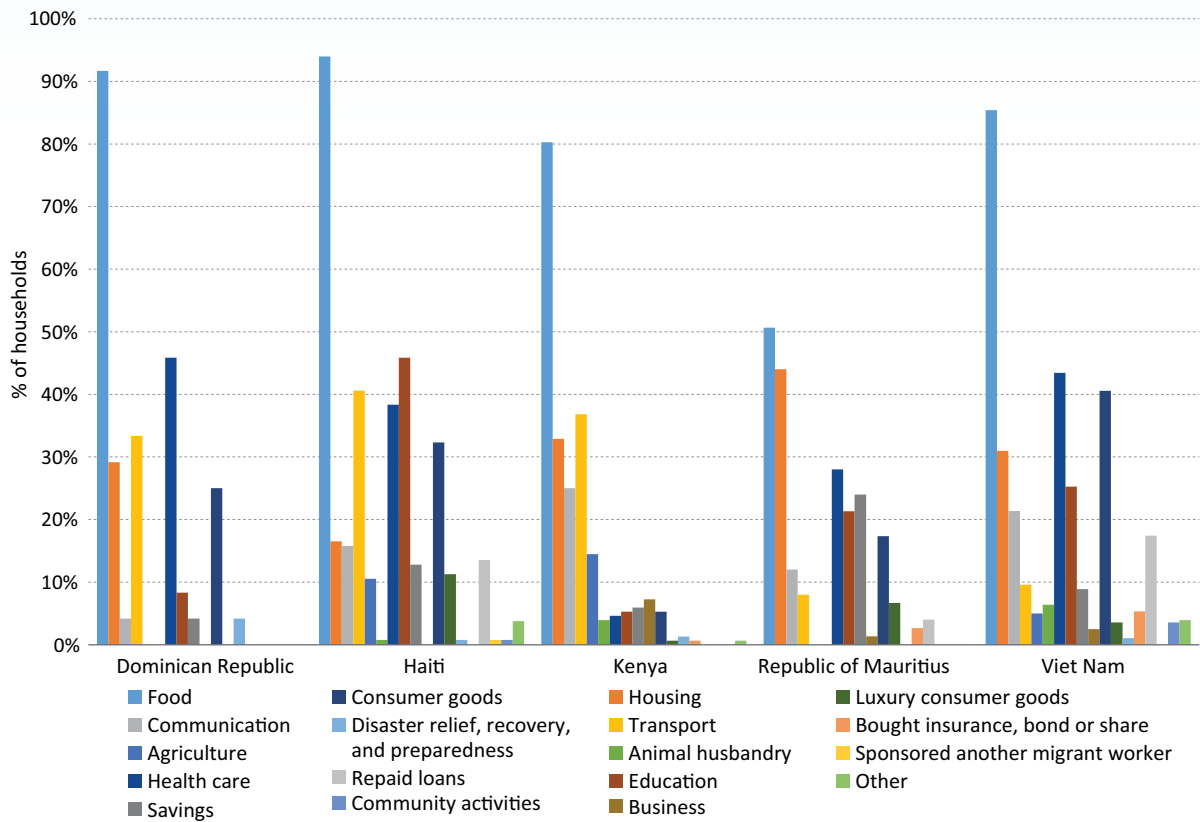
The conclusions that can be drawn from the use of remittances are mixed. Remittances are predominantly used for poverty reduction by accommodating basic needs instead of long-term investments that could have a positive influence on the community of origin's socioeconomic situation and potential adaptive capacity. Education is an exception in Haiti, the Republic of Mauritius and Viet Nam, where significant proportions of households that received remittances spent a portion on education.

5.3.3.3. Social remittances: The implications of mobility for skills

Since transfers by migrants are not only of an economic and financial nature, migrant households were asked about the kinds of skills and knowledge they acquired while away (Figure 22a), if they could effectively apply them (Figure 22b) and if they could pass on such skills to others (Figure 22c).³⁸ Responses indicated a wide variety of knowledge and competencies acquired, with education, cooking, electrical repair and tailoring being the most significant (see Figure 22a). At least two out of five migrant households were able to learn new skills; in the case of Viet Nam, the figure was as high as 82 per cent. In more than 45 per cent of migrant households in Haiti, migrants were able to apply their new skills; in Kenya, this figure was more than 70 per cent and in the rest of the countries surveyed, more than 80 per cent (see Figure 22b). Between 25 per cent and 45 per cent of migrants (and more than 82 per cent in the Republic of Mauritius) then passed on the new knowledge. A significant proportion of migrants was thus able to share these social remittances with other members of the household and communities of origin and destination. This represents an important contribution of the migration process to long-term processes of human development for both the migrants themselves and their families, as well as their communities of origin and destination. It could equally indicate a form of adaptation for exposed and vulnerable households and possibly communities.

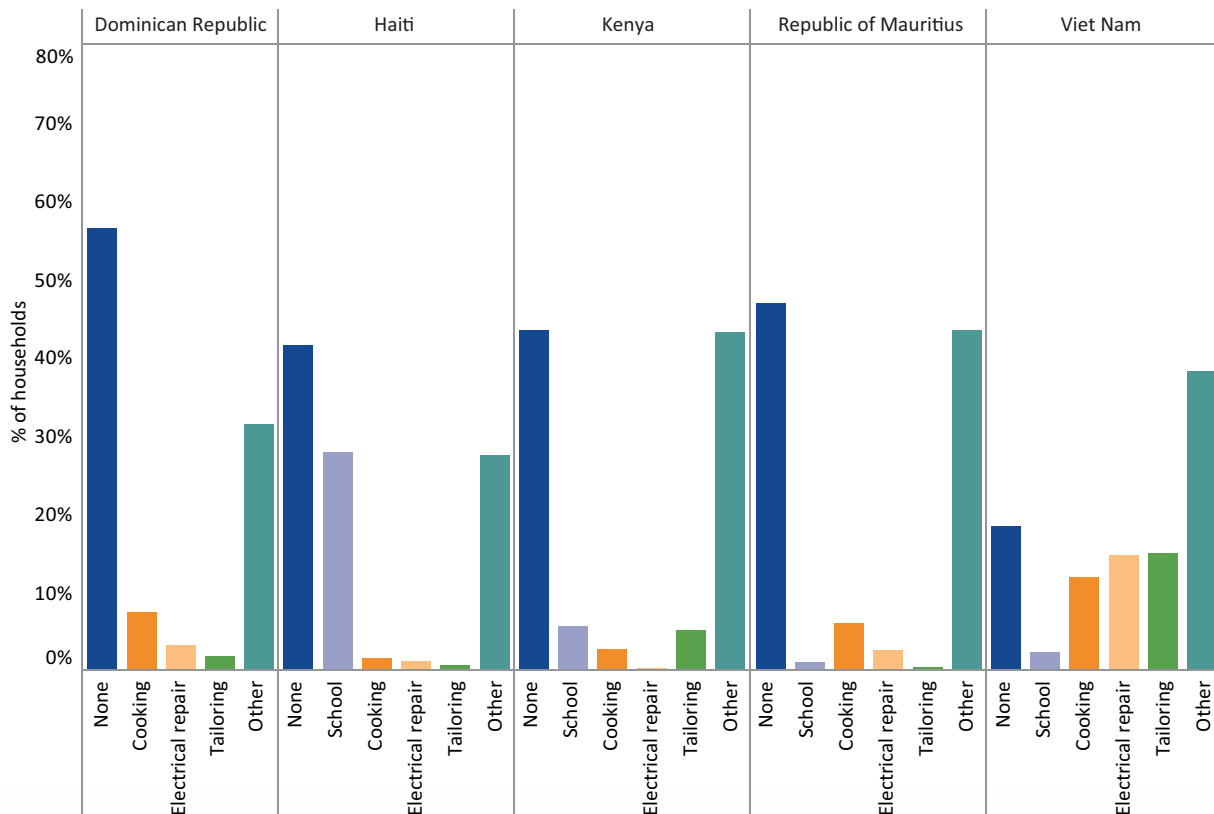
38 The graphs depict the most significant skills. The category of "Other" lumps together all other options provided in questions 3.18–20 (see Annex), as they are not significant enough individually to be depicted in the graphs.

Figure 21: Items and services households spent remittances on in the previous 12 months – all options



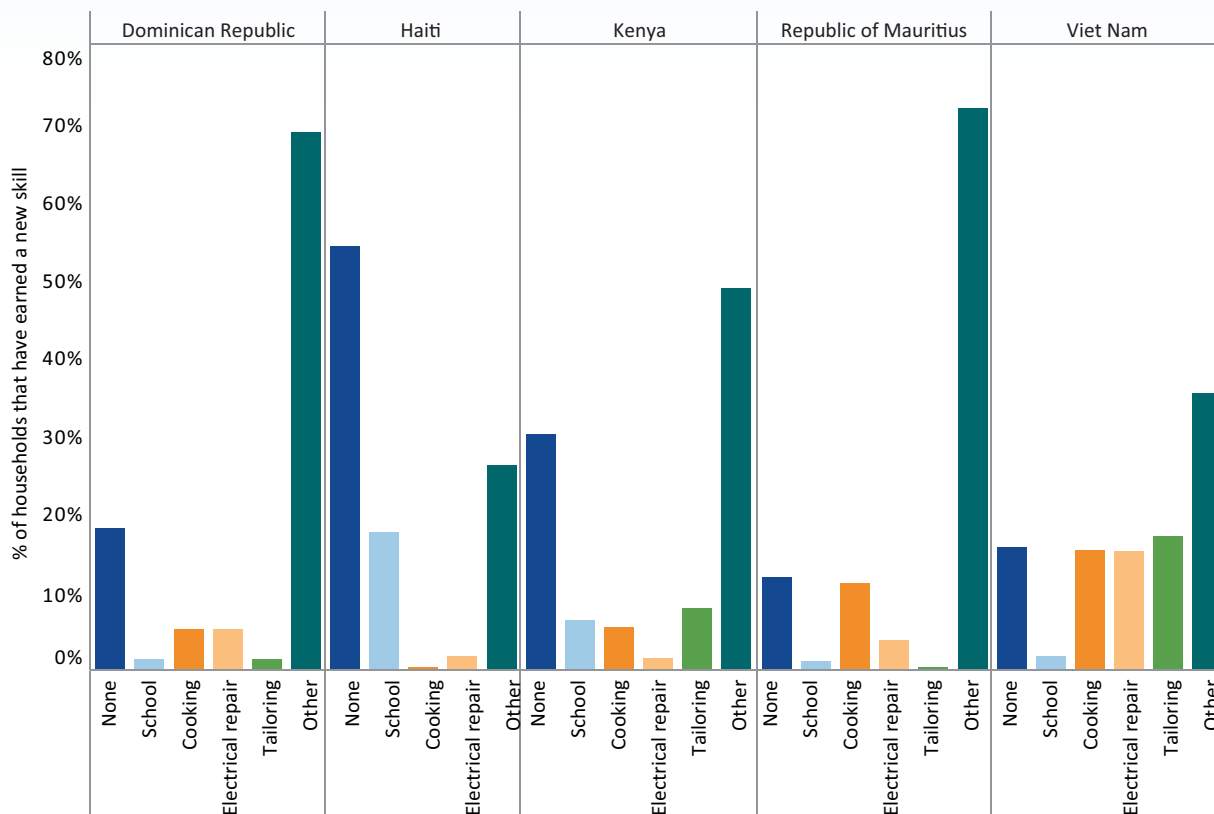
Source: MECLEP household surveys, 2015 and 2016.

Figure 22a: Skills or knowledge acquired



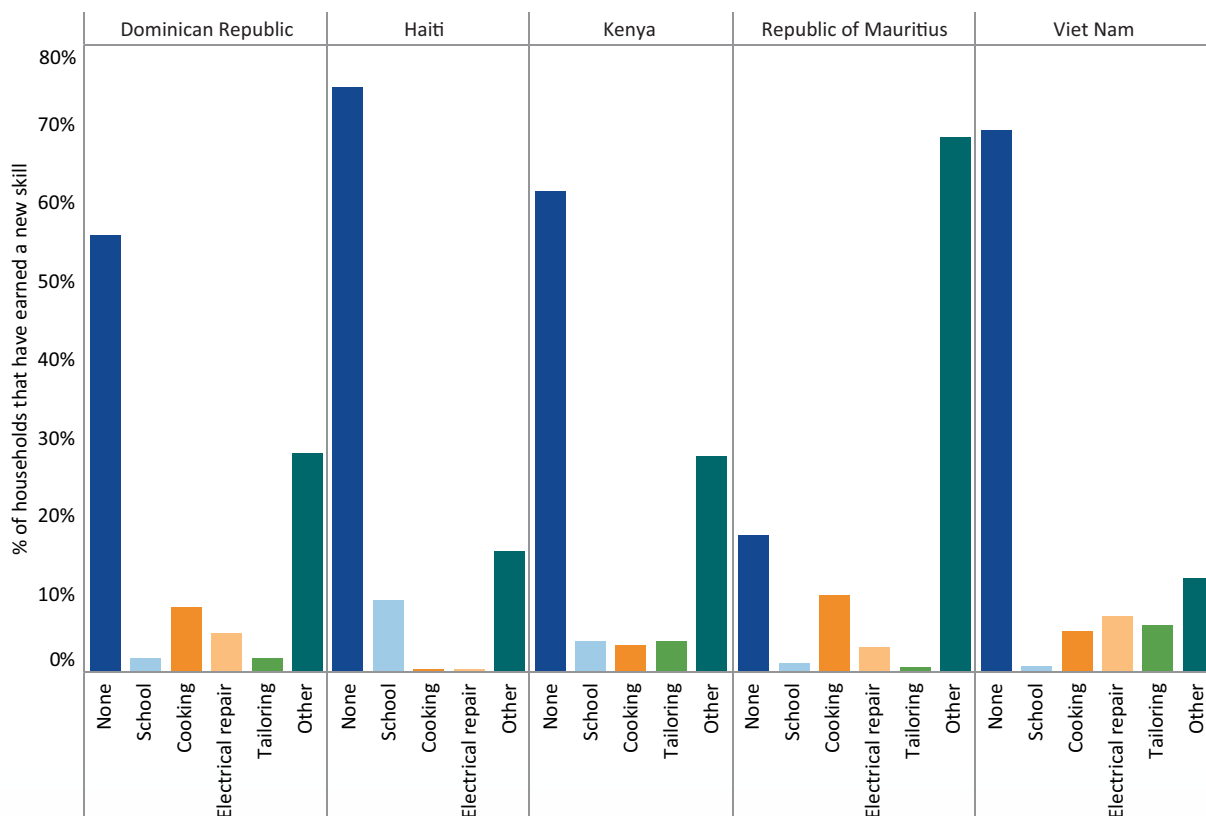
Source: MECLEP household surveys, 2015 and 2016.

Figure 22b: Skills or knowledge used



Source: MECLEP household surveys, 2015 and 2016.

Figure 22c: Skills or knowledge taught



Source: MECLEP household surveys, 2015 and 2016.

Mobility could thus help migrants learn new skills, which could then be applied or taught. This has important implications for enhancing competencies and capacities of migrants which need to be linked to the actual needs of the labour market.

5.3.4. The implications of migration for well-being

Key findings concerning the impact of mobility

On health care, education and family relationships

- The perceived impact of different types of mobility on health conditions and education was mostly positive or negligible. This finding highlights how migration can help to reduce vulnerability and enable a higher level of human development more generally.
- The effects on family relationships were similarly rated mostly positive or negligible.
- Comparing the perceptions to recorded data on access to health care and education showed mixed results across countries, with migrant households being better or worse off than non-migrant households.

On access to water, food, electricity and housing standards

- The effects of mobility on food security were similar to that on education level and health conditions, rated as mostly positive, in particular in the Republic of Mauritius. Migrants and their families were slightly better able to guarantee food security, highlighting the importance of migration as a lifeline for the poor.
- Recorded access to water, food and electricity between migrant and non-migrant households was context-specific and often varied in different areas of a country.
- Mobility was often linked to a lower housing material standard, which seemed to be linked to the destination areas where migrants reside.

On security and discrimination

- Surveys in the five countries showed that, except in the Dominican Republic, migrant households were more likely to have faced security problems than non-migrant households. Migrants who actually face a higher level of insecurity than the general population highlights an often overlooked need for action.
- In all countries, migrant households experienced more discrimination/exclusion from employment, health or education than non-migrant households. Rights-based policy responses thus need to ensure persons regardless of status have equal access to key services.

The surveys included a specific section where households were asked about the impact of migration on several categories, including income, employment level (see section 5.3.1), educational level, health conditions, family relationships, food security and safety (for all aspects, see questions 3.01–3.13 of the questionnaire, Annex). The responses indicated that households perceived that the positive effects in the categories of education and health (displayed in green in Figures 16a and 16b) always outweighed the negative repercussions (displayed in red). The impacts were in most cases positive or negligible, highlighting how migration can help reduce vulnerability. Mobility can thus increase resilience to potential future disasters by enabling access to education and consequently a higher level of educational attainment and higher level of human development more generally. In the Republic of Mauritius and the Dominican Republic, the impacts of mobility on education level and health conditions were rated as particularly positive, with more than half of all households with at least one migrant indicating that mobility has had a positive impact on the household's education and health conditions.

However, comparison of the perceived impact with recorded data on access to services highlights that migrant households are not necessarily in the same position as non-migrant households and can be both better and worse off. Generally, during the past decade, access to basic

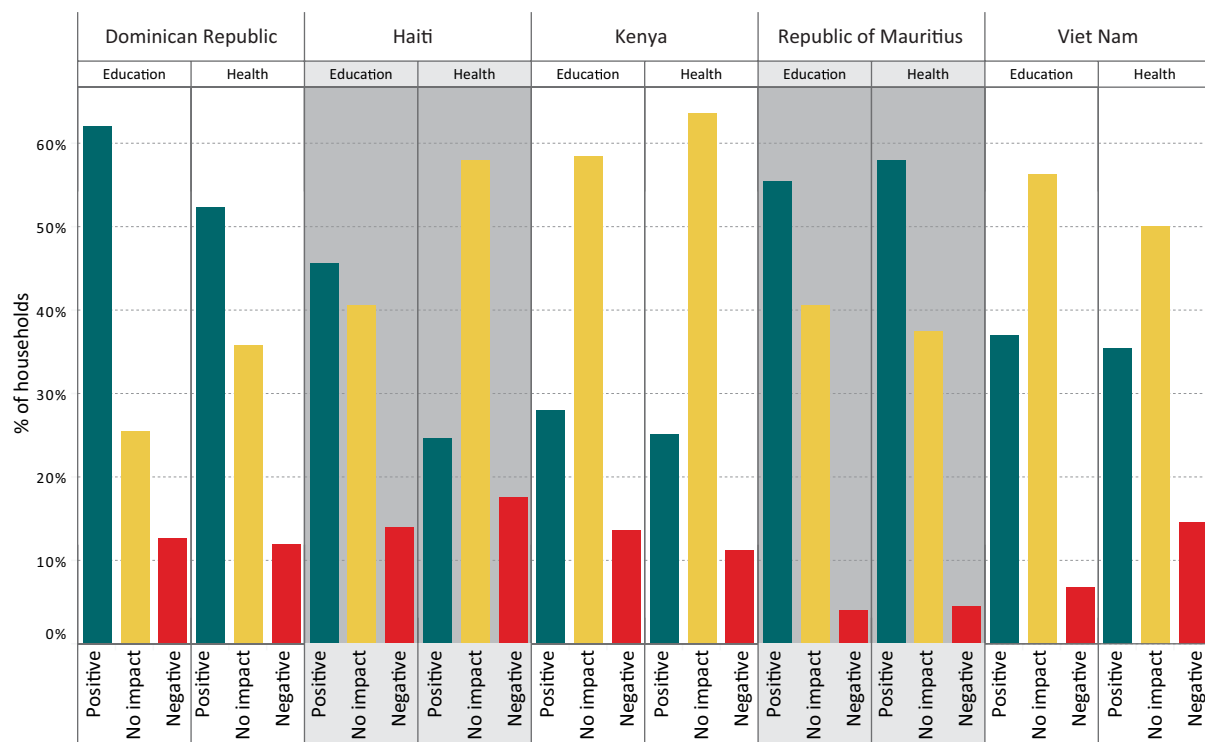
services such as food, health care and clean water had improved for households in the Dominican Republic. However, except for health care, in Jimaní non-migrant households had better access to services than migrant households, both at the time of the surveys in 2015 and 2016 and 10 years before, prior to migration. The building of a new health centre in the relocation site explains why migrant households in Jimaní are better off only with regard to health services compared with non-migrant households. By contrast, in the district of Guaricano in the outskirts of the capital Santo Domingo, migrant households had better access to services than non-migrant households (Cordero Ulate and Lathrop, 2016). This was also true in the case of Haiti. While the relationship was not particularly strong, members of migrant households in Haiti generally studied longer than members of non-migrant households and migrant households generally had greater access to basic services such as health care (Milan et al., 2016).

In the Republic of Mauritius, the average years of schooling of heads of migrant households did not differ from those of heads of non-migrant households, nor did the size of the

household. Access to health care had improved for both migrant and non-migrant households in the decade before the survey. There were no significant differences between migrant and non-migrant households in terms of access to good quality health care (Sultan, 2017).

In Kenya, the positive impact of mobility on education level and health conditions was rated lowest; nonetheless, at least 25 per cent of migrant households still perceived the effects of mobility to be positive. This is also reflected in access to health care a decade ago and in 2016. Access to services varied between the countries under study. Ten years ago, before the migration experience, households with at least one migrant in Kisumu had less access to good quality health care than non-migrant households. At the time of the survey, access to good quality health care had narrowed for both groups, with migrant households experiencing the most significant reduction. In Kitui county, a downward trend was recorded as well, but migrant households had better access both in 2006 and 2016. Overall, migrant households had less access to services such as health care (Odipo et al., 2017).

Figure 23a: The impact of mobility on education level and health conditions

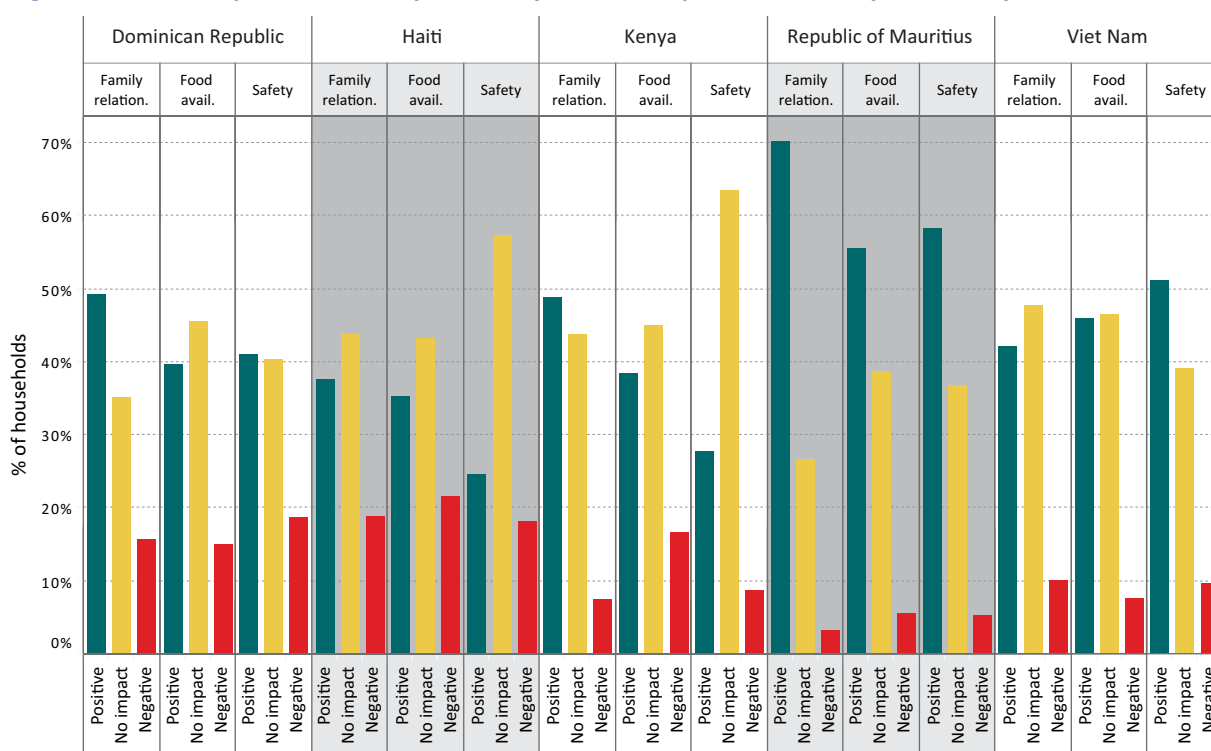


Source: MECLEP household surveys, 2015 and 2016.

There were also variations in migrant households' access to drinking water, food and electricity. While more migrant households which subsequently experienced migration had access to drinking water 10 years before compared with non-migrant households in the Republic of Mauritius, currently non-migrant households have more access to clean water. Furthermore, access to electricity declined for migrant households while it improved for non-migrant households (Sultan, 2017). In Kenya, overall, migrant households had less access to services such as clean drinking water, food and electricity (Odipo et al., 2017).

In Viet Nam, households which subsequently experienced migration were less likely to own land 10 years before the survey and were more likely to have a sick family member. However, in terms of access to services such as clean water, food and electricity, migrant households were significantly disadvantaged compared with non-migrant households (Entzinger and Scholten, 2016). Any differences in recorded access to water, food and electricity between migrant and non-migrant households were thus context-specific and often varied in different areas of a country.

Figure 23b: The impact of mobility on family relationships, food security and safety

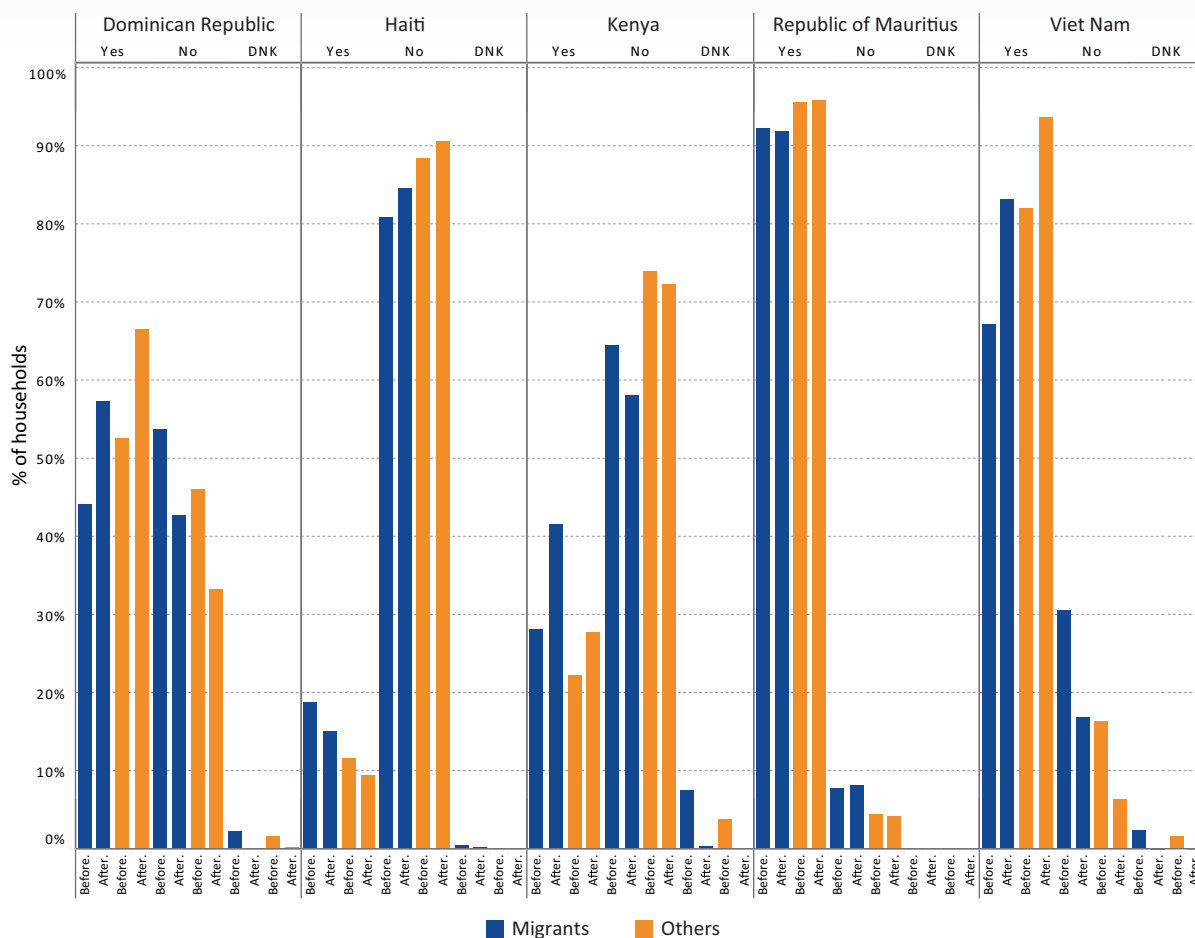


Source: MECLEP household surveys, 2015 and 2016.

The effects of mobility on family relationships and food security were similar to those on education level and health conditions, rated as mostly positive, in particular in the Republic of Mauritius (see Figure 23b). Both the responses on the perceived effects and recorded data on food security (defined as having enough food to feed all household members three times a day; see Annex, question 1.28 and 1.29) demonstrated that the availability of food improved for all households in the countries surveyed, except Haiti and the Republic of Mauritius, where it

decreased slightly in contrast with 10 years before. The surveys demonstrated, however, that food security in general was very low in Haiti and Kenya (see Figure 24). Interestingly, in Haiti and Kenya, migrant households were more likely to have sufficient food available than non-migrant households, in contrast with the other countries. Migrants and their families were thus slightly better able to guarantee food security, highlighting the importance of migration as a lifeline for the poor.

Figure 24: Access to three meals a day, migrant and non-migrant households

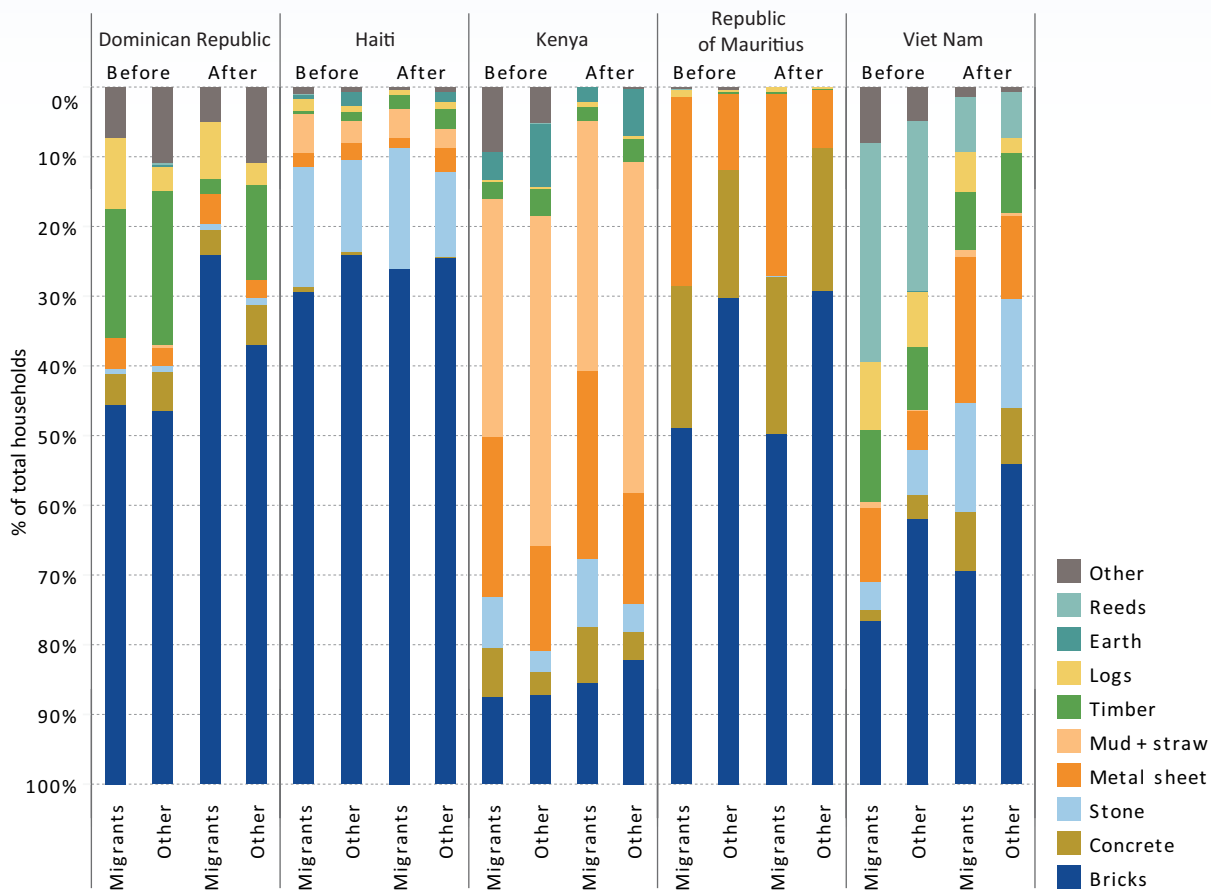


Source: MECLEP household surveys, 2015 and 2016.

In terms of the effects on housing materials, Figure 25 shows how housing materials had improved from before. For instance, the proportion of households using more robust materials such as bricks (depicted in dark blue) and stone (light blue) increased in all countries from 10 years ago/ before the event to the 12 months prior to the survey. Except for the Dominican Republic, in all cases migrant households tended to be less likely to reside in housing made of robust materials than non-migrant households. This lower standard in terms of housing materials can probably be attributed to the likelihood of migrants moving to informal settlements in urban areas which tend to use metal sheeting (depicted in orange) more often than in other areas. This was especially the case for the households interviewed in the

Republic of Mauritius, in the capital Port Louis (Sultan, 2017). Only in the Dominican Republic did migrant households have a higher chance of living in brick-walled housing, which was probably due to the relocation to Nuevo Boca de Cachón, where new houses were built for the relocated community. In Haiti, households that had taken measures to adapt to environmental risks, or built a house with stronger material, were generally less likely to have a member who migrated (Milan et al., 2016). This indicates a link between non-migrant households' preparedness against future hazards and building resilience including through the use of better construction materials. Mobility thus often means a lower housing standard, which seems to be linked to the destination areas where migrants reside.

Figure 25: Primary construction materials used for the housing unit's exterior walls

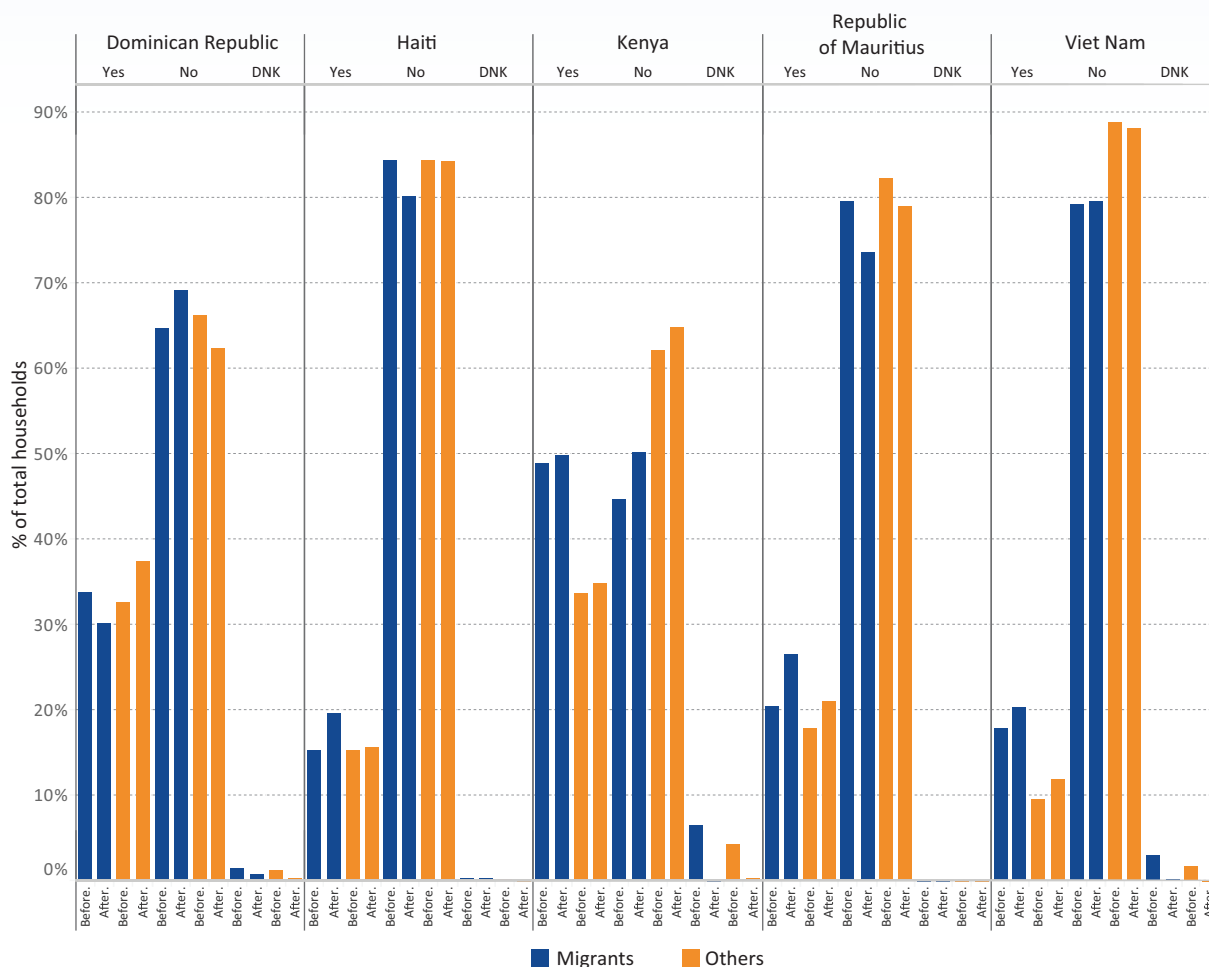


Source: MECLEP household surveys, 2015 and 2016.

The security implications of migration are often invoked by anti-immigrant groups and concerned policymakers. What receives less attention is the level of insecurity migrants may face themselves. The surveys in the five countries showed that, except in the Dominican Republic, migrant households were more likely to have faced security problems than non-migrant households. In the Dominican Republic, migrant households experienced slightly more security incidents than non-migrant households 10 years ago, but now face fewer such incidents (see Figure 26). This could be linked to the relocation case, which may have contributed to fewer security problems.

Overall, it is important to note that all households indicated that security problems were increasing. This applied to both migrant and non-migrant households, except migrant households in the Dominican Republic. Migrant households in Viet Nam were about twice as likely to face security problems (Entzinger and Scholten, 2016). As migrant households were slightly more affected in nearly all countries, policymakers should address this issue. Migrants are more likely to live in informal settlements where security issues may be more prevalent, linking their influx to the issue of urban planning.

Figure 26: Migrant and non-migrant households facing security problems



Source: MECLEP household surveys, 2015 and 2016.

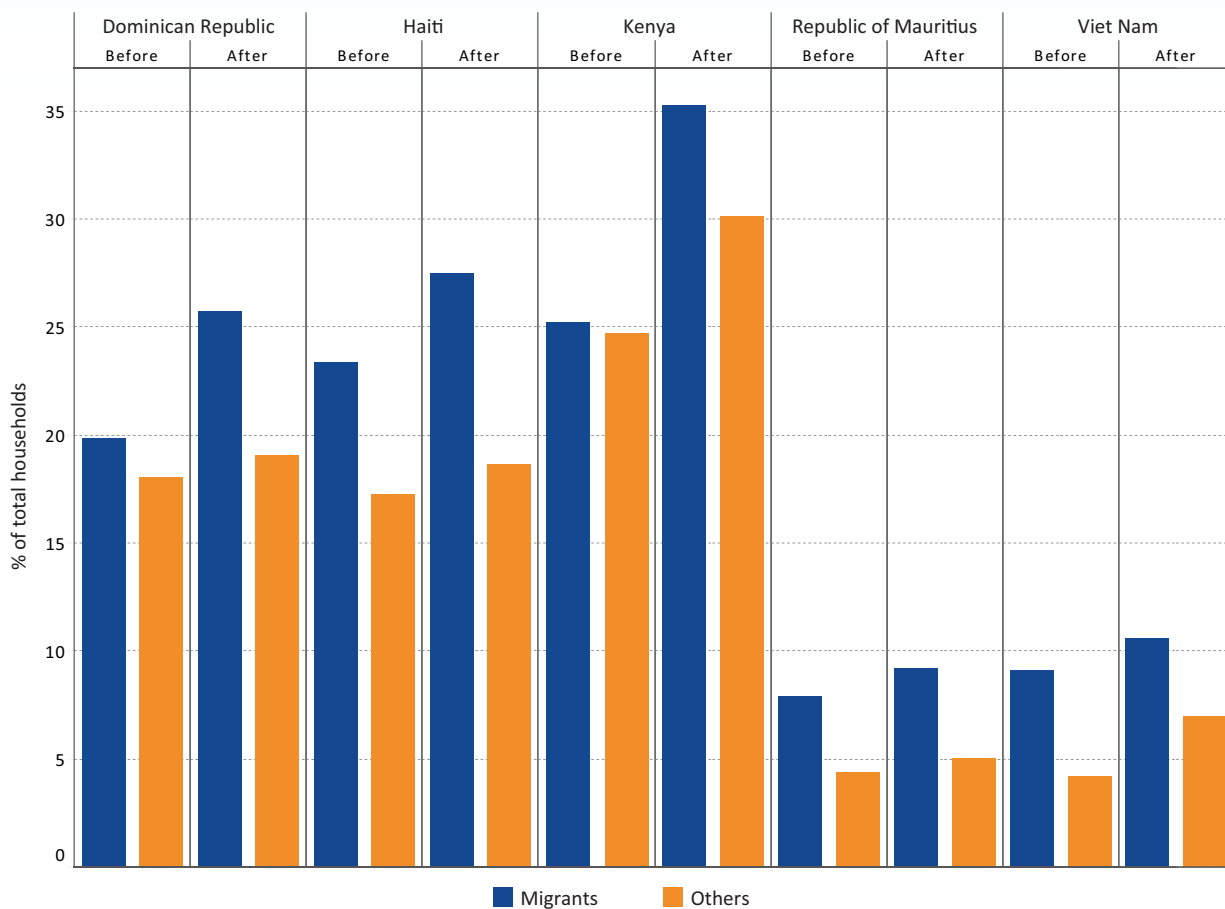
In all countries, migrant households experienced more discrimination than non-migrant households (see Figure 27). Migrant households in Viet Nam were about twice as likely to face discrimination/exclusion in employment, health or education compared with non-migrant households. The domestic registration system in Viet Nam requiring a “household book” at the new place of residence to access schooling and other social services hinders some migrants from accessing those services (Entzinger and Scholten, 2016). Guaranteeing equal rights to access employment, health care and education for migrants should thus be prioritized.

Overall, households self-reported migration to have had either a positive impact or a negligible one on different dimensions of well-being, in particular health care, education, food security and family relationships. Only a small percentage

indicated negative repercussions. The responses indicate that the benefits of migration for adaptation are already occurring. Movement can help reduce vulnerability and contribute to a higher level of human development more generally.

Areas requiring particular policy attention are security and discrimination against migrants. The surveys found in nearly all countries that migrant households were more likely to face security issues than non-migrant households. In all countries, households with at least one migrant were more likely to face discrimination in accessing employment, health care and education. Since most migrants in the surveys were internal migrants, specific programmes would potentially need to target them to ensure equal opportunities.

Figure 27: The impact of mobility on facing discrimination/exclusion in employment, health and education, migrant and non-migrant households



Source: MECLEP household surveys, 2015 and 2016.

5.4. Conclusions: Mobility as adaptation for whom?

The empirical research in the framework of the MECLEP project entails a number of important implications for adapting to a changing environment. These findings will be presented by type of movement (migration, displacement, planned relocation and those who do not move), as well as type of impact more generally regardless of type of movement.

Adapting by type of movement

a. Migration as an adaptation strategy by migrating seasonally and for the poor

This first ever comparative primary research demonstrates that migration can be an adaptation strategy in areas affected by environmental degradation and disasters. In particular, seasonal migration in Haiti was associated with lower levels of vulnerability, either due to migrant households being less vulnerable or migration helping to reduce exposure to hazards. It can thus be an adaptation strategy for both migrants and their families in the origin communities.

Generally, research demonstrates that it is not the poorest segments of society that migrate and that migration can increase inequality in return. This study's data on the Dominican Republic, Viet Nam and, to a lesser degree, the Republic of Mauritius showed the opposite: it was actually the poorest who moved in the context of environmental degradation and hazards. This could be explained by most of our recorded movements having taken place within the pilot countries, as internal migration is a less costly endeavour than international migration. The analysis thus counters the findings of other studies that migrants do not represent the poorest segments of societies. In particular, internal migration from areas affected by disasters and the adverse effects of climate change has been found to be an adaptation strategy for the poorest, helping them avoid becoming "trapped" (see (d) below). In most countries, a large number of migrant households perceived a positive and, to a lesser degree, negligible impact of migration on income and employment, highlighting how mobility can represent an income diversification strategy.

b. Displacement: The link to vulnerability

Findings of this research also confirm that certain forms of mobility can be a challenge for adaptation, which require adequate policy responses to decrease the potential harm that movement can entail. The analysis of displacement in Haiti confirms the findings of similar studies, as those displaced demonstrated a high level of vulnerability. Displacement challenges adaptation by creating new harms and vulnerability, with little potential positive implications. It needs to be acknowledged though that despite the loss and damage displacement may incur, avoiding the loss of life is an important benefit of evacuating and leaving one's usual residence. Further potential benefits for adaptation could be achieved by avoiding displacement in the first place, by increasing resilience to hazards and decreasing the risk of disasters.

c. Planned relocation: Ambiguous adaptation at best

Adaptation outcomes of planned relocation in the case of the Dominican Republic, Papua New Guinea and Viet Nam were at best ambiguous. While the move of the communities reduced loss and damage, new vulnerabilities were created that undermined the sustainability of relocation processes. However, lessons learned from existing literature and existing practices in relocating communities can inform these processes and increase their sustainability. In particular the political will to plan, finance and conduct the movement, as well as community-driven approaches to sustainable livelihoods, are key to ensure relocation can be a form of last resort, long-term adaptation to hazards, with benefits outweighing potential new harm.

d. Those who do not move: Challenges for poor, "trapped populations" and opportunities for in-situ adaptation for the more affluent

Mobility is not an option for everyone. In fact, a large majority of populations around the world choose to stay despite environmental and climatic hazards. People who would like to move in light of such hazards but cannot are described as "trapped". In this study, trapped populations in the Dominican Republic, Kenya and the Republic of Mauritius were among the poorest in terms of income level.

At the same time, in the other two pilot countries where the survey was conducted, namely Haiti and Viet Nam, most of those who responded that they "had to stay" belonged to the most affluent income quintiles four and five. While they may not be "trapped" because they had the means to migrate if they wanted to, other factors such as home ownership and social obligations could have led to their perception or decision of not being able to move. In Haiti, the more affluent were better able to adapt in situ in communities of origin (Milan et al., 2015 and 2016); this would need to be studied further as a potential adaptation strategy in other countries.

Adapting by type of impact, regardless of type of mobility

a. Implications of movement for preparedness for future disasters and early warning systems

In all the countries surveyed, moving out of harm's way was a strategy used by many to prepare for future hazards and thus decrease potential harm. Migration is associated with increased preparedness of migrant households against future hazards through preventive measures taken compared with non-migrant households. Such measures include mobility as one adaptation strategy.

EWS on hazards have not reached the large majority of migrant and non-migrant households in the Dominican Republic, Haiti and the Republic of Mauritius. Local authorities should thus reinforce EWS to avoid loss and damage and reduce the risk to displacement.

b. Implications of financial and social remittances: Reducing poverty and passing on new skills

Financial remittances are probably the best known link between migration and human development. In this research, the impact of remittances on the community of origin varied across countries, which complicates drawing generalizable conclusions. While in Viet Nam mostly low-income households surveyed received remittances, in Kenya remittances were mainly sent to high-income households. Overall, among households that received remittances, the lower the household income, the larger the share of remittances in that household's income. This indicates that migration is an important mechanism to reduce poverty, including in the context of environmental and climate change.

Remittances remain a lifeline for the poor as they are spent mostly on basic necessities, such as food. In all countries studied but mostly in Viet Nam, the Dominican Republic and Haiti, remittances were predominantly used for poverty reduction by securing basic needs instead of long-term investments that could have a positive

influence on the community's development and potential adaptive capacity. Still, in all countries except Kenya, mainly low-income households received remittances. In Haiti and Viet Nam these were partly spent on education, which indicates that at least a portion of remittances was invested in future adaptive capacity. In the Dominican Republic, where mostly low-income households received remittances, the bulk of remittances was used for coping strategies instead of longer-term adaptation measures. In Kenya, mostly high-income households received remittances, but these were not spent on long-term investments. Mobility thus likely increases inequality among households in Kenya, where higher-income groups receive remittances. Generally, high-income households that receive remittances could use these funds for longer-term investments, which could in turn benefit adaptation strategies. In summary, financial transfers only enable some long-term investments in areas such as education and savings, but to a lesser extent. The potential of remittances to impact adaptive capacity is thus less than the possible impact on poverty reduction. As remittances can enable long-term investments in areas such as education and savings, this potential could be strengthened further through specific programmes.

An important finding is that mobility enabled many households to learn new skills, which can then be applied or taught. At least 40 per cent of households indicated that their migrants acquired new skills while away, making the movement beneficial in the long term. Migrants were also able to acquire new skills and use them in their place of residence. These social remittances can help foster adaptive capacity in vulnerable households and contribute to human development more generally. However, these benefits have hardly been recognized at the policy level, where the focus tends to be on the perceived negative impacts of migration.

c. Implications for health care, education and family relationships

The perceived impact of different types of mobility on health conditions, education and family relationships was mostly positive or negligible. This finding highlights how migration can help

reduce vulnerability and enable a higher level of human development more generally. Comparing the perceptions to recorded data on access to health care and education shows mixed results across countries, with migrant households being better or worse off than non-migrant households.

d. Implications for access to water, food, electricity and housing standards

Non-migrant households had more access to clean water. Access to electricity worsened for migrant households while it improved for non-migrant households. Housing standards tended to be lower compared with non-migrant households; this is likely linked to movements to informal settlements in urban areas. Access to these basic services thus needs to be better planned in areas where a majority of migrants tend to reside, such as informal settlements.

The effects of mobility on food security were similar to those on education level and health conditions, rated as mostly positive, in particular in the Republic of Mauritius. Migrants and their families were slightly better able to guarantee food security, highlighting the importance of migration as a lifeline for the poor.

e. Implications for security and discrimination of migrants

Migrant households tended to be more likely to be affected by discrimination in accessing employment and social services, as well as face higher levels of insecurity, than non-migrant households. These point to the need for measures to ensure their equal rights are protected. Rights-based policy responses thus need to ensure persons regardless of status have equal access to key services.



Mekong River Delta, Viet Nam. © 2015 IOM (Photo: Susanne Melde)

6

6. Conclusion: Implications for policy

Susanne Melde and Frank Laczko

The central question posed at the beginning of this report was: “How can migration, displacement and planned relocation benefit or pose challenges for adaptation to environmental and climate change?”. This study sought to understand these impacts better in order to inform policy responses on managing mobility and facilitate adaptation to environmental change. This final chapter examines the key policy implications of the MECLEP project – one of the first major comparative studies of quantitative data in this field.

6.1. Main findings of the study

The study looked at three types of movement. “Migration” was used in a broad sense to mean people moving within or outside their country for a variety of reasons. The term encompassed: (a) movement for a range of purposes, for example in search of employment or education, or to reunite with family members; (b) displacement, or forced movement due to a disaster; and (c) relocation of communities to a safer place in light of irreversible changes to their environment or hazards such as volcanic eruptions.

Migration has been found to be a **positive adaptation strategy**. Seasonal migration in Haiti has been associated with less vulnerability, which could be due to both migrant households generally being more resilient or the positive implications of the move for reducing vulnerability. While causality is difficult to establish, both causal links may apply.

In the Dominican Republic and Viet Nam, case studies showed that the majority of households that moved actually belonged to the lowest income quintiles. This indicates that migration is a strategy that is also accessible for the poorest segments of society, countering findings of other studies that migrants usually did not belong to the

lowest income levels. Most of the movements recorded in all five countries surveyed were internal, as migration within countries is a less costly process than international migration and thus a more accessible strategy for the poor. In the Dominican Republic, nearly 30 per cent of migrant households surveyed were relocated by the government and is likely to have included the poorest. Migration can also be an adaptation strategy for the poorest, as has been shown in the case of Viet Nam. In other cases, the less affluent have found themselves “trapped”, meaning they wanted to leave in light of exposure to hazards, but did not have the means to do so and were thus particularly vulnerable.

Confirming the findings of other studies, displacement³⁹ in Haiti has been found to be a **challenge for adaptation** in that the most vulnerable groups are more prone to displacement and displacement increases vulnerability further. However, evacuation, or affected populations having to leave their homes, in itself is an important protection mechanism. The impact of displacement on vulnerability nonetheless needs to be addressed, ideally by avoiding forced movement in the first place.

Planned relocation⁴⁰, as case studies in the Dominican Republic, Papua New Guinea and Viet Nam showed, can both reduce harm and entail benefits, but also lead to new vulnerabilities. The

39 Displacement is understood as forced migration, i.e. migration under constraints, where neither the conditions of the migration nor its destination or timing are freely chosen by the migrants (see Chapter 2).

40 Planned relocation is defined in this report as “permanent (or long-term) movement of a community (or a significant part of it) from one location to another, in which important characteristics of the original community, including its societal structures, legal and political systems, cultural characteristics and worldviews are retained: the community stays together at the destination in a social form that is similar to the community of origin” (Campbell, 2010:58–59).

implications of planned relocation processes for adaptation of the affected communities **are thus mixed**, with reducing threat to life by moving populations out of harm's way an obvious benefit. However, a lack of sustainable livelihoods may lead to an increased level of vulnerability to future hazards and potentially undermine human development more generally.

The concept of “trapped populations” was found to be particularly applicable to households **in the Dominican Republic, Kenya and the Republic of Mauritius**. In these three countries, it was particularly the poorest who responded that they “had to stay”, implying that they did not have the means to leave an area potentially exposed to hazards. The results of this research echo findings of similar studies that it is particularly the poorest who are most exposed to disasters and environmental change. Yet in Haiti and Viet Nam, those who responded that they had to stay and could not migrate (without elaborating on their reasons) belonged to the most affluent households. In Haiti, households from the highest income quintiles were better able to **adapt in situ** (Milan et al., 2015 and 2016). In Viet Nam, it was assumed that those households had more savings and own land and property that they did not wish to abandon. Whether these households are also better able to adapt and are more resilient than poorer families would need to be studied further. In Haiti and Viet Nam, the more affluent households thus may potentially have had a choice to move but decided to stay, while in the other countries the poorest were not able to move. Whether people can move or not is thus context-dependent, not just based on income levels.

In addition to analysing different forms of mobility and those who cannot move for different reasons, this study focused in particular on the impact of these movements on adaptation. In all five countries surveyed, households **already used migration as a strategy to increase preparedness for future hazards**, and thus resilience. Migration is further linked to a higher likelihood of adopting preventive measures, including migration and other actions such as using better building materials. EWS, as a way to reduce risks of displacement, loss and damage, have not reached the majority of households surveyed in the

Dominican Republic, Haiti and the Republic of Mauritius. As this is a general issue that affects both migrant and non-migrant households, related efforts should focus on both groups and not just on ensuring migrants are reached.

In terms of economic implications, in all countries surveyed migrant households perceived a positive and, to a lesser degree, negligible impact of migration on income and employment, highlighting how mobility can represent an **income diversification strategy**, including in the context of environmental degradation and climate change. The data showed that remittances – the funds migrants send to their families – accounted for a higher share of household income among lower-income groups. This underlines that **migration is important for poverty reduction**. This finding is further underlined by remittances mostly being spent on basic necessities, in particular food. Financial remittances were also used for long-term investments on education and savings but to a lesser extent than on food and housing. **The potential impact of remittances on adaptive capacity to better resist hazards is thus less than on poverty reduction.**

Remittances can also be of a social kind, when migrants **transfer skills**, ideas and knowledge. At least 40 per cent of migrant households in all five countries learned new skills through migration, and – to a lesser degree – applied them and taught them to others. This knowledge transfer can make the movement beneficial in the long term, by increasing preparedness for future hazards through alternative sources of income and knowledge of how to better prepare for a changing environment, for instance by using new crop types or varieties more resilient to climate change.

Migrant households further considered the effects of mobility on health conditions and education as mostly positive or having no impact at all. Therefore in these cases **migration entailed benefits for adapting** to “actual or expected climate and its effects” (IPCC, 2014) by improving the state of health, likely through better access to health care as well as education. The latter can help increase knowledge on adaptation measures as well as employment opportunities in sectors less reliant on weather conditions than agriculture.

One of the three most important areas where migrant households fared less well compared with non-migrant households is housing materials (i.e. the robustness of a residence's walls). Households with at least one migrant tended to live in houses with less robust material, potentially making them more vulnerable to disasters such as storms and floods. In relation to housing materials, **migration thus potentially undermines adaptation**, despite the movement in itself potentially fostering adaptation by helping the migrant move out of harm's way.

Migrant households are also more often discriminated against and excluded from employment, health care and education and are more likely to face security incidents. This can **hamper adaptation** when migrants cannot access the social services needed for human development more generally and better preparedness and resilience to future hazards.

6.2. The importance of context for developing policy recommendations

This study looked at different forms of mobility – international migration, internal migration either for work or due to displacement, and relocation – and found that the majority of movements in the context of environmental degradation take place within countries (see Chapter 5). As part of migration, short-term, seasonal and long-term forms of migration were assessed. Some people may be forcibly displaced, some relocated and others may move in search of work. Each of these forms of mobility may have different implications for policy.

The socioeconomic and policy context in the case study countries differed significantly, making it challenging to identify common implications for policy. For example, four of the six countries are SIDS; others, such as Haiti, are extremely poor, while Viet Nam and Kenya are lower-middle-income developing countries. The Dominican Republic and the Republic of Mauritius are upper-middle-income developing countries (World Bank, 2015a). Most, if not all, of these countries have recognized the challenges related to disaster-induced displacement and the need

for planning relocation as a last resort. However, the potential beneficial effects of mobility on adaptation to environmental and climate change have hardly been recognized yet. In several countries, the MECLEP project provided the first framework to discuss migration in the context of environmental stressors, a link that often had not been established before.

6.3. Policy recommendations

It is important to keep in mind that discussion of policy in this report is not limited to migration policy. The movement of people in the six case study countries has implications for many different policy fields, including human development, human rights, environment, social and urban development, and humanitarian policies (IOM, 2014b).

The overall objective of this study was to explore how different forms of mobility, displacement, migration and relocation could support or hinder “adaptation to environmental change”. This is a complex question given that how “adaptation” is defined and measured can vary in different countries. As discussed in Chapter 2, the question of “adaptation” can be looked at from different vantage points, and it is important to keep in mind the question “adaptation for whom?”. Is migration helping migrants, the places they left behind, or the communities to which they moved adapt? Migration continues to be considered as a failure to adapt or as undesirable in many countries.

The following are some common themes and messages for policymakers which emerged from this study.

1. Time to act now: Maximizing migration as an adaptation strategy to environmental stress

Integrating migration as an adaptation option into environment and climate change policies

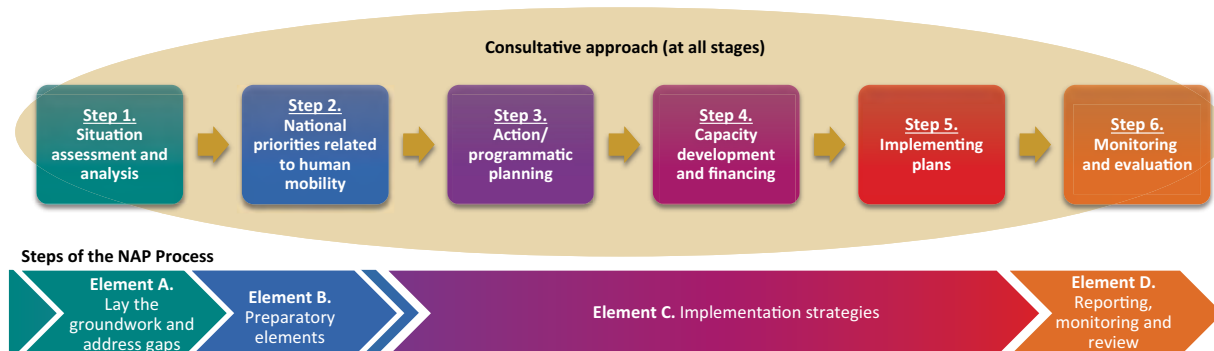
This study demonstrates that migration is a reality in all six countries, and is already having a positive impact on the capacities of people and countries to adapt to climate change. It is important to

note that the perception of negative impacts was lower compared with the benefits. The migrant households surveyed overwhelmingly indicated that migration had beneficial outcomes; a few negative repercussions were also cited. Responses at different levels of government need to take into consideration that people in the five countries surveyed considered the effects of migration predominantly as either positive or negligible, countering the existing policy focus on migration as a failure to adapt or as not desirable. Policymakers should not assume that people do not want to migrate at all, as some will move for a variety of reasons, which can have beneficial outcomes for adaptation to the adverse effects of environmental and climate change. Policy should thus focus on decreasing potential “maladaptive” outcomes, which entail increased vulnerabilities in other areas.

While the Governments of most countries surveyed, except Haiti and Kenya, favour in-

situ adaptation and relocation as a last resort, migration is already used as an adaptation strategy by households. However, this fact is hardly reflected in current national policy responses. There is often a policy vacuum as policy measures to promote migration are often absent or very limited. In fact, internal migration having an impact on national efforts to adapt to climate change is not fully recognized. Thus it is important to reiterate that policymakers should already factor migration more systematically into their efforts to address environmental and climate change (see Cordero Ulate and Lathrop (2016) on internal migration in the Dominican Republic). Useful guidance on this process has been developed for NAPs (see Melde and Lee, 2014 and IOM, 2016c; see also Figure 28 below). Furthermore, given the importance of loss and damage for SIDS such as Haiti, an institutional link to the UNFCCC’s Warsaw International Mechanism on Loss and Damage has been recommended (Milan et al., 2016).

Figure 28: Comparing the Integrating Mobility into National Adaptation Plans (IMNAP) steps with the UNFCCC’s NAP process



Source: IOM, 2016c based on:

1. An adaptation of the stages of development planning from the *Global Migration Group Handbook on Mainstreaming Migration into Development Planning* (2010), p. 21.
2. UNFCCC LDC Expert Group National Adaptation Plans. Technical guidelines for the national adaptation process (Bonn, UNFCCC Secretariat, 2012).

As financial and social remittances have been found to support poverty reduction but adaptation less so, remittances and skills transfer to origin communities can be supported further by enabling productive, long-term investment, such as in savings and education to name a few. Migrant households often reported less access to formal credit than non-migrant households. Programmes could thus focus on increasing financial access of migrant households to financial institutions. The mobile transfer and banking systems used

in Kenya, called M-Pesa and M-Shwari, are good examples (see Odipo et al., 2017). Existing literature has called for lowering transaction costs for remittances; efforts should focus in particular on domestic networks as internal migration is more likely to entail poverty reduction effects. Migrants acquiring new competencies and capacities through or while migrating should be supported, in particular with regard to knowledge on better adapting to a changing environment and new types of crops and other income-generating

activities which are more resilient to climate change. Skills programmes should also be linked to labour market needs for sustainability.

Sharing good practice policy examples

Generally, when migration is recognized as a factor that is impacted by the environment and could potentially affect development, it is usually regarded as a negative factor which needs to be restricted or curtailed. The MECLEP study, however, discovered some examples of innovative practices which seek to maximize the benefits of migration, for example in Haiti and Kenya. Haiti has integrated the environment and climate change in its planned new migration policy, which focuses mainly on sustainable development, and control and regulation. As part of sustainable development measures, the draft Migration Policy of Haiti includes explicit references to internal migration. At the same time, it fosters exchange with Haitian diaspora members on reforestation of the country and other environmental concerns, as well as the integration of migration into the National Adaptation Plan of Action, as well as the country's DRR policy (Government of Haiti, 2015). The inclusion of both internal migration linked to environmental stressors and contributions by Haitian diaspora members to protecting the environment and adaptation in the draft Migration Policy of Haiti is based on input from the research conducted in the framework of the MECLEP project.

Mobility can also be included in climate change and adaptation policies. The draft Migration Policy of Haiti equally stipulates the integration of internal and cross-border migration in the country's National Adaptation Plan of Action. Kenya's National Climate Change Adaptation Plan underlines migration as a beneficial adaptation strategy, highlighting the example of pastoralists moving to urban centres to adapt to the impact of climate change on their livelihoods (Government of Kenya, 2010 and 2016). These examples need to be publicized more widely and may offer the potential to be replicated in other countries.

2. Fostering policy coherence through data collection, research and capacity-building

Preparing national assessments on migration, environment and climate change

In all countries it was evident that different forms of mobility are not being managed in a comprehensive fashion. Policy responses tend to be ad hoc and there is a lack of policy coherence. A useful way of addressing this challenge is to encourage countries to prepare national assessment reports. For this study, each country prepared a national review of all existing data, research and policy relating to migration and the environment.⁴¹ Bringing this information together in one place, in partnership with national stakeholders from different policy spheres, helps to raise awareness and foster dialogue about the interlinkages between different policy areas. By systematically assessing the evidence available, it is also possible to identify key knowledge gaps. The national assessment reports prepared in the six case study countries were prepared at relatively low cost and provide a timely overview of current evidence relating to migration, environment and climate change. These reports provide a useful benchmark for future analysis, in particular the identification of climate-vulnerable areas and household survey sites, and could be easily updated on a regular basis. Other countries could clearly learn from the experiences of the six countries and develop similar reports as a first step in addressing environmental migration. If more countries prepared such national assessments, it would provide policymakers with understanding of how migration and environmental challenges are being tackled around the world and equip them with knowledge on how to address such challenges in their own country. It equally helps to engage with local authorities who are often in charge of implementing adaptation plans at the substate level.

It is further recommended that TWGs be established, as was done in each of the six pilot countries, where such groups comprised policymakers, academics and civil society

⁴¹ See <http://environmentalmigration.iom.int/country-profiles>.

representatives at the national level. The TWGs guided the work of the local consultants preparing national assessments and provided key data and documents. This helped bridge policy silos, a good practice recommended to the Executive Committee of the Warsaw International Mechanism on Loss and Damage by a group of experts in 2016 (IOM, 2016e). In Papua New Guinea, the MECLEP TWG became part of the wider adaptation TWG, ensuring continuity after the end of the project and integration of mobility concerns into wider adaptation issues.

The glossary of terms related to migration, environment and climate change prepared in the framework of the MECLEP project⁴² is an important tool to ensure coherence of the definitions used (IOM, 2014a). Similar recommendations were made with regard to the development and use of coherent terminology in an expert meeting on migration, displacement and planned relocation linked to climate change (IOM, 2016d).

Collecting data on internal migration

Surveys designed to answer developmental and environmental questions often do not include questions about migrants. A good practice in this regard is the recommendation of the draft Migration Policy of Haiti to include a migration module in the census, and to facilitate data collection and research on internal migration and people affected by disasters.

The review of existing data and research in the six case study countries has revealed that the current evidence base is often fragmented and limited. A key implication for policy arising from this study is that national authorities need to make changes to their data systems if they are to understand how in particular the movement of people affects adaptation to environmental change. Some countries do not collect data on internal migrants, which have been found to be the predominant group in the MECLEP surveys, hampering evidence-based approaches by local policymakers. The findings of the survey in the Republic of Mauritius include a recommendation to establish a regular data collection system on migration to inform in particular local authorities regarding potential influxes into urban areas

(Sultan, 2017). In the case of the planned relocation of Manam islanders in Papua New Guinea, core data on the population to be relocated needs to be collected to inform the movement (Connell and Lutkehaus, 2016).

Building capacities to enhance understanding of the migration–environment nexus

Discussing the relationships between migration and the environment revealed not only a dearth of research capacities on the topic, but also a lack of awareness on how migration can influence climate change adaptation and vice versa. In the framework of the MECLEP project, the first-ever training manual on migration, environment and climate change was developed and tested. It is available in five languages (English, French, Spanish, Russian and Azerbaijani).⁴³ The training workshops at the national level highlighted both the need to prepare national assessments in order to map and prioritize the challenges countries face, and the need to increase the knowledge of government representatives to mainstream migration into adaptation plans and across all relevant policy areas. The capacity-building workshops also proved useful in fostering dialogue among policymakers at various ministries addressing migration, environment and development.

There are few researchers in the pilot countries who are experts on the links between migration, environment and adaptation. Therefore, conducting the national assessments and household surveys with local research teams helped enhance the capacity of local researchers to engage on the topic. Generating interest among postgraduate students and researchers will have important multiplier effects on building up a robust evidence base in the future.

3. Prioritizing vulnerable groups

This research has demonstrated that certain groups are more vulnerable than others. In order to leave no one behind, policy responses should focus in particular on women, the elderly and those unable to move (the so-called “trapped populations”).

42 See <http://environmentalmigration.iom.int/glossary>

43 See <http://environmentalmigration.iom.int/training-manual>

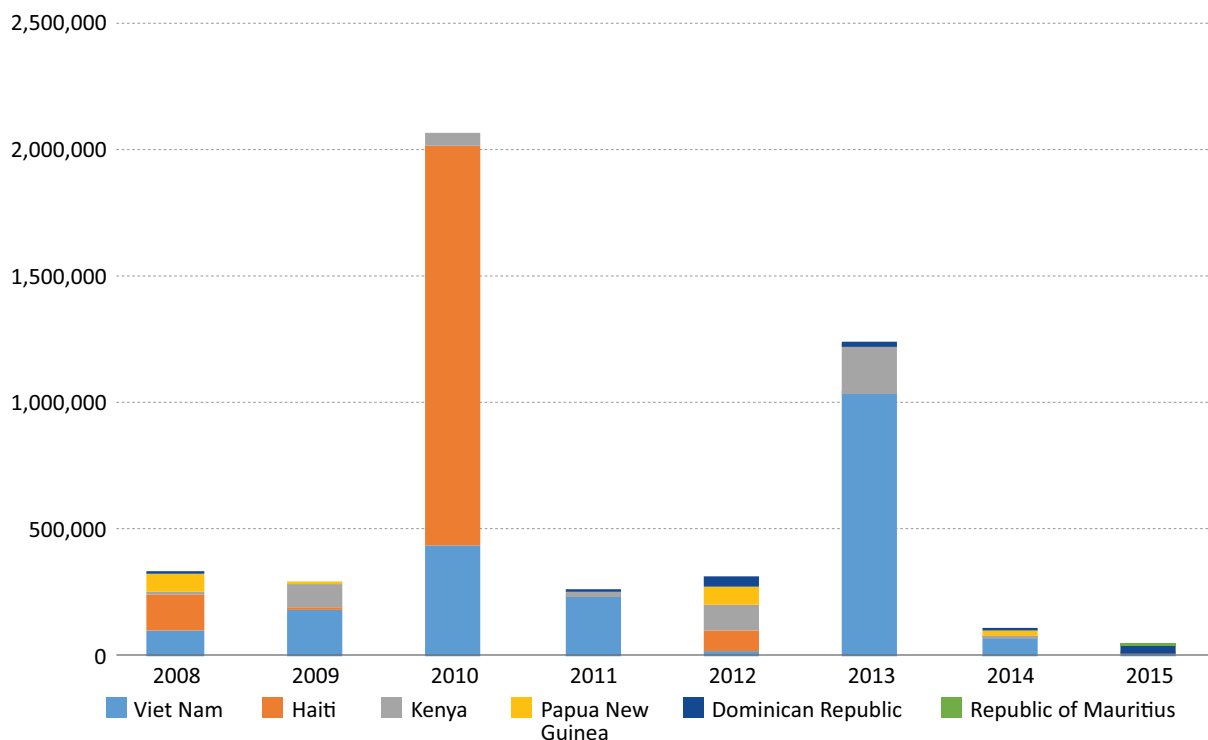
Prevention: Reducing the risks of displacement and increasing resilience

Displacement poses high risks, confirming the need for investing in DRR and resilience “to prevent, minimize and address displacement” as called for in the 2015 COP21 decision on loss and damage. A study for the Overseas Development

Institute found that merely 0.4 per cent of official development aid has been allocated to finance DRR (Kellett and Caravani, 2013:5). It is therefore important to mainstream DRR into development policies. Yet data on the six MECLEP pilot countries alone demonstrates the extent of displacement already (see Figure 28).⁴⁴

⁴⁴ Covering the entire pilot countries; thus the events did not necessarily occur in our research sites.

Figure 29: New internal displacement due to disasters, 2008–2015



Source: Own elaboration based on IDMC (2016) data.

Given that approximately 26 million persons have been newly displaced by disasters annually since 2008 (IDMC, 2016), financing DRR should be considered a priority to prevent or minimize displacement. This was also highlighted in a focus group discussion in Nairobi:

In most cases, both State and non-State actors respond to, rather than, prevent disasters from occurring. We have tried to plant trees and grass on the river banks but some people clear this vegetation to put up new structures/houses. There is a need for more sensitization in order to enhance disaster risk awareness. The population is growing and land is becoming scarce, most people therefore opt to rent structures/houses on the riverine areas because such units are cheaper. In so doing, they are exposing themselves to more risk (Odipo et al., 2017).

A focus group in Kisumu, Kenya, reached a similar conclusion on the need to increase DRR:

The extent of damage and lack of proper assessments prior to such assistance is because the Government lacks local structures in order to respond efficiently to disasters and, at times, rely on “brokers” to distribute donated items. More needs to be done to educate the residents on disaster mitigation and response (Odipo et al., 2017).

While addressing displacement has been a priority in the pilot countries, more awareness-raising is needed to encourage prevention of displacement. This equally helps to decrease the vulnerability of trapped populations, who may be particularly at risk and exposed to hazards but have no means to leave as a strategy.

Furthermore, both communities of origin and destination of migrants should be factored into DRR policies and programmes. In the case of relocated islanders who returned to Manam from the Papua New Guinea mainland, microfinancing programmes have been recommended. Funding from donors could help Manam residents to purchase boats for evacuations during emergency situations, as well as to access social services and basic necessities such as buying and selling food at local markets on the mainland to address a lack of cash and malnutrition (Connell and Lutkehaus, 2016).

It is furthermore recommended to address environmental degradation and resultant vulnerabilities. In the case of the Dominican Republic, improving agricultural practices to increase conservation of nature as well as to yield more resistant crops in light of a changing climate is recommended. Traditional knowledge should inform the latest research for more sustainable practices (Cordero Ulate and Lathrop, 2016).

Developing and managing early warning systems

When disasters occurred in the pilot countries, most people interviewed did not receive an official warning in time and were often taken by surprise. In many countries, EWS seemed to be lacking and/or not reaching the populations included in the surveys. Where EWS exist, they often reached the population too late to enable adequate preparation. Therefore the capacities, both in terms of human and financial resources, of local authorities should be strengthened. Participatory development of evacuation plans and dissemination of information to the population, including migrants, in different languages and formats are important to avoid harm to life and property. Planned and pre-coordinated official public information, the use of latest technology such as mobile phone applications, and access to the latest information via various media sources such as the Internet are all ways to reach a wider population before and during disasters and to provide up-to-date information on developments.

Integrating gender concerns

Women and men are affected differently by environmental stressors and their ability to adapt may also differ. The research in Haiti demonstrated how households headed by women were considerably more vulnerable than households headed by men (Milan et al., 2016). A field visit to a relocated village in Viet Nam's Mekong River Delta showed that men seemed to be able to continue their economic activities, while women were left without livelihoods. The move did not lead to new income opportunities for women, making them potentially more vulnerable to future environmental shocks (Entzinger and Scholten, 2016). In other cases, men may be more vulnerable or affected. Gender relations likely further impact decisions of who can and will migrate as well as the effects of mobility on individuals, their families and their capacity to adapt (IOM, 2014b; Oakes, Milan and Campbell, 2016).

In the Republic of Mauritius, it was mostly seniors who remained in the communities of origin. As family members moved away for work or other reasons, the important social function of caring for the elderly was impacted (Sultan, 2017). Policy responses should be developed through a gender lens and take into consideration how men, women, boys, girls and the elderly may be affected differently by both hazards and migration.

Protecting trapped populations

The more affluent tend to be able to remain and adapt in situ, as found in the surveys in the Dominican Republic and Viet Nam. However, it is unclear how efficient and successful higher-income households adapt to hazards and what makes some decide that they cannot move. Nonetheless, this is likely related to increased savings, enhancing resilience to environmental shocks, and land and property ownership that keeps them from leaving.

In particular, poorer groups within trapped populations may be in need of support, because of their increased exposure to hazards and consequently displacement and their inability to

move elsewhere. Governments should upscale and increase financing of programmes and policies that aim to reduce the risk of hazards and increase the resilience of vulnerable communities, particularly the poorest and most vulnerable both in areas of origin and destination.

Sharing good practices for locally driven and rights-based planned relocations

When other adaptation options, such as increasing resilience and mitigation, are no longer feasible, relocating communities to a safer place may need to be considered. The findings of this study showed that planned relocation decreased exposure to hazards, but increased vulnerability in other dimensions, such as higher levels of indebtedness as found in Viet Nam (Chun, 2014a; b) and fewer income sources as in the case of Manam islanders in Papua New Guinea and in Nuevo Boca de Cachón in the Dominican Republic (Connell and Lutkehaus, 2016; Cordero Ulate and Lathrop, 2016).

Existing studies from different fields provide an important evidence base to inform relocation. Adequately planning for sustainable income sources through consultation of the affected population is fundamental to enabling a sustainable outcome when a community needs to be moved elsewhere as a last resort. Many good practices have been identified that could help to prevent forced displacement in the future, decrease vulnerability and exposure to new harms and increase protection of the fundamental rights of the affected populations.

As underlined by the case studies, measures that could increase the benefits of relocation include: early planning of the move; adequate funding and political support; and consulting the affected population to enable locally driven solutions, including viable income-generating activities for both men and women and the surrounding population in the new location (Entzinger and Scholten, 2016; Connell and Lutkehaus, 2016; Cordero Ulate and Lathrop, 2016). In particular, when relocation takes place over a longer distance, vocational training and broader institutional and economic development programmes should be devised as recommended in the case study for Viet Nam (Entzinger and Scholten, 2016:37).

Integrating migration into urban planning to reduce challenges for migrants and communities of destination

Migration in the context of environmental degradation and disasters is often linked to larger processes of urbanization. First, the influx of migrants into urban areas has been associated by local authorities with negative impacts on infrastructure. Therefore, in the case of the Republic of Mauritius, a data collection mechanism was recommended to inform local authorities about the magnitude of new arrivals (Sultan, 2017). This can improve accounting for internal migrants – in particular in planning social services, such as health care, schools, sewage and waste systems, and housing more generally.

In Viet Nam's Mekong River Delta, the potential negative impact of rural–urban migration on urban infrastructure is aggravated by rural migrants not always having the same entitlements as other urban dwellers. This in particular is linked to the household registration system (called *ho khau*), which would need to be adapted to ensure equal access to services for internal migrants (Entzinger and Scholten, 2016).

Second, as pointed out by the Foresight report (2011), migrants may move into hazardous areas without enough knowledge of the disaster risks in that area (e.g. if prone to landslides or (flash) floods). Providing viable land for settlement can be one way to address these potential risks for growing urban populations. Furthermore, information campaigns targeted at prospective migrants and vulnerable areas could help raise awareness and share evidence on hazardous, climate-prone areas.

Third, issues such as lower housing standards, discrimination against migrants in terms of access to employment and social services such as health care and education, and higher levels of insecurity need to be addressed.

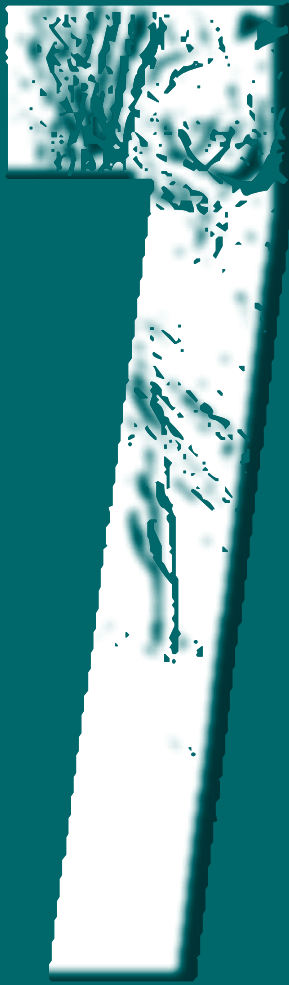
This study demonstrated how migration and adaptation to environmental and climate change can be closely linked and reinforce each other. The debates and research on the migration and development nexus can be taken as a guide for the way forward. Initially, discussions on

migration and development at the international level and associated policies at the national level considered migration as a failure of development, but have since advanced to consider mobility a factor for development. This is illustrated by the groundbreaking inclusion of migration in several of the Sustainable Development Goals of Agenda 2030 of the United Nations in 2015, which countries seek to implement in the coming years. A similar advance is needed for considering migration as part of adaptation strategies to environmental and climate change at subregional, regional and national levels. Important steps have been made at the global policy level in recent years, in frameworks such as the Paris Agreement, the Sendai Framework on Disaster Risk Reduction, SIDS policy processes, the Nansen Protection Agenda on Cross-Border

Displacement and the 2016 New York Declaration. These commitments and recognition of migration as a potential adaptation strategy need to be integrated into national policy frameworks. Human mobility is not necessarily undermining adaptation to environmental and climate change in communities that are resilient; it can potentially lead to increased resilience. Migration can be an adaptation choice, among others. The challenge is to ensure that it does not become a necessity or increase vulnerability. Human mobility thus needs to be recognized as a potential benefit for adaptation; at the same time, policies need to prevent and address displacement, as well as the challenges of planned relocation and those who cannot move. It is time to move from evidence to policy.



View of Manam island from the main land, Papua New Guinea.
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Two surveyors using the questionnaire during the researcher training in Nairobi, Kenya.
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8. Annex



MECLEP Household Survey

D1.- Questionnaire number	D2.- Date of data entry	D3.- Name of data entry officer

A.- IDENTIFICATION OF THE VILLAGE

A1.- REGION _____

A2.- DISTRICT _____

A3.- MUNICIPALITY _____

A4.- VILLAGE NAME _____

B.- IDENTIFICATION OF INTERVIEWEE

B1.- GPS. Latitude: _____ B2.- GPS. Longitude: _____

B3.- FULL NAME OF INTERVIEWEE _____

B4.- TELEPHONE OF INTERVIEWEE _____

C. IDENTIFICATION OF THE ENUMERATOR

C1.- NAME OF INTERVIEWER _____

C2.-	DATE		C3.-	C4.-	C5.-
	DD	MM			
NUMBER OF VISIT			RESULT		
1				••	••
2				••	••

C6.- OBSERVATIONS: _____

D. PRESENTATION OF THE ENUMERATOR, IOM and MECLEP

This document has been produced with the financial assistance of the European Union. The views expressed here do not necessarily reflect the views of the European Union or the International Organization for Migration (IOM).

SECTION 1: Socioeconomic profile of the household

(1.10) In the last ten years, has this community (USE ACTUAL NAME) been affected by?
Read and answer all the options with:

1. Yes, several times/ 2. Yes, once / 3. No

1. Drought/ Irregular rains
2. Landslides
3. Wildfires
4. Volcanic eruption
5. Floods
6. Cyclone
7. Storm surge
8. Riverbank erosion
9. Earthquake
10. Other. Specify:

(1.11) Among these, was there a single climatic/environmental event that affected your livelihood more than any other?

1. Yes - specify number from table above
2. No ▶ (1.14)
99. Don't know

(1.12) In which year did this occur?

1. Yes, with enough time to act
2. Yes, without enough time to act
3. No
99. Don't know

READ IMPORTANT MESSAGE IN FOOTNOTE

(1.14) Now, what is the main source of income for your household?
If the answer is "other" specify here: _____

(1.15) 10 years ago, what was the main source of income for your household?
If the answer is "other" specify here: _____

(1.16) Now, besides the activity you just mentioned, does your household have other sources of income?
If the answer is "other" specify here: _____

MULTIPLE ANSWERS POSSIBLE

(1.17) 10 years ago, besides the activity you just mentioned, does your household have other sources of income?
If the answer is "other" specify here: _____

MULTIPLE ANSWERS POSSIBLE

1. Employed
2. Small enterprises
3. Street sales
4. Savings
5. Real estate
6. Remittances (people in Haiti)
7. Remittances (people abroad)
8. Agriculture
9. We don't have another source
10. Other. Specify above.
99. Don't know/ refused to answer

(1.18) Now, does your household own a house and/or land?

1. House
2. Land
3. House and land
4. Neither house nor land
99. Don't know/ refused to answer

(1.20) Now, which of the following items does your household have?

MULTIPLE ANSWERS POSSIBLE

(1.21) 10 years ago, which of the following items does your household have?

MULTIPLE ANSWERS POSSIBLE

1. Television
2. Mobile phone
3. Radio/ transistor
4. Computer/laptop
5. Stove/wood burner
6. Sewing machines
7. Motorised two wheelers (scooters/bikes)
8. Motorised four wheelers (cars, jeeps, buses)
9. Non motorised vehicles (carts, bicycles etc)
10. Boat
11. None of them
99. Don't know/ refused to answer

(1.22) Now, does your household have one or more chronically sick or permanently injured member?

(1.23) 10 years ago, did your household have one or more chronically sick or permanently injured member?

(1.24) Now, does your household have access to good quality health care?

(1.25) 10 years ago, did your household have access to good quality health care?

(1.26) Now, does your household have access to clean and safe drinking water at least once a week?

(1.27) 10 years ago, did your household have access to clean and safe drinking water at least once a week?

(1.28) In the last year, has there always been enough food to feed all household members with 3 meals a day?

(1.29) 10 years ago, has there always been enough food to feed all household members with 3 meals a day?

(1.30) Now, does your household have access to electricity every day?

(1.31) 10 years ago, did your household have access to electricity every day?

(1.32) In the last year, did your household face any security problem?

(1.33) 10 years ago, did your household face any security problem?

(1.34) In the last year, would you say that your household has suffered from discrimination/exclusion in employment, health or education?

(1.35) 10 years ago, would you say that your household has suffered from discrimination/exclusion in employment, health or education?

1. Yes
2. No
99. Don't know/ refused to answer

(1.36) Now, if your household needs help, who can you revert to?
If the answer is "other" specify here: _____

MULTIPLE ANSWERS POSSIBLE

(1.37) 10 years ago, if your household needs help, who can you revert to?
If the answer is "other" specify here: _____

MULTIPLE ANSWERS POSSIBLE

1. Family
2. Friends
3. Neighbours
4. Other community members
5. Church/religious organisation
6. Other. Specify above.
7. Nobody
99. Don't know/ refused to answer

Important: if yes to question (1.11), "before" in the following questions should be read as "before the event..."; if no, before should be read "10 years ago"
now= past year, before = year before event or 10 years ago

SECTION 1 : Socioeconomic profile of the household

(1.38) Now, is anybody in your household member of one or more of the following organizations?

If the answer is "other" specify here: _____

CHECK ALL OPTIONS CORRESPONDINGLY

(1.39) 10 years ago, did anybody in your household member of one or more of the following organizations?

If the answer is "other" specify here: _____

CHECK ALL OPTIONS CORRESPONDINGLY

- 1 Water/waste or fisherman's group
- 2 Agricultural cooperative
- 3 Trader's association/business group
- 4 Credit or savings association
- 5 Religious group/organization
- 6 Political party/group
- 7 Sport, recreational, art, music group
- 8 Women's group/youth group
- 9 School/health committee
- 10 Labour union
- 11 Village/town council
- 12 Humanitarian or charitable organization
- 13 Other. Specify above.
- 14 We don't participate in any organization
- 99 Don't know/Refuse to answer

(1.40) Now, how much is your household's monthly income (on average)? _____ (local currency)

(1.41) 10 years ago, how much was your household's monthly income (on average)? _____ 1 (local currency)

99 N/A

(1.42) Now, does your household make use of formal (banks/financial institutions etc.) credit?

(1.43) 10 years ago, did your household make use of formal (banks/financial institutions etc.) credit?

(1.44) Now, does your household make use of informal (friends/family/neighbours/community associations or cooperatives, etc.) credit?

(1.45) 10 years ago, did your household make use of informal (friends/family/neighbours/community associations or cooperatives, etc.) credit?

- 1 Yes
- 2 No
- 99 Don't know/Refuse to answer

(1.46) Now, what is the financial situation of your household?

(1.47) 10 years ago, what is the financial situation of your household?

- 1 Savings
- 2 No savings, no debts
- 3 Debts
- 99 Don't know/Refuse to answer

(1.48) Now, what is the primary construction material of the housing unit's exterior walls?

If the answer is "other" specify here: _____

(1.49) 10 years ago, what was the primary construction material of the housing unit's exterior walls?

If the answer is "other" specify here: _____

SECTION 2: Migration history of the household

(2.01) For how many years has your household lived in this district?

(2.02) Has any household member moved in/out of this district for at least three months in the last 10 years?

- 1 Yes
- 2 No
- 99 Don't know/Refuse to answer

(2.03) If no, why?

▶ AFTER ANY ANSWER THE SURVEY FINISH HERE

- 1 We decided to stay/never thought about moving
- 2 We had to stay
- 99 Don't know/Refuse to answer

(SEE TABLE OF MIGRATION IN THE FOLLOWING PAGE)

(2.13) Have you received any support from the authorities to assist you with the (international/migration) migration process?

- 1 Yes, from local authorities
- 2 Yes, from the government
- 3 Yes, from NGOs/charities
- 4 Yes, from the Church/religious authorities
- 5 Yes, from international organisations
- 6 Other, specify
- 7 None
- 99 Don't know

Please indicate if you agree or disagree with each of the sentences below

(2.14) I would like my family and friends to live here in the future (even after I die)

(2.15) I miss this place when I am not here

(2.16) I feel safe here

(2.17) I am proud of this place

(2.18) I would like to move out of here

(2.19) I don't have anywhere else to go to

(2.20) I feel foreign here

- 1 Disagree
- 2 Neither agree nor disagree
- 3 Agree
- 99 Don't know

SECTION 3: Impacts of migration

(3.01) In the last ten years, how important was (internal/international) migration of one or more members of your household as a determinant of the socioeconomic conditions of your household?

1. Important	3 Unimportant
2. Of little importance	99 Does not know

Please indicate the impact of (internal/international/both) migration in your household on the following issues:

- (3.02) Income
- (3.03) Employment level
- (3.04) Skills available in the household
- (3.05) Food availability
- (3.06) Safety
- (3.07) Trade opportunities
- (3.08) Family relationship
- (3.09) Health conditions
- (3.10) Education level
- (3.11) Investments
- (3.12) Credit availability
- (3.13) In sum, what was the overall impact of (internal/international/both) migration on the socioeconomic conditions of your household?

1 Positive	3 Negative
2. No/negligible changes	

(3.14) In the last year, how much money has this household sent in remittances? _____ (local currency)

(3.15) In the last year, how much money has this household received in remittances? _____ (local currency)

If \$0 Go to the question (3.18) _____

(3.16) During the last 12 months, in which of the following items and services did your household spend most of the remittances?

(3.17) During the last 12 months, in which of the following items and services did your household spend the remittances?

READ ALL THE OPTIONS. MULTIPLE ANSWERS POSSIBLE

- | | |
|--|---|
| 1 Food | 11 Consumer goods for personal use (clothes, shoes) |
| 2 Housing | 12 Luxury consumer goods (jewellery, cosmetics, watches) |
| 3 Communication | 13 Disaster relief, recovery, and preparedness |
| 4 Transport | 14 Bought insurance, bond or share |
| 5 Agriculture | 15 Repaid loans |
| 6 Animal husbandry | 16 Sponsored another migrant worker |
| 7 Health care | 17 Community activities (festivals, sports, infrastructure) |
| 8 Education | 18 Other, specify: _____ |
| 9 Savings | |
| 10 Business venture (started a new one or invested in an existing one) | |

(3.18) What kind of skills or knowledge have the (internal/international) migrant (s) learned while away? *skill* **MULTIPLE ANSWERS POSSIBLE**

(3.19) What kind of skills or knowledge did the (internal/international) migrant have the opportunity to use back in the household? *usage* **MULTIPLE ANSWERS POSSIBLE**

(3.20) What kind of skills or knowledge did the (internal/international) migrant have the opportunity to teach back in the household? *training* **MULTIPLE ANSWERS POSSIBLE**

MAKE TOUT KI KORESPONN YO

- | | |
|--|-------------------------------------|
| 1 Electrical repair | 15 Plumbing |
| 2 Electronics repair | 16 Drilling |
| 3 Tailoring | 17 Accounting |
| 4 Welding | 18 Knowledge of English language |
| 5 Scaffolding | 19 Knowledge of another language |
| 6 Mason | 20 Knowledge of new livestock types |
| 7 Driving | 21 Knowledge of computer |
| 8 Cooking | 22 New business ideas |
| 9 Knowledge of new crop types | 23 Auto repair |
| 10 Knowledge of new crop varieties | 24 Skills related to mining |
| 11 Knowledge of improved cropping techniques | 25 School |
| 12 Carpentry | 26 Other: Specify _____ |
| 13 Machine tools | 27 None |
| 14 Brick making | |

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