

Migration, Environment and Climate Change: Working Paper Series

ISSN 2415-1106

No. 1/2016

This document has been produced with the financial assistance of the European Union (EU). The views expressed herein can in no way be taken to reflect the official opinion of the EU or the International Organization for Migration.

How can migration support adaptation? Different options to test the migration–adaptation nexus

François Gemenne¹ and Julia Blocher²

Introduction

Migration studies have long considered migration as a positive process aimed at adjusting to changes. One of the founders of migration studies, Ravenstein (1885), described migration as “life and progress”, whereas a sedentary population meant “stagnation”. Drawing on the *New Economics of Migration*, there is much empirical evidence to show that migration is an adaptation strategy which households use to diversify and support their livelihood strategies (Castles and Delgado Wise, 2008; Massey et al., 2007). Although discussed often, the application of the adaptation–migration nexus to the field of environmental and climate change has not been empirically tested. Furthermore, the policy apparatus needed to deliver this potential has not been developed or assessed (Adger, 1999; Barnett and Webber, 2010; McLeman and Smit, 2006).

For the public and decision makers, migration is still commonly perceived as a failure to adapt. The lack of consensus on definitions and terms, and confusion over the basic concepts in discussions of migration as it pertains to adaptation, make it difficult to promote the issue in the development and implementation of adaptation measures. A key challenge facing scholars

today is to flesh out the relationship between migration and adaptation, beyond the common wishful thinking of migration as a new adaptation strategy, a positive and somewhat performative vision of mobility. In this working paper, we conceive of migration as one strategy in the pre-existing livelihood trajectories and complex adaptive response system of households. Migration may ultimately have adaptive effects, that is, increasing households’ resilience to future changes; or, conversely, it may have maladaptive effects, further diminishing household resources³ and capacities.

In view of this complex phenomenon of migration, an important question arises surrounding the extent to which the literature on “environmental migration”⁴ conflates migration and adaptation. Considering migration as adaptation solely in regard to environmental changes may imply these movements exist outside the “normal” adaptation strategies. This creates a prescriptive view of migration from a sedentarist perspective and neglects the utility of non-environmental migration as an adaptive measure. This view thus leaves it to the outside observer to determine when

1 Politics of the Earth, Sciences Po Paris; Observatory of Environmental Migration, University of Liège; University of Versailles Saint-Quentin-en-Yvelines (CEARC); Le Centre de recherches internationales (CERI), Sciences Po Paris.

2 Politics of the Earth, Sciences Po Paris; Observatory of Environmental Migration, University of Liège.

3 Throughout this paper, “resources” refers not only to economic and financial resources but also to social, political, physical and (local) environmental capitals.

4 The International Organization for Migration (IOM) describes environmental migrants as “... persons or groups of persons who, for compelling reasons of sudden or progressive change in the environment that adversely affects their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad” (IOM, 2007, pp. 1–2).



This project is funded by the European Union



This project is implemented by the International Organization for Migration

and how adaptation is “successful” or “maladaptive”. Less work has been produced exploring migration as adaptation to non-environmental factors. As it is difficult to determine who the “environmental” migrants are, there are methodological challenges to accurately judge how migration contributes to adaptation of affected communities to climate change and environmental changes at large.

In order to attain greater clarity, more empirical evidence is required to clarify the processes underlying the migration–adaptation nexus. This is the goal of the Migration, Environment and Climate Change: Evidence for Policy (MECLEP) project.⁵ The present working paper serves as a point of departure for the research strategy of the MECLEP project.

The objective of this conceptual and methodological paper is therefore to flag different possible choices that can be made to study the relationship between migration and adaptation. Several methodological choices arise: Should one study the effects of migration in the broad sense or specifically the effects of *migration related to environmental changes*? Following this, should scholars investigate these effects on the migrant, the community of origin, the community of destination, or all of the above? In the interest of answering these questions, this paper emphasizes the *impacts* of migration rather than the causes.

Defining adaptation

Within the wider framework of climate change adaptation, the Intergovernmental Panel on Climate Change (IPCC) defines adaptation as the “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (Adger et al., 2007:869).

A body of evidence, part of which is outlined in this paper, indicates that migration has been a component of human adaptive systems to respond to both historical and contemporary climate stress. In this paper, we conceive of migration as one adaptive strategy in a complex adaptive system employed by households. Migration may not be the first adaptive response chosen or indeed the most appropriate or most successful mechanism (Brown, 2008). As a proactive strategy employed to confront risks or when other coping mechanisms have been exhausted, migration is noted by some to be a “successful” adaptation strategy only if it can increase the ability to rely on existing strategies (Tacoli, 2011b).

The assumptions implicit in the IPCC definition is that people have an accurate perception of climatic changes and their potential harm that actions taken to adjust will be necessarily positive, and strategies to respond to said changes are temporally static. This definition describes short-term coping strategies that mitigate harm as adaptive, which in many cases have proven to be maladaptive in the long term. Migrants hold a perceived ability to employ adaptation as a successful migration strategy as well as a perception of the relative challenges presented by climate change. These perceptions may be of equal importance in the use of migration as the actual or objective ability to diversify options to respond to risks presented by climate change (Grothmann and Patt, 2005).

Within a broader framework of climate change adaptation, Moser and Ekstrom (2010) take the IPCC definition further to remove the normative bias and these stated assumptions:

Adaptation involves changes in social-ecological systems in response to actual and expected impacts of climate change in the context of interacting non-climatic changes. Adaptation strategies and actions can range from short-term coping to longer-term, deeper transformations, aim to meet more than climate change goals alone, and may or may not succeed in moderating harm or exploiting beneficial opportunities.

On the other side of the coin, Warner (2010) suggested that while some forms of migration that could be considered environment-related may be adaptive, other forms of human mobility may indicate a failure of the socioecological system itself to evolve and adapt in response to external influences (c.f. Warner, 2010). This structural notion of migration as an adaptation strategy has been adopted by a number of researchers (Adger et al., 2002; Kniveton et al., 2008).

Maladaptation is given a strict definition by Barnett and O’Neill (2010) as any adaptation process that has a negative effect on any parties involved in the structure of the system itself – the migrant, the home community or the host community. Within McLeman and Smit’s (2006) conceptual model, the adaptation options available to households are reflected by their capital endowments. However, the authors stop short of exploring how the relationship between adaptive capacity and capital endowments affects the adaptation options available to individuals. These concepts are related to discussions surrounding immobility which explore the motivations, individual attributes and conditions of those who stay behind in both households that send migrants or not

⁵ See www.environmentalmigration.iom.int/migration-environment-and-climate-change-evidence-policy-meclep

(c.f. Jónsson, 2010; Foresight, 2011). An emerging area of study focused on immobile populations, those who choose to stay behind or are unable to move due to external pressure or lack of resources. These groups and individuals are likely to become increasingly vulnerable over time (Warner and Afifi, 2014). Among those who are involuntarily immobile are groups that could be considered “trapped,” for example those in disaster contexts who have the will to move but lack the resources to do so, and are essentially struggling to survive.

Researchers may benefit from using compatible definitions in empirical work. This paper and the research strategy behind the MECLEP project uses as its point of departure the definition of adaptive capacities presented by the International Organization for Migration (IOM):⁶

“[A]daptive capacity refers to the ability to anticipate and transform structure, functioning, or organization to better survive hazards” (IPCC, 2012:72). This definition underlines the need for access to resources to be able to move in the context of climate change, as well as other characteristics that play a role in the decision to migrate. Indeed, age, gender, cultural and ethnic belongings, marital status, education and migration history will most likely also play a role (Foresight, 2011; Warner et al., 2012).

The next section gives greater insight into the current body of knowledge contributing to this important area of inquiry.

State of the art: Scholarly debates on environmental migration

As considerations for the human consequences of climate change entered the policy sphere, the number of discussions on the migration–environment nexus rose significantly. As a result, scholars began to question the very relevance of this area of study as a separate category of migration (c.f. Morrissey, 2012). Multiple authors (c.f. Foresight, 2011) have suggested that the role of environmental change in complex and multi-causal migration phenomenon would be difficult, if not impossible, to extricate from other factors.

As a basis of this paper, we consider that environmentally induced migration is a justifiable field or subfield in the study of migration and displacement if one or more of the following crucial conditions are derivable:

- I. If migrant flows associated with environmental factors are significant in number;
- II. If the total stock of people forced to move due to environmental events and changes, for example people in protracted displacement following natural hazard-induced disasters or more gradual processes such as sea level rise;
- III. If migrant flows associated with environmental factors are insignificant, but these small numbers of migrants and non-migrant members of household have specific vulnerabilities resulting from or contributing to the migration decision-making process; or
- IV. If the outcomes of migration associated with environmental factors are different than for other categories of migration.

In fragile environments, migration is a common response to extreme vulnerability and is essential in satisfying basic needs. Migration can build resilience through enhancing livelihoods or as a sort of insurance strategy for households through diversification of income sources (Foresight, 2011). Significant empirical research demonstrates strong links between out-migration – both to internal and international destinations – to periods of environmental and climate stressors, in Bangladesh, Bolivia (the Plurinational State of), Burkina Faso, Ghana, Guatemala, India, Mali, Mexico, Peru, Senegal, the United Republic of Tanzania, Thailand and Viet Nam (Munshi, 2003; Henry et al., 2004; Feng, Krueger and Oppenheimer, 2010; Hunter, Murray and Riosmena, 2011; Tacoli, 2011a; Schmidt-Verkerk 2012; Warner et al., 2012; Nawrotzki, Riosmena and Hunter, 2013; Van der Land and Hummel, 2013). Results tended to reveal complex interactions, with numerous specificities based on local context, household characteristics, seasonality and temporality. A number of authors concluded that if certain conditions were met, migration could have positive results on the capacity of target groups⁷ to improve their resource base and adapt to changing conditions (Tacoli, 2011a; Warner et al., 2012; Van der Land and Hummel, 2013).

6 See https://publications.iom.int/system/files/pdf/meclep_glossary_en.pdf

7 In many of the studies referred to in this paper, “household” and “community” are used and defined differently.

A number of authors underline that those who migrate because of environmental changes often refuse to be considered as victims, but insist instead on their resourcefulness (Farbotko, 2005; Gemenne, 2011c; Blocher et al., 2015). The EACH-FOR project, a European empirical research project conducted between 2007 and 2009, concluded that migration was not always a last resort strategy in the face of environmental changes but could also be a voluntary choice aimed at reducing the exposure to risk and diversifying sources of income for many households (Jäger et al., 2009). Such observations were made irrespectively of the nature of environmental changes. Van Der Geest (2011) suggests that internal mobility was often part of traditional mechanisms to cope with adverse environmental conditions in Ghana, and environmental factors were not necessarily more significant than the social and cultural context. Jónsson (2010) comes to a similar conclusion in her review of 13 Sahelian cases of mainly internal migration related to land degradation. Mortreux and Barnett (2008) highlight that international migration was often part of a social routine in the Pacific, even when confronted to creeping sea level rise, as in the case of the small archipelago of Tuvalu. Already in 1966 Wolpert had shown that internal migration in the United States was an adjustment to environmental stress.

During times of peak environmental stress, however, households lacking the resources to migrate were less mobile, in part due to the need to prioritize basic necessities.

An important factor appears to be the disposition of, or lack of disposition of, various capitals required to migrate. Household resources may equate to the capacity to use migration as a strategy, capacity mediated by a number of important social, cultural and economic factors. This is supported by studies demonstrating there may be a U-shaped relationship of migration to deviation from typical rainfall variability (Nawrotzki, Riosmena and Hunter, 2013; Feng, Krueger and Oppenheimer, 2010). During times of relative abundance of environmental resources,⁸ households were able to free up the resources necessary for a family member to migrate and further reduce household vulnerability. During times of

peak environmental stress, however, households lacking the resources to migrate were less mobile, in part due to the need to prioritize basic necessities.

As a result, some recent works highlighted that migration could be a powerful adaptation strategy for populations faced with environmental changes. Black et al. (2011) noted that “although environmental change will alter an already complex pattern of human mobility, migration will offer opportunities as well as challenges” and called for fresh discourse and research on the linkages between migration and adaptation. In a paper prepared for the World Bank, Barnett and Webber (2010) argue that “migration is itself a strategy to sustain livelihoods in the face of environmental and economic perturbations and change”, and that “in many cases migration enhances the sustainable development of both sending and host areas”. In the same line, McLeman and Smit (2006) presented a model to frame migration as a possible adaptive response to climate change, which they had tested with the case of the “Dust Bowl” migration that took place in Oklahoma in the 1930s. It has been noted that environmental variability overall may influence the longer-term vulnerability of households in an erosive process. Migration, in anticipation of future shocks and changes, can therefore also serve as an adaptive strategy. In contrast, migration due to livelihood stress may further diminish household resources, thereby preventing households from utilizing successful coping strategies (Warner and Afifi, 2014).

In public debates, migration remains mostly presented as reinforced as the undesirable outcome of a failure to cope with changing conditions, a last-resort strategy. In recent UN Framework Convention on Climate Change (UNFCCC) discussions, migration and displacement is generally downplayed or overlooked, although a stronghold exists within discussions around financing for loss and damage needs. At the time of writing,⁹ a proposal for a funding facility for these movements was being discussed within the context of the 21st Conference of the Parties (COP21). Whether the issue will be embedded within adaptation programmes or within a loss and damage mechanism – or both – remains to be seen. Within reports produced by the IPCC, “migration and displacement” is mentioned, cached within language around the uncertainty and lack of predictive methods for such movements.

Mounting distrust of migrants and asylum-seekers in the last few decades, together with misconceptions associated with environment-related migration, reinforce and have co-evolved with this view (Bosswick, 2000; Morrisey, 2012). The presentation of migration as a problematic phenomenon is evidenced by a policy focus

⁸ For example, increased rainfall which is linked to increased agricultural output.

⁹ 4 December 2015.

on influencing the modality, volume and geographic bounds of migration rather than seeking to facilitate human mobility for the potential positive outcomes of migration (DFID, 2013; Black et al., 2006). Such a disconnection between empirical research and public debates is likely to induce maladaptive policy responses aimed at preventing or controlling migration (Black et al., 2011). Recent calls for fortifying borders in European countries provide prime examples; experts agree these actions do little to reduce migration and instead increase the danger to migrants and revenue for illegal operatives.

Adaptation for whom: Three vantage points to assess

In this paper, we argue that migration can affect adaptation by virtue of influencing the adaptive capacities of three different vantage points. We suggest that the key framing question is: Adaptation for whom? Indeed, what can be a positive outcome for some can be a detrimental (maladaptive) one for others.

In order to answer the question “adaptation for whom?”, there are three population groups that need to be considered – the migrants themselves, the community of origin and the community of destination. The following section aims to weigh the essential characteristics, advantages and disadvantages of each approach. In the concluding section, we consider the possibility of combining the vantage points for a more complete picture of the environment-migration process.

For the migrants themselves

Traditionally, when migration is considered as an adaptation strategy, it is envisioned that people affected by environmental changes would use mobility as a way to adapt themselves to the environmental changes they face.

Yet it is important to stress that migration at large, not only migration triggered by environmental changes, can have an impact on adaptation. Focusing only on the migrants whose mobility is related to environmental changes – the “environmental migrants” – would therefore appear as a limitation when studying the potential of migration for adaptation.

In fragile contexts, such as in rural communities that rely on rainfed agriculture, aspects of migration serve to ensure household livelihoods (Foresight, 2011). In case studies of migration in the Plurinational State of Bolivia, Senegal and the United Republic of Tanzania, seasonal labour migration and movements to nearby urban centres provided an immediate income to individuals

who departed from their rural homes due to some “precipitating event” (Tacoli, 2011a:v).

Migration has been found to improve conditions for the migrants in the medium and long term. The EACH-FOR project concluded in many contexts that apparently successful migrants – a self-selecting group – were the young and socially mobile (Jäger et al., 2009). Those who migrate may be rewarded with an improved social status relative to if they stayed behind, where older and more established males dominate the hierarchy. Those who send home resources also become more highly regarded by their home communities.

Social and cultural factors also determine who migrates (c.f. Nielsen and Reenberg, 2010). In some contexts, such as in some small island States and West African cultures, migration is practically a rite of passage; migration, and especially international migration, constitutes an affirmation of household and personal success. Those who fail to take the risk may be perceived lazy and unadventurous (Jónsson, 2010).

Migration, however, entails risks. Mobility can fail to increase the resilience of the household as a whole, the migrant included, or can increase the vulnerability of just 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 without achieving a positive outcome (Warner and Afifi, 2014). Migrants often suffer a relatively lower socioeconomic status than their hosts and as compared with their previous status in their communities of origin. Furthermore, migration may not contribute to the ability to rely on existing strategies to cope with stress in the short term. This applies in cases where the migrating family member is unable to find adequate employment and living conditions, all while the costs of migration have already been dispensed by the household. Migrants have been known to send too much of their income to their households or take on debts to do so, leaving themselves in relative poverty. Migrants, as one among others, may contribute to detracting from their own resilience, for example, by processes that lead to the lowering of demand for labour in the area of destination, exacerbating competition over scarce resources or increasing exposure to risks.

Testing the nexus

Testing the migration–adaptation nexus by studying adaptation of migrants themselves is based on assessing migration against various indicators of individual well-being. Traditional qualitative and quantitative methods can be employed. Many studies to date have explored

this vantage point, considering the process leading to migration as well as their relative success in the area of destination (see, for example, Halliday, 2006; Jäger et al., 2009).

This one-sided view may overlook the adaptive capacities of non-migrants and the overall community. Concretely, migrants may inaccurately represent or be unaware of the situation of their (potentially idealized) communities of origin. The migrants may feel they have made significant sacrifices and suffer poor conditions in the destination area, and may be unaware or overlooking the non-migrants that feel disadvantaged for staying. Vulnerable households in the community unable to employ migration as an adaptive strategy are underrepresented though they are important to consider in the adaptation of the community overall (Adger et al., 2002).

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For the community of origin

Immobile populations often suffer considerably from the departure of those who have decided to migrate. While migration can be a key tool for the development and adaptation of origin communities via return flows of resources (Banerjee, Black and Kniveton, 2012), it can also represent a huge deprivation of workforce and assets for those who were forced to or decided to stay.

The literature on migration and development has long shown that outmigration, particularly migration to more developed countries, has to be recognized as a meaningful development strategy for the region of origin. In the case of the migration–development nexus, the potential of migration to promote sustainable development is usually materialized through the mobilization of migrants’ transnational networks and through sending of remittances. These two channels appear as relevant as well in the case of adaptation, but a third channel needs to be added – the alleviation of population pressure – which lessens strain on limited resources such as land and water, and reduces risks; this offers those who stay better chances for survival (Mink, 1993; Scheffran et al., 2012).

The privileged way of intervention for individuals and networks are the remittances sent to their relatives back home on a regular basis, which can greatly improve the resilience of the latter to environmental changes and shocks (Gubert, 2002; Adger et al., 2002; Scheffran et al., 2012). Literature on the migration–development nexus is rich with insights about how remittances can support the development of communities of origin (Gubert, 2002; de Haas, 2010). These transfers 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). Total remittance flows can outweigh emergency aid and be dispersed faster and more, as observed in Jamaica, Haiti, and the Philippines (Foresight, 2011). Some works have also addressed how they could support the livelihoods of communities (Adger et al., 2002; Scheffran et al., 2012), or provide an insurance against risks, including natural hazards (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. Such transfers can indeed foster adaptation in three main ways identified.

First, migration is a way of securing a source of revenue, both in the immediate and if invested into productive capital and diversification (Yang and Choi, 2007; Barnett and Webber, 2010). This is further supported by findings in which the most vulnerable households were those that did not receive remittances (Tacoli 2011a; Milan et al., n.d.).

Second, they can provide **support in the wake of environmental hazards**. Natural disasters usually trigger waves of solidarity among emigrant groups (Yang, 2008a). Diaspora philanthropy can be channelled by a large array of organizations: non-governmental organizations, places of worship and hometown associations, among others. They can also follow informal channels of interpersonal networks. The latter form of diaspora philanthropy is facilitated by the existence of online social networks and the use of new communications technology.

Finally, migrants **promote and finance adaptation projects**. Many migrants’ networks engage in ways to support their countries or regions of origin. Importantly, they channel donations for humanitarian assistance in times of crisis (c.f. Yang, 2008b). Furthermore, they contribute to longer-term development by enhancing access to information, fostering useful social and professional networks, and lobbying in the political sphere (Barnett and Webber, 2010; Asian Development Bank, 2012). Though there is limited evidence of remittance resources being pooled to fund common projects, the exacerbation of climate change impacts

might make this more likely. In a number of examples, remittances provided the bulk of the capital needed for local agriculture (Barnett and Webber, 2010; Tacoli, 2011; Banerjee, Black and Kniveton, 2012). Remittances are agreed to be important in supporting adaptation to local environmental change within the farming sector in many contexts.

Testing the nexus

The possibility to test the nexus for the community of origin could essentially focus on whether outmigration from the community has enhanced the ability of those who want to stay behind to do so and whether the process has improved the resilience of the community and decreased its vulnerability through the increase in socioeconomic capitals provided by the migrants.

A concern to be addressed is whether migration is a coping strategy that reduces population pressure, lessens strain on limited resources, facilitates risk reduction and thus offers those who stay better chances for survival.

There are two main methodological choices to make. The first consists of a focus on communities affected by a high level of outmigration. In this case, one would need to **assess the modality and use of remittance income** (as consumption or investment). Remittance income has been shown to have direct effects on the resource base, economic well-being and resilience of a home community (Adger et al., 2002). However, without seeking to take a normative approach to migration in validating certain types of migration over others (such as short-term versus long-term, internal versus international), for adaptation to climate change one may adopt a longer-term perspective. The scope and scale of adaptation assisted by migration should be longer-term, implying that the use of remittances for investment in the community, for example, for technology, diversification, and resources efficiency, contributes to the community's climate change adaptation in ways that the use of remittance income for consumption does not. A number of authors have mentioned the possibility that where remittances were used as an income source for consumption rather than investment, it could lead to widening pre-existing income inequalities (c.f. Adger et al., 2002).

It would furthermore be important to determine whether measures are undertaken to adequately compensate for labour shortage and loss of skills in order to support the local economy. Tacoli (2011a) concludes that for three case studies (the United Republic of Tanzania, Senegal and the Plurinational State of Bolivia), any labour shortages caused by outmigration was compensated by incoming financial flows from remittances. In this instance, the researcher determined whether the magnitude of remittances allows, for example, hiring of day labourers. This was the case of pastoralists in the United Republic of Tanzania. These dynamics will also depend on the time the migrants spend away, and whether the community continues to build its adaptive capacity; the accrued experience of migrants and their communities induces ever greater capabilities to respond to climate change.

In the second methodological choice, **one could focus on communities affected by environmental changes**. For communities threatened by environmental degradation and climate change, migration may present a possible adaptive response to diversify household income strategies and increase the ability of the community to respond to shocks. In this case, there would be the need to assess three main community attributes. The first is availability of other coping strategies. Migration may be one option among many to adapt to changes, and where it fits in with the others is important in understanding the holistic picture of a community adapting to climate change. Migration may not be among the first strategies chosen and indeed may not prove to be a successful one to increase resilience (Brown, 2008). When all other coping mechanisms have been exhausted, migration is an option chosen to fulfil basic needs; this is tantamount to displacement. Second, one must assess the viability of migration as a coping strategy. It will be necessary to assess the non-migrants, both in migrant-sending households (referred to at times as the "stayers") and households not sending migrants – to what extent have those who stay behind chosen to do so, and under what conditions does a non-migratory outcome indicate greater or weaker adaptive capacity. The disparity of their household income with migrant households and the overall community structure are key points of investigation (Adger et al., 2002). Finally, it is important to understand the scale to which migration relieves local pressures. A concern to be addressed is whether migration is a coping strategy that reduces population pressure, lessens strain on limited resources, facilitates risk reduction and thus offers those who stay better chances for survival.

For the community of destination

The effects of migration on people and communities are diverse. Yet the dominant narrative on the impacts of migration for the community of destination, in the context of environmental change, is one of competition, tensions and conflicts. According to a United Nations review of an array of policies of low- and middle-income nations, the proportion with policies to reduce migration to urban centres, especially the larger cities, rose from 51 per cent in 1996 to 73 per cent in 2005 (United Nations, 2006). For example, reviews of Poverty Reduction and Development Strategy Papers across Africa found worrying evidence that unfavourable attitudes towards migration may be deeply held beliefs while migration is commonly used as a “scapegoat” for a host of larger socioeconomic structural issues (DFID, 2013).

These assessments indicated that despite the lack of evidence for such negative perceptions of migration, 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). This view ignores the positive impacts of migration on the adaptive capacities of people in migration destinations. The concept of environmentally induced migration may have acquired an additional unwanted character because it arose at a time in which migrants and asylum-seekers were increasingly 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 (Lonergan, 1998). This narrative fit well with discourse surrounding the mounting mistrust towards asylum-seekers, as European citizens lamented becoming “flooded” and “overwhelmed” with outsiders (Bosswick, 2000). The popularization of migration as a failure of adaptation is today evidenced by continued use of the threat terminology regarding migrants (Oels, 2011).

Empirical research stresses that there are still very important and potentially maladaptive migration flows towards areas that are highly vulnerable to the impacts of climate change, and coastal and deltaic cities in particular (Foresight, 2011). Migration flows may increase vulnerability in areas of destination that are exposed to recurrent risks or where there are pre-existing structural vulnerabilities and population pressure. High rates of migration to already densely populated and low-lying urban areas can contribute to increasing vulnerability and increased disaster risk. Thus, vulnerabilities are further exacerbated by the growing scale and frequency of natural disasters.

Rural-to-urban migration flows may decrease resilience in rapidly expanding cities, increasing vulnerabilities due in part to resource scarcity, overcrowding and inadequate infrastructure (de Sherbinin et al., 2007). Migration, including rural-to-rural migration, may increase the burden of population pressure on fragile ecosystems. In areas exposed to frequent natural hazards, these pressures also increase populations’ vulnerability and exposure to disaster risks. For example, the scale of poorly managed evacuations and relocations to hazard-prone areas has been asserted as among the primary factors contributing to the high disaster risk of impoverished communities in the Philippines, to add to poor governance in some areas, insufficient understanding of the impacts of climate change and other hazards, and lack of effective early warning systems for extreme weather events (IDMC, 2013).

Many researchers and practitioners have become aware of inequalities between migrants and members of the host communities and barriers migrants face to their full fulfilment of rights more broadly.

Environmental factors – for example, the effect of temperature and rainfall variability that may affect natural resources and exacerbate pressures that contribute to tensions – have been noted on occasions to lead to local-level conflicts. Many researchers and practitioners have become aware of inequalities between migrants and members of the host communities and barriers migrants face to their full fulfilment of rights more broadly, including in obtaining employment, access to adequate and dignified living conditions, and security of tenure. Researchers are hesitant to make the link to violence assertively. Notably, O’Loughlin et al. (2012) found a non-linear relationship between temperature and conflict in East Africa between 1990 and 2009: while much-warmer-than-normal temperatures raise the risk of violence, average and cooler temperatures have no effect.

In contrast, a vast body of literature professes the benefits of migration.

First, as noted in initial works, migration – mainly international and rural-to-urban movements – was viewed 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, especially those related to ageing populations (Foresight, 2011).

Second, multicultural and migration studies have highlighted the **cultural benefits of migration for diversity**. Diversity has dividends for education, inclusiveness and innovation.

A final and related point is that because of the diversity that accompanies migrant communities, migration acts as **a vehicle for transfer 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 may contribute an entrepreneurial and risk-taking spirit as compared with non-migrants.

Testing the nexus

For testing the migration–adaptation nexus for the community of destination, a number of methodological and conceptual challenges arise. There are judgements to be made on methodology and cost efficiency in terms of the number, location and characteristics of the communities of destination to be studied. Multiple destinations may be areas of in-migration from the same areas of origin. This leaves scholars to choose between a focus on migrants from the same area of origin in one destination, or, the more costly option, to investigate and compare multiple destinations. Conversely, emphasis could be placed on migrants who have faced similar drivers in their areas of origin, irrespective of the location, or who are facing similar conditions in the destination community. Finally, it should be noted that in

focusing on communities of destination, it is challenging to ensure the role of those groups who are unable to move in the adaptation or maladaptation within their communities overall is not underrepresented (Foresight, 2011).

Two main approaches can be taken. The first is to identify the contributions of migrants who faced environmental stress in their areas of origin. Notably, this approach poses concerns related to identifying the purported impacts of self-identified “environmental” migrants *ex situ*, due to the multi-causal nature of migration (noted above). The second possible emphasis is on migration at large. In this case, researchers could consider areas affected by a high level of in-migration and focus on its interface with adaptive capacities.

For either possibility, testing migration for the community of destination presents itself in a way similar to that of the community of origin. First, the contribution of migration to the labour market of the destination must be assessed, including the potential impact of entrepreneurship and incoming skill sets.

Second, to the extent possible, cultural and social factors can be explored through an understanding of the destination community and structure. Qualitative methods best support this exploration, with insights from sociology and multicultural studies.

Finally, if it holds true that migrant remittances are used predominantly for the benefit of the migrant household (Stark and Taylor, 1991), then the relative position of migrants in the destination community must be assessed.

A special dual case: Climate change hotspots

While linked to other possibilities above, the final area of focus is on the so-called climate change hotspots, which are regions that are particularly vulnerable to current or future climate impacts, and where human security may be at risk (de Sherbinin, 2014). Although these hotspots are traditionally understood to be migrant-sending areas, here we consider the issue separately for two reasons. First, there is increasing understanding that people are at least as likely to move towards environmentally risky areas as away from them (Foresight, 2011). Temporary and permanent migration to ecologically fragile areas, for example, urban centres in low-lying or deltaic areas, increases the risk of nefarious effects of environmental changes and events. Migration to burgeoning megacities, many of which are already ill equipped to accommodate the rapidly expanding migrant populations, is expected to increase alongside these impacts. Second, climate hotspots may be of particular interest methodologically due to the strong climate “signal” in the decision-making processes of the inhabitants.

Works on hotspots tend to focus on the effects of human activities in further degrading ecologically fragile areas (for example, wetlands and coral reefs), the human health impacts of extreme temperatures and the expansion of the range of vector-borne diseases, and the population pressures that increase disaster risk. All of these have been shown to have consequences on and are impacted by human mobility.

Little research has been conducted that exposes positive impacts of in-migration on the adaptive capacities of climate hotspots. Focus on these areas in migration research opens the door to explore three key attributes.

Current and future climate change and variability are of primary importance. The inhabitants of climate hotspots will act in consideration of actual and expected risks to their security and livelihoods. The nature of this dynamic creates methodological challenges to understanding individual and community-level perceptions. A methodological choice must be made in testing the response of target groups against measured risks or perceived risks. In some cases, researchers must be aware of cognitive biases (c.f. Mortreux and Barnett, 2008).

In addition, the influence on communities of the existence as well as the accumulation of **past shocks, such as extreme weather events, droughts and famine**, is another attribute. Conceptually and legally, the impacts of sudden-onset events are extricated from those of gradual processes. The latter are understood as the culmination of several factors contributing to intolerable levels of livelihood failure and food insecurity, which may include the knock-on effects of past sudden-onset events. Nonetheless, there is some consensus that households facing recurrent, even small-scale shocks become more vulnerable over time. Warner and Afifi (2014) note that for a number of case-study countries affected by extreme weather (e.g. Ghana and the United Republic of Tanzania), migration itself can be an “erosive” strategy for vulnerable families if it contributes to vulnerability or prevents them from escaping poverty.

Finally, an avenue in this approach is to investigate **tipping points and thresholds**. By investigating hotspots, scholars should grasp the opportunity to take a deeper look at the factors contributing to the line demarcating the tolerability of a place from inhabitability. This field must also assess those who stay in their community, though they are objectively at risk, and those who are mobile. The research will need to address what conditions and at what point individuals that are not regularly migrating choose to migrate, or are forced to move.

In Table 1 we summarize a number of advantages and challenges of each of the approaches described above. Other approaches to testing the adaptation–migration nexus are beyond the scope of this paper, for example,

comparing case studies with similar environmental factors but with differing social or economic input variables, in order to explore the importance of these in the ability to use migration for adaptation.

Table 1: Positive points and challenges to focusing on each vantage point, or combinations

Vantage point/ approach	Positive point	Challenge	Point of measurement
Migrants	<p>Aligned with projects such as EACH-FOR or Where the Rain Falls, adding a quantitative dimension to these projects.</p> <p>Most straight-forward way to apprehend the migration–adaptation nexus.</p>	<p>As the approach to migration studies that is most commonly adopted, the decision to focus solely on migrants has the opportunity cost of forgoing potential innovation in the field.</p> <p>Conceptually, this approach poses the most methodological problems. Testing this relationship would imply that the questionnaire is passed on to people who have migrated because of environmental changes despite the difficulty in identifying environmental drivers of migration, as they will be mixed with other drivers, and because it is unlikely that they would all have migrated to the same place.</p> <p>Potentially small sample size.</p>	Migrant welfare, conditions and remittances.

Vantage point/ approach	Positive point	Challenge	Point of measurement
Community of origin	One of the most straight-forward ways to apprehend the migration–adaptation nexus.	<p>Methodological difficulties to address migration due to the absence of migrants themselves.</p> <p>Difficulty in understanding the fate of migrants – migrants assume the questionnaire will represent their side, though there is difficulty in identifying environmental drivers of migration, as they will be mixed with other drivers.</p>	Remittances and modality of use, vulnerabilities of migrant-sending households and community structure.
Community of destination	<p>Innovation potential; fewer studies take this approach.</p> <p>Looks directly at impacts rather than causes.</p>	<p>This approach poses methodological and conceptual challenges related to the difficulty in identifying the environmental migrants, as well as the accuracy (truthfulness) and conceptual implications of those who self-identify as such.</p> <p>Furthermore, there are methodological judgements to be made related to the choice of the number, location and characteristics of the communities of destination to be studied (presuming migrants diverge in destinations).</p> <p>Questions of efficiency of resources, due to the multiplicity of possible destinations.</p> <p>Methodological difficulties in addressing adaptation due to lack of information or misinformation about the community of origin.</p> <p>Potentially small sample size.</p>	Contributions of migrants, structure and needs of host communities.
Combining both community of destination and community of origin	<p>Innovation potential; few studies take this approach.</p> <p>Comprehensiveness of the approach, in that a larger view of the migration process is given.</p>	<p>Technically this approach creates challenges related to connecting the community of origin and the community of destination. Focusing on migration corridors is one possible approach.</p> <p>If through recalled migration histories: challenges related to informant accuracy and the questionable value of retrospective data.</p> <p>If tracking migrants: questions on the efficiency of resources for numerous destinations, and challenges related to the ability to track migrants accurately.</p> <p>Another option, however, would be to look at unconnected communities of origin and destination.</p>	Combine methods above. Track migrants, track remittances, and ensure both non-migrating members of households and migrants are included in the sample.
Climate change hotspots	<p>Comprehensiveness of the study, in that there is the possibility to analyse all types and causes of migration (advantage of having a relatively clear counterfactual).</p> <p>Increased facility of study area location choice.</p>	<p>Internal validity is a key disadvantage to this approach, as observations derived from the migration trends for climate hotspots may be due to emergent properties not obvious to the researcher.</p> <p>Perceptions of the environment and climate variability may be a critical factor for the populations concerned, and are difficult to derive from standardized questionnaires.</p>	Track migrants, and remittances, and ensure both non-migrating members of households and their migrant family members, as well as members of non-migrant households, are included in the sample.

Conclusion and recommendations

The objective of the Migration, Environmental and Climate Change: Evidence for Policy (MECLEP) project is to expand the evidence base of the impacts of migration in the context of environmental changes and events, in order to better enable policymakers to consider these movements and plan for climate change impacts. The conceptual and methodological review presented in this working paper formed the basis of developing household surveys and key informant interview guidelines for research in six countries, namely, the Dominican Republic, Haiti, Kenya, Mauritius, Papua New Guinea and Viet Nam. Employing a cross-country analysis, the project aims to inform the formulation of policy options on how migration can benefit adaptation strategies to environmental and climate change. The research question the MECLEP project addresses is: How can migration be situated in opportunities, constraints, and barriers to adaptation to environmental and climate change? Embedded in this question is an exploration of the conditions in which different forms of mobility (e.g. migration, displacement and planned relocation) increase adaptive capacities of migrants, communities of origin and communities of destination while minimizing potential maladaptive effects.

The current body of literature provides insight into the testing of the adaptive capacities of the three main vantage points presented previously. Interestingly, scholars' opinions appear to diverge over whether the adaptive benefits of migration outweigh the "costs" to the home communities. In migration studies to date, there have been challenges to subjectivity, where methodological choices may have inadvertently led to inaccuracies as interview and survey participants produce false assumptions about their counterparts in the migration process. Additional challenges arise, for example, distinguishing the effects of migration on areas that may be, in some cases, both sending and receiving migrants, poses distinct conceptual challenges that are difficult to untangle. These dynamics clearly demonstrate that all the communities involved in the migration process should be weighed objectively and comprehensively in investigating outcomes. In order to advance the body of knowledge around the migration–adaptation nexus, it is necessary to develop a better appreciation of how migration employed as a strategy to respond to environmental changes affects the adaptive capacities of all target groups.

In the previous sections, we have attempted to respond to the methodological and conceptual challenges surrounding these questions. A persisting concern is presented by explicitly defining "environmental" migrants

and seeking to identify them in situ as such, given the involvement of differing perceptions and motivations that become important. Indeed, all of the destination and migrant-based approaches elucidated in this paper present the same methodological challenge of producing a potentially small and unrepresentative sample size. In addition, focusing on environmental migration may overlook the role of other forms of migration in increasing the adaptive capacities of participating communities. In studying migration in general without seeking to embed definitions, complications of pursuing this area of study may be adequately managed while still providing a reference group against which to compare results, whether it be the non-migrants of the migrant-sending households, members the households not sending migrants, other migrants or the host community.

Combining the methods that have been described by studying both migrant-sending and migrant-receiving communities provides an attractive possible avenue of research. A comprehensive approach presenting the impacts of migration on adaptation rather than the drivers of migration is well suited to the objectives of the MECLEP project. These dynamics can be observed, for example, by exploring the creation of new social networks among migrants and between communities as well as through the transfer of knowledge, technology, remittances and other resources. Furthermore, how these resources are used in both communities of origin and destination, whether to fulfil basic needs or enhance long-term stability, is significant in the assessment of migration as adaptation. Finally, in areas of destination, it will be important to assess the modalities through which migration can contribute to the adaptation of the communities. A possible solution is to focus on migration corridors, that is, to assess adaptive capacities in areas of origin along with those of the popular migration-receiving areas to which they are linked. In order to avoid a potential selection bias in this approach, areas of destination and areas of origin could be chosen, and links established *ex post*.

This view has implications on the possibility and efficiency of following migrants on their journey from the community of destination through their experience in the community of destination, or implicates one or more parties in the reconstruction of households' migration histories through detailed event history questionnaires. There is some evidence to suggest that retrospective migration histories can be of sufficient accuracy for research purposes (Smith, 2003), although the concerns of informant accuracy and the value of recalled information remain. In addition, measures will need to be taken to ensure studies attain an adequate sample size.

To achieve the objective stated, further conceptual development of the migration–adaptation nexus is needed. Researchers must ultimately inform decision makers on the formulation and implementation of development, disaster risk reduction, adaptation and migration policies. Measures should aim to assist and protect migrants and non-migrants through all stages of the migration process as well as to allow persons who wish to remain in communities affected by environmental change to do so, for example, by providing alternatives to threatened livelihoods. A more balanced discourse will also help dispel negative and normative attitudes surrounding migration and the maladaptive policies that may result. This is critical to progressing in the academic discourse and political dialogue surrounding migration. Adding to the evidence base is the necessary first step.

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International Organization for Migration (IOM)

17 route des Morillons

P.O. Box 17, 1211 Geneva 19, Switzerland

Tel.: +41 22 717 9111 • Fax: +41 22 798 6150

E-mail: hq@iom.int • Website: www.iom.int