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Cité Soleil, village La Repatrie, Port-au-Prince, Haiti. As the sea level is rising, the area is often flooded.

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The poor pay the price: New research insights on human mobility, climate change and disasters

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Introduction: The international policy framework

States will come together at the Twenty-first session of the Conference of the Parties (COP 21) of the United Nations Framework Convention on Climate Change (UNFCCC) in Paris at the end of 2015. The aim is to adopt a new legally binding and universal agreement that would be a milestone in more than 20 years of United Nations negotiations and enter into force in 2020.

Besides aiming to curb emissions worldwide, the human side of climate change impacts and adaptation should not be forgotten. The agreement presents a historical opportunity to open a whole new scope for action on climate change and human mobility. Millions of people are affected by climate change and disasters already. Migration and displacement, in the context of climate



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change and disasters, are a reality in many countries and likely to increase (IPCC, 2014) until 2020 and beyond when the new climate agreement would come into force. The diverse forms of human mobility, both voluntary and forced, deserve to have a prominent place in the outcome documents of the negotiations in Paris.

International policy discussions on climate change and migration are quite recent. In the framework of the UNFCCC in 2010 and 2012, as well as a European Commission 2013 staff working paper, calls were made for improving the evidence base and coordination on migration, displacement and planned relocation in the context of climate change.¹ While some research exists, it tends to be limited (Piguet and Laczko, 2014), often of a qualitative nature or not comparable. Therefore, the surveys in the innovative Migration, Environment and Climate Change: Evidence for Policy (MECLEP) project focus on three types of mobility – migration, displacement and planned relocation – as well as internal and international movements. Findings from six countries (Dominican Republic, Haiti, Kenya, Mauritius, Papua New Guinea and Viet Nam) of three different regions will be compared for the first time.

In 2013, the European Commission also called for “[p]romoting and facilitating migration as an adaptation strategy” (2013:26ff.). Evidence confirms that migration is already a strategy to adapt to climate change across the globe (IPCC, 2014). The new research presented here thus provides new insights on how human mobility can help migrants and their families to adapt or how they can be an obstacle to adaptation. Thus, the focus does not lie on migration predominantly for environmental reasons, as it is difficult to measure given migration’s multicausal nature, but on any type of movement for socioeconomic, educational and other purposes, as well as forced movements that can support adaptation to environmental challenges.

This brief aims to present initial findings from six countries that yield policy implications relevant to the discussions in Paris. Sources include primary data, literature reviews on the evidence on migration, environment and climate change, study trips, training workshops on the links between human mobility and the environment, as well as primary data collected in the framework of the MECLEP project. The research confirms that some forms of mobility enable people to adapt and should be facilitated, while displacement and planned relocation pose important policy and protection challenges, especially for the poor.

1. What is migration as adaptation?

Voluntary migration can help people in managing risks, diversifying livelihoods and coping with environmental changes that affect their lives. The choice to migrate is often taken before the exposure to environmental degradation becomes life-threatening (IOM, 2008; Jäger et al., 2009). Remittances can provide an additional source of income in communities of origin, and a lifeline in particular after natural disasters (Foresight, 2011). Furthermore, outmigration (internal or international) from vulnerable areas can help alleviate stress on fragile ecosystems, as well as demographic pressures. Migrants can also pass on knowledge and new ideas on how to adapt.

In destination areas, migrants can fill labour shortages. However, migrants may also move into hazardous areas prone to landslides, flash floods or riverbank erosion, as well as sea-level rise in the case of low-lying coastal cities. Migration can thus increase the vulnerability of people when linked to a lack of resources and precarious living conditions and put strains on already-fragile or non-existent infrastructures and social service provision, as well as the environment itself.

A number of demographic, socioeconomic and cultural factors at the individual and collective levels determine whether migration can be adopted as an adaptation strategy among others. A lack of resources may impede households to choose migration as part of their adaptive response to environmental shocks and stresses, thus being “trapped” (Foresight, 2011:25). Others may choose to remain in their community, despite high exposure to environmental risks, and prefer to adapt in situ to where the exposure occurs.

The concept of adaptation can be defined in a number of different ways. Here, it will be understood as:

In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities (IPCC, 2012:3).

In the research presented here, the context is not limited to the impacts of climate change, but will also focus on geophysical events, such as earthquakes, tsunamis and volcanic eruptions (IOM, 2014:18).

2. Environmental migration is a reality, not a scenario

Movements in the context of advanced environmental degradation and climate change occur in all six MECLEP pilot countries (for a summary, see Naser, 2015; Pierre, 2015; Wooding and Morales, forthcoming; Sobhee,

¹ UNFCCC Cancun Agreement, section II, article 14.f. and UNFCCC Decision on Loss and Damage, Paragraph 7.

forthcoming; Nyaoro, Schade and Schmidt, forthcoming; Dang, forthcoming). Environmental migration is a reality within these vulnerable countries and not a future scenario. Countries with high shares of rural populations (Kenya, Papua New Guinea and Viet Nam) being affected by environmental degradation and climate change are particularly vulnerable to loss of livelihoods and thus, pressure to migrate.

3. Migration as adaptation: a temporary strategy in Haiti and Papua New Guinea

Recent research on Haiti confirms that migration can be an adaptation strategy to a degrading environment and disasters, especially through circular/seasonal mobility. Those able to move, particularly within and out of the country repeatedly, were less vulnerable than those who could not or did not want to move.² Among households with internal migrants, those headed by women were however significantly more vulnerable than those led by men.

In terms of international migration, households with at least one migrant who moved permanently were found to be less vulnerable than those families with someone moving long-term internally. Moving for at least one year across borders thus seems to be a more successful adaptation strategy than internal movements within Haiti. This could mean that those who have no other option than to move permanently within Haiti are more vulnerable than those moving back and forth, for instance, the former by moving into urban areas at risk of environmental hazards, such as floods and landslides (Milan, Melde and Cascone, forthcoming; Milan et al., 2015).

Similarly, Carteret islanders in Papua New Guinea who left the low-lying atolls for better work and education opportunities were able to improve access to schooling for themselves or their children and diversify income for their families (IOM, forthcoming), and thus likely able to improve food security in times of disasters. However, money cannot be used for subsistence, except paying school fees, so financial remittances are of limited use if no trading system is established on the islands. Migration also enabled some families to establish a social support network outside or among the islands, which increases the resilience to shocks. Most of the movements were temporary (IOM, forthcoming).

4. Socioeconomic factors determining the type of adaptation in the context of climate change and disasters in Haiti

In Haiti, the socioeconomic status of households has been a determinant for the type of adaptation available. The most affluent do not need to move. They seem to have been able to adapt in situ, to where disasters and environmental degradation occur, and thus not needing to diversify income sources. They do not seem to be “trapped” or unable to move, but able to use other adaptation and coping strategies in light of environmental degradation.

Those who need to and can migrate are neither among the poorest nor the richest and able to increase resilience to shocks, such as slow- and fast-onset environmental events. On average, families with migrants have less disposable incomes than those who did not move. Income levels were lower for households receiving internal remittances than non-migrant households, implying that moving of a household member was a necessity for additional source of income. Migration as adaptation, similar to general human mobility, requires certain means, thus potentially increasing inequality. Internal migrants’ financial transfers thus seem to be an important source of income for their families in the case of Haiti, and seem to support resilience to further environmental shocks (Milan, Melde and Cascone, forthcoming).

One could conclude that the poorest who often do not have the choice to migrate as an adaptation strategy are disproportionately affected by displacement and planned relocation as they do not have the socioeconomic, cultural, social and other resources to move. The most vulnerable do not have the resources to move elsewhere without government support (either through evacuations or relocation plans). This confirms previous findings from other studies. Research on internally displaced persons (IDPs) in Bangladesh, Haiti and the Philippines in the context of natural disasters drew attention to the fact that the most vulnerable were also more likely to be at risk of displacement, which in turn put them in a more vulnerable position through a lesser adaptive capacity, impeding successful adaptation and durable solutions (Mutton and Haque, 2004; Courbage et al., 2013; Sherwood et al., 2014 and 2015). Planned relocation, as in the case of IDPs after the earthquake in Haiti moving to more permanent housing, has been found to reduce risks (Courbage et al., 2013), albeit not entirely.

² For the methodology of how vulnerability was measured, see Milan et al., 2015.

5. Displacement posing largest adaptation challenges

Apart from Mauritius, all studied countries have witnessed new internal displacement due to disasters (IDMC, 2015, see Figure 1).³ Data on Haiti shows the highest level of vulnerability of those displaced internally compared to all other households, whether they had migrants in the family (Milan, Melde and Cascone, forthcoming), confirming previous research findings on IDPs in Haiti (Courbage et al., 2013; Sherwood et al., 2014). While the immediate threats to life have been reduced, this form of movement is the least likely to represent a positive adaptation strategy, at least when displacement takes place within countries. In particular, durable solutions, also in light of recurrent displacement, and any potential “beneficial opportunities” for adaptation through evacuations need policymakers’ attention.

³ It is important to note that some people may have been displaced multiple times.

6. Planned relocation: inconclusive evidence highlighting an adaptation challenge

Planned relocation, meaning “a process whereby a community’s housing, assets, and public infrastructure are rebuilt in another location” (World Bank, 2010:77) to protect them from hazards is relatively common in the six countries studied, but not discussed as much in international policy fora (López-Carr and Marter-Kenyon, 2015). The number of people relocated in the context of sea-level rise, coastal erosion, flooding, landslides, earthquakes, volcanic eruptions and other phenomena varies from relocation only at the planning stage in Kenya, a few households in Mauritius (Sobhee, forthcoming) and Papua New Guinea (see for instance McAdam, 2010; Edwards, 2013), several entire communities in the Dominican Republic (Wooding and Morales, 2015) to tens of thousands in Haiti after the earthquake (Pierre, 2015), as well as Viet Nam (UN Viet Nam, 2014; Entzinger and Scholten, 2015). Issues such as rapid population growth

Table 1: People newly displaced internally by disasters

Country	2008	2009	2010	2011	2012	2013	2014	2008–2014
Viet Nam	105,590	186,900	441,849	230,000	15,000	1,040,389	68,689	2,088,417
Haiti	138,761	9,910	1,572,710	500	85,900	1,169	6,500	1,815,450
Kenya	10,100	91,686	53,786	19,045	97,626	180,282	1,368	453,893
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	95,004
Mauritius	–	–	–	–	–	–	–	–

Source: IDMC (2015) data, highlights by author.

Note: Years without data means no recorded displacement.



The volcano island of Manam, Papua New Guinea, as seen from the temporary relocation site Potsdam.
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requiring more land, competition over scarce resources and the resulting potential of conflicts have already been of concern to policymakers planning relocation a century ago (McAdam, 2015). The following insights confirm those historical precedents for planned relocation, now in the context of where return is no longer feasible due to natural disasters or slow-onset processes, such as sea-level and lake-level rise:⁴

- **Land tenure and property rights:** Traditional land tenure systems as in Papua New Guinea complicate, if not make it impossible, to acquire land for relocation of parts of a population. Even if an agreement is reached with the elders of a clan to lease land for relocating a community or several communities, the younger members may claim compensation and return of the plots later on (Lipset, 2013). This legal limbo can hamper both planning and actual relocation. The same applies to the fragmented property systems, absent landowners and land speculation, among others, posing obstacles to planned relocation in Kenya (Nyaoro, Schade and Schmidt, forthcoming).
- **Impact on sociocultural aspects:**

“When a culture’s basis of identity is intimately tied to place, as is characteristic throughout Papua New Guinea, the untethering of society from place entails fundamental changes in cultural and ethnic identity” (Connell and Lutkehaus, forthcoming).
- **Potential conflicts with landowners and/or the local population:** In the case of displaced persons from Manam Island on the northern coast of Papua New Guinea – who were evacuated and relocated to former plantations on the nearby coast – due to volcanic eruptions in 2004/2005, violent clashes with the population living around the temporary relocation sites left many dead and prompted many families to return to the island threatened by volcanic eruptions, displacing them in the first place. A solution could have been to locate them nearer to *taoa* (traditional trading) partners on the mainland, which may have been impossible due to the unavailability of land, but at the same time showing the need for consultations.

Similar issues have been reported in the case of changing livelihoods and sedentarization of pastoralists in Kenya/Eastern Africa (McCabe, 2004). Sedentarization may contribute to changing land ownership and use, as well as fencing, which in turn perpetuates the breakdown of customary land

management and conflict over access to grazing areas and water points (Greiner, Alvarez and Becker, 2013:1478).

- **Sustainable livelihood** strategies and potential compensation for lost land need to be part of relocation plans. The following case studies were considered: (a) the village of Boca de Cachón in the Dominican Republic was relocated to higher ground in 2014, as the water level of the neighbouring Lake Enriquillo was threatening to flood the area since 2011 (Cordero and Lathrop, forthcoming); (b) in Papua New Guinea, IDPs from Manam Island residing in care centres (Connell and Lutkehaus, forthcoming) and (c) the Carteret islanders (Papua New Guinea) needed to move to the main island of Bougainville (McAdam, 2010; Edwards, 2013; IOM, forthcoming) and (d) the Murik Lake communities (Papua New Guinea) failed relocation plan (Lipset, 2013). The success of relocation efforts were undermined by a lack of sustainable income-generating activities. The same applies to some relocation projects in the Mekong Delta of Viet Nam (UN Viet Nam, 2014; Entzinger and Scholten, 2015).
- Many obstacles could probably be avoided or overcome through **consultations of the population to be relocated, as well as surrounding populations**. Often decisions are taken top-down without adequate assessment of the needs and challenges faced by the people who have to be moved. Planned relocation has been recommended to only be considered as a last-resort option (de Sherbinin et al., 2011; Oliver-Smith and de Sherbinin, 2015; Schade et al., 2015). In a similar vein, in the case of IDPs from Manam Island in Papua New Guinea, a multi-option approach for community-driven recovery and durable solutions has been put forward, also taking cultural considerations and attachment to land into account (Connell and Lutkehaus, forthcoming).
- **Good governance:** Funding is an important part, as relocation is costly and time-consuming. In several cases, such as the Manam resettlement process (Connell and Lutkehaus, forthcoming) and the Murik Lakes Resettlement Project (Lipset, 2013) in Papua New Guinea, financial accountability was weak. Misuse or “disappearance” of allocated funds occurred, further delaying the respective processes. Furthermore, adequate laws and regulations are needed as safeguards. In practice, they tend to be in their infancy, as in the case of Kenya, leading to inconsistencies among different frameworks (Schade et al., 2015).

⁴ This is not an exhaustive list as there is an existent body of literature to draw on. It reflects points that emanated from the case studies of the MECLEP pilot countries.



The relocated village now called Nuevo Boca de Cachón (New Boca de Cachón) in the Dominican Republic, with limited space for grazing and subsistence agriculture. © IOM 2014 (Photo: Susanne Melde)

Relocation for persons moving out of hazardous areas can be considered a form of adaptation, but is more ambiguous as to whether it merely reduces harm or can also be beneficial. Coping and increasing resilience are the most immediate concerns. In the case of those displaced from Manam Island during the volcanic eruptions in 2004/2005, the evacuations certainly reduced the harm to life, and some benefits are associated with the new location. In some regards, Manam islanders were better able to adapt than the local population, such as by passing on their knowledge of planting four to five crops regardless of the seasons on the mainland. Relocation enabled some to access local markets, connectivity via social media and better health facilities. Some also used the opportunity to migrate for work or education to nearby towns and elsewhere in the country or region. This could further help remittance-receiving households adapt in the relocation site. However, these choices are only available to a few (Connell and Lutkehaus, forthcoming), reflecting issues of increasing inequality linked to migration in general. Better housing, infrastructure and access to basic services has also been found positive in some relocation projects in Viet Nam (UN Viet Nam, 2014) and Nuevo Boca de Cachón in the Dominican Republic.

At the same time, new challenges arose. The relocated persons from Manam Island started facing the same development challenges as the general population and were less able to cope with them than the population on the mainland due to a lack of knowledge.⁵ In the

care centre relocation sites, IDPs from Manam were faced with forms of environmental degradation they had never experienced before, such as coastal erosion and flooding, sand and dust during the dry season, and particularly droughts. The effects of the relocation could even be considered a form of maladaptation.⁶ The IDPs also lack skills to prevent and mitigate landslides affecting their food gardens as they are unfamiliar with those events. Food security is further undermined by population pressure, which is a general trend in the country possibly exacerbated in relocation sites.⁷ The IDP population now also faces diseases prevalent on the mainland, such as malaria (Connell and Lutkehaus, forthcoming). It is important to study relocation options in detail, as is currently done by assessments on behalf of the government on the selected relocation site in Andarum in the case of IDPs from Manam Island.

7. Lack of comprehensive policy responses on migration and the environment

Given the importance of displacement risks and relocation needs, Haiti, Kenya, Papua New Guinea and Viet Nam recognized the threat of displacements and the need for evacuations in emergencies in their national disaster risk reduction (DRR) and climate change policies and plans (see Kelpsaite and Mach, 2015). Viet Nam also included planned relocation and Haiti displacement risks in DRR

(called Yolanda locally) in 2013 (Sherwood et al., 2014, 2015).

⁶ "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" (Magnan et al., forthcoming, cited in IOM, 2014).

⁷ As well as the effects of El Niño in 2015.

⁵ This point has been raised in studies on IDPs in Haiti after the 2010 earthquake and in the Philippines after cyclone Haiyan

strategies in their 2015 Intended Nationally Determined Contributions (INDCs) (Government of Viet Nam, 2015; Government of Haiti, 2015a:10).⁸ While displacement and planned relocation are a reality in majority of the six countries, policy frameworks do not provide clear guidance for these processes, thus potentially impacting coherent and timely planning and implementation.

Despite the scientific recognition, to date, very few countries have developed explicit policies to promote migration as a positive adaptation strategy. The Kenyan National Climate Change Response Strategy recognizes the movement of pastoralists to urban dwellings as a way to adapt to deteriorating livelihoods due to environmental degradation (Government of Kenya, 2010:51; Kelsaite and Mach, 2015). Only Haiti acknowledges in its INDC migration and planned relocation as possible adaptation strategies (Government of Haiti, 2015a:10). The Dominican Republic, Haiti and Kenya recognize the pressure environmental factors can put on inducing migration from rural to urban areas, further taking a perspective focused on challenges rather than opportunities. Mauritius is considering migration only as a failure to adapt (Government of Mauritius, 2015:3). Similarly, Papua New Guinea views “climate-induced migration” (Government of Papua New Guinea, 2015:7) as a risk that needs to be managed, which can probably be explained by the difficulty to migrate internally due to the land tenure system. The approaches taken thus partially mirror the prevalent approach by many States that tend to take a sedentary approach and view any movement as a negative or failure to adapt.

Conclusion and recommendations

Climate change is a cause of human mobility.⁹ Migration is a defining feature of our time, but not accessible or desirable by everyone as it occurs, particularly within countries. Those States most vulnerable to the impacts of climate change, such as the six countries studied here, already see movements that are at least partly driven by environmental factors.¹⁰ Certain types of migration can be an adaptation strategy, while displacement, and to a certain extent planned relocation, are likely to increase vulnerabilities. Thus, climate change policy should consider the various forms of human mobility. Human

mobility is a reality that needs to be integrated in any future plans, particularly the expected Paris climate change agreement (IOM, 2015). Given the importance of migration, the following recommendations are made:

1. **Integrating the potential of migration, particularly seasonal migration, in adaptation plans.** Fostering circular movements can help vulnerable households to diversify income strategies and reduce vulnerability, such as displacement. Female-headed households should receive support in accessing different adaptation strategies, both in their place of residence and through migration, to decrease their vulnerability to the impacts of climate change and disasters.
2. **Increasing disaster risk reduction and resilience to prevent and mitigate displacement** (Advisory Group on Climate Change and Human Mobility, 2015:2). The poorest and most vulnerable are disproportionately affected by both displacement and relocation needs and often have no other choice, not just in situations of immediate threat, such as during floods or cyclones, but also in the context of slow-onset events. Reducing vulnerability and increasing resilience of at-risk households and communities through disaster risk reduction measures is key to making people more free to decide whether or not to move. On the other hand, making movements a choice for the poor should be a policy priority, as also recognized in the 2015–2030 Sendai Framework on Disaster Risk Reduction.¹¹ When adaptation cannot take place in the places of residence, migration can be a way to adapt and offer more choices through access to services, an income complement, new skills and knowledge on better adaptation.
3. **Carefully plan relocation** as a last resort and one of several options, as recommended in the case of the planned relocation of IDPs from Manam Island in Papua New Guinea. Policies and plans should be guided by internationally accepted standards, such as the Guiding Principles on Internal Displacement and the Durable Solutions for IDPs framework.
4. **Learning from good practices**, such as by including the potential of migrants’ contributions in adapting to land degradation and other forms of environmental change, as pioneered in Haiti’s draft migration policy. Not only should migration be integrated in climate change adaptation and development planning, but the environment can also be considered in migration policies. One such good practice example is the draft migration policy of Haiti, which points to environmental concerns as contributing to the

⁸ INDCs indicate the measures that States aim to take after 2020 in the framework of the new global climate agreement expected to be passed in Paris in December 2015.

⁹ See http://publications.iom.int/system/files/pdf/mecc_cop_21.pdf.

¹⁰ According to the Climate Risk Index (Kreft et al., 2014), in the period between 1994 and 2013, the Dominican Republic, Haiti and Viet Nam were among the 10 most vulnerable countries to extreme weather events (such as storms, floods and heat waves, among others), both in terms of fatalities and economic losses that occurred.

¹¹ Paragraph 36.a.vi, see www.unisdr.org/we/inform/publications/43291.

decision to migrate, as well as how migration can potentially support development. 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, 2015b). The research findings from the case of the IDPs from Manam Island in Papua New Guinea are planned to contribute to the IDP policy to be developed with the support of IOM.

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