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ADAPTING TO CLIMATE CHANGE THROUGH MIGRATION

A case study of the Vietnamese Mekong River Delta

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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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Prepared for IOM by

Han Entzinger and Peter Scholten
Erasmus University Rotterdam

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– Rotterdam, October 2016
Han Entzinger and Peter Scholten

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Executive summary

The Mekong River Delta in the south of Viet Nam is a global hotspot in terms of climate change. With a high degree of dependency on specific agricultural activities (such as fishing and shrimping), the region is extremely vulnerable to climate change. This includes slow-onset events such as sea-level rise and salinization, as well as rapid-onset events such as flooding and typhoons.

Climate change appears to have contributed to significant (primarily domestic) migration flows in the south of Viet Nam, with a key migration corridor between the Mekong River Delta and cities such as Can Tho and, particularly, Ho Chi Minh City. Within the Mekong River Delta, also, various efforts have been made to relocate households affected by climate change. Viet Nam has extensive experience with relocation projects. Its Living with Floods programme, established after serious flooding occurred in 2000, was aimed at large-scale relocation in the vulnerable Mekong River Delta.

There are two key issues addressed in this study: *how and why migration (including relocation) has been applied as an adaptation strategy in response to climate change in the Vietnamese Mekong River Delta, and what implications this has had for migrants and their households, as well as for their areas of origin and destination.*

To answer these questions, we analysed what migration flows have developed within and from the Mekong River Delta. We included a broad survey of the social and economic characteristics of households that have migrated and an analysis of the environmental stress experienced by these households. Secondly, we analysed the

implications of migration for these households, as well as for the areas of origin and destination, including in-depth interviews with local stakeholders involved in domestic migration to or from a specific area.

This report focuses on six selected communes in three different provinces in the south of Viet Nam. This selection includes both sending and receiving areas of migration, and both spontaneous as well as organized forms of migration (including relocation). The three provinces are Ho Chi Minh City (as a primary destination area), Long An (a rural province close to Ho Chi Minh City), and Ca Mau (a rural province in the far south of the Mekong River Delta).

Our analysis shows that most households that migrated did not refer to climate change as a key reason for migrating. It may be that those households did not see migration as a response to climate change but, rather, as a response to, for instance, economic circumstances. We also found that those households that did report climate change as a migration driver, mostly referred to erosion, cyclones and floods (rather than, for instance, droughts and salinization). Furthermore, the households that did migrate usually had lower incomes and poorer housing. It seems that the most vulnerable households migrated, whereas those with better housing and more means were able to stay behind.

The households that migrated usually reported positive experiences, including higher incomes and better employment opportunities. However, the impact of remittances from these households appeared to be limited. Most migrant households

examined in our survey (internal migrants), neither sent nor received remittances at all. In fact, in many cases, non-migrating households actually sent money to migrants in order to secure the migrant households' future.

Specific to the Vietnamese case was the experience with relocation projects in the Mekong River Delta (although the role of climate change in inducing migration in these projects is relatively limited). Such projects were applied mainly in cases of riverbank erosion, landslides or frequent storms. The Vietnamese experience provides several lessons on how to best design relocation projects. Relocation over relatively short distances appears more successful, as it allows households to continue their economic activities. If relocation involves greater distances, it needs to be part of a broader programme of economic and institutional development that provides migrants with the prospect of a livelihood. This includes schooling and in-job training. Furthermore, relocation often provided the starting point for further migration – a first step towards onward migration to other areas. In this respect, the migration corridors between the rural provinces in the delta and Ho Chi Minh City played a particularly important role.

This shows that a better understanding of migration as a strategy for adapting to environmental stress helps explain the formation of migration corridors to major urban area such as Ho Chi Minh City. In fact, developments in the Mekong River Delta confirm the significance of the migration potential to Ho Chi Minh City, where economic developments constitute a clear pull factor for migration, while environmental stress in the Mekong River Delta clearly serves as a push factor.

Like many other countries in the world, Viet Nam will continue to be faced with large-scale rural–urban migration – partly as a consequence of environmental degradation that hits rural areas, in particular, and partly as an effect of the attractiveness of urban life and urban economies. Further strengthening of strategies to combat environmental degradation, to cope effectively with its impacts, to increase resilience and to

reduce the risk of disaster could lessen the need for rural–urban migration. However, this will not always be possible, and migration will nevertheless occur. Therefore, it is also important that existing obstacles to internal migration be minimized. In addition, the relocation programmes, in which Viet Nam has built up an impressive experience, should be continued and further improved, wherever possible. Particular attention should be given to creating sufficient and sufficiently diverse economic opportunities and education facilities in situations where communities have to be relocated as a consequence of environmental degradation.





Photo: Peter Scholten © 2015



1. Introduction

Environmental change can be an important driver of migration. This applies particularly to areas that are highly vulnerable to the consequences of climate change, such as flooding, salinization, drought and erosion. This “environmentally induced migration”, as it is conceptualized in the migration literature, is in itself not a new phenomenon. Over the ages, many instances of migration have occurred in response to climate change and to environmental developments in general. However, recent research has shown that, although the scale of “environmentally induced migration” (Entzinger, Jäger and Gemenne, 2010) is difficult to measure, there are important indications that it is increasing rapidly in response to global climate change.

In some cases, it is very obvious that changes in the environment lead to migration – domestically as well as internationally. This seems to be particularly the case in response to rapid-onset environmental events, such as cyclonic storms, typhoons, floods and earthquakes. In such cases, the term “displacement” tends to be used, rather than “migration”. However, when slow-onset processes (such as saturation, salinization, drought and sea-level rise) are involved, it is often difficult to distinguish environmentally induced migration from other kinds of migration – especially those driven by economic factors. Environmental degradation can diminish – or, at least, change – the economic and social structures that sustain livelihoods in specific areas, inducing people to migrate. Such degradation, however, can take place over a period of several years or more.

The MECLEP (Migration, Environment and Climate Change: Evidence for Policy) project seeks to develop a better theoretical and

empirical understanding of the relationship between climate change and migration. In particular, the project focuses on establishing to what extent different forms of migration (spontaneous, forced or planned migration) offer adaptation strategies in response to climate change (Lackzo and Aghazarm, 2009; Black et al., 2011). Environmental change is interpreted in a broad sense, involving both rapid- and slow-onset processes of environmental change. People may respond to climate change in many different ways, developing strategies for minimizing environmental degradation and technical measures for coping with the consequences of climate change (such as dike construction).

Migration can be an alternative strategy for coping with climate change. This can involve individual or household-level decisions to migrate permanently or seasonally to another area that is less affected by climate change. It can also involve coordinated strategies or policies to promote migration from affected regions to safer areas that provide new opportunities of livelihood – so-called *relocation strategies*. In the context of the MECLEP project, relocation is defined as “permanent voluntary migration, with an emphasis on re-building livelihoods in another place” (IOM, 2014).

The Socialist Republic of Viet Nam (hereafter, Viet Nam) is one of the countries that has been and is being particularly affected by the consequences of climate change, given its many vulnerable regions. Perhaps the most significant of these regions is the Mekong River Delta in the south of the country. This low-lying area, of great importance to the Vietnamese economy, has been particularly affected by flooding of the Mekong River, by erosion, and increasingly also by



salinization and sea-level rise. Furthermore, the vulnerability of this region is significant because of the high level of dependency of its population on the various forms of agriculture and fisheries that are also affected by climate change. This has contributed to various domestic migration flows to larger cities within the Mekong River Delta, such as Ca Mau and Can Tho, but also to the largest city in the region – Ho Chi Minh City. Some of this migration has been spontaneous, but the Government of Viet Nam has developed some fairly extensive relocation policies, resulting in significant organized migration (Chun and Sang, 2012; United Nations Viet Nam, 2014).

The two key questions to be addressed in this report are: *how and why migration (including relocation) has been applied as an adaptation strategy in response to climate change in the Vietnamese Mekong River Delta, and what implications this has had for migrants and their households as well as for their areas of origin and destination.* Firstly, we will analyse which migration flows have emerged within and from the Mekong River Delta, together with an in-depth analysis of the social and economic characteristics of households that have migrated and an analysis of the environmental stress experienced by these households. Secondly, we will analyse the implications of migration for these households, as well as for the areas of origin and destination, including in-depth interviews with local stakeholders involved in domestic migration to or from a specific region.

However, we will first briefly sketch the context of climate change and migration in the Mekong River Delta, providing an assessment of the environmental challenges, as well as an overview of migration within and from the region. The research design and the methods deployed in this research will then be discussed, followed by an in-depth empirical analysis of migration in response to climate change and its broader implications. The policies that target these migration flows, directly or indirectly, will also be analysed and, finally, we will explore the conclusions of our analysis of how migration can be used as an adaptation strategy in response to environmental challenges: what can policymakers learn in this regard, and what can we contribute to the broader literature on climate change and migration?



Photo: Peter Scholten © 2015



2. The context: Climate change and migration in the Mekong River Delta

Viet Nam has a long history of internal as well as international migration. After the end of the American War in 1975, significant emigration took place to other countries. In addition, various spontaneous and planned internal migration occurred from urban to rural areas, from north to south and from cities to newly developed economic zones throughout the country (Tran and Nguyen, 2015). The fact that Viet Nam has had significant experience in planned internal migration may explain why, internationally, the country stands out in terms of its nationally planned relocations in the face of environmental stress. Since as early as the late 1990s, the

Government of Viet Nam has had a coordinated strategy to promote migration from areas that are particularly vulnerable to the effects of climate change.

In this section, we will discuss the background to this relationship between climate change and migration in Viet Nam. We will provide an overview of climate-related stress as experienced in Viet Nam – particularly in the vulnerable Mekong River Delta in the south – followed by an overview of migration flows inside Viet Nam, focusing on migration within and from the Mekong River Delta.

2.1. International and internal migration in Viet Nam

Viet Nam's recent history shows a variety of migration flows. Especially during and shortly after the American War, a substantial outmigration took place. These flows included the so-called “boat people”, most of whom obtained refugee status in other countries, with family members following them at a later stage. Many settled in the United States of America, where the number of Vietnamese immigrants grew from 231,000 in 1980 to nearly 1.3 million in 2012 (Rkasnuam and Batalova, 2014). Viet Nam also sent considerable numbers of guest workers abroad, mostly on specific labour export programmes. In the 1980s, these workers often went to the then socialist countries in Central Europe – particularly to the former German Democratic Republic, where many stayed for good. Later, similar export agreements for both skilled and unskilled workers were concluded with more nearby countries – particularly Malaysia, the Republic of Korea and Taiwan Province of China (Nguyen, 2014). Vietnamese citizens also

left the country for reasons relating to marriage and study. Immigration into Viet Nam has been much less significant – at least over the past few decades. Most people settling in the country are Vietnamese returning from abroad.

Since the late 1970s, notwithstanding these international migration flows, migration has taken place primarily within Viet Nam. After the war, significant urban–rural migration occurred, especially in the south. Also in the 1980s, planned rural–rural migration occurred at some scale (Dang, Leonardelli and Dipierri, 2016). However, particularly since the beginning of the Doi Moi economic reforms in 1986, economic revival has provoked a significant rural–urban migration. The rapid economic development of the Vietnamese economy, which has manifested itself especially in large urban areas such as Ho Chi Minh City and Hanoi, has been a major “pull factor” for migration.

It is important to note that, in Viet Nam, an internal migrant is defined as a resident of more than one year in a specific administrative unit, who lived in a different administrative unit five years earlier and who is aged 5 or older at the time of census enumeration (CCSC, 2010). The scale of

this internal migration is very significant. In 2009, about 3.4 million Vietnamese migrated internally. Significant flows include those from the Red River Delta (in the north) to Hanoi, from the mountain areas in mid-Viet Nam to Ho Chi Minh City, and from the Mekong River Delta to Ho Chi Minh City.

2.2. Climate change and Viet Nam

Viet Nam is a global hotspot in terms of climate change (see figure 1), facing various environmental challenges, across different parts of the country. It has been predicted that the annual temperature may increase by 2–3°C by 2100, that sea levels will rise by 42–72 cm in specific coastal regions, and that, especially in the north, heavy rainfall may increase by up to 150 per cent.

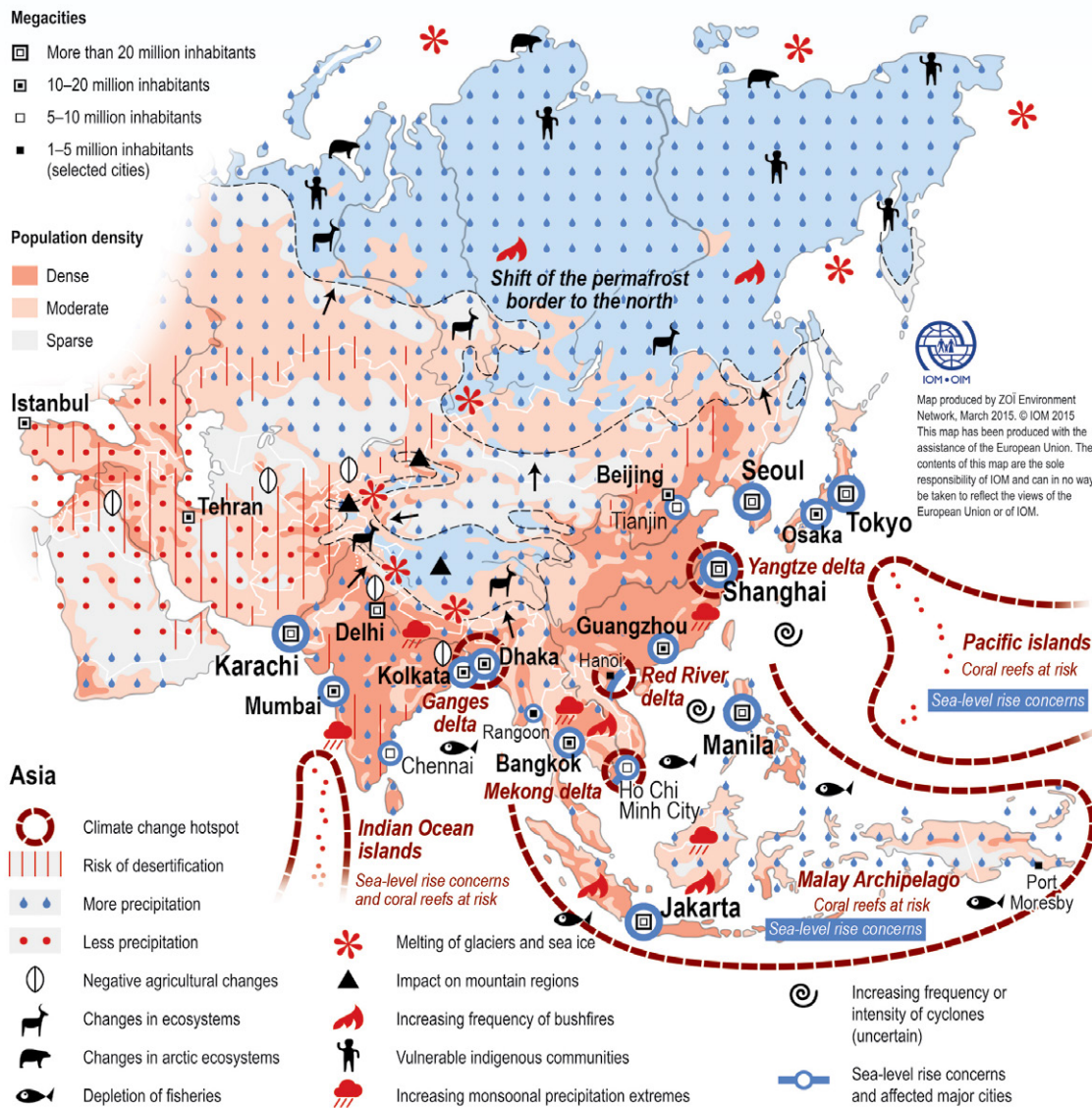
– Dang, Leonardelli and Dipierri, 2016

This reflects various slow- as well as rapid-onset environmental changes. In terms of rapid-onset events, Viet Nam has experienced several typhoons over the past decade. One of the most recent, in 2014, caused huge devastation, particularly in the northern part of the country. Whereas the mountainous parts of the country have experienced frequent flash floods, lower-lying parts around the Red River Delta in the north and the Mekong River Delta in the south have suffered from river plain flooding (ibid.).

In terms of slow-onset changes, sea-level rise has been a serious issue in the various low-lying parts of Viet Nam – particularly the Mekong River Delta. It has been forecast that, by 2040, the sea level around the delta will have risen by 30 cm or more (Lukyanets et al., 2015). As a result of sea-level rise, salinization of low-lying lands is also a serious problem – especially in agricultural regions, where it can seriously jeopardize certain crops, such as rice (Dang, Leonardelli and Dipierri, 2016). Furthermore, land and forest degradation is a growing problem, due not only to climate change but also to overpopulation (Dang, Leonardelli and Dipierri, 2016).

As figure 1 illustrates, the Mekong River Delta is one of the areas in Asia and worldwide that will be potentially most affected by climate change. Several challenges converge in the delta, and they tend to reinforce each other. This is why the Mekong River Delta was chosen as one of the research areas for the MECLEP project. The Mekong River takes meltwater from the Himalayas and rainwater from its tributaries in various countries (Cambodia, China, Lao People's Democratic Republic, Myanmar and Thailand) towards the East Sea. As it approaches the sea, it forms a highly fertile delta, which has over 18 million inhabitants. The dependency on very specific agricultural products (rice, fish and fruit) and the relatively weak development of industries and services in much of the Mekong River Delta mean that the area is particularly vulnerable to environmental changes that affect agriculture. Such changes include sea-level rise, salinity intrusion, river flooding, and erosion of river borders. Over half of the Mekong River Delta's population live in areas of less than two metres above sea level, and a much larger proportion lives on the banks of rivers at risk of seasonal flooding.

Figure 1. Consequences of climate change in Asia



Source: IOM, 2015.

Over the last 10 years, the frequency and extent of flooding have increased. Over the period 2009–2014, more than 28,000 houses were flooded in the Mekong Delta, with damages totalling over VND 240 billion (EUR 9.8 million or USD 11 million) (Scholten and Entzinger, 2015). This is linked to global warming, which causes more meltwater from the Himalayas to run for shorter periods through the Mekong River. At the same time, global warming is provoking a gradual sea-level rise that affects fisheries in the

coastal areas but also leads to saline intrusion and degradation of agricultural lands (see also Tran, 2012). Finally, seasonal storms have also intensified, impacting coastal areas, in particular (Koubi et al., 2016), but also contributing to erosion inland.

2.3. Migration and relocation in and from the Mekong River Delta

Environmental stress in the vulnerable Mekong River Delta has already contributed to significant migratory flows over the past decade. This includes migration within the delta as well as between the Mekong River Delta and the Ho Chi Minh City area. Between 2004 and 2009, 714,000 people migrated from the Mekong River Delta to the south-eastern region (the region around Ho Chi Minh City), which represents by far the largest migration corridor in Viet Nam (GSO Viet Nam, 2009). On a smaller scale, migration towards cities also takes place within the delta – particularly to the provincial capitals and to the larger urban area of Can Tho (Ha, 2012). Migration towards the Mekong River Delta from other Vietnamese provinces is very low, although our research shows that migrants (individually and as a household) do sometimes migrate back and forth between the delta and Ho Chi Minh City.

Spontaneous migrants from the Mekong River Delta face specific constraints due to the Vietnamese system for registering inhabitants – the so-called *ho khau system*. In order to obtain full access to local services, such as health care and education, migrants need to register in the communes where they wish to settle (Dang, 2009). This can involve a permanent or a temporary registration. However, if registration is not possible, migrants must live without access to services, or return to their commune of origin. Legislation has been passed to make the registration of migration between provinces more efficient, but research suggests that the impact of this legislation is yet to reach a significant level (Chun and Sang, 2012; Demombynes and Vu, 2016).

Migrants now make up 21 per cent of the population of Ho Chi Minh City (Dang, Leonardelli and Dipierri, 2016), which receives migrants from the north of Viet Nam as well as from the Mekong River Delta. City-dwellers can earn as much as five to seven times more than those engaged in agriculture in rural areas.

Besides spontaneous internal migration, relocation (or resettlement) programmes have been significant in Viet Nam for several decades. As mentioned, the first planned relocation programmes were initiated shortly after the end of the American War in 1975. Since about 1996, the Government of Viet Nam has recognized the direct link between environmental change and the need for relocation programmes. After serious flooding occurred in 2000, it established a comprehensive programme called Living with Floods (Vo and Mushtaq, 2011). According to this programme, over 90,000 households were relocated in the 2009–2013 period within the Mekong River Delta (CCFSC, 2009; United Nations Viet Nam, 2014:3).



Photo: Susanne Melde © IOM 2015



3. Methodology

This report focuses on whether migration (which includes relocation, spontaneous migration and displacement) can be considered a strategy for adapting to climate change and, if so, to what effect. The Mekong River Delta in the south of Viet Nam is the primary area of study. It is a particularly interesting case, given the effects of climate change on the delta and the significant spontaneous as well as organized migration towards urban centres within the delta and to Ho Chi Minh City. Since conditions in other parts of Viet Nam can differ substantially from those in the Mekong River Delta, however, the results of this study cannot be generalized for the entire country.

In order to obtain a broader understanding of the nature of environmentally induced migration within and from the Mekong River Delta, and to answer the central research question that was defined earlier, the report will address a number of specific sub-questions:

- What are the socioeconomic characteristics of households of which one, several or all members have decided to migrate (via relocation projects, spontaneous migration or displacement)?
- What sorts of environmental stress do these households report?
- What are the implications of migration for the households, as well as for the areas of origin and destination?
- To what extent can migration be considered an effective climate change adaptation strategy?

Within the Mekong River Delta, the project focused on a number of specific areas. A total of six communes from three districts in three provinces were examined. This selection included both sending and receiving areas of migration, and both spontaneous as well as organized forms of migration (including relocation). The three provinces are Ho Chi Minh City (as a primary destination area), Long An (a rural province close to Ho Chi Minh City), and Ca Mau (a rural province in the far south of the Mekong River Delta).

Ca Mau is a province largely dependent on aquaculture and fisheries, and it is extremely vulnerable to various environmental challenges. This is partly why it has become one of the top migrant-sending provinces within the Mekong River Delta. As already mentioned, Ho Chi Minh City is a primary receiving area for migrants not only from the Mekong River Delta, but also from other parts of the country. Long An is a province “in between” the other two, in the sense that it experiences in-migration – for example, from Ca Mau province – as well as out-migration, often to neighbouring Ho Chi Minh City. Internal migration also occurs within this province.

These three provinces provide insights into the development of migratory corridors from different parts of the Mekong River Delta that experience specific forms of environmental stress, while Ho Chi Minh City is one of the main targets of domestic migration in Viet Nam. In each of these provinces, two communes were selected from one district within the province. This selection is presented in table 1. It was made in such a way that a variety



of environmental stress factors would be covered, while also including several relocation cases. Vinh Loi, one of the communes selected in Long An province, is a major relocation site. The main reason for including such cases is Viet

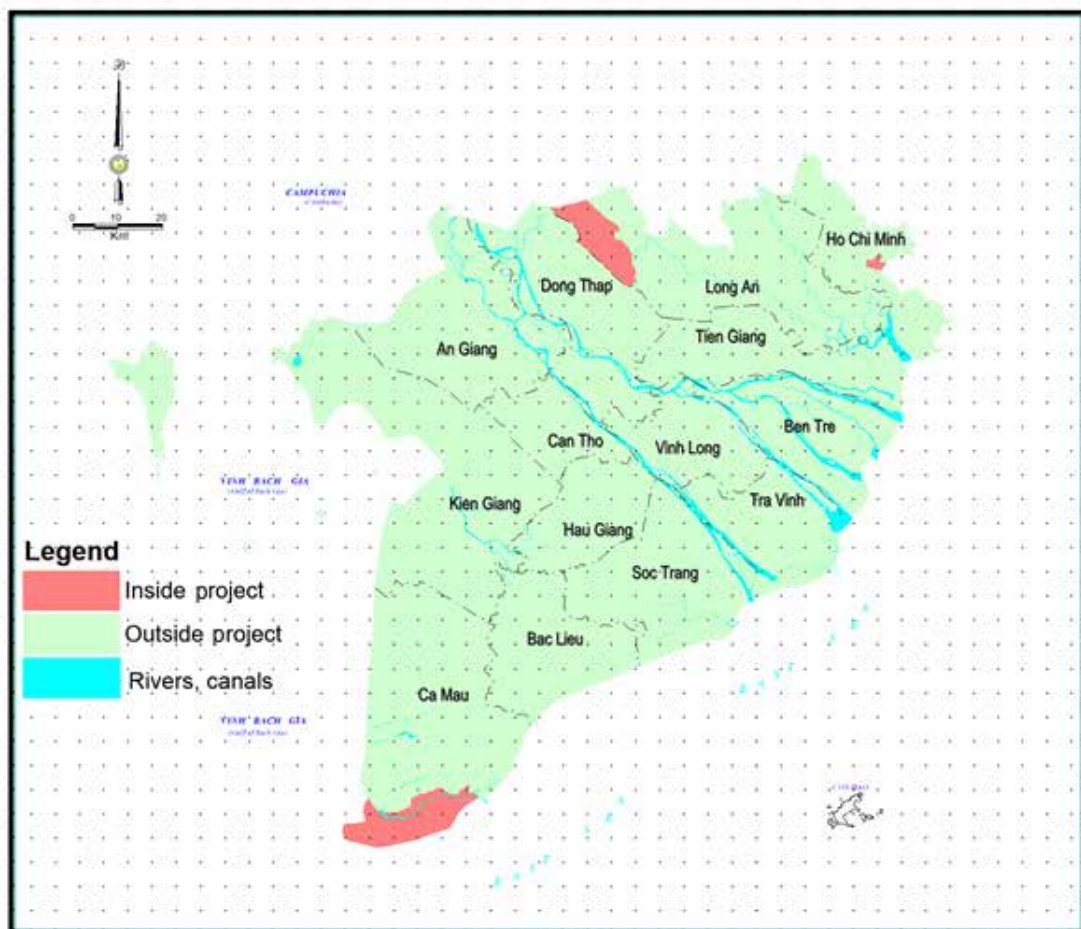
Nam's significant experience in relocation, which may be transmitted to other countries through the MECLEP project. Figures 2 and 3 illustrate the location of the provinces, the districts and the communes.

Table 1. Selected communes in three provinces of Viet Nam

| Province | District | Population of district (2013) | Commune |
|------------------|------------|-------------------------------|------------|
| Ho Chi Minh City | District 7 | 274,828 | Tan Phu |
| | | | Binh Thuan |
| Long An | Tan Hung | 48,480 | Vinh Thanh |
| | | | Vinh Loi |
| Ca Mau | Ngoc Hien | 78,861 | Tan An |
| | | | Dat Mui |

Source: MECLEP Survey, 2015; Tran and Nguyen, 2015.

Figure 2. Location of the provinces of Long An, Ho Chi Minh City and Ca Mau and the districts where the research took place



Source: Tran and Nguyen, 2015.

Figure 3. Location of the six communes where the research took place



Source: Google Maps, 2016.

A number of research methods were used in this project, including a large-scale household survey carried out in the research areas, as well as various methods for revealing stakeholder perceptions (such as stakeholder seminars, discussions and interviews). The fieldwork was implemented in close cooperation with the School of Social Sciences and Humanities of Can Tho University, located in the south of Viet Nam. More precisely, the following research instruments were used:

- **Literature review.** For the preparation of the project, a literature review of climate change and migration in Viet Nam was commissioned to ascertain the available knowledge and expertise on these subjects. The review was written by Dr Dang Nguyen Anh, Professor and Deputy Director of the Viet Nam Academy of Social Sciences, as well as

Director at the Institute of Sociology in Hanoi, and Irene Leonardelli and Alicia Ana Dipierri of IOM. It is published as a separate document (Dang, Leonardelli and Dipierri, 2016).

- **Site visit.** To prepare for the fieldwork and to obtain more information on local stakeholders' perceptions of migration as an adaptation strategy, site visits were made to the various research locations. In June 2015, the full research team visited Ho Chi Minh City, Can Tho and Ca Mau. In Can Tho and Ca Mau, two workshops were held, during which the team met national, provincial and local officials (see appendix for more details). The team also visited several of the case study sites in the Mekong River Delta, where they met local inhabitants affected by environmental changes.

- **Focus groups.** In the three selected provinces, four focus group discussions were held to obtain support for the research and to acquire local information on climate change effects and policies on migration (and, if applicable, on relocation projects). See appendix for more details.
- **Household survey.** In the six selected communes, a household survey was conducted among 1,232 households. The survey involved a fully structured questionnaire with 95 questions. These questions originate from an English-language survey format, which was jointly translated and adapted to the Vietnamese setting by the MECLEP team and the Vietnamese research partners. The survey was conducted by researchers from the School for Social Research of Can Tho University, led by Dr Tran Thi Phung Ha and Dr Nguyen Hong Tin. The survey sample included households both with and without members that had migrated. The interviewed households were selected at random in each of the chosen communes.
- **Key informant interviews.** To reconstruct the policy setting of migration and climate change, key informant interviews were held with major stakeholders from the communes and provinces involved. A total of 36 people were interviewed. See appendix for more details.



Photo: Peter Scholten © 2015



4. Empirical findings: Environmental stress and migration in the Mekong River Delta

4.1. Introducing the survey

In this section, we discuss the empirical findings from our fieldwork, focusing primarily on the households surveyed at the various locations introduced in the previous section. The policy aspects, as these have emerged from our other sources, such as stakeholder meetings and key informant interviews, will be discussed in the next chapter. The key questions in this chapter are:

- What are the socioeconomic characteristics of households of which one, several or all members have decided to migrate (in either relocation projects, spontaneous migration or displacement)?
- What sorts of environmental stress do these households report?
- What are the implications of migration for the households, as well as for the areas of origin and destination?

During the course of the survey, 1,232 households were successfully interviewed. Table 2 indicates how many interviews took place in each of the communes included in the survey. It also indicates the percentage of all households in that commune with at least one member who has some experience of migration. Almost two thirds (65%) of all households interviewed have some migration experience. This means that at least one member of that household went to live in another place for a period of at least three months in the past 10 years. In some cases, these migrants have returned after some time, but they may also still live elsewhere, or they may be commuting over longer periods between their original commune and another place. Table 2 shows that the prevalence of families with some migration experience varies widely from one commune to another.

Table 2. Number of households interviewed per commune, and households with migrants as a percentage of all surveyed households

| Province | Commune | No. of households interviewed | Households with migrants |
|------------------|------------|-------------------------------|--------------------------|
| Ho Chi Minh City | Binh Thuan | 200 | 37% |
| | Tan Phu | 200 | 73% |
| Long An | Vinh Thanh | 205 | 46% |
| | Vinh Loi | 206 | 95% |
| Ca Mau | Tan An | 208 | 56% |
| | Dat Mui | 213 | 84% |
| Total | | 1,232 | 65% |

Source: MECLIP survey, 2015.

4.2. Climate change and environmental stress

The first questions put to the households surveyed in the six selected communes were about their experiences with environmental change: have they experienced such change in the past 10 years and, if so, what kind of change? The survey indicates that drought, floods, cyclones, storm surges, erosion and high tides (almost all “other” responses were “high tides”) have had the most impact on the six communes considered here (see table 3). However, there are major differences between the communes in the nature of the changes experienced. This was to be expected, as the type of environmental stressors affecting a place very much depends on its geographical location. Thus, most of the tidal events affected the two sample areas on the south-eastern coast, while Vinh Tanh and Tan An, situated on the delta itself and more upriver, were most prone to drought, cyclones and floods. Tan Phu, which is a commune within Ho Chi Minh City, appears to have suffered from relatively few natural disasters over the past decade.

The findings clearly show that the two communes selected in Long An Province are highly vulnerable to flooding, but that they also suffer from cyclones and drought. This is particularly problematic since both communes – Vinh Thanh and Vinh Loi – are also strongly dependent on agriculture (rice) and fisheries in the wetlands of the Mekong River Delta. The difference between these two communes in terms of causes of their vulnerability also reflects how localized certain environmental challenges can be. The two are in the same province and not very far apart. Yet Vinh Thanh is located further away from the river than Vinh Loi. The construction of dikes in this area, meant to keep the river water in reservoirs so as to distribute it more evenly over the year, has made the riverbed narrower. Consequently, the river now flows faster than before, and flooding has become more frequent. Both communes suffer quite seriously from floods and cyclones, while Vinh Tanh suffers much more severely from droughts than Vinh Loi. The main reason for this difference is that floods have ceased to occur, following the construction of hydropower dams

upriver. Paradoxically, if this situation persists, the livelihood of the local population may be affected even more seriously than they were in times of frequent flooding.

Shrimp aquaculture and fishery are the main sources of income for much of Ca Mau Province, including the communes of Tan An and Dat Mui, which were selected for the survey in that province. The survey findings confirmed that these two communes are indeed highly vulnerable to climate change and suffer from repeated climatic challenges: erosion, typhoons and sea-level rise. Both communes are located in the far south of Ca Mau (Ngoc Hien District), where fishermen and shrimp farmers often live in coastal forest and mangrove areas.

As expected, the two communes in District 7 of Ho Chi Minh City experience less environmental stress than the rural communes in the survey. Binh Tuan does occasionally experience flooding, due to high tides and heavy rainfall.

In the survey, households were also asked if they felt they had received timely warnings of a climate-related hazard. Of course, timely warnings are much more feasible for certain types of events than for others, and they also vary from location to location. The extent of early warning for drought was generally poor. This seems surprising, as drought is a slow-onset event that does not occur overnight. By contrast, timely warnings were more often given for floods and erosion, although less so for cyclones. It was found that, when controlling for the disaster type, only Vinh Tan and Tan An had poor early warning systems in place. Table 3 shows that these two communes both suffer more than the average from storms and cyclones, but also from drought and irregular rainfall. More generally, drought has been a growing problem in the Mekong River area in recent years. Upstream from the delta, it has become a serious issue, and it is to be expected that drought will soon affect the delta itself – or, at least, parts of it.

Table 3. Overview of environmental changes experienced by households in the selected communes (%)

| | Ho Chi Minh City | | Long An | | Ca Mau | | Overall |
|---------------------------|------------------|---------|------------|----------|--------|---------|---------|
| | Binh Thuan | Tan Phu | Vinh Thanh | Vinh Loi | Tan An | Dat Mui | |
| Drought/irregular rains | 28.5% | 14.0% | 85.4% | 38.5% | 88.9% | 54.9% | 52.1% |
| Landslides | 0.5% | 0.0% | 8.3% | 3.4% | 18.3% | 8.9% | 6.7% |
| Wildfires | 0.0% | 0.0% | 5.8% | 2.9% | 0.5% | 0.9% | 1.7% |
| Volcanic eruptions | 0.0% | 0.0% | 0.5% | 2.9% | 0.0% | 1.4% | 0.8% |
| Floods | 1.5% | 18.0% | 88.3% | 84.4% | 42.3% | 18.8% | 42.4% |
| Cyclones | 3.5% | 0.0% | 76.7% | 80.0% | 85.6% | 64.3% | 52.3% |
| Storm surges | 18.5% | 9.5% | 51.0% | 24.9% | 62.5% | 31.9% | 33.3% |
| Riverbank erosion | 0.0% | 1.5% | 14.1% | 4.9% | 40.4% | 33.3% | 16.0% |
| Earthquakes | 0.0% | 0.0% | 0.0% | 3.9% | 1.0% | 1.9% | 1.1% |
| Other, such as high tides | 70.5% | 3.5% | 1.9% | 2.9% | 14.9% | 53.5% | 24.6% |

Source: MECLEP survey, 2015.

4.3. Migration at the household level

One of the key questions in this survey related to the forms of migration (spontaneous migration, relocation or displacement) in which households engaged, and how these pertained to the form of environmental stress reported. We were equally interested in finding out how different types of migration affected adaptation. To examine these relationships, we focused on the households. Migration at the household level does not necessarily involve the entire household moving. It can also involve migration (temporary, seasonal or permanent) of one household member. Sometimes, having one household member migrate can be a diversification strategy that enhances the income of the entire household.

The total number of movements recorded among the households in the survey was 1,676. It should be noted that about one third of all 1,232 households interviewed did not report any migration experience. This implies that, in households with migration experience, an average of two migration movements took place

in the previous 10 years. This could mean that one person migrated more than once, while the rest of the household stayed behind, or that two (or more) different members each migrated once, but it is just as likely that the entire household migrated – for example, in the context of a relocation scheme.

Analysis revealed a positive correlation between specific forms of environmental stress and migration – particularly erosion, cyclones and floods. Interestingly, the survey showed that, in some cases, natural disasters such as storm surges and extremely high tides did not lead to more migration. It is possible that such forms of environmental change deprived households of the means to migrate, thus leaving the poorest households trapped in circumstances of environmental and often also economic deprivation. However, they might also have been seen as stand-alone events that did not necessitate migration. Contrary to what one might assume, the survey findings showed that the incidence of

migration among respondent households who experienced no disasters was significantly higher than among those who experienced at least one. This suggests that, besides environmental stress, there were other important factors driving migration at the household level. Some may have typically migrated for work anyway, and they therefore denied or downplayed environmental changes as the reason for their migration.

The survey distinguished between the following five types of migration: 1) short-term move (three months to one year); 2) long-term or permanent move (at least one year); 3) recurrent or seasonal move (three months to one year, back and forth); 4) disaster-related displacement; and 5) relocation. Table 4 presents the absolute numbers for each of these five types.

Table 4. Cases of migration, by type of migration (in absolute numbers)

| | | |
|-------------------------------|--|-------|
| Spontaneous migration | (1) Short-term move (three months to one year) | 213 |
| | (2) Long-term/permanent move (over one year) | 1,246 |
| | (3) Recurrent/seasonal move (three months to one year, back and forth) | 67 |
| Displacement | (4) Disaster-related displacement – no choice but to flee | 14 |
| Relocation | (5) Relocation/assisted return decided by the government/authorities | 136 |
| All types of migration | | 1,676 |

Source: MECLEP survey, 2015.

It is obvious from table 4 that the vast majority of migration cases registered in the survey were of the long-term or even permanent type. Almost three quarters of all moves concerned long-term or permanent migration. In most cases, people seemed unlikely to return once they had left their homes. Of the 1,246 long-term or permanent moves, just over 100 were moves abroad; all others were within Viet Nam.

Delving deeper into the link between climate change and migration, it is interesting to analyse the relationship between types of environmental stressors experienced by households and types of migration. Through a multinomial regression analysis, the probability of migration by type of environmental stress can be identified (see table 5). In most cases, we found that any movement that occurred as a result of environmental stress was most likely to take the form of long-term migration. This was particularly so in the case of drought, floods and cyclones. Only in response to wildfires (and, to some extent, landslides), was short-term migration relatively frequent. Seasonal movement seemed rare in this region, although a

small minority of households exposed to drought appeared to engage in such movements. Disaster-related displacement, implying that a household had no choice but to flee immediately, occurred very seldom. The number of cases in the survey was too small to be significant.

Interestingly, the survey findings revealed that relocation was primarily associated with river-bank erosion and, to a lesser extent, storm surges and landslides. This suggests that relocation projects were considered governance tools for these specific forms of environmental stress, and that they were less often applied when other forms of environmental stress were at stake. Also, quite a few households involved in relocation did not experience any environmental stress.

Table 5. The probability of different forms of migration, by type of environmental stress

| | Short-term movement (3 months to a year) | Long-term/permanent movement (at least a year) | Recurrent/seasonal movement (3 months to a year, back and forth) | Disaster-related displacement, no choice but to flee | Relocation/assisted return decided by government/authorities |
|--------------------------|--|--|--|--|--|
| Drought, irregular rains | 0.09 | 0.76 | 0.07 | 0.02 | 0.06 |
| Landslides | 0.21 | 0.59 | 0.01 | 0.02 | 0.16 |
| Wildfires | 0.59 | 0.34 | 0.03 | 0.00 | 0.05 |
| Floods | 0.10 | 0.78 | 0.01 | 0.00 | 0.11 |
| Cyclones | 0.11 | 0.78 | 0.01 | 0.00 | 0.10 |
| Storm surges | 0.22 | 0.59 | 0.02 | 0.01 | 0.17 |
| Riverbank erosion | 0.08 | 0.39 | 0.01 | 0.03 | 0.48 |
| Earthquakes | 0.26 | 0.64 | 0.00 | 0.00 | 0.10 |
| Other | 0.21 | 0.67 | 0.01 | 0.00 | 0.11 |
| None | 0.13 | 0.69 | 0.01 | 0.00 | 0.17 |

Source: MECLEP survey, 2015.

Note: Probabilities range between 0 (minimum) and 1 (maximum); probabilities in bold are statistically significant.

However, the “climate stress” factor is not the only reason for households (or household members) choosing to migrate. The survey allowed for a broader examination of a range of factors that might correlate with households in which migration did or did not take place. It was hoped that these factors might also shed light on the different impacts of climate change on different households.

Although, overall, there were remarkable resemblances in the profiles of households that experienced migration and those that did not, several differences were found when comparing the situation of these two types of households 10 years ago, at the beginning of the period covered by the survey (see table 6). Households that had experienced migration in the past decade were, in 2005, much less likely to own land (27% versus 40% for non-migrant households). They were just as likely as non-migrant households to own a house (52% versus 51%), and they were

more likely to have a family member in poor health (23% versus 15%). Furthermore, migrant households were less likely than non-migrant ones to have sufficient access to food (64% versus 75%), drinking water (38% versus 45%) and electricity (51% versus 59%), and about twice as likely to face security problems (17% versus 9%) or discrimination (9% versus 4%). However, migrant households could seek help from friends, family, neighbours and organizations in about the same measure, and took part in community activities at about the same rate, as non-migrant households. Access to formal credit was about the same (19% versus 22%), but migrants were more likely to use informal credit (24% versus 17%).

Table 6. Characteristics of households that have/have not experienced migration, at the beginning of the period covered by the survey (2015) (as a % of all households in each category)

| | 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: MECLEP survey, 2015.

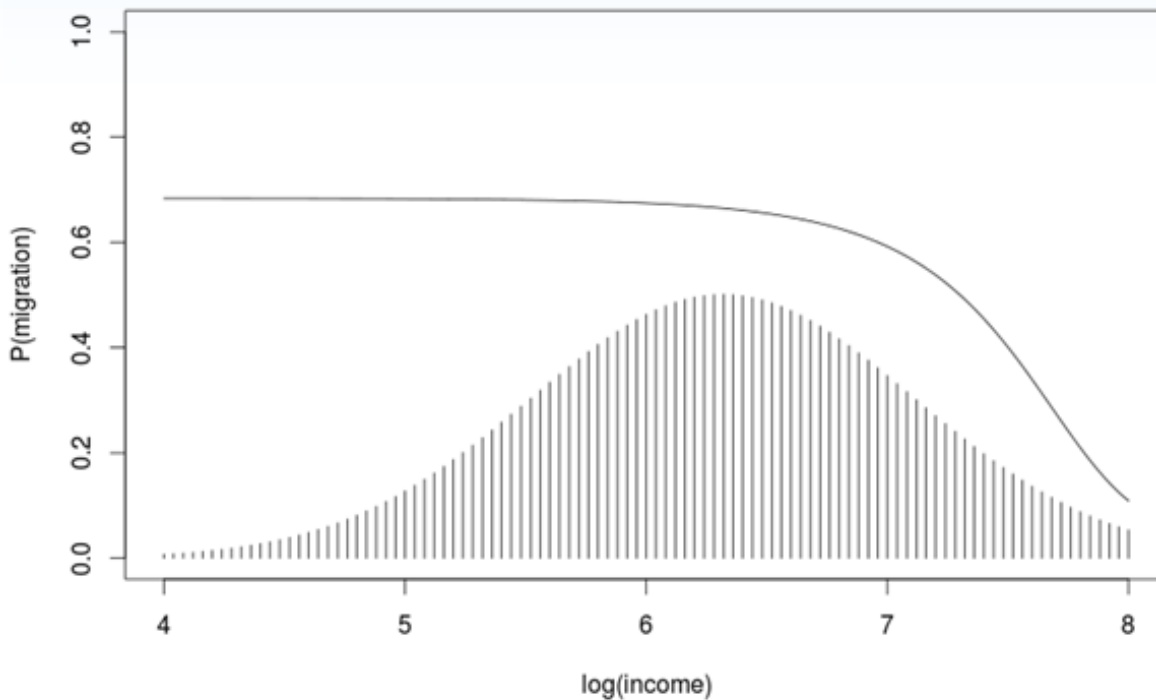
As expected, there was a correlation between income level and the probability of migration. Ten years ago, the average income of households that would experience migration in subsequent years was lower than the average income of those that did not migrate. The probability of migration was particularly high among households that earned less than VND 1 million per month (USD 44). This is the lowest income group, which includes about 20 per cent of all households in the survey. This is an interesting finding that is not really in line with much of the literature on environmentally induced migration (EACH-FOR, 2009). Usually, the poorest cannot afford to migrate, but apparently that was not the case here. Our findings, however, did not enable us to conclude whether the poorest saw themselves as being forced to migrate disproportionately often because they were most affected by environmental stressors or because they saw migration as a strategy for poverty reduction. Once the monthly income rose above VND 1 million, the probability of migration gradually decreased. The higher the monthly income, the lower the probability of migration. For households that earned more than VND 10 million (USD 445) (only about 10% of all households), migration became very unlikely.

In 2005 – the beginning of the period covered by the survey – the mean income level of migrant households stood at VND 3.374 million (USD 150) per month; for non-migrant households, it was

VND 4.452 million (USD 198) per month. Thus, on average, households with migration experience had a relatively low income, whereas the probability of migration decreased when income went up (as illustrated in figure 4).

Finally, it was found that that the building materials used in the construction of household dwellings affected the probability of migration. Poor housing construction was associated with enhanced migration – particularly when the households concerned were faced with high tides, riverbank erosion, storm surges and, to a lesser extent, floods. Inadequate materials included thin wood, earth, mud or earth bricks, mud and straw, reeds and fabric. The use of poor building materials appeared to drive migration even in the absence of a climatic event, although less so. As one might expect, the construction of the dwelling had little influence on migration patterns after droughts or landslides.

Figure 4. The probability (P) of household migration, correlated with household income



Source: MECLEP survey, 2015.

Note: The curve indicates (the logarithm of) the distribution of incomes, while the black line shows the probability of migration at each income level. The median income of all respondents corresponds with the longest vertical line, and it is clear that just beyond that point the likelihood of migration begins to drop.

4.4. Impacts of migration

The third part of the household survey looked at the impacts of migration – for the households themselves as well as for the areas of origin. Assessing such impacts was one of the key reasons for selecting areas with significant out-migration (Ca Mau Province) as well as in-migration (Ho Chi Minh City), with Long An as an intermediate case.

In determining such impacts, remittances sent by migrants are assumed to play a key role. Dang, Leonardelli and Dipierri (2016) report that the importance of internal as well as international remittances has increased significantly for Viet Nam over the past decade. Mostly, such remittances are intended for the household from which the migrant originates, or for his or her wider family. However, remittances that are being invested in the wider economy have increased, particularly those sent by migrants living abroad. There also seems to be a growing trend of remittances being used not only to improve the

livelihood of individual households, but also to boost education or to cope with risks posed by environmental stress (Dang, Leonardelli and Dipierri, 2016:24).

Although migrants usually send remittances to those who have stayed behind, the opposite also occurs. If, for example, a migrant has little or no income in his or her new location, members of the household who stayed behind may transfer money to the migrant, rather than the reverse. Our random samples of households in all six locations included households that had seen some of their members depart, but also households that have newly arrived in a location, or that had taken in relatives who had migrated from elsewhere. Consequently, for each of the 1,676 cases of migration that the survey identified, we asked the household whether the migrant concerned had sent or received remittances.

Table 7 shows that, in 911 cases of migration (more than half of all cases registered in the survey), no remittances were sent in either direction, indicating that the role played by remittances in adapting to climate change might be more limited than expected. Furthermore, table 7 shows that, overall, there were more households in the survey that received remittances (402) than households that sent them (215). Not surprisingly, this was the case in Long An and Ca Mau – two provinces where out-migration is more important than in-migration. Particularly in Ca Mau, the number of households receiving remittances outnumbered the number of households sending them – 226 households versus 76 – while 70 households neither received nor sent remittances. In Ho Chi Minh City, we found the opposite to be true: more families sent than received remittances (41 versus 33), but these numbers are rather low when compared with the total number of families

that did not send or receive any remittances at all (210). These findings seemed to confirm the existence of a migration corridor between Ca Mau and other urban areas in the Mekong River Delta, particularly Ho Chi Minh City.

In Vinh Loi (one of the two communes in Long An Province where the survey took place), we found a surprisingly high number of cases of migration in which remittances were neither sent nor received (429). The survey findings did not provide a clear explanation for this, but we assume that it was because Vinh Loi was a relocation project, which means that all inhabitants had migrated at least once. At the same time, there was a considerable number of migration cases involving remittances being received (89), and also sent (70). Clearly, this commune had a more mobile population than the other communes in the survey.

Table 7. Remittances sent or received by households in the communes surveyed (in absolute numbers; each case of migration counts as one)

| Province | Commune | Received | Sent | None | Don't know/refused to answer |
|------------------|------------|------------|------------|------------|------------------------------|
| Ho Chi Minh City | Binh Thuan | 14 | 17 | 66 | 9 |
| | Tan Phu | 19 | 24 | 144 | 6 |
| Long An | Vinh Thanh | 54 | 28 | 107 | 14 |
| | Vinh Loi | 89 | 70 | 429 | 17 |
| Ca Mau | Tan An | 51 | 44 | 95 | 11 |
| | Dat Mui | 175 | 32 | 70 | 55 |
| Total | | 402 | 215 | 911 | 112 |

Source: MECLEP survey, 2015.

As table 8 shows, the remittances that were sent or received mostly benefited the whole household. Furthermore, as figure 5 indicates, they were primarily spent on very basic household needs (food and consumer goods) and on health care. This is often the case with migrant remittances, and there is debate in the literature about the impact of such remittances on local and regional development (De Haas, 2009; Melde and Ionesco, 2011:24). Some argue that spending remittances on basic household needs only provides temporary relief, while others argue that having sufficient

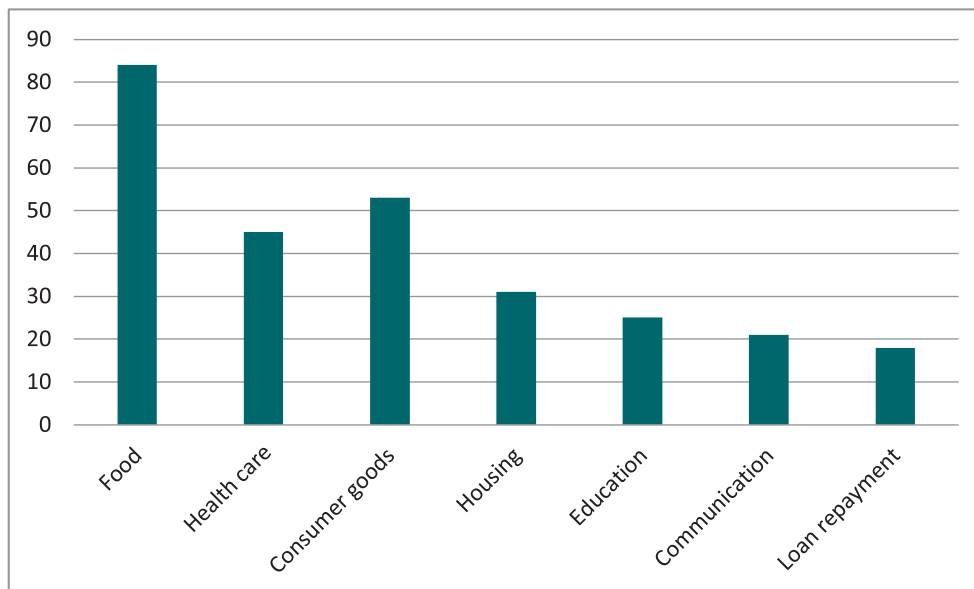
access to food, consumer goods and health care is a basic condition for long-term local and regional development. Once such immediate needs have been met, there is room for more long-term investments, such as in housing or education. In fact, we found that about 30 per cent of all remittances went towards housing and 25 per cent towards education – indicating that remittances are, to some extent, also used for longer-term investments intended to facilitate coping with future risks (as suggested by Dang, Leonardelli and Dipierri, 2016).

Table 8. Spending of remittances by different household members, per household (absolute numbers)

| Province | Commune | Whole household | Several household members | One specific member (female) | One specific member (male) | Don't know/no remittances |
|------------------|------------|-----------------|---------------------------|------------------------------|----------------------------|---------------------------|
| Ho Chi Minh City | Binh Thuan | 14 | 3 | 11 | 5 | 0 |
| | Tan Phu | 23 | 1 | 13 | 5 | 67 |
| Long An | Vinh Thanh | 68 | 3 | 10 | 5 | 103 |
| | Vinh Loi | 119 | 14 | 6 | 12 | 9 |
| Ca Mau | Tan An | 65 | 8 | 10 | 14 | 82 |
| | Dat Mui | 138 | 33 | 16 | 19 | 60 |

Source: MECLEP survey, 2015.

Figure 5. Spending of remittances, by different household needs (as a percentage of all households sending or receiving remittances)



Source: MECLEP survey, 2015.

Note: More than one answer was possible – hence the total being more than 100%.

In addition to the economic benefits of remittances (which are usually made in cash or in kind), migration can have a social or cultural impact on households. Migrants may acquire certain knowledge and skills that they can transfer to those who stayed behind or bring back when they return home after their migration. Almost three quarters (72%) of all households with migration experience reported that specific skills, such as tailoring, cooking and electrical repair, were

acquired by those who migrated (see table 9). In the two communes in Ca Mau Province – Tan An and Dat Mui – skill acquisition was particularly prominent. Not all acquired skills, however, were actually applied at home or passed on to others, as indicated in table 10. Yet one may also argue that almost 4 out of 10 migrants (39%) were involved in the teaching of skills acquired elsewhere (see table 10). This can be considered a major additional benefit of migration for those who stayed behind.

Table 9. New skills acquired by migrant households in specific communes, as a percentage of all cases of migration reported.

| Skills | Binh Thuan | Tan Phu | Vinh Thanh | Vinh Loi | Tan An | Dat Mui |
|-------------------|------------|---------|------------|----------|--------|---------|
| Tailoring | 14% | 41% | 12% | 9% | 18% | 27% |
| Cooking | 18% | 31% | 4% | 6% | 36% | 11% |
| Electrical repair | 14% | 43% | 5% | 11% | 10% | 11% |
| Other | 18% | 2% | 31% | 4% | 18% | 24% |
| None | 27% | 21% | 29% | 56% | 9% | 18% |

Source: MECLEP survey, 2015.

Table 10. New skills acquired by migrants and applied or taught at home, as a percentage of all cases of migration reported

| Skills | Skills acquired | Skills applied | Skills taught |
|-------------------|-----------------|----------------|---------------|
| Tailoring | 21% | 15% | 11% |
| Cooking | 17% | 17% | 10% |
| Electrical repair | 16% | 14% | 11% |
| Other | 14% | 9% | 6% |
| None | 28% | 42% | 61% |

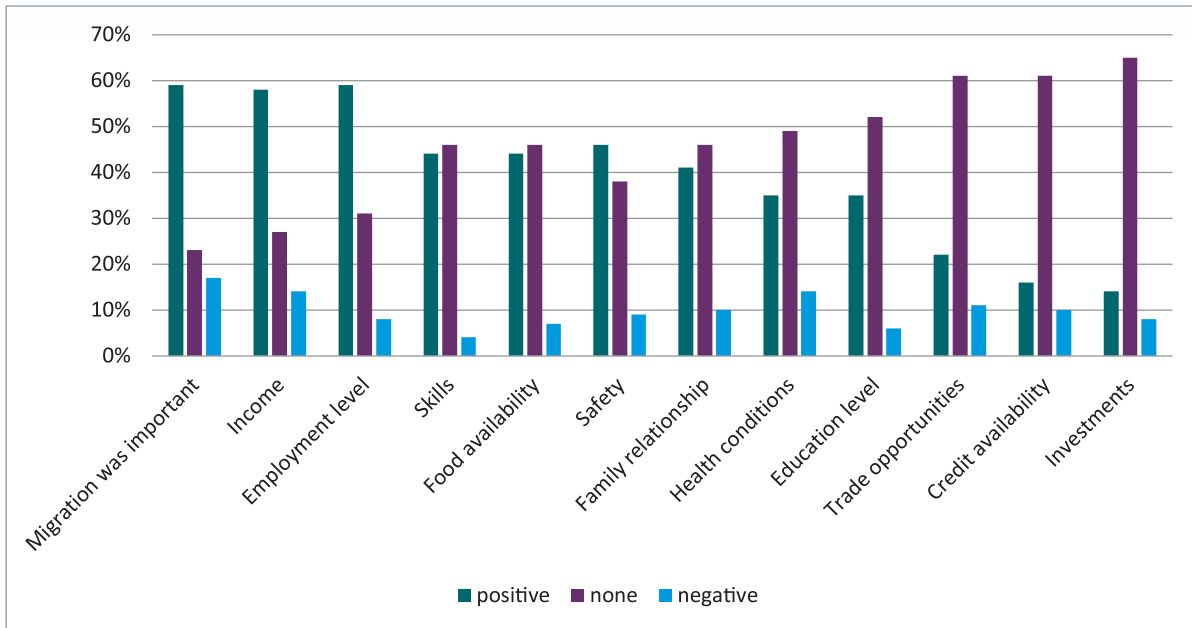
Source: MECLEP survey, 2015.

Finally, when asked to assess the importance of migration in different aspects of their lives, households were generally very positive. Almost 60 per cent of the migrant households reported that migration had been important, while only 17 per cent were of the opposite opinion. In every single category, however, the impact was more often positive than negative, indicating that, overall, the impact of migration had been beneficial (see figure 6). The perceived benefits, however, lay primarily in the fact that migration provided higher incomes and better employment opportunities. Respondents were least positive about migration offering greater opportunities in the field of trade, investments and credit. This indicated that the impacts perceived as positive tended to be immediate or short term (for example, providing income, food and employment), while potential longer-term

benefits (such as education, trade, investments and credit) stood out much less clearly. This suggests that the current dependence on migration and remittances will continue.

It should also be noted that roughly half of all respondents did not see migration as having had a major impact on many aspects of their lives. Migration certainly was the answer for some, in coping with environmental stress, but it was not a panacea and it was certainly not for everyone. Yet, when asked about the *overall* impact of migration on the socioeconomic conditions of their household, 57 per cent of all households with migration experience were positive, 35 per cent saw no impact, and only 7 per cent were negative.

Figure 6. Perceived impact of migration on different aspects of households' lives
(as a percentage of all households with migration experience)



Source: MECLEP survey, 2015.



Photo: Susanne Melde © IOM 2015



5. Managing movements

While the preceding section focused primarily on households, this section will focus on policy. We will first analyse what policies have been developed in Viet Nam regarding migration generally and relocation, in particular. We will then discuss how the authorities have been coping with the effects of environmental change and, finally, we will discuss a number of relocation projects that we studied in the Mekong River Delta.

Our main sources of information were the expert report prepared for the MECLEP project by Dang, Leonardelli and Dipierri (2016), as well as the outcomes of stakeholder seminars, focus group interviews, and interviews with key informants, held in 2015. Dr Tran Thi Phung Ha and Dr Nguyen Hong Tin (both of Can Tho University), and partners in the Viet Nam part of the MECLEP project, organized and supervised the latter activities.

5.1. Viet Nam's policy regarding migration and relocation

When discussing Viet Nam's migration policies, a distinction is usually made between spontaneous migration and nationally planned movements. Spontaneous migration increased significantly after the post-1986 economic reforms (Doi Moi) and the subsequent economic revival of Viet Nam (Dang, Leonardelli and Dipierri, 2016). These developments provoked major migration towards urban areas, especially to large cities such as Ho Chi Minh City and Hanoi – a trend that continues to this day.

For a better understanding of spontaneous migration within the country, one must understand the Vietnamese registration system – the so-called *ho khau* system – which has implications for migrants coming from other provinces (Demombynes and Vu, 2016). This system differentiates between short-term, seasonal and long-term registrations of internal migrants. Short-term registration is for a maximum of six months and requires a temporary absence note from the hometown, an official employment certificate or a guarantee by a landlord. To obtain permanent registration status, migrants often have to prove that they have been living legally in the destination

province and have had a permanent job there for at least five years.

Over the past 10 years, this complex system has undergone a series of reforms intended to simplify the process and to make it easier for migrants with a temporary or short-stay registration to access various local social services, such as social insurance, health care and education. Recent changes, particularly a new law in 2013, have introduced greater flexibility, especially in terms of allowing access to health care for temporary residents, and by letting them benefit from social insurance in their original town. Research suggests that, in larger cities – particularly Ho Chi Minh City – the percentage of the population that is “unregistered” or “floating” is very significant (Demombynes and Vu, 2016). Not long ago, a United Nations report stated that, in Ho Chi Minh City, more than one third of the population had temporary registration status (United Nations Viet Nam, 2014). This means that unregistered internal migrants living in that city cannot access a number of services – either because they are unaware of the regulations, or because they do not meet all of the requirements.

Figure 7. Sample of a long-term (left) and short-term (right) household register



Photo: Thi Phung Ha Tran © 2016

In addition to dealing with spontaneous migration, the Government of Viet Nam has significant experience with planned migration flows. As mentioned earlier, various relocation programmes (urban–rural and north–south) have been developed and implemented since the end of the American War. Since the end of the 1990s, relocation schemes have also been developed in the Mekong River Delta, as part of a larger programme to cope with the consequences of environmental stress. These relocation projects were designed and implemented by the Government of Viet Nam, sometimes in cooperation with organizations such as the World Bank and the Red Cross.

5.2. Relocation projects in the Mekong River Delta and their impact

Relocation projects in the Mekong River Delta mostly involve relocation of households to more secure living places such as safe residential zones protected by dikes. This usually implies moving between communes or sometimes even within the same commune, rather than between districts or provinces. Such relocations over relatively short distances enable the households involved to preserve their previous sources of income, while living in a more stable place (United Nations Viet Nam, 2014). As mentioned earlier, most relocation occurs voluntarily. In many cases, if migrants accept relocation, they are provided with a certificate that entitles them to the use of a specific piece of land (which de facto equals land ownership) as well as loans for constructing a new home.

Relocation projects are often combined with measures to protect the new residential zones from the effects of environmental stress and with broader programmes of institutional development for these zones, such as the creation of nature reserves. This may also involve the establishment of, for example, health services, schools, industries and market places. This makes relocation zones significantly more attractive to households, but it also offers opportunities for diversification of economic activities and income growth. Such broader programmes may be particularly pertinent when relocation over longer distances is involved, when households

have to find new sources of income. Research suggests that when migrants have no trust that their income can be preserved or enhanced, they are unlikely to accept relocation (Chun and Sang, 2012).

Based on the interviews organized for this project, three main relocation strategies emerged. One is interspersion, whereby migrant households are dispersed among established households in the relocation commune. A second strategy is centralization, whereby resettled households are concentrated in one location that is considered more resilient in terms of environmental stress. A third alternative is “in situ” relocation, whereby a specific location is “enhanced” so that migrants can resettle within the same commune, but in better conditions. In the following paragraphs, relocation and other forms of migration management are described for each of the three provinces studied.

CA MAU

As mentioned earlier, Ca Mau Province is one of the provinces most affected by environmental stress (especially in the district of Nam Can in the far south), given its dependence on aquaculture (shrimp) and fisheries. Both activities are highly sensitive to environmental degradation, which means that environmental vulnerability and economic vulnerability go hand in hand. Many

relocation projects have taken place in this area: over 3,350 households were relocated between 2006 and 2015 (see table 11), and more than 3,000 households are to be relocated by 2020 (Tran and Nguyen, 2015:16). Usually, these relocations use

the centralization strategy, whereby households are relocated to safer places (such as those protected by dikes), or the interspersation method, whereby households are relocated within established communities.

Table 11. Numbers of relocation clusters, relocated households and the budget for relocation programmes in Ca Mau Province, 2006–2020

| Period | Number of relocation clusters | Number of relocated households | Budget (million VND) | NGOs involved |
|-----------------|-------------------------------|--------------------------------|----------------------|-------------------------------|
| 2006–2010 | | 965 | 109,726 | - Swiss Red Cross - CWPDP* |
| 2011–2015 | 18 | 3,411 | 231,550 | |
| Planned by 2020 | | 3,090 | 230,098 | |

* Coastal Wetlands Protection and Development Project (Viet Nam).

Source: Tran and Nguyen, 2015.

In the coastal areas surrounding Nam Can District, various relocations have taken place over the past decade over relatively short distances so that fishermen could continue their fishing activities. In Ho Gui (a small commune on the Mekong River Delta’s east coast), households that depended mostly on fisheries were relocated to a safe residential area protected by a dike, about a kilometre away from their previous settlement, in a project supported by the Red Cross.¹ This allowed them to continue working on their old fishing grounds and to preserve their social networks. Yet women often continued to be unemployed, as before relocation. In nearby Khai Long, households seriously affected by erosion were relocated to a safe residential zone closer to the centre of the commune.

Relocations took place over a relatively longer distance in Tan An, which is also one of the places where the household survey was carried out. Here, almost 2,000 households were relocated to a zone further away from the coast. In this case, households were unable to maintain their old

fishery grounds, and they found that their new lands did not provide sufficient opportunities for maintaining a similar economic livelihood. Consequently, many households sold their land and either moved back to their original fishery and shrimping grounds, or went to seek employment in an urban, industrial setting.

These experiences from Ca Mau show how important it is to preserve the resettlers’ economic livelihood. Relocation is not an attractive alternative for migrants if it does not enable them to continue the same level of economic activity. Also, in some cases, resettled households reported increased transportation costs as they had to travel significant distances to reach their workplace (Tran and Nguyen, 2015:15). In some cases, households actually saw their relocation as providing them with a spare house, to which they moved only during the stormy season, spending most of the year close to the places (such as mangrove forests) where they earned their living.

1 The relocation programme funded by the Swiss Red Cross involved building 205 houses in phase 1 and 150 houses in phase 2. The two phases were completed in 2009 and 2012, respectively. In phase 1, building a house cost VND 25 million and, in phase 2, VND 87 million, making a total of approximately USD 1 million (Tran and Nguyen, 2015:19).

LONG AN

Long An is another province where various relocation projects have taken place. Tran and Nguyen (2015) report that, by 2010, over 12,000 households had been resettled – mainly to areas near the Cambodian border and close to main roads that were less vulnerable to flooding. By 2020, another 17,000 households are to be

relocated in Long An (see table 12). This will be done using both the interspersion method, whereby resettled households are dispersed within indigenous settlements, and the in-situ strategy, whereby migrants are resettled within their original commune, but under much better conditions (Tran and Nguyen, 2015:12).

Table 12. Numbers of relocation clusters, households relocated, and budget for residential programmes in Long An Province, 2005–2020

| Period | Number of relocation clusters | Number of households | | Budget million VND* |
|-----------|------------------------------------|----------------------|---------|---------------------|
| | | Received | Settled | |
| 2005–2010 | - Planned: 189 - Completed: 165 | 23,287 | 12,082 | 13,356 |
| 2011–2015 | | | 9,357 | 28,497 |
| 2016–2020 | | | 7,800 | 58,800 |

* Exchange rate in 2010: VND 18,500 = USD 1; in 2015: VND 22,000 = USD 1, according to www.customs.gov.vn/Lists/ExchangeRate/Default.aspx

Source: Tran and Nguyen, 2015.

Stakeholders involved in the focus groups perceived the Long An relocation projects to be largely successful. A key factor was the combination of the relocation programme with investments in financial support and infrastructure improvement for poor households. This involved the construction of roads, irrigation systems, safe water supply, schools, health-care facilities and markets, among other things. Also, loans were provided for improving housing conditions, such as constructing a basement or building sanitary facilities. These investments were also aimed at improving the residents' economic livelihood, by providing various options: planting of short-term crops alongside long-term crops, aquaculture, livestock- and poultry-raising, and the development of industries, trade and services that help to provide job opportunities.

HO CHI MINH CITY

Ho Chi Minh City is a city that receives primarily spontaneous migrants, rather than relocation candidates. There were some relocation projects in response to major infrastructural projects (such as the Tan My 12-floor relocation block in Tan Phu, District 7), but these were not directly related

to environmental stress. The above-mentioned relocation programmes such as those in Long An and Ca Mau often involve relatively short distances and take place between neighbouring communes, or sometimes even within the same commune. However, moving to Ho Chi Minh City tends to provide a starting point for migrants who ultimately migrate further afield. Based on discussions with inhabitants of relocation zones during site visits in the Mekong River Delta, it was clear that some of the original inhabitants who did not take part in the relocation programmes moved spontaneously to urban centres in the delta. More often, however, a direct migration corridor developed between these areas in the Mekong River Delta and Ho Chi Minh City.

Migration to Ho Chi Minh City can take place at the household level as well as at the individual level. When an individual migrates, it can be part of a broader strategy to find alternative sources of income for the household. In some cases, a family member temporarily goes to Ho Chi Minh City during seasons when food production is low, or for a limited period for education or other specific purposes. In other cases, individual members or entire households may migrate

permanently to Ho Chi Minh City to find new opportunities. Such migration, however, is complicated by the registration system, which restricts opportunities for permanent settlement in Ho Chi Minh City, even though the system is less complicated now than it was before.

Discussions with stakeholders confirmed our earlier impression that relocation might indirectly contribute to migration to Ho Chi Minh City. Particularly when relocation also involves schooling, training and some increase of livelihood, resettled inhabitants sometimes move on further. For a start, they may send one or two household members to Ho Chi Minh City for education or for seasonal labour, thus helping to diversify the household income. Eventually, if the move is successful, the entire household may move to Ho Chi Minh City to pursue opportunities there. Thus, relocation can initiate migratory processes for individuals as well as households. At the same time, there are also many reports of families and individuals returning from Ho Chi Minh City, having failed to secure a stable living there.

The migration literature has shown that migration corridors, once consolidated, tend to generate various sorts of remittances to the regions of origin (De Haas, 2009). This can involve economic remittances (sending home money or goods), but also cultural and social remittances such as the transfer of skills and knowledge and the opening up of new social networks. In theory, this can also contribute to climate change adaptation, as such resources may be used to enhance resilience in the face of environmental stress. Talks with resettled migrants, however, indicate that remittances are very limited, especially as the income earned in Ho Chi Minh City is often cited to be barely enough to cover the higher cost of living in that area. These findings are in line with the outcomes of our survey, reported in the previous section. Only a small proportion of households that have experienced migration to Ho Chi Minh City have actually profited from remittances.



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6

6. Conclusion

The Mekong River Delta is one of the areas in the world that is most vulnerable to environmental degradation and to the consequences of climate change. It is a densely populated area, with very fertile soils and with a population that is strongly dependent on agriculture and fisheries. These economic activities are seriously threatened by environmental challenges, which has led to significant migration by those in search of alternative livelihood opportunities. Most of this migration has taken place spontaneously. In the rural communes where we carried out our survey, two out of three households had, on average, experienced migration by one or more of its members during the preceding 10 years. Most of these movements were for more than a year and may be permanent. Urban centres in the Mekong Delta, but even more so the metropolitan area of Ho Chi Minh City, proved to be attractive destinations for migrants.

The survey's findings indicated that the probability of migration was not the same for everyone and that people migrated for a variety of reasons. There was a positive correlation between specific forms of environmental stress – particularly erosion, cyclones and floods – and migration. Droughts and salinization were mentioned less often as major environmental stressors. However, it was clear from our interviews that their significance is growing, and that they may soon become major challenges to the livelihood of people living in the Mekong River Delta. Interestingly, our analysis revealed that, in some cases, natural disasters such as storm surges and high tides did not lead to more migration. Possibly, such disasters deprived households of the means to migrate, but they might also have seen these as stand-alone events that did not warrant moving.

Contrary to what one might expect, the incidence of migration among households who reported not to have experienced natural disasters was found to be significantly higher than among those who experienced at least one. This is an interesting finding for which there seems to be no immediate explanation. One might assume that households that already had migration experience prior to the occurrence of environmental degradation or of a natural disaster did not migrate due to environmental stressors. Individual migrants or entire households might have left a location for reasons not immediately related to the environment – or, at least, did not perceive it to be the reason for having to move. In some cases, planned relocation took place before the migrants' original environment became seriously affected. Another explanation for this rather unexpected finding is that those most affected by environmental hazards might be less able to use migration as an adaptation strategy than those who were not (or were less) affected, but who might fear that further degradation may hit them as well. If this were the case, the most vulnerable would stay behind, unable to migrate due to a lack of capacity to move or out of a need to protect what they had.

The findings of our survey indicated otherwise, however: that the probability of migration was significantly higher among households with lower incomes and poorer housing. Poorer households might be more likely to inhabit the places and areas most vulnerable to environmental stress. Therefore, they might be more ready to move elsewhere in search of an alternative livelihood. On average, those who stayed behind appeared to have better housing, higher incomes and more land – all of which made them more resilient to the consequences of environmental degradation

than those who were less well off. They were better able to adapt to environmental change without moving and, if they did move, they did not associate their move with environmental degradation, or their move might have occurred before environmental conditions in their original location worsened. Consequently, more research is needed to obtain better insights into the complex relationship between environmental degradation and migration in Viet Nam.

Although those who stayed behind appeared to be better off, in several respects, than those who migrated, it should be noted that most households with migration experience tended to be quite positive about it. Most households with migration experience reported that the experience had been beneficial to them—primarily because migration had led to higher incomes and better employment opportunities. These were medium-term benefits, while potential longer-term benefits such as better education or higher trade and investment rates, seemed to stand out less clearly. Nevertheless, migration should be considered a normal strategy for adapting to environmental change, used by many residents of the Mekong River Delta. Along with in-situ adaptation and relocation, migration should be recognized and facilitated by the authorities as a serious option, not only for coping with climate change, but also for promoting social and economic development.

In this respect, it is also important to note that it has become increasingly recognized worldwide that remittances by migrants can play an important role not only in supporting migrants' households and family members, but also in boosting the economic and social development of the entire local community. Based on our survey, it was clear that remittances created a better life for many families, but their overall impact was rather limited. Most of the migrant respondents never sent money home. Some even received money from those who stayed behind. The main reasons for this were the high cost of living in urban areas and the difficulty of finding a job with a decent income. It could also have been due to be a household supporting one of its members who had moved to a city to study. Thus, in some cases, migration could be

considered an investment in a household's future development while, in other cases, it is primarily a survival strategy.

Even though some planned migration had taken place in the past, by far the most common form of migration inside Viet Nam today is spontaneous migration. The registration system requires migrants who move from one place to another to register in order to qualify for certain facilities and benefits. The system is rather complex and, despite recent improvements, still does not give migrants the same entitlements as local residents. Consequently, large numbers of internal migrants encounter obstacles that may hinder their prospects of successfully integrating into their new environment. In Ho Chi Minh City, for example, it is estimated that one third of the current population falls into this category.

In other cases, however, the Vietnamese authorities have actively promoted the relocation of migrants who are being affected or threatened by environmental challenges. This has occurred only in specific contexts – primarily in situations of riverbank erosion, frequent storms and landslides. The Government started these activities at a very early stage (some 20 years ago), and it has built up a lot of experience in planned relocation since then – perhaps more so than any other country in the world affected by similar problems. However, only a very small part of all environmentally induced migration in the country takes place under one of the relocation programmes.

Some of these programmes are considered to be successful by those who have participated in them. In other cases, however, doubts have been expressed about the effects of relocation. Certain lessons can be learned from Viet Nam's relocation experiences, which may be helpful for other countries. One such lesson is that, if relocation occurs over short distances, the population involved may be able to maintain its economic activities. They can continue working on their agricultural or fishery lands while living in more stable places. They can also preserve their social networks, which act as a source of information but also as a buffer against financial shocks. One downside of this type of relocation

may be that it does not lead to a diversification of activities, which means that households remain economically vulnerable. In fact, during our site visits, we met women who indicated that, whereas relocation had helped their husbands preserve their economic activities, it had not led to new activities or opportunities for them. Moreover, in the face of an expected further increase of environmental stress in the near future, the stability of new settlements cannot always be fully guaranteed, either. One might therefore question to what extent such short-distance relocation is an effective sustainable “adaptation” to environmental stress.

When relocation involves greater distances, it needs to be part of broader programmes of economic and institutional development of residential zones. This involves schooling and training to allow migrants to develop new skills and adapt to their new situation – such as the on-the-job training programmes organized in Can Tho. It may also involve the development of a more diverse range of economic activities, such as the construction of new factories, the development of handcrafts and, in some cases, the development of tourism. Relocation is only an attractive alternative for migrants if it enables them to continue the same level of economic activity.

Finally, relocation to specific areas should always be seen in the broader context of more spontaneous migration flows from areas affected by environmental stress. In fact, as has been argued, relocation often proves to be a starting point for more extensive migratory careers, whereby individuals or households engage in spontaneous migration over longer distances. Our study suggests that environmental stress and relocation projects in the Mekong River Delta are directly linked to the formation of a migration corridor to Ho Chi Minh City, in particular.

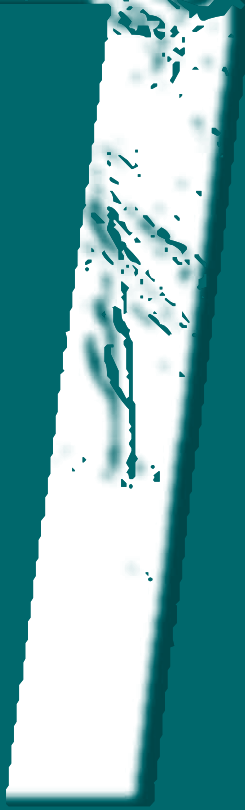
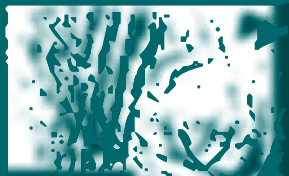
Understanding how migration serves as a strategy for adapting to environmental stress sheds light on the formation of migration corridors to major urban areas such as Ho Chi Minh City. In fact, developments in the Mekong River Delta indicate the significance of the migration potential to Ho Chi Minh City. The strength of this migration

corridor depends on both push and pull factors. While the pull factor from Ho Chi Minh City is relatively strong (the city is the largest net immigration area in Viet Nam), it has not been strong enough to sustain all households that have migrated there from the Mekong River Delta. Some have returned disillusioned. However, given the very positive economic outlook for Viet Nam, in general – and particularly for Ho Chi Minh City – this pull factor can be expected to increase, with important implications for that city (Haugton, Loan and Linh, 2010; Dang, 2013). On the other hand, given the steadily increasing environmental stress in the Mekong River Delta, push factors for migration out of that area to Ho Chi Minh City can be expected to become stronger. This is true for slow-onset climatic events, and perhaps even more so for less-predictable sudden-onset events such as typhoons and the severe floods that occurred in 2000 and 2011.

Like many other countries in the world, Viet Nam will continue to be faced with large-scale rural–urban migration – partly as a consequence of the environmental degradation that particularly affects rural areas, and partly due to the attractiveness of urban life and urban economies. Further strategies for dealing with environmental degradation, coping effectively with its impacts, enhancing resilience and reducing the risk of disasters could decrease the need for some rural–urban migration. However, such measures will not always be possible or sufficient, and migration will nonetheless take place. It is therefore important that existing obstacles to internal migration be minimized. This implies further modernization of the ho khau registration system, as well as closer and more effective collaboration between the ministries and agencies dealing with the various aspects of migration. Furthermore, the relocation programmes, in which Viet Nam has developed an impressive track record, should be continued and further improved, wherever possible. Particular attention should be given to creating sufficient and sufficiently diverse economic opportunities and education facilities where communities have to be relocated because of environmental degradation.



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8. Appendix: Workshops, focus group discussions and key informant interviews

Workshops during site visit (all held in 2015):

| Date | Place | Affiliation | Contents |
|-------|---|---|---|
| 04/06 | School of Social Sciences and Humanities, Can Tho University, Can Tho | <ul style="list-style-type: none"> - DARD,* Can Tho - Division of Rural Development - People's Committee of Ninh Kieu Binh Thuy, Phong Dien District - People's Committee of Tra Noc, An Khanh, Xuan Khanh Ward - Police division wards - Division of Labour Invalids and Social Affairs, Tra Noc and An Khanh Ward - Women's Union of Wards | Discuss: <ul style="list-style-type: none"> - Environmental degradation and migration - IOM and MECLEP projects - Project activities: next steps - Impacts of climate change in the local context |
| 05/06 | Division of Rural Development, DARD, Ca Mau | <ul style="list-style-type: none"> - DARD, Ca Mau - Division of Rural Development - Division of Land Management and Construction - Division of Economic and Infrastructure Development - Division of Resettlement Construction - Division of Irrigation - Department of Labour Invalids and Social Affairs - People's Committee of Nam Can, Ngoc Hien District - Women's Union | <ul style="list-style-type: none"> - In/out migration data, and effects of migration - Resettlement zones and how these work |

* Department of Agriculture and Rural Development (DARD).

Focus group discussions (all held in 2015):

| Date | Sites | Affiliation | General description |
|-------|---|---|--|
| 22/06 | Zone 3A, Nguyen Thi Thap Street, Ward Binh Thuan, District 7, HCM City | Elderly person (immigrant for 20 years) High school teacher (immigrant for 10 years) | Unplanned (voluntary) migrants |
| 23/06 | Resettlement zones A and B, Zone Tan My, Ward Tan Phu, District 7, Ho Chi Minh City | Resettlement managers and people living in resettlements A and B | People from District 8 had been relocated to this resettlement in 2010 |
| 25/06 | Village Ca No, Vinh Loi Commune, Tan Hung District, Long An Province | Communal officer Women's Union Villages | Planned resettlement zone (<i>cum tuyen dan cu</i>) for people redistributed from around the district to avoid the effects of floods |
| 25/06 | Village Cai Tram, Vinh Thanh Commune, Tan Hung District, Long An Province | Villages | Settled long time ago Affected by floods every year Participants feel that migration strategy is not popular and promises for a better life have not come true |

Key informant interviews (all held in 2015):

| Date | Place | Affiliation |
|-------------|---|--|
| 13/05 | Can Tho City | Head of Division Rural Development |
| | | Division of Irrigation Construction |
| | | Division of Department of Labour, Invalids and Social Affairs |
| 10/06 | People's Committee at District 7, Ho Chi Minh City | Vice Chairman of District 7 People Committee |
| | | Officer of District 7 (Chánh Văn Phòng) |
| | | Vice Head of Division of Department of Labour, Invalids and Social Affairs, District 7, HCM City |
| 20 to 22/06 | Tan Phu and Binh Thuan Ward, District 7, Ho Chi Minh City | People's committee (Chief) of District 7 |
| | | Youth Union of People's Committee in Binh Thuan Ward |
| | | Vice Head of People Committee in Tan Phu Ward |
| | | People in resettlement building of Tan Phu Ward |

| | | |
|--------------|--|---|
| 04 and 05/07 | District 7, Ho Chi Minh City | Vice Head of Division, HCMC Department of Labour, Invalids and Social Affairs |
| | | Household resident in District 7, HCM City |
| 13/07 | Division of Rural Development of Ngoc Hien District, Ca Mau Province | Head |
| | | Vice Head (technician) |
| | | Aquaculture and fishery technician |
| | | Project management |
| 14/07 | People's Committee of Dat Mui Commune, Ngoc Hien District, Ca Mau Province | Vice Head of Women's Union |
| | | Head of Rach Tau village |
| | | Head of Kinh Dao village |
| | | Staff of Department of Labour, Invalids and Social Affairs |
| | | Head of Farmers' Union |
| | | Head of land management and construction |
| 15/07 | People's Committee of Tan An Commune, Ngoc Hien District, Ca Mau Province | Vice Head of Women's Union |
| | | Head of Farmers' Union |
| | | Police |
| | | Head of Youth Union |
| | | Head of Veterans' Union |
| | | Land management and construction |
| 25/07 | People's Committee at District Tan Hung, Long An Province | Head of Division Rural development |
| | | Vice Head of Economic and Infrastructure Division |
| | | People's Committee of District Tan Hung (Chief of Staff) |
| 26/07 | Department of Agriculture and Rural Development | Head of Department of Labour Invalids and Social Affairs |
| | | People's Committee |
| 26/07 | Division of Rural Development, DARD, Long An Province | Head of Division |
| | | Vice Head of Division |
| | | Resettlement Programme officer, Secretary |

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