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STRENGTHENING TRANSATLANTIC COOPERATION



Climate Change and Migration

Study Team on Climate-Induced Migration

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Summary: Environmental change is one of a larger set of factors that affect human migration and displacement worldwide. Climate change and variability will particularly affect migration in and from highly vulnerable areas like low-lying islands and deltas, coastal areas, areas dependent on glacial-fed water systems and areas subject to persistent drought. Most environmentally induced migrants will move within the borders of their own countries or to nearby countries. Only a small portion is likely to relocate to more distant countries. Policymakers need to take a holistic approach to this emerging issue which addresses both the drivers in origin areas (e.g., livelihood insecurity, environmental hazards, conflict, demographic pressures, gender inequality, etc.) and the pull factors in destinations (e.g., demand for labor, aging of the population). To prepare, policymakers should: foster adaptation policies that, when possible, help people stay through sustainable rural and urban development, and, when necessary, help people migrate in safety and dignity; involve the diaspora in designing and funding adaptation strategies that enable their home countries and communities to cope with climate change; support disaster risk reduction and conflict mediation strategies while strengthening humanitarian responses; and identify guiding principles, effective practices and institutional frameworks to help governments develop appropriate laws, policies and programs to address migration induced by climate change and variability.

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Climate Change and Migration: Report of the Transatlantic Study Team

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Background

The Transatlantic Study Team on Climate Change and Migration was established with generous funding from the German Marshall Fund of the United States in June 2009 to promote greater understanding of the interconnections between environmental change and the movements of people within their own countries and across international borders. The study team is composed of experts; policymakers; and practitioners from the migration, environment, and humanitarian communities. Team members are from a broad range of institutions in the United States, Germany, the United Kingdom, Mexico and Senegal, representing potential source and destination countries for migration associated in whole or in part by climate change. A complete list of study team members is included on page 10.

The study team met three times in 2009 and 2010 – in Berlin, Washington, D.C. and Brussels – to share perspectives drawn from our respective fields of expertise. The team also undertook study tours to Senegal, Mexico and Bangladesh in order to understand more completely the realities on the ground. These visits provided an opportunity to meet with national and local experts from the environment and migration communities, as well as observe trends

in internal and international migration linked to climate change or broader environmental factors. The findings of these study tours have been integrated into this final report. Members of the team also drafted background papers on a range of issues to highlight linkages between climate change and migration. These papers draw upon the expertise of key team members to examine: (1) adaptation strategies, (2) the interconnections between climate change, conflict and migration, (3) climate change, migration and rural development, (4) the humanitarian consequences of climate change and forced displacement, (5) the international legal framework for addressing climate change-induced migration, (6) the institutional structures within which climate change and migration policies are formulated, and (7) potential destination countries reactions to climate change-induced migrants. The background papers and further observations from the study tours are available at http://www.gmfus.org/cs/publications/publication_view?publication_id=650.

Our research, study tours and dialogue have reinforced to the study team that the interconnections between climate change and migration are extremely complex – in line with emerging literature and evidence on the topic. The

Climate Change and Migration

Study Team on Climate-Induced Migration

background papers and study tours highlight the intertwined role of environmental and climatic factors with other factors in driving mobility. The complexity stood out in three areas, described in more detail below: (1) difficulty in identifying causation between climate change and migration, particularly given the extent to which local environmental factors and unsustainable development practices affect migration trends, (2) the role of migration as an adaptation mechanism, and (3) the absence of appropriate policy tools to address migration induced in whole or in part by environmental change and degradation.

The impact of climate change on migration trends and patterns

Migration is indeed a mechanism through which people manage the risks associated with variability and change in climate, but the direct and determinative causal linkages between climate change and migration are difficult to identify (Laczko, 2010). Rather, climate change enters into migration decisions closely entwined with other factors that contribute to environmental degradation (erosion, soil pollution, etc.) and also with numerous non-environmental considerations. Among the most important determinants are the presence of networks in destinations (urban areas within one's country and other countries), income disparities between source and destination areas, and the availability of other risk management strategies (e.g., crop insurance).

The study team's inquiry focused on four forms of movement stemming directly and indirectly from environmental factors related to climate change. These include migration resulting from:

1. Increased frequency and magnitude of weather-related natural disasters, such as hurricanes and cyclones that destroy infrastructure and livelihoods and require people to relocate for shorter or longer periods;
2. Changes in weather patterns that contribute to longer-term drying trends that affect access to essential resources such as water and negatively impact the sustainability of a variety of environment-related livelihoods including agriculture, forestry, fishing, etc.;

3. Rising sea levels that render coastal and low-lying areas uninhabitable in the longer-term; and
4. Competition over natural resources that may exacerbate pressures that contributes to conflict, which in turn precipitates movements of people.

The first two scenarios are likely to cause slow-onset migration, in which people seek new homes and livelihoods over a lengthy period of time as conditions in their home communities worsen. The third and fourth scenarios are more likely to create conditions that cause large-scale displacement, often in emergency situations.

In each of these situations, however, a wide variety of factors will determine whether, where and in what numbers people migrate. Understanding past trends may help to inform projections about future movements. In Jalisco and Zacatecas, Mexico, for example, weather cycles, in combination with other push and pull factors (particularly U.S. labor demand), have supported a century of migration to the United States and to urban centers in Mexico. These Mexican states lie at a crossroads between arid and arable land, and have experienced drought cycles that prompted population movements. Understanding the history of this migration is essential to understanding the ways in which increased aridity due to climate change may affect future movements.

It is also essential to understand the broader context in which such movements may take place. In Senegal, the study team observed that changing climatic conditions (especially those affecting rainfall and drought in the northern and eastern parts of the country) combined with agricultural policy to reduce the sustainability of rural livelihoods. As livelihoods come under pressure – in part because of issues like declining soil fertility, erosion, deforestation, lack of water, and greater than expected weather variability – internal and international migration have become coping mechanisms.

Academics in Bangladesh were also insistent that natural hazards are not the main issue concerning migration to urban centers, as numerous interacting social, economic and environmental factors explain high rates of rural-urban migration. A survey of rickshaw-pullers in Khulna, for example, would probably reveal highly diverse origins and reasons

Climate Change and Migration

Study Team on Climate-Induced Migration

for migration. Disasters, they said, are a small part of the broader migration picture in Bangladesh. Moreover, even highly destructive natural hazards do not necessarily result in humanitarian crises. Generally, national and international policies, institutions and humanitarian responses determine whether people are able to cope with the after effects of natural hazards in a manner that allows them to recover their homes and livelihoods. As Collinson (2010) observes, “national governance structures and the state’s capacity to provide services and maintain institutions are of key importance in influencing the humanitarian impacts of climate change and associated displacement and migration in different contexts.”

Establishing linkages between climate change and conflict is also difficult. As one of the study team’s background papers points out, “environmental change is only one of several interrelated causes of conflict, not the most decisive factor” (Warnecke et al., 2010). During conflict, regardless of the causes, large-scale displacement is often the norm. In fact, conflict may undermine the capacity of people to cope with climate change, leading to greater displacement than might have been the case in a more stable environment. Collinson (2010) contends that “many of the world’s poorest and most crisis-prone countries will be disproportionately affected by climate change owing to higher exposure to climate-related hazards such as droughts and floods, pre-existing human vulnerabilities and weak capacities for risk reduction measures.”

Environmental degradation, including desertification and coastal erosion (which is likely to increase with climate change), also exacerbates problems, such as loss of crops and fisheries, arising in largely rural, marginal economies that have had histories of migration. In Senegal, for example, the fact that such a large proportion of people are directly involved in agriculture and fishing makes them sensitive to environmental changes. Philip Martin (2010) argues that even without climate change, coming years are likely to witness continuing large-scale migration out of the agricultural sector, particularly in developing countries where farm incomes are significantly lower than non-farm incomes. Climate change, specifically global warming, is likely to accelerate this pace of migration. Several economic models project that global warming will have more effect on the distribution of farm production than global farm output, with new areas becoming viable for farming as a result of higher temperatures. However, far more people are likely to be displaced by global

warming than those likely to find jobs in these new farming areas, which are often located in developed countries where mechanization of new farm operations is probable.

In the three countries visited, unsustainable development practices compound problems and pose more immediate challenges than global climate change. In St. Louis, Senegal, for example, a combination of a large dam system on the Senegal River and a poorly planned flood protection canal for St. Louis have contributed to significant coastal erosion that threatens to inundate and displace several small communities. The canal – originally just 4 meters wide – has grown to more than a kilometer wide, with the ocean threatening not only coastal communities, but also barrier beaches in a national park. Local fishing and farming communities are losing their livelihoods as salt water intrudes, contributing to internal migration pressures.

In Jalisco, Mexico, many farmers switched from traditional crops to agave as demand for tequila rose, only to experience falling prices as soil was eroded by new pesticides. Similarly, pollution from urban areas and livestock is affecting both the quantity and quality of water in the Lake Chapala-Lerma-Santiago river basin. Our study tours also demonstrated that regional as well as global factors affect climate change and migration. Methane production from local livestock farms and ranches is a significant contributor to global warming, even if not at the scale of emissions from fossil fuels. The Mexican government, which will host a climate change summit in 2010, has played an important role in advocating strategies to reduce emissions and mitigate climate change.

In Bangladesh, the rising level of riverbeds is due in part to changed land and water use upstream. Climate change increases pre-existing vulnerability by allowing more extreme weather-related shocks to affect highly fragile livelihood systems and vulnerable populations. Sea-level rise, for example, worsens already extreme pressures on land due to high population density and growth.

A combination of factors affects people’s ability to cope with the impact of climate change and the likelihood that they will turn to migration (or be forced to migrate). These include:

- availability of sustainable livelihood options, including local employment opportunities and viable development of new industries such as eco-tourism;

Climate Change and Migration

Study Team on Climate-Induced Migration

- household vulnerability, reflected in levels of landlessness, homelessness, access to drinking water, child malnutrition, etc.;
- rates of population growth, which in some cases already put pressure on scarce land and other key resources;
- extent of cultivable and habitable land, particularly in areas where land is already in extremely short supply and many people already lack even sufficient land to build a safe shelter; and
- availability of assets (including education, money and skills) and social networks to support out-migration to cities or to other countries where they might find employment.

The three countries differ significantly in the extent to which their populations will likely be able to sustain themselves at home or will seek other options. Living in a mid-income country with relatively low fertility rates, Mexicans may be less vulnerable on some of these measures, but many people have the assets and networks needed for migration. On the other hand, many residents of Bangladesh and Senegal display high levels of vulnerability in terms of poverty, rapid population growth, landlessness and loss of livelihoods, but those very factors limit the availability of assets that can be used to migrate. Such very high levels of vulnerability may mean that migration, particularly when resulting from acute natural disasters, will occur with little forewarning and under emergency conditions that bode ill for the security and well-being of those who are displaced.

We found some evidence that migration patterns are shifting because of environmental change. For example, in Senegal, members of local farming and fishing communities repeatedly noted that while migration used to be one of several mechanisms to manage variability in household income (often linked to weather or environmental quality), it has now become compulsory. Some community members could no longer survive *without* internal or international migration. One farmer noted that his grandfather supported the family through farming and supplemental hunting. His son, however, could not farm because of soil salinity, desertification/erosion, unreliable weather, and other environmental problems, forcing him to migrate to Dakar. Similar stories were encountered repeatedly.

As the study team members who visited Bangladesh noted, for many people a crucial and urgent question is not simply *whether* they will be forced to move because of climate change, but *how*? They outlined three scenarios applicable to Bangladesh but more broadly applicable:

- Sudden large-scale forced displacement caused by sudden-onset disasters.
- Unplanned rural-urban migration into growing urban slums and other areas, possibly creating conflict and tensions over competition for land.
- More gradual migration to other destinations in Bangladesh and abroad, facilitated by sufficient economic assets, skills, etc. among out-migrants to support sustainable livelihoods at destination and remittance flows back to source communities.

All three forms of migration may be unavoidable – the questions are which will dominate, and what can be done to manage and prepare for the consequences?

Migration and adaptation to climate change-related risks

The Copenhagen Accords adopted in December 2009 committed the international community to enhanced action and international cooperation to reduce vulnerability and build resilience in developing countries to meet the challenges of climate change. Perhaps the most striking finding of the study team concerns the role that migration plays in adaptation to climate change. In all of the countries studied, migration has been a traditional mechanism through which families have navigated variability in weather patterns. Migration theory emphasizes that rural households often encourage the migration of some family members to urban areas or to international destinations to diversify sources of income, making the household less dependent on the success of crops that are themselves dependent on weather patterns. Indeed, during the site visits, we identified households that have followed this adaptation strategy and will likely continue to see migration as a way to help them address further climate variability and change. In other words, migration of some family members may actually help others remain in place.

Climate Change and Migration

Study Team on Climate-Induced Migration

As Susan Martin's background paper discusses, adaptation strategies fall into two major categories. First, many governments view adaptation as a way to reduce migration pressures and allow people to remain where they are by modifying agricultural practices, including the management of: pastoral lands; infrastructure, such as dykes and coastal barriers; fishing patterns; and other strategies to reduce pressures on fragile eco-systems. Bangladesh, for example, seeks to combat salinization to slow the "social consequences of mass scale migration to cities" (S. Martin, 2010). Other approaches focus on early warning and emergency preparedness to reduce displacement from natural disasters associated with climate change.

In the second view, migration is as an adaptation strategy itself. This perspective appears in three contexts. First, some countries see migration as a way to reduce population pressures in places with fragile eco-systems. Second, countries recognize that resettlement of some populations may be inevitable, but should be accomplished with proper planning. Third, migrants already living outside of vulnerable areas are seen as potential resources to help communities adapt and respond to climate change.

We saw some evidence that migration may in fact be a useful tool for adaptation. Several towns in Mexico have benefited from the contributions of their migrants abroad. Individual households benefit directly from remittances sent by their relatives in the United States, and towns benefit from resources invested under the Tres por Uno (3 for 1) program, a diaspora/public partnership. Under 3 for 1, donations by Hometown Associations (HTAs) of Mexicans abroad are matched by the federal, state and municipal governments if they are to be used for productive purposes such as to repair roads, purchase supplies and equipment for schools and health centers, and build multi-use centers. In some cases, discussions between the town leaders and migrant associations about environmental factors can lead to the identification of adaptation strategies, such as the cultivation of chayote and corn, using organic fertilizers that provide natural pest control to reverse soil degradation and reforestation of communal lands to help reverse soil degradation and erosion. Another town has identified projects to reverse soil erosion, reforest slopes now covered with agave, experiment with hydroponics, produce drought-resistant fruits and vegetables, and use by-products of agave. These towns see their diaspora as a potential source of funding for such projects.

The study team also observed situations in which migrants living abroad have helped entire communities to recover from natural disasters. In Zacatecas, Mexico, for example, we visited a town that had a devastating flood followed by a totally unexpected snow storm. The diaspora in the United States quickly responded to these weather crises, providing assistance and support for reconstruction. Town respondents noted that many families were able to remain at home and rebuild because of the contributions of the diaspora. Other villages and towns were soliciting help from diaspora members to support reforestation and other sustainable development programs to help them adjust to changing environmental conditions.

Migration is not always a secure adaptation strategy. We heard from community leaders in towns that are highly dependent on remittances from migrants abroad that the global recession and border controls in destination countries have reduced remittances. As one Senegalese community member noted, even if migrants are able to get to Europe, "remittances just help families to get by, but they don't help families to get ahead anymore." This same man noted that the financial crisis made it hard for his sons in Italy to send remittances. We heard the same concerns in Mexican towns about the impact of heightened border controls and high unemployment in the United States.

Migration can be a double-edged sword for communities struggling to address climate change. In one Mexican town, a teacher lamented that emigration has become the "life project" for most 13 to 15 year olds, who have no intention of finishing school because they can earn higher wages in the United States. In the meantime, some investors have indicated an unwillingness to open businesses because so many young people emigrate, and blame a "mentality of dependence on remittances" for making local workers reluctant to work for wages if they have money coming from relatives in the United States.

Also problematic is the planned resettlement of large populations affected by climate change. Martin's background paper on adaptation strategies (2010) cites the proposals by several smaller island countries to relocate people from areas endangered by rising sea levels and coastal erosion. It is noted that the experience of planned resettlement programs raises many questions about the effectiveness of such initiatives in managing environmentally induced migration. As early

Climate Change and Migration

Study Team on Climate-Induced Migration

as the 19th century, transmigration programs in Indonesia sought to move people from islands with high population density to those with more ample land and natural resources.

The most comparable experiences today are the programs that resettle persons displaced by dams, reservoirs, urban renewal, mining and other development programs. Many of those displaced by such projects have been at serious risk of “becoming poorer than before displacement, more vulnerable economically, and disintegrated socially.”¹ Cernea cites eight inter-related risk factors associated with resettlement from development projects: landlessness, joblessness, homelessness, marginalization, food insecurity, increased morbidity and mortality, loss of access to common property, and social disintegration. Guidelines have been developed by the World Bank to try to offset these negative impacts, but the adaptation planners proposing mass resettlement do not appear to be aware of this experience.

Warnecke et al. (2010) also raise concerns about the impact of migration on destination communities, particularly in the absence of effective consultation. There is little empirical evidence to suggest that migration increases conflict in receiving areas, but a cascading set of factors could increase tensions in the future. The same factors that encourage migration, such as competition for resources, can also produce conflict. In this case, the background paper argues, “Receiving communities need to be supported when devising strategies that aim to control and manage rising migration flows. There is a need to reduce costs, provide a sustainable management of the natural resource base, and to avoid risks of instability in the future. These efforts demand political leadership and financial assistance to build up the institutional and bureaucratic capacities” (Warnecke et al., 2010).

Policies and institutional architecture to address environmental migration and displacement

The study team’s review of policies and institutional arrangements for addressing internal and international migration stemming from environmental factors showed large gaps in the capacity of national governments and the international community to address complex forms of displacement. The existence of the team reflects the growing interest of policy-

makers in understanding the interconnections between climate change (and other environmental factors) and migration, but this interest has not yet translated into actionable policy steps, in part because policymakers do not yet have sufficient understanding of the issues involved in formulating effective policy responses. Further, discussions among the study team suggest that applying current migration, environmental, or humanitarian-related policies may not be sufficient. New thinking is needed to guide policy about environmentally induced migration.

Leighton’s background paper discusses various ambiguities and gaps in human rights and humanitarian law which leave many climate change migrants unprotected and vulnerable to abuse. She notes that “Refugee laws provide little, if any protection. Mixed climate and conflict crises may give rise to government obligations to provide temporary asylum to victims. However, drought victims are in more precarious legal position, even if they view themselves as having little choice but to engage in labor migration as a means of survival. As disasters increase, the lack of clear standards and accountability mechanisms leaves many climate victims unprotected and more vulnerable to abuse” (Leighton, 2010).

A promising development, however, is the evolving international norm pertaining to internally displaced persons. Based on the international Guiding Principles on Internal Displacement, the African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa (“Kampala Convention”) was concluded in November 2009. As Leighton (2010) explains, “the Kampala Convention recognizes that climate change may cause internal displacement and provides detailed description of government obligations, including reparations for failure to act, and encourages non-governmental and other assistance in the region for IDPs when a state affected by disaster is unable to provide full assistance.”

Susan Martin’s (2010) examination of the policies of destination countries underscores the gaps in legal frameworks pertaining to international migration. The immigration policies of most destination countries do not envision admitting large numbers of environmental migrants, unless they enter through already existing admission categories. Typically, destination countries admit persons to fill job open-

¹ Michael Cernea in W. Courtland Robinson, *Risks and Rights: The Causes, Consequences, and Challenges of Development-Induced Displacement*, Brookings Institution Occasional Paper, 2003

Climate Change and Migration

Study Team on Climate-Induced Migration

ings or to reunify with family members. Employment-based admissions are usually based upon the labour market needs of the receiving country, not the situation of the home country. Workers can be admitted for permanent residence or for temporary stays. Family admissions are usually restricted to persons with immediate relatives (spouses, children, parents and, sometimes, siblings) in the destination country. Most family reunification is for permanent residence. Some countries also use point systems under which they admit immigrants who score highly against such criteria as education and language skills.

Humanitarian admissions are generally limited to refugees and asylum seekers. Some countries have established special policies that permit individuals whose countries have experienced natural disasters or other severe upheavals to remain at least temporarily without fear of deportation. The United States, for example, enacted legislation in 1990 to provide temporary protected status to persons “in the United States who are temporarily unable to safely return to their home country because of ongoing armed conflict, an environmental disaster, or other extraordinary and temporary conditions.” Environmental disaster may include “an earthquake, flood, drought, epidemic, or other environmental disaster in the state resulting in a substantial, but temporary, disruption of living conditions in the area affected.” At the European Union level, the “Temporary Protection Directive establishes temporary protection during “mass influxes” of certain displaced persons. The term “mass-influx” refers to situations where masses of people are suddenly displaced and where it is not feasible to treat applicants on an individual basis.

These statuses only pertain to situations that are temporary in nature. If the environmental disaster has permanent consequences, a designation of temporary protection is not appropriate or, if granted, it may be lifted. When the volcano erupted in Montserrat in 1997, for example, TPS was granted to its citizens in the United States and was extended six times. In 2005, however, it was ended because “it is likely that the eruptions will continue for decades, [and] the situation that led to Montserrat’s designation can no longer be considered ‘temporary’ as required by Congress when it enacted the TPS statute” (S. Martin, 2010).

Sweden and Finland are an exception in including environmental migrants within their immigration policies. Sweden

includes within its asylum system persons who do not qualify for refugee status but have need for protection. Such a person in need of protection “has left his native country and does not wish to return there because he: – has a fear of the death penalty or torture – is in need of protection as a result of war or other serious conflicts in the country – is unable to return to his native country because of an environmental disaster” (see S. Martin, 2010). The decision is made on an individual, not group basis. Although many recipients of this status are presumed to be in need of temporary protection, the Swedish and Finnish rules foresee that some persons may be in need of permanent solutions.

In parallel to the gap in international law cited by Leighton (2010), there are no examples of national legislation or policies that address migration of persons from slow-onset climate changes that may destroy habitats or livelihoods in the future. For the most part, movements from slow-onset climate change and other environmental hazards that limit economic opportunities are treated in the same manner as other economically motivated migration. Persons moving outside existing labour and family migration categories are considered to be irregular migrants. In the absence of a strong humanitarian basis for exempting them from removal proceedings (which is unlikely in the slow-onset situation), these migrants would be subject to mandatory return to their home countries. As their immediate reasons for migrating would be similar to that of other irregular migrants – that is, lack of economic opportunities at home and better economic opportunities abroad – most policymakers see little reason for destination countries to manage these movements outside of their existing immigration rules.

Warner’s (2010) analysis indicates that there are also major gaps in institutions responsible for addressing environmental change and human mobility. Existing strategies of humanitarian relief will help some people fleeing from rapid-onset disasters. However, the analysis suggests that new governance modes are needed to bridge gaps in protection and assistance for environmentally induced migrants who cannot return after disasters, and people made mobile because of longer-term environmental change.

Collinson (2010) underscores the need for a broader and deeper adjustment in the nature of humanitarian policy engagement and response to the human mobility, displace-

Climate Change and Migration

Study Team on Climate-Induced Migration

ment and other trends associated with climate change. As she notes, “Many key normative, institutional, operational and resource structures and systems within the international humanitarian system are poorly equipped for addressing the multiple and complex challenges to human security posed by climate change, and continue to undermine the system’s global capacities” (Collinson, 2010). More flexible humanitarian funding and programming is needed to address chronic as well as acute humanitarian needs and vulnerability in both urban and rural areas, particularly in countries with fragile state institutions and in hostile and difficult political and security environments where close cooperation with the state may not be possible.

Conclusions

As early as 1990, the Intergovernmental Panel on Climate Change (IPCC) noted that “One of the gravest effects of climate change may be those on human migration.” Environmental change –from natural disasters to shifts in climate patterns which may bring glacial melt, sea level rise and desertification – is one of a larger set of factors that affect human migration and displacement worldwide. Environmental factors operate in combination with other drivers, such as the presence of networks in destinations (urban areas within one’s country and other countries), income disparities between source and destination areas, and the availability of other risk management strategies (e.g., crop insurance). As discussed above, unsustainable development practices compound problems and pose more immediate challenges than global climate change. The study team observed well intentioned, but poorly planned and executed, risk management measures, policy-related soil salinization and land degradation, and inappropriate river basin management that all influence highly vulnerable local populations and their mobility decisions. The imposition of increased weather variability exacerbates the situation and may influence more people to move.

Environmental factors will particularly affect migration in and from highly vulnerable areas like low-lying islands and deltas, coastal areas, areas dependent on glacial-fed water systems and areas subject to persistent drought. Most environmentally induced migrants will move within the borders

of their own countries or to nearby countries. Only a small portion is likely to relocate to more distant countries. Some movements will resemble other migration aimed at improving people’s lives but in other cases, displacement will likely occur under emergency circumstances, particularly where climate change exacerbates natural hazards, such as cyclones, and communal violence and conflict.

Policy makers need to take a holistic approach to this emerging issue which addresses both the drivers of migration in origin areas (e.g., livelihood insecurity, environmental hazards, conflict, demographic pressures, gender inequality, etc.) and the pull factors in destinations (e.g., demand for labor, aging of the population). A comprehensive set of policies would include the following:

- **Foster adaptation alternatives.** Migration can be part of strategies to help people adapt to climate change. Migration can be an effective way to manage the risks associated with climate change when done voluntarily and with appropriate planning. Migration can also be an indicator that adaptation is failing if few other realistic options exist for people (move or perish, distress migration).
- **Where possible, help people stay through sustainable rural and urban development:** It’s about jobs and job creation (livelihood security), in the countryside and in cities. Today one out of four people living on earth is a farmer. Climate change will take its toll on the ability of these people to feed themselves and their families in the future. It will also affect employment in many urban areas, especially those in low-lying coastal areas. When livelihoods fail, people often migrate...to cities (which may not be currently equipped to absorb them) or to other countries.
- **Where necessary, help people go with safety and dignity:** In cases where migration is the best or indeed only adaptation strategy, effective policy responses can help to ensure that movements are orderly and safe. Policies should avoid situations where people are forced to move (distress migration) or move in emergency situations.

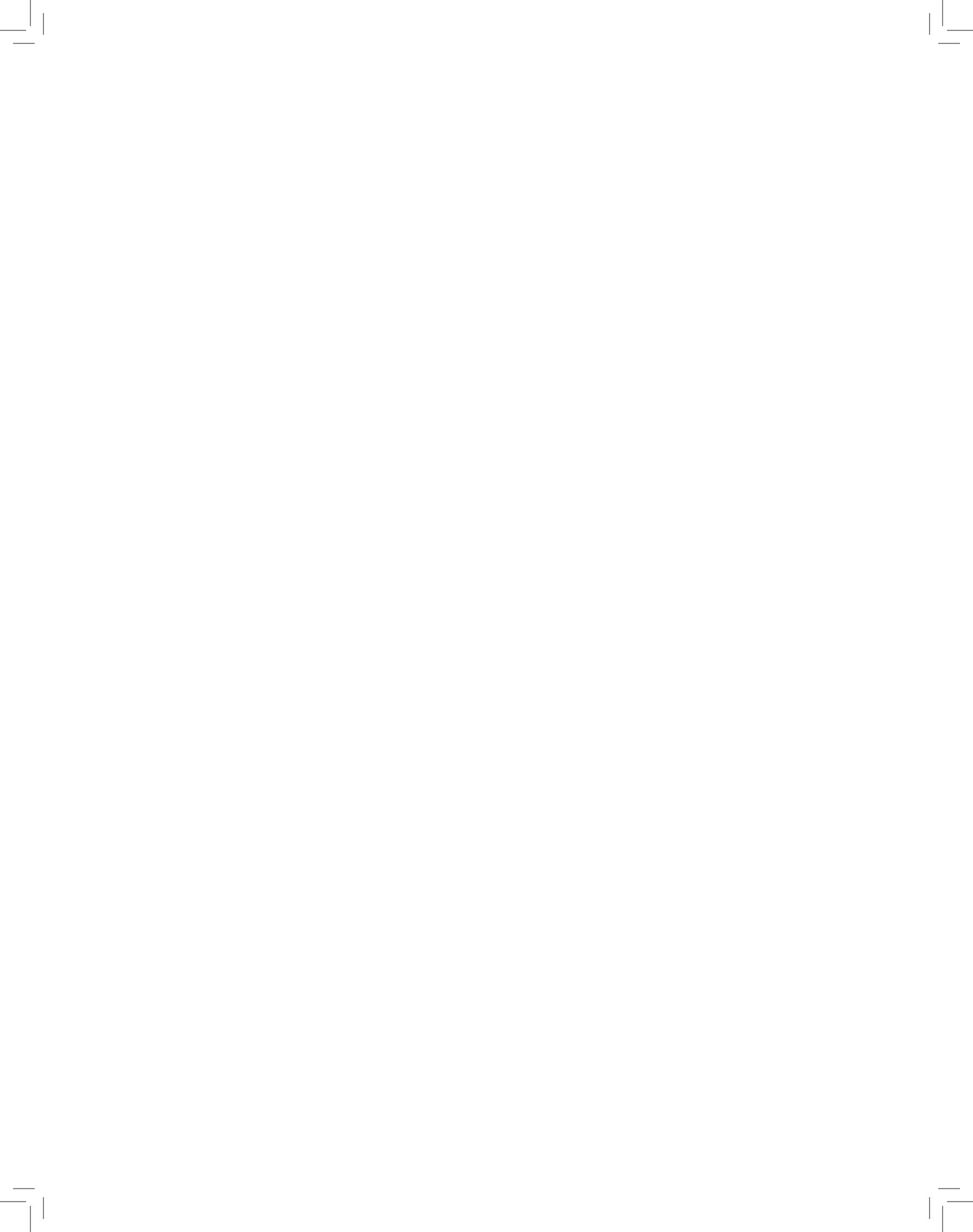
Climate Change and Migration

Study Team on Climate-Induced Migration

- **Involve the diaspora** in designing and funding adaptation strategies that enable their home countries and communities to cope with climate change. Just as the important role of diasporas in promoting development has only recently been recognized, their role in adaptation needs to be given greater attention.
- **Support disaster risk reduction and conflict mediation strategies while strengthening humanitarian responses.** If governments do not take action to reduce the risks people face from acute crises arising from natural disasters and competition over resources leading to conflict, they will be called upon to help later, and then the problem will be much more difficult to address. Invest today in resilience-building strategies designed to preempt uncontrolled crisis situations as well as more effective humanitarian responses to natural hazards and conflict.
- **Identify guiding principles, effective practices and institutional frameworks** to help governments in developing appropriate laws, policies and programs to address both internal and international migration resulting from climate change. Current laws, policies and institutional arrangements are inadequate to deal with complex movements of people. Of particular concern is the possibility that large numbers of people may be rendered stateless if rising sea levels inundate island countries and low-lying, densely populated delta areas. Guiding principles are needed today to shape thinking about how to manage potential larger-scale relocation in the future. It is particularly important to strengthen systems for disaster response in hostile and difficult political and security environments where close cooperation by emergency responders with the state may not be possible.
- **Science.** Support more in-depth qualitative and quantitative research in specific hotspot regions. Support the collection of necessary demographic, socioeconomic, and environmental data (such as through census). Support research to understand the different patterns and scenarios of climate change, migration and displacement in specific areas.
- **Dialogue and exchange of best practices.** Foster solutions-oriented policy dialogues that review existing experience and identify emerging good practices in areas such as designing alternative livelihoods, facilitating migration where appropriate, relocation and resettlement of populations. There is little time to waste – earnest policy dialogue should begin now when there is still space and time to navigate some of the challenges and opportunities that arise with migration related to climate change.
- **Participatory policy planning.** Involve affected communities in policy planning and implementation of human mobility solutions. In some cases this may mean site identification for relocation projects; in other instances it may mean development of alternative livelihoods or agricultural practices which might ease pressure on migration. Recognize that migrants and diasporas can be effective partners in addressing climate change-induced migration, and involve them in planning processes.
- **Proactive approaches.** Get ahead of the curve. Support effective adaptation strategies that take potential migration impacts of climate change into account. Implement effective disaster risk reduction, conflict mediation and disaster management programs to reduce the likelihood of emergency movements with accompanying humanitarian consequences.

Policy makers need to make strategic investments – in dialogue, resources, and thinking – in four areas which would help realize the solutions mentioned above.

PHOTO CREDIT: Floods in Ifo refugee camp, Dadaab, Kenya, UNHCR: B. Bannon, December 2006.



Climate Change and Migration

Study Team on Climate-Induced Migration

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Aly Tandian, Groupe d'Etudes et de Recherches sur les Migrations (GERMS), Gaston Berger University, Senegal

Agnieszka Weinar, Directorate-General Justice, Freedom and Security, European Commission, Brussels, Belgium

Astrid Ziebarth, German Marshall Fund of the United States, Berlin, Germany.

List of papers

Developing Adequate Humanitarian Responses
by Sarah Collinson

Migration, the Environment and Climate Change: Assessing the Evidence
by Frank Laczko

Climate Change and Migration: Key Issues for Legal Protection of Migrants and Displaced Persons
by Michelle Leighton

Climate Change, Agricultural Development, and Migration
by Philip Martin

Climate Change and International Migration
by Susan F. Martin

Climate Change, Migration and Adaptation
by Susan F. Martin

Climate Change, Migration and Conflict: Receiving Communities under Pressure?
by Andrea Warnecke, Dennis Tänzler and Ruth Vollmer

Assessing Institutional and Governance Needs Related to Environmental Change and Human Migration
by Koko Warner

Climate Change and Migration

Study Team on Climate-Induced Migration

Transatlantic Study Teams

The GMF Immigration and Integration Program's Transatlantic Study Teams link the transatlantic debate on international migration flows with its consequences for sending and receiving regions. Through compiling existing data, policy analysis, and dialogue with policymakers, selected study teams gather facts, convene leading opinion leaders on both sides of the Atlantic, promote open dialogue, and help to advance the policy debate. Study teams are chosen by a competitive selection process, based on the overall quality of their proposal, its policy relevance, institutional strength, sustainability, and potential for synergies. The Transatlantic Study Team 2009/2010 is investigating the impact of climate change on migration patterns. Environmental deterioration, including natural disasters, rising sea level, and drought problems in agricultural production, could cause millions of people to leave their homes in the coming decades. Led by Dr. Susan F. Martin, Georgetown University, and Dr. Koko Warner, UN University, the team consists of scholars, policymakers and practitioners from the migration and environmental communities.

The German Marshall Fund of the United States (GMF) is a non-partisan American public policy and grantmaking institution dedicated to promoting better understanding and cooperation between North America and Europe on transatlantic and global issues. GMF does this by supporting individuals and institutions working in the transatlantic sphere, by convening leaders and members of the policy and business communities, by contributing research and analysis on transatlantic topics, and by providing exchange opportunities to foster renewed commitment to the transatlantic relationship. In addition, GMF supports a number of initiatives to strengthen democracies. Founded in 1972 through a gift from Germany as a permanent memorial to Marshall Plan assistance, GMF maintains a strong presence on both sides of the Atlantic. In addition to its headquarters in Washington, DC, GMF has seven offices in Europe: Berlin, Bratislava, Paris, Brussels, Belgrade, Ankara, and Bucharest.

The Institute for the Study of International Migration is based in the School of Foreign Service at Georgetown University. Staffed by leading experts on immigration and refugee policy, the Institute draws upon the resources of Georgetown University faculty working on international migration and related issues on the main campus and in the law center. It conducts research and convenes workshops and conferences on immigration and refugee law and policies. In addition, the Institute seeks to stimulate more objective and well-documented migration research by convening research symposia and publishing an academic journal that provides an opportunity for the sharing of research in progress as well as finished projects.

The UN University established by the UN General Assembly in 1973, is an international community of scholars engaged in research, advanced training and the dissemination of knowledge related to pressing global problems. Activities focus mainly on peace and conflict resolution, sustainable development and the use of science and technology to advance human welfare. The University's Institute for Environment and Human Security addresses risks and vulnerabilities that are the consequence of complex environmental hazards, including climate change, which may affect sustainable development. It aims to improve the in-depth understanding of the cause effect relationships to find possible ways to reduce risks and vulnerabilities. The Institute is conceived to support policy and decision makers with authoritative research and information.