



Background Paper

(Original version: English)

Roundtable 3 -Policy and Institutional Coherence to Address the Relationship between Migration and Development

Roundtable Session 3.2: Assessing the Relevance and Impact of Climate Change on Migration and Development

Co-Chairs of RT 3.2: Governments of Bangladesh and the United Kingdom

Team members preparing the session: Chile, Ecuador, France, Germany, Ghana, Mauritius, Mexico, Switzerland and IOM

Roundtable 3 Coordinator: Dr. Rolph Jenny

This paper was drafted by DFID Senior Research Fellow Prof. Ronald Skeldon, and revised in consultation with the 3.2 session co-chairs Bangladesh and the United Kingdom (DFID Migration Team, the Policy Team at Climate and Environmental Change DFID, the Foreign and Commonwealth Office, and UKBA, the Foresight Project), and the Roundtable 3 Coordinator Dr. Rolph K. Jenny. Input and comments were also offered by members of the 3.2 government team, international agencies and Prof. Susan Martin of Georgetown University. The aim of the paper is to inform and facilitate the discussion of Roundtable session 3.2 during the Mexico GFMD meeting in November 2010. It is not exhaustive in its treatment of the 3.2 session theme and does not represent official government policy, nor the views of the governments involved in the GFMD process.

1. EXECUTIVE SUMMARY

The principal objective of this paper is to take stock of current thinking about the issue of climate change and migration and development, to review existing knowledge and to propose what appear to be key issues that might guide the discussions among governments attending GFMD Roundtable session 3.2 in Mexico.

Exact impacts of climate change on migration and development are difficult to predict because of a number of uncertainties. Debate has been complicated by wide variation in estimates of global numbers of people that potentially could be affected by climate change because of methodological and terminological differences, difficulty in attributing migration to climate change *per se*, as well as uncertainty about global temperature increases.

The paper identifies two key issues:

First, that the magnitude and direction of future change of both climate and migration are highly uncertain; second, that climate change is one factor among many that drive current migration and is often not the most important factor.

Underlying this is concern about the impact of climate change and changing migration patterns on sustainable development. Several dimensions to migration, development and climate change exist. The concept of environmental factors driving migration is not new, although it is potentially an increasingly important issue. Finally, migration can also be seen to act as an adaptive mechanism to improve both short-term and longer-term wellbeing.

The paper reviews policy implications of climate change impacts on migration and development, including policies needed to respond to short-term effects such as displacements that are the result of the increased frequency of extreme climatic events, and migratory consequences of long-term change such as desertification or rising sea levels. Specific examples are provided. Policy options reviewed include National Adaptation Programmes of Action (NAPAs) and other programmes designed to build capacities to adapt to change. Certain policy options such as improved building codes, planned urbanization and access to basic social services and zoning laws are seen to offer increased protection at relatively low cost. The paper also identifies data and knowledge gaps that countries might debate. These include the integration of climate change policy into disaster management strategies and the integration of environmentally-related migration into the broader consideration of migration theory and policy.

2. BACKGROUND AND CONTEXT

2.1 Overview

Climate change has emerged as one of the leading challenges facing humankind in the twenty-first century. Its implications for sustainable development are potentially huge, and particularly in the poorest parts of the world where adaptive capacities are limited. The impacts of climate change on population movement and development have been hotly discussed and debated: the increased frequency of extreme climatic events such as hurricanes, typhoons and floods has the potential to displace large numbers of people as well as destroy crops and infrastructure; slow-onset trends towards greater aridity or desertification may undermine livelihoods, public health and food security of specific groups, potentially leading to a substantial rise in the scale of migration and displacement; and gradual rises in sea level may push people out of densely populated coastal and deltaic zones. It has been suggested that declines in critical resources such as water in specific locations might intensify competition and tensions, and could even lead to conflict.

The physical environment has long been a factor in population movements: nomads moved grazing areas in order to take advantage of season bounty in particular areas, and shifting

cultivators moved on after a few years in order to allow soils to regain their fertility. Thus, for long environmental change has been seen as a factor that "pushes" people to move, either through the exhaustion of resources locally or because of some significant change in that environment itself. Climate change is one part of these environmental factors: it is a subset, even if an increasingly important subset, of the environmental factors that impact upon migration.

The reasons behind migration are complex. It will often be difficult to isolate the impact of "climate change" from other factors that cause people to move. Environmental degradation for example, due to over-intensive farming or deforestation, may contribute to migration and this may be exacerbated by climate change; but it may be impossible to isolate climate change as a driver. Migration is such a multidimensional phenomenon that single-variable explanations for movement are almost certainly oversimplifications of complex situations. It is important to integrate or re-integrate environmental factors into existing and overall migration studies and theories and to take stock of the complex linkages with other related policy domains (Dun and Gemenne 2008).

Another major difficulty in looking at the relationship between migration, climate change and development is that so much uncertainty exists around the direction and magnitude of future climate change and it is difficult to know how this will impact on migration.¹

Among the many uncertainties, however, one certainty remains: the impact of climate change will be felt disproportionately in poorer developing countries (UNDP 2007:75). In part, this is because there are more people living in the poorer countries of the world and these populations are growing fastest; in part, it is because poorer countries have lower capabilities to adapt to the likely effects of climate change through a lack of capital and expertise, and sometimes also a limited capacity for legal enforcement where directives exist; in part, too, it is because significant numbers of poorer countries are to be found in the types of environments most likely to be impacted adversely by climate change. **The nature of such environments ranges widely, posing very different issues and challenges to these countries.**

2.2 Identifying how climate change interplays with existing drivers of migration and development.

Government policy tends to focus on climate change as a driver of migration and migration can be seen as one of the adaptive strategies in the face of increasingly difficult environmental conditions. However, migration as a response to climate change is difficult to separate from other so-called drivers of population movement. Migrants move for a variety of reasons. People move, or are moved, to secure employment, to find opportunities outside their immediate area that will extend their family resource base to improve their wellbeing or to pursue education that will help them to a better job. If climate change were to erode the means of subsistence, then migration might be expected to increase, although evidence suggests such movement would be likely to be largely short-distance and circular in nature if those affected were amongst the poorest. **The most important point remains that any population that might be impacted by**

¹ Current negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) are considering the stabilization of the global temperature increase to below two degrees Celsius. However, even that rise in average temperature will have very serious implications for many parts of the world that will require effective adaptation measures. If global warming increases by four degrees or more, then the consequences in terms of rising sea levels, increased frequency of extreme weather events and reduced agricultural productivity may push countries beyond their capacity to adapt and make it hard for affected communities and individuals to cope. More widely, effects may include floods, droughts and desertification, erosion and permanent land loss due to rising seas levels, and increased and more severe natural disasters due to extreme and unpredictable weather patterns. As well as affecting migration flows directly, these factors may have adverse consequences for livelihoods, public health, food security and water availability. Many unknowns exist about how different countries will be affected but it appears likely that it will result in population movements, in some cases over a gradual period, away from areas inundated by rising sea levels or from areas which are no longer viable for agriculture because of rising temperatures and water scarcity.

changing climate is already being affected by a number of forces that are driving migration and a single, causal climate-change determinant is unlikely to be separated from the range of other factors. The economic drivers of development through the establishment of opportunities in urban areas are likely to remain the primary causes of migration over the medium term. However, urbanization should not necessarily be seen as a simple unilinear process. Evidence exists to suggest that, in parts of western and eastern Africa, a reversal of migration may have occurred in the late 1990s and early part of the twenty-first century with the failure of development in urban areas, a rise in urban poverty (Beauchemin 2010; Potts 1995).. Nevertheless, the most recent trends suggest a resumption of urbanization across Africa.

It is generally suggested that migration driven by climate-change-related sudden-onset events (such as typhoons and cyclones) would primarily be short-distance and short-term. However, some exceptions may exist: pressure in certain regions brought about by climate change may push more migrants along existing routes originally established for mainly economic and political reasons (PDR 2010).

2.3 Numbers and type of those affected by migration

Great disparity exists among the available estimates of future climate-change-related population flows. As previously emphasized, it is difficult to separate environmental drivers of migration from other drivers. While some evidence of migration driven primarily by environmental factors exists, the debate about the potential scale, volume and type of flows continues. Historically, estimates of the stock of people who had been displaced by environmental factors, of which climate would have been one, ranged between 25 and 30 million around the year 2000 (Gemene forthcoming, cited in Black 2010). The latest estimates show that at least 20 million were displaced (in many cases temporarily) by climate-related disasters in 2008. These figures, however, do not include a potentially greater number of people who moved as a result of other climate-related drivers, including slow-onset disasters, such as drought, river-bed erosion and sea level rise. Although no current estimates of their number exist, indications are that, over longer timescales, gradual environmental changes may have a greater impact on the movement of people than sudden disasters. For instance, over the last 30 years, twice as many people have been affected by droughts as by storms (1.6 billion compared with approximately 718 million).

The number of people who will be displaced by environmental factors in the future has been variously estimated at between 150 and 300 million by 2050 (Brown 2008), although some estimates of the numbers to be affected by future climate change have ranged up to one billion in disaster scenarios (Christian Aid 2007). The range of estimates illustrates the difficulties of making accurate forecasts in these areas. In part, these differences are caused by the use of different emission scenarios and demographic trends generated by the Intergovernmental Panel on Climate Change. Nevertheless, more generally, the estimates are driven more by guesswork than supported by hard evidence. The basic assumption is that deteriorating environments will lead to an increase in the number of migrants moving for primarily environmental factors. More evidence is needed to test this assumption.

In terms of types of migrants, evidence from existing migration research shows that it is generally not the poorest who move, particularly in the case of international migration. People need both physical and social capital in order to migrate. If climate change reduces the developmental potential of certain regions, it may reduce people's ability to move beyond their immediate locality (Tacoli 2009). Hence, direct linkages between climate change and increasing numbers of migrants need to be viewed critically. A reduction in people's ability to move long distances could also lead to an even higher proportion of internal migration. As emphasized above, climate change as a driver of migration is but one factor among many. Currently, the vast majority of those who move do so within the boundaries of the state in which they were born as internal migrants. In 2009, the United Nations Development Programme, using a "conservative definition", came up with a global estimate of 740 million internal migrants, over three times the number of international migrants (UNDP 2009: 1). Depending on

how climate change interacts with other factors, internal migration flows could potentially increase.

In terms of international flows, it is again difficult to make accurate predictions about scale and direction. The global population is projected to reach 9.1 billion in 2050. This growth has been concentrated in the developing countries of the world, where the population virtually tripled between 1950 and 2000, and is expected to increase by a further 60 per cent by 2050. The proportion of international migrants in the world has remained relatively constant over the last 20 years at around 3 per cent of global population, suggesting, that by 2050 we might expect about 275 million international migrants if current trends continue. The direction of the movement of migration has changed during the last century. Movements from South to North and within the South have taken on greater prominence. For example, around the year 2000, migration from the South to the North accounted for 37 per cent of the total global migration and South to South migration for another 24 per cent compared with only 16 per cent North to North movement (Parsons et al 2007). Structure of the population is also a factor when considering future migration flows. Evidence shows that, in general, the predominant group of migrants tend to be young adults. It is suggested that younger populations might be more mobile whilst aging populations less so. All these factors need to be taken into account when forecasting future migration.

Considerable debate has taken place concerning a need for specific terminology to refer to migrants who move for environmental reasons. Because the physical environment is seen to push people to move, the resultant migrants are considered by some to be forced migrants and have been called "environmental refugees". However, the term "refugee" has a very specific meaning that is accepted within the international community as someone fleeing for a well-founded fear of persecution. In contrast, terms such as "environmental displacee" or "environmental migrant" have been suggested as more appropriate terms. Given the challenge of separating environment from other drivers of migration, any terminology should be applied with care.

2.4 Potential changes in population distribution

As important as the global shifts in migration is the changing distribution of population by urban and rural sector. The world has become more urban, with the global proportion of the population living in towns and cities reaching 50.6 per cent in 2010 and projected to be almost 70 per cent in 2050. In less developed regions, the proportion in 2010 was 45.3 per cent, up from just 18 per cent in 1950, and was projected to reach 67 per cent in 2050. While rural to urban migration is not the only component in this shift to more urban societies, it is an important one. These migrant and urban projections are made on the basis of current trends and do not take into consideration any impact on migration flows that might be the result of future climate change.

2.5 Sudden-onset climatic events

These include the increasing frequency of extreme climatic events such as typhoons, cyclones, hurricanes or tornadoes and flooding. Such events have occurred throughout history but they appear to be increasing their frequency. Five out of 10 of the most intense hurricanes in the Atlantic since 1924 occurred after 2000. In the 2000-2004 period, some 262 million people were affected by climate-related disasters, more than double the number so affected 20 years previously and over a time when the total population increased only by around 60 per cent (UNDP 2007: 75). The same source shows that, during the 2000-2004 period, just 1 in 1,500 people in OECD countries were affected by climate-related disasters compared with 1 in 19 in the developing world. Displacements from such events tend to be local, short-term and defined by a circularity of movement, necessitating a disaster-relief approach aimed at assistance and the rehabilitation of home areas. Despite the considerable increase in the number of natural

disasters in recent decades, there is little evidence to date of a major impact on international migration flows. This suggests that migration that may occur as a result of climate events will be primarily internal or temporary in nature. There may be some exceptions. For example where well-established migrant linkages between the location of the disaster and a particular overseas destination exist, as in the case of Mexico, the Central American Republics and the United States, international migration may result. A temporary spike in immigration from Central America to the United States occurred after Hurricane Mitch in 1998. The Temporary Protected Status Programme (TPS) of the US may provide a model for other countries to discuss in this context, although, under the terms of the TPS, the displaced have to be in the United States in order to qualify, and it is granted only in agreement with the country of origin (Martin 2010: 406). Similar TPS programmes were introduced by Sweden, Finland and more recently Belgium.

2.6 Slow-onset climatic events

These include the gradual decrease (or increase) of rainfall in specific areas that would cause groups to abandon (or be attracted to) whole tracts of land; and the flooding of coastal areas consequent upon a gradual rise in sea level caused by the melting of ice held in glaciers and ice caps. The rate of wastage of the West Antarctic Ice Sheet is particularly important in the latter. Both of these long-term trends are difficult to forecast with any accuracy for particular areas. While fairly robust data are available to suggest that rising temperatures will be more intense in Africa than across the rest of the world, the implications that these rises will have on rainfall are much more uncertain (Tacoli 2009: 107-108). Some areas will become drier but other areas are likely to become wetter. Some 10 per cent of the world's population, or 600 million people, live in coastal areas less than 10 metres above mean sea level (McGranahan cited in Tacoli 2009: 110). However, their concentration in specific locations makes their protection less problematic than if they were evenly spread along the coast, and the gradual rises in sea level should give time to undertake coastal protection and other remedial action. In Asia, it is estimated that 229 million people live in cities of one million or more in dryland areas and another 174 million in such cities in low-elevation coastal zones (Balk et al 2009: 89).. In the case of Bangladesh, one third of the country is under the influence of tidal fluctuations and one estimate has suggested a potential loss of US\$5 billion, or 10 per cent of the country's GDP in 2010 prices, if sea levels were to rise by about one metre, resulting in one fifth of the country being under water (IOM 2009: 192).

Some of the predictions and potential risks posed by climate change have not been borne out in practice however. For example, even though sea level rose at around 2mm per year on average over the last 60 years in the Pacific, the land surface of only four of 27 Pacific Islands actually declined. The majority either stayed the same, while some actually grew in area following sediment build-up during storms (research of Paul Kench and Arthur Webb reported in Zukerman 2010). The islands, in effect, responded positively to rising sea levels.

The critical point is that, for these long-term shifts, the uncertainty of what type of environmental change will happen is just too great to be able to make meaningful forecasts of what the impact on population movement will be. Global migration is most likely to continue to be controlled primarily by the economic, political and social forces that have moulded it over the recent past in the evolution to an urban society. The demand for skilled and unskilled labour in the context of ageing societies on the one hand, and the emergence of new centres of dynamic economic growth on the other, will remain the principal drivers of migration over the immediate future, a future in which environmental change will play a part, although possibly a relatively small part. Perhaps of greater importance is the implication of the future migration to the high-consumption North and the growing urbanization in the South, with ever-larger numbers of people moving to areas of higher consumption of the world's resources, as well as production.

It is suggested that movement from relatively low to relatively high areas of consumption could also have implications for climate change unless it is sustainably managed. It is not that

migration is a driver of climate change but that migration is the process through which people seek to realize higher levels of development which could imply higher consumption and higher levels of emissions.

The difficulty of meaningfully predicting the impacts of climate change and its impact on migration flows should not imply that there is room for complacency about the links between migration, development and climate change. In fact, quite the reverse; governments need to be prepared for what is most likely to occur.

3. POLICIES AND PRACTICES – CHALLENGES FOR POLICY MAKERS

Policies and practices to address climate change, migration and development directly are rare. This section highlights some of the policy approaches which governments have already taken and also identifies policy areas which may need to be further developed to respond to the potential impacts of climate change, migration and development. Climate change might be considered by some as a threat to development but through more effective policy intervention nationally, bilaterally and multilaterally, the challenge can be managed.

3.1 National Adaptation Programmes of Action (NAPAs) and other planning tools

Given that the adverse impact of future environmental change is likely to fall disproportionately on the poorest countries, NAPAs were introduced as part of the Seventh Conference of the Parties of the United Nations Framework Convention on Climate Change (Marrakech, 2001). These are to help the poorest countries to design plans to address the adverse impact of climate change (Mutunga and Hardee 2009; Martin 2009).

Many NAPAs make no reference to migration at all. A number of NAPAs acknowledge the potential impact of climate change on migration in two main ways: the creation of adaptation strategies that will allow people to remain where they are or the reestablishment of communities in settlements out of harm's way. Adaptation strategies involve the construction of infrastructure such as dykes, and improvements in agricultural practices and land management, although in a few cases migration is acknowledged as an adaptive strategy (Martin 2009: 364-365). Re-establishing communities involves developing plans to construct new communities away from coastal areas and zones subject to flooding. **However, the potential of migration as a proactive adaptation strategy, such as its positive potential for development and resilience-building of the vulnerable communities, is not generally recognized in NAPAs.**

While such plans may be a useful planning tool in theory, past experience with development-induced displacement, relocation to new settlements and reconstruction projects has revealed very real practical difficulties in the successful implementation of such programmes (Cernea and McDowell 2000, Martin 2009). Policy makers are also faced with the challenge of addressing increased rural-to-urban migration as well as providing protection and assistance to urban settlers. While the NAPAs have been valuable in extending and assessing the understanding of the implications of climate changes in poor countries, **they generally have not been integrated either into existing national development plans or into Poverty Reduction Strategy Papers** (Martin 2009, Mutunga and Hardee 2009).

Other planning tools include Disaster Risk Reduction Strategies (DRRs) and other risk management strategies which aim to help to build resilience and reduce vulnerability and to help support adaptation to extreme events (IASC 2008). These strategies are seen to be an integral part of the Bali Action Plan of UNFCCC and identify three main areas where action can be taken to advance adaptation to climate change: the compilation of risk assessments; the establishment of early warning systems; and the integration of sector-specific risk reduction plans into every sector and area of development (IASC 2008: 4). All these approaches seek to

build capacities for developing countries to react to situations that are brought on by climate change.

NAPAs and policies for middle-income and developed countries appear to be characterized by a lack of any reference to migration in their National Action Plans (Martin 2009: 367). Among developed, potential destination countries, only Finland and Sweden have made specific reference to migrants displaced by environmental factors in their immigration policies or asylum (Martin 2009: 375; Martin 2010: 406-407). While several developed countries have taken specific ad hoc decisions to suspend repatriations or returns to countries experiencing a disaster such as the 2004 tsunami, no examples exist of legislation specifically designed to deal with migrants from areas that are experiencing gradually deteriorating environments due to the onset of climate change (Martin 2010: 407).

Going forwards, addressing the challenges and realizing the opportunities of any environmentally-induced population flows is likely to require the more systematic integration of migration in the existing national adaptation programmes and any future adaptation framework. **Adaptation instruments at both national and international levels might also consider the role of migration as an adaptation strategy to climate change, including strengthening the link between migration and developmental actors.** Similarly, the integration of climate change and DRRs into national migration management policies and practice might be considered. This may include factoring such movements into urban planning.

3.2 Data and forecasting

A major challenge for governments in the area of migration, climate change and development is to promote the **collection of more and higher quality data on both migration and climate change**. Without better data, much of what can be concluded about current and future directions of both migration and climate change will be based more on fancy rather than solid evidence. Several factors exist, *inter alia*, which make measuring current and future levels of flows difficult: conceptualization and utilization of terms such as ‘adaptation’, ‘environment’ and ‘vulnerability’, for example. The lack of migration data and research/data collection capacity in particular in developing countries; modelling techniques which do not account for the impact of individual choice, the potential of international interventions and the variability of future emissions or meteorological scenarios; relative lack of inter-disciplinary research and methodologies capturing the complexity of the migration, environment and development nexus (IOM 2009). Forecasting the future is always subject to uncertainty, but that uncertainty can be reduced with more robust data.

The **United Kingdom Government** is working actively on examining how future environmental change could affect human migration in the long term around the world. Foresight, part of UK Government Office for Science, aims to help government think systematically about the future by using the latest scientific and other evidence to provide signposts for policy-makers in tackling future challenges.

The Foresight *Global Environmental Migration* project will explore the global patterns and impacts of migration over the next 50 years arising from environmental change, the opportunities and challenges which could result from changing migration patterns, and a suite of interventions appropriate in each circumstance. The interaction between migration, environmental change and development is a core component of this research. There will be a focus on locations likely to be most affected by environmental change and migration, such as low-lying coastal areas, dryland margins and mountain areas. The Foresight study will report its findings in October 2011.

Adaptation case study - Environment, migration and climate change in Bangladesh

Bangladesh experiences both short-term and long-term impacts as a result of climate change. Some of the short-term effects may be cumulative to the extent that they have long-term consequences. Increased salinization through the intrusion of the sea through cyclones and storm surges is one example of short-term events leading to irreversible change in agricultural areas that could displace large numbers of people on a permanent basis.

About one quarter of the country is inundated in a “normal” monsoon and the population has adapted. Over the last 25 years, Bangladesh has experienced six severe floods with the numbers displaced varying between 30 and 45 million people (IOM 2010: 23). Damage to embankments, long-term water logging of soils, sedimentation of rivers slowing drainage, and coastal erosion have all emerged as environmental issues. Some 50 million of the total population of 162 million are still estimated to be living in poverty, and vulnerability in coastal and riverine rural areas is high. Robust evidence of the long-term consequences for migration is lacking. However, a marked slowing in population growth because of the decline to one of the lowest fertility rates in South Asia and the slow onset of many of the environmental changes give hope that adaptation measures can be implemented. Nevertheless, large numbers will continue to migrate to the largest cities, not mainly for environmental but for economic reasons. These numbers can be expected to increase during times of environmental stress. The vast majority can be expected to move internally and some circulation will turn into longer-term urban migration, with some migrants spilling over into neighbouring countries in a “cascade” effect (IOM 2010: 37, also PDR 2010: 411).

Continued investment into Disaster Risk Reduction Strategies in vulnerable areas, as well as the integration of migration into development plans will assist Bangladesh to confront the issue of migration and climate change through protecting the displaced and planning for migration as an adaptation strategy over both the short and the longer term. Enhanced technical and financial support for developing countries from the international community to develop national capacity will be vital for effective implementation of these strategies and policies.

The **Republic of Mauritius**, which includes Mauritius (1.2 million inhabitants), Rodrigues (some 37'000 inhabitants), the Agalega Islands and some other islets (some 300 inhabitants), is currently implementing a project with IOM, entitled “*The other migrants: reducing migration pressure from gradual environmental change – environment and sustainable development in Mauritius*”. The project aims at investigating the interrelationship between environmental degradation and population movements, including a research agenda with government institutions and civil society; seeks to develop a comprehensive and coherent policy with regard to migration and environmental degradation and to strengthen the capacity of line ministries and institutions; sensitizes and informs Mauritians on the outcome of environmental changes in potential cross-border and internal displacement; and encourages dialogue and information sharing between the different ministries and institutions involved and between the different regions and islands, where similar experiences and initiatives could be shared in order to foster better bilateral and regional cooperation.

3.3 Impact of demography

Several factors affect both climate change and migration simultaneously, the most important of which is demography. Growing numbers of people in the poorest parts of the world are being born into, or moving onto, more marginal lands at higher risk of climate change. However, substantial knowledge gaps still exist about the likely impact of climate change on migration. Given the multidimensional nature of migration, it may be difficult to separate a “climate-change” impact from the other factors that are currently driving migration.

3.4 Urbanization and urban planning

The majority of large cities are to be found in lowland and coastal zones and poor migrants often settle in areas exposed to higher risk of extreme climatic events and in housing that offers little adequate protection. **Considerable improvements could be implemented through the establishment of more rigorously implemented land zoning and building codes.** Critical to the issue of dealing with climate change is cost. However, this paper suggests that several relatively low-cost alternatives exist to reduce the risk of climate change to poor people. These may not address the root causes of climate change but, by introducing tighter building and planning codes, they might help to mitigate the adverse effects, including the need to relocate, on large numbers of the poor over the short term.

3.5 Management of migration flows

Given that migration has the potential to transfer people into higher risk areas **through rural-to-urban migration**, it might be thought that restricting internal population movement could provide a solution. However any such policy of restriction might be counterproductive in terms of development and improving the wellbeing of poor people as an inability to migrate might further increase their vulnerability. Emphasis might instead be placed on "managing sustainable development" so that the places where the opportunities that attract migrants are to be found are made as safe as possible and, ideally, located in the safest possible environments.

Policy coherence needs to be developed at national and international levels by considering environmental and climate change related issues in migration management policies and practice, and vice versa, and by strengthening linkages with other relevant policy domains such as development and humanitarian action.

Efforts could also be made to facilitate the role of migration as an **adaptation strategy** to climate change by, for instance, developing **international temporary and circular labour migration schemes** for environmentally vulnerable communities, particularly at less advanced stages of environmental degradation, and seeking to strengthen the developmental effects of such migration on areas of origin (for example, through remittances and skills transfer). An example of this is the Temporary and Circular Labour Migration model developed between Colombia and Spain.

3.6 Consultation at an international level on policy responses

Population movements for environmental reasons are generally found to be primarily local and will be a responsibility of national government. Nevertheless, in the development of international migration of recent years we have seen the emergence of **regional systems of population movement** (Skeldon 1997). **In terms of plans for mitigation, regional solutions and coherence among plans across regions could be considered.** The impact of climate change is likely to be more uniform within regions, with contiguous countries facing similar challenges. Environmental-impact regions may provide frameworks for addressing common challenges. The role of the international community will be support, best practice setting and leadership. Forums such as the Global Forum on Migration and Development provide an opportunity to share experiences and compare policy across countries. Organizations such as the United Nations and its agencies and the International Organization for Migration can help to diffuse information in accessible form such as in many of the references given at the end of this paper. Handbooks can be compiled to support policy and programme development.

4. QUESTIONS TO GUIDE THE ROUNDTABLE 3.2 SESSION DISCUSSIONS – POSSIBLE OUTCOMES

4.1 Questions

- i) How can the quality of data and research on climate change, migration and development be improved and what should future priorities be?
- ii) What can countries learn from National Adaptation Programmes of Action (NAPAs) and Disaster Risk Reduction Strategies (DRRs) and their integration into national development planning? How can migration be included in such frameworks?
- iii) What can be done to manage risks in vulnerable zones and communicate information to populations who may be at risk, as well as contingency planning for the possibility of relocation or resettlement? What are the implications for development policy?
- iv) What are the key challenges for migration and development policy in destination countries? Are there ways in which adaptation support could be provided to countries where climate change is gradual and people have time to plan how to respond, for example, through temporary migration programmes?
- v) How best can the international community assist the most vulnerable countries, especially the poorest among them, to address climate-induced displacement of populations?
- vi) How could governments and other stakeholders strengthen consultations on policy challenges and solutions related to climate-induced migration?

4.2 Possible outcomes

- Greater high quality research on the links between climate change, development and population movement and on the consequent implications for national policy making in both developed and developing countries.
- Fuller consideration of how to respond to the potential challenges relating to climate change induced population movement in National Adaptation Programmes of Action (NAPAs) and Disaster Risk Reduction Strategies (DRRs).
- Greater policy coherence at national level between concerned and relevant ministries, in order to ensure that policy-making in relation to climate change and population movement takes into account the possible implications for development.
- Relevant international agencies, experts and interested governments should be encouraged to hold regular side-events on the margins of the annual United Nations Framework Convention on Climate Change (UNFCCC) negotiations as well as at major climate change events in order to highlight challenges and policy priorities related to climate-induced displacement.
- An interactive exchange of available data and research on migration, development and climate change and suggested policy solutions should be launched with support of relevant international agencies, experts and interested governments.

GENERAL READING

Foresight, Global Environmental Migration Project, at:

<http://www.foresight.gov.uk/OurWork/ActiveProjects/EnvironmentalMigration/Migration.asp>

Guzmán, J. M., G. Martine, G. McGranahan, D. Schensul and C. Tacoli (eds.), 2009, *Population Dynamics and Climate Change*, New York, United Nations Population Fund and London, International Institute for Environment and Development.

Laczko, F. and C. Aghazarm (eds.), 2009, *Migration, Environment and Climate Change: Assessing the Evidence*, Geneva, International Organization for Migration.

UNDP 2007, *Human Development Report 2007/2008. Fighting Climate Change: Human Solidarity in a Divided World*, New York, United Nations Development Programme.

REFERENCES

Balk, D. et al, 2009, Mapping urban settlements and the risks of climate change in Africa, Asia, and South America, in Guzman et al, *Population Dynamics*, pp. 80-103.

Beauchemin, C., forthcoming 2010, Rural-urban migration in West Africa: towards a reversal? Migration trends and economic situation in Burkina Faso and Côte d'Ivoire, *Population, Space and Place*.

Black, R. 2010, Migration decisions and the role of climate in migration choices, Sussex Centre for Migration Research, University of Sussex.

Brown, O. 2008, *Migration and Climate Change*, Geneva, International Organization for Migration, IOM Migration Research Series No. 31.

Cernea, M. M and C. McDowell (eds.) 2000, *Risks and Reconstruction: Experiences of Resettlers and Refugees*, Washington, The World Bank.

Christian Aid 2007, *Human Tide: The Real Migration Crisis*, London.

Dun, O. and F. Gemenne 2008, Defining 'environmental migration', *Forced Migration Review*, 31: 10-11, at:

<http://www.fmreview.org/FMRpdfs/FMR31/FMR31.pdf>

IASC 2008, Disaster risk reduction strategies and risk management practices: critical elements for adaptation to climate change, submission to the UNFCCC Adhoc Working Group on Long Term Cooperative Action, by the Informal Taskforce on Climate Change of the Inter-Agency Standing Committee and the International Strategy for Disaster Reduction, at:

http://www.unisdr.org/eng/risk-reduction/climate-change/docs/IASC-ISDR_paper_cc_and_DDR.pdf

IOM 2009, *Compendium of IOM's Activities in Migration, Climate Change and the Environment*, Geneva, International Organization for Migration.

IOM 2010, *Assessing the Evidence: Environment, Climate Change and Migration in Bangladesh*, Dhaka, International Organization for Migration.

- Martin, S. F. 2009, Managing environmentally induced migration, in Laczko and Aghazarm (eds.), *Migration, Environment and Climate Change: Assessing the Evidence*, Geneva, International Organization for Migration, pp. 353-384.
- Martin, S. 2010, Climate change, migration, and governance, *Global Governance*, 16: 397-414.
- Mutunga, C. and K. Hardee 2009, Population and reproductive health in National Adaptation Programmes of Action (NAPAs) for climate change, in Guzman et al (eds.), *Population Dynamics and Climate Change*, New York, United Nations Population Fund, pp. 176-191.
- Parsons, C., R. Skeldon, T. L. Walmsley and L. A. Winters 2007, Quantifying international migration: a database of bilateral migrant stocks, in Ç. Özden and M. Schiff (eds.), *International Migration, Economic Development and Policy*, Washington, The World Bank, pp. 17-58.
- PDR 2010, Effects of future climate change on cross-border migration in North Africa and India, *Population and Development Review*, 36(2): 408-412.
- Potts, D. 1995, Shall we go home? Increasing urban poverty in African cities and migration processes, *Geographical Journal*, 161(3): 245-264.
- Skeldon, R. 1997, *Migration and Development: A Global Perspective*, London, Longman.
- Tacoli, C 2009, Crisis or adaptation? Migration and climate change in the context of high mobility, in Guzman et al (eds.), *Population Dynamics and Climate Change*, New York, United Nations Population Fund, pp. 104-118.
- UNDP 2009, *Human Development Report 2009. Overcoming Barriers: Human Mobility and Development*, New York, United Nations Development Programme.
- Zukerman, W. 2010, Pacific islands defy sea-level rise, *New Scientist*, 5 June, p. 10.