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Climate change and migration: impacts, vulnerability, and adaptation options

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1. Introduction

Today, environmental change including climate change presents a new threat to human security and a new situation for migration.¹ Climate change-related migration² has the potential to become a phenomenon of a scale and scope not experienced in human history. Migration may be an adaptation mechanism for those with the resources to move early and far enough away from danger. However, in extreme cases and for those with fewer means to move, migration may be an expression of failed adaptation—an attempt to escape from imminent suffering or even death. Faced with an unconceivable scale of environmental change, migration may be an adjustment mechanism of first resort, or a survival mechanism of last resort.³ (Renaud et al. 2007). Climate change related migration is a topic of relevance for Article 4, paragraph 1(e) and 1(f) of the Convention, the Bali Action Plan, and the Nairobi Work Programme.

2. Evidence about climate change and migration

Gradual and sudden environmental changes are resulting in substantial human movement and displacement.⁴ The scale of such migration flows, both internal and cross-border, is expected to rise, with large impacts. Estimates of environmental migration fluxes have been published, and there is a growing consensus that migration will increase substantially in the future.⁵

¹ Adger, W. N.; Kelly, P. M.; Nguyen, H. N. (2001): Environment, society and precipitous change. In: Adger, W. N.; Kelly, P. M.; Nguyen, H. N. (Eds): Living with Environmental Change: Social Vulnerability, adaptation and resilience in Vietnam. Routledge, London.

² The United Nations University uses the IOM working definition of environmentally induced migration: “*Environmental migrants are persons or groups of persons who, for compelling reasons of sudden or progressive change in the environment that adversely affects their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad*” (IOM 2007a).

³ Renaud, F.G.; Bogardi, J.J.; Dun, O.; Warner, K. (2007): *Control, Adapt or Flee: How to Face Environmental Migration?* InterSecTions no. 5/2007, United Nations University Institute for Environment and Human Security, Bonn.

⁴ Afifi, T.; Warner, K. (2008) *The Impact of Environmental Degradation on Migration Flows across Countries*. Working Paper No.5/2008. UNU-EHS Working Paper Series. Bonn: United Nations University, Institute for Environment and Human Security.

⁵ See Myers, N. (2002): Environmental refugees: a growing phenomenon of the 21st century. In: *Philosophical Transactions of The Royal Society B*. vol. 357, pp. 609-613. and Myers, N. (2005). *Environmental Refugees: An Emergent Security Issue*. 13th Economic Forum, Prague, 23-27 May.

2.1 How many environmentally induced migrants?

Gradual and sudden environmental changes are resulting in substantial human movement and displacement. The scale of such flows, both internal and cross-border, is expected to rise, with unprecedented impacts on lives and livelihoods. The most widely cited estimate of 200 million migrants by 2050 suggests that environmentally induced migration could soon involve almost 3 percent of the *world* population in just four decades from now.⁶ The social and economic costs of this uprooting, accounting for both losses and responses, have not been calculated.⁷

Error! Reference source not found. Figure 4 indicates areas where drought, desertification, and other forms of water scarcity are estimated to affect as much as one-third of the world's human population and could contribute to people migrating away from these areas to secure their livelihoods. Main projected trajectories are added where climate change-related migration can be expected in the future.

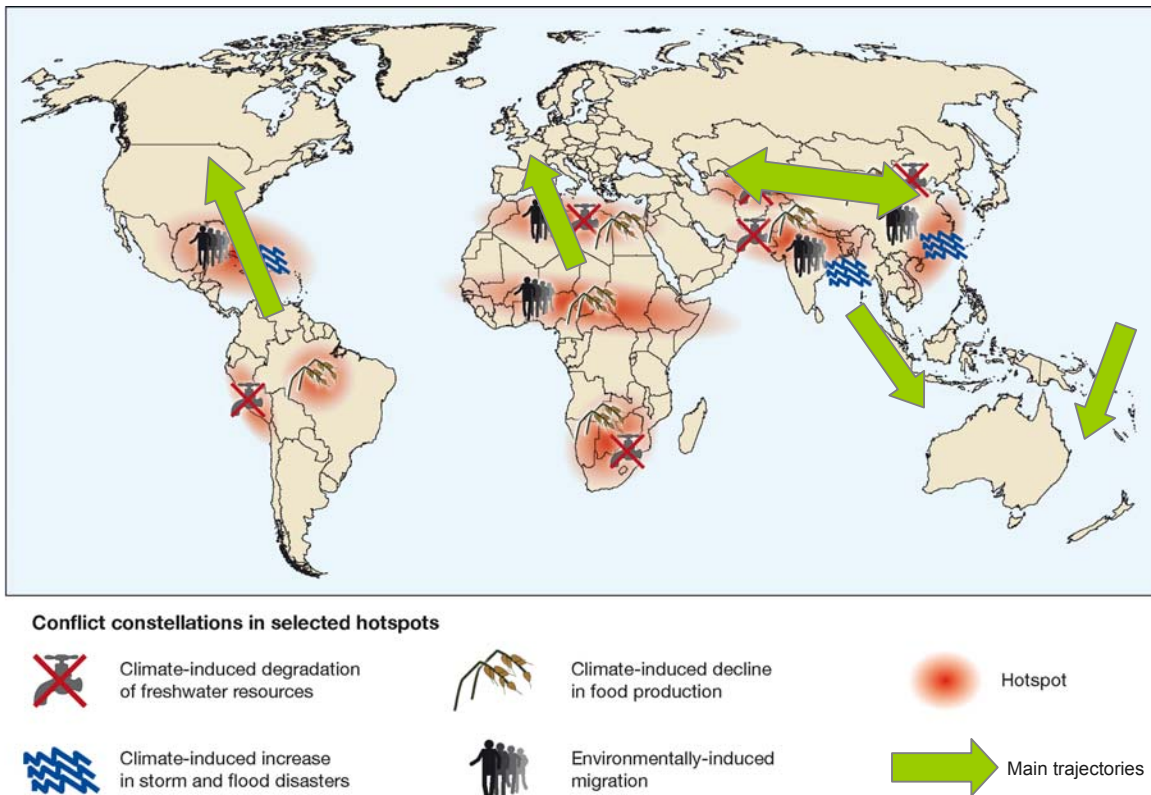


Figure 1: A map of conflict and migration induced by environmental stressors

(Source: German Advisory Council on Global Change WBGU (2007): Climate Change as a Security Risk)

⁶Brown, Oli (2008): Migration and Climate Change. In: International Organization for Migration (IOM): *Research Series* No. 31, IOM Geneva.

⁷All of these estimates, including their underlying methods and assumptions are subject to debate (Black 1998, Bates 2002). The complexity of interactions makes reliable estimations of environmentally induced migrants challenging (Döös 1997). Quantification is further complicated by the fact that environmentally induced migration is mostly internal (at least in the initial phase). Nevertheless, few authors contest that environmentally induced migration falls much below 20 million environmentally induced migrants *today*.

2.2 Evidence from fieldwork

Research is starting to address the knowledge gaps in order to inform decision makers on ways in which to manage climate change-related migration. Emerging research and fieldwork, and particularly the results from 24 case studies in a global comparative study of environmental change and migration confirm that environmental factors contribute to migration. The current environmental signal in migration is detectable. An analysis of field studies yields 3 main results:

Environmental factors currently contribute to migration

Environmental factors interact with other factors to influence migration. The principle current pathway through which environmental change affects migration is through livelihoods, especially in rural areas. Livelihoods deteriorate due to changing climatic conditions and land degradation over time. The more direct the link between environmental quality and livelihoods, the stronger the role of environmental push factor in migration choices. The ability to earn a livelihood in a given climate and environment is one of the determining factors that potential migrants are concerned about for the future.

Migration occurs when tipping points are approached and exceeded

If certain regions experience systematic collapse in livelihood chains, environmentally induced migration could affect millions of people and come at a time when tipping points have been crossed for critical ecosystem services.⁸ Due to migrant network connections, environmental degradation can perpetuate existing migration patterns. Climate change could drive movements of people in zones between countries and regions. Such migration flows could occur in already-resource stressed environments—areas where large scale humanitarian assistance or peace keeping could be required.

Climate change, resettlement, and adaptation

Some governments are already planning for the relocation and resettlement of affected populations. Government responses vary from offering “mobility incentives” to mandatory resettlement programmes, with mixed results. Relocation moves people out of harm’s way. But resettlement is also expensive, and exposes displaced people to the loss of livelihoods, debt, and disintegration of communities without addressing the environmental stressor itself. More needs to be understood about migration and resettlement in coping with and adapting to climate change.

4.Support Nairobi Work Programme & Bali Action Plan

Action can and must be taken today to address migration as a reaction to changes in climatic conditions. Parties are encouraged to contribute to the five pronged approach outlined above and actively engage in discussion and exchange of experience in addressing environmentally induced migration. In particular, contribution to the NWP and the Bali Action Plan in areas like data and observations as they relate to climate change-related migration is needed.

As a first step regional migrations observations such as that which will be taken by the ACP, detailed regional and country level assessments of environmental states and migratory flows, as well as pilot projects of adaptation measures should be envisaged. Assessment of methodology developed within the European Commission-funded EACH-FOR project (www.each-for.eu) could be further refined and applied on a larger scale to help contribute to efforts under Article 4, paragraph 1(e) and 1(f) of the Convention, the Bali Action Plan, and the Nairobi Work Programme.

⁸Galaz, V.; Moberg, F.; Downing, T.; Thomalla, F.; Warner, K. (2008). Ecosystems under pressure. A policy brief for the International Commission on Climate Change and Development. Stockholm Resilience Centre, Stockholm Environment Institute, United Nations University Institute for Environment and Human Security. Stockholm, January 2008.

5. Five pronged policy approach

Some organizations have decided to concert their respective activities and to form the Climate Change, Environment and Migration Alliance (CEEMA) as a multi-stakeholder global partnership. The major aims of the Alliance are to mainstream the environmental and climate change considerations into the migration management policies and practice and to bring migration issues into the world's on-going environmental and climate change as well as development discourse. The Alliance is being conceived by the International Organization for Migration (IOM), the United Nations Environment Program (UNEP), United Nations University (UNU), and the Munich Re Foundation (MRF). Some policy points that could be considered under the NWP and BAP to address climate change and migration include:

- **Build a strong scientific basis:** As the window for identifying appropriate adaptation pathways for climate change narrows, it is imperative to address how changing environmental conditions affects individual and group decisions to migrate. Robust definitions are needed for environmentally induced migrants and people displaced by environmental push factors. These definitions can facilitate identification, measurement, characterization, and appropriate policy responses.
- **Increase awareness:** Knowledge about environmental degradation and climate change can arm governments, migrants, and potential migrants against losses in human security. At the national level, countries must understand how environmental processes and environmental quality affect living standards of their populations. Public awareness raising is also an essential issue to be addressed in potential receiving countries and regions. Awareness can help avoid mal-adaptation.
- **Improve legal frameworks:** At the regional level, multilateral dialogue may be necessary about how to address, coordinate, and ease environmental pressures as well as migration that results in part because of climate change. Policy and legal frameworks need to address environmentally induced migration. Frameworks must be established for dealing with individuals and groups induced to migrate because of environmental change. Legal frameworks may be developed within rights-based and humanitarian approaches.
- **Adequate humanitarian response:** Gradual and sudden environmental changes will result in substantial human movements and displacements, and these situations will require sufficient and timely humanitarian efforts to avoid escalating crises. Natural disasters may displace larger numbers of people for relatively short periods of time, while the steady and continuous impact of climatic drivers are likely to permanently displace many more people in a less visible way.
- **Strengthening institutions and policies:** Institutions in source and receiving countries should work together to ensure safe, non-criminal, and orderly migration relations.

6. Join forces to address climate change- & migration

The time to address the effects of dangerous environmental change including climate change is now. Action must be concerted and swift: Policy makers, the scientific community, civil society and other actors must seek solutions for those people who are currently migrating and who may be induced to migrate in order to seek safe and sustainable existences. The active collaboration of regional and intergovernmental organisations is imperative.

With increasing numbers of the world's population living in areas particularly exposed to the negative consequences of climate change, urgent action is needed to identify adaptation pathways that prevent or at least reduce environmental migration flows. A rapid and collaborative effort is needed to discuss options including resettlement, and understand the implications of climate change related migration for affected countries and regions. Fundamentally, the discussion of climate change-related migration revolves around human security and the quest to secure freedom from fear, freedom from want, and freedom from hazard impact. Achieving human security in the face of climate and environmental change requires urgent policy attention and adaptation action *today*.