Climate Change and Migration

Summary: Often, the media and policy-makers approach the issue of climate change, migration and displacement by asking questions related to "how many" migrants will come. An equally important but less considered question is how national institutions will adapt to accommodate climate change and human mobility. This paper suggests that the capacity of states to adjust to these changes effectively is contingent upon the particular cultural, social, economic and political contexts in which they function and the structural constraints of government machinery. Rather than proposing prêt-a-porter solutions for nation-states, it is important to help states better understand the institutional implications of climate change and human mobility and to aid them in designing custom policies. This paper illustrates these issues with reference to climate change-induced migration in Bangladesh, Mexico and Senegal.

Assessing Institutional and Governance Needs Related to Environmental Change and Human Migration

by Koko Warner

This paper draws on patterns of environmentally induced migration which have emerged in recent empirical work and discusses how institutions and policies influence the forms of human mobility in the face of environmental and climate change. It helps assess institutional and governance needs related to environmental change and human migration. In this paper "governance" refers to the regulation of interdependent relations with many levels and actors, and also includes an element of power and interest (Young, 2002, 2004) in situations and policies. Section 1 of the paper examines various key concepts and definitions related to climate change-induced migration. Section 2 addresses questions about the level of preparedness within current institutional and governance frameworks to manage environmentally induced migration in the future. Where the paper identifies gaps in governance approaches, section 3 suggests ways to begin bridging gaps and define new modes of governance where needed. This paper ties in with some of the messages presented in Susan Martin's background paper on adaptation mechanisms which

may improve governance of climate change-related migration.

Concepts and definitions: links to governance gaps in environmental migration

Terms and concepts such as environmental or climate change migration, environmentally induced or forced migration, ecological or environmental refugees, and climate change refugees are used throughout the emerging literature, with no general agreement on precise definition(s) (Dun and Gemenne, 2008).[1]

The difficulty of establishing clear definitions of concepts and terms related to climate change-induced migration stems from two issues. First, scholars have pointed out the challenge of isolating environmental factors from other migration drivers (Black, 2001; Castles, 2002; Boano et al., 2008). As migration is driven by a plethora of factors including climate change, it has been difficult to establish the causal relationships and consequences of climate change-induced migration. This heightens the challenge of quanti-

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[1] This paper uses the working definition of environmentally induced migrants proposed by the IOM: "Environmentally induced migrants are persons or groups of persons who, for compelling reasons of sudden or progressive changes in the environment that adversely affect 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, 2007: 1).

fying such migration and explains the wide range in expert estimates of climate change-induced migrant populations.

It was also difficult to define the range of climate change-induced migration because of the institutional and governance implications of doing so: Definitions of the "problem" (i.e., as a migration, humanitarian, development, security, or environmental issue) allow an assignment of authority to address environmentally induced migration.

How institutions and policies affect environmentally induced migration outcomes

Emerging empirical research indicates that environmental changes including climate change currently play a role in migration (Jäger at et al., 2009; Warner et al., 2008, 2009). Figure 1 (see page 17) provides a typology of different forms of environmentally induced migration for rapid- and slow-onset environmental stressors (Renaud et al., 2010). Distinguishing between rapid- and slow-onset events provides a useful point of departure for understanding the potential governance needs of migrants, as well as possible gaps in current institutions and policies designed to address human mobility. This section will explore how institutions and policy affect environmentally induced migration, pointing out the role of time, environmental stressors, the quality of policy interventions, and gaps in policy and governance.

Governance gaps: rapid-onset environmental change and migration

One subset of environmentally induced migration is related to rapid-onset environmental changes – often in the form of natural disasters. This section discusses the current governance gaps related to managing human mobility in the face of rapid-onset environmental change, and highlights the importance of effective pre- and post-disaster management. Table 1 (see page 15) provides an overview of these gaps.

Rapid-onset climate events

The occurrence of migration related to rapid-onset events is perhaps the easiest to identify because the impacts of the environmental event are relatively observable, and in some cases reported by the media. Such events include severe weather such as flooding, windstorms, storm surges and landslides (often related to heavy rains), as well as geological occurrences like earthquakes and volcanic eruptions. When rapid-onset natural disasters occur, people often must flee from the affected area to avoid physical harm or loss of life. In some cases homes are destroyed, making temporary resettlement in shelters a necessary risk management approach. During and after rapid-onset events, livelihoods are often lost or interrupted through destruction of crops, livestock or productive assets. These kinds of impacts can motivate people to move. The way that disasters of this type are managed plays a role in people's mobility decisions.

The time period of interest in governing human mobility and rapid-onset environmental hazards is typically the first 72 hours following an event for humanitarian relief efforts. The focus of these efforts is often around rescue, establishing temporary shelters, and medical help. In the days following a disaster, humanitarian efforts may shift towards providing clean food and water, stabilization of local populations and assessment of the situation. Often media is present in these first few days following an event, and play a role in mobilizing resources to pay for humanitarian assistance. In cases where people are evacuated or displaced due to a disaster, policy gaps often arise around where these people should go in the weeks, months and sometimes years following a disaster. Two examples of evacuation and subsequent (permanent) displacement include Hurricane Katrina (2005) and the eruption of the Montserrat volcano in the Caribbean.

Role of policy interventions and governance gaps (post-disaster recovery, legal status of displaced people)

For rapid-onset events, humanitarian organizations lead the efforts to assist people affected by and possibly displaced by environmental hazards, in coordination with national governments and donors. The efficacy of governance plays a critical role in whether migrants will return, or whether they will stay away indefinitely. Migrants will likely need support in integration, establishing livelihoods in new areas and protection from any number of discriminatory practices. Soft law such as the Guiding Principles on Internally Displaced People (IDP) may protect these people to some extent, but the lack of recognition of environmental stressors as a legitimate cause of migration may limit effective assistance or protection. Following the 2002 earthquakes in El Salvador and the 2005 Hurricane Katrina, governments like the United States have granted temporary visas for mi-

grants so that they could work and provide remittances and assistance to affected family members. It is unclear whether such practices will become an international norm; hence, a partial gap exists.

In the immediate aftermath of the event, people are able to return to their origins depending on the degree to which recovery of social, economic and physical characteristics of the affected area is rapid and effective, or slow and ineffective. As noted above, humanitarian organizations are equipped to respond to disasters, but not necessarily to adequately manage larger-scale or longer-term displacement. Some soft-law provisions are in place internationally regarding the protection of IDPs (Kalin, 2000), but few systematic approaches are in place and this is often an overlooked policy area (Kolmannskogg, 2008; Oliver-Smith, 2009).

This partial gap implies that the capacity of humanitarian organizations could be exceeded by climate change, as well as the increasing exposure of people and their assets to natural hazards. Environmental change today blurs the mandates of humanitarian organizations: Traditionally these organizations have provided relief and disaster assistance. Increasingly today, however, they are faced with more frequent and intense disasters, as well as longer-term displacement issues. There are some provisions, such as in soft law, for the protection of IDPs, but these are often specifically related to conflict situations where development agencies and organizations are less able to intervene. Humanitarian organizations could face a capacity challenge if the number of rapid-onset events and the number of people affected by them grows significantly. Kirsch-Wood et al. noted "In the last 20 years the recorded number of disasters caused by floods has increased by 300 percent – from about 50 to more than 200 events. Floods and storms now trigger the bulk of sudden-onset international humanitarian responses. Of the 26 UN Flash Appeals issued since January 2006, 18 appeals have been in response to floods and cyclones" (2008: 40).

In the recovery phase, there are two broad alternatives for people who have voluntarily moved or have been displaced by environmental hazards. However, there are governance and policy gaps related to both of these alternatives.

First, if disaster response is rapid and effective, then it is expected that affected areas will recover both economi-

cally (important for livelihoods) and physically (rebuilding infrastructure, reestablishing pre-disaster systems) within a relevant timeframe. In this case of effective recovery (which can include both "good" governance, as well as the availability of finance), people will have a range of choices about their mobility. Some temporarily displaced people may choose to return to their origins and reestablish themselves (IOM, 2007). However, if disaster risk recovery and associated policy interventions are ineffective in reestablishing critical infrastructure and services, as well as reestablishing a minimum level of social order and livelihood possibilities, affected people may not be able to return within a short period of time. The timing of governance interventions plays a key role – even if people could technically return to hazard affected areas, they may not choose to return if rehabilitation does not take place soon enough to be in sync with life cycle or other developments (such as employment, or services like schooling for children). If disaster-displaced people do choose to not return to impacted areas, they become climate change migrants, for which no current governance framework is established. There is currently no legal category or status for climate change migrants, and little systematic form of support for such people.

Second, if disaster response is slow and ineffective, it is expected that affected areas will not recover economically (important for livelihoods), socially and/or physically (rebuilding infrastructure, reestablishing pre-disaster systems) within a relevant timeframe. In this case, recovery is ineffective. Reasons for ineffective rehabilitation can include "poor" governance, as well as the lack of availability of finance or other resources for recovery. This limits the range of mobility-related choices for affected people. If people cannot return to the impacted area, they may become an "environmentally *forced migrant*" for which no current governance framework is established. In this case, there is a governance gap for people who were displaced and cannot return to disaster-affected areas. After disaster assistance has been exhausted, no systematic approach appears to be in place in most countries to address the needs of climate change migrants.

In summary, many regions of the world are currently partially equipped to manage this subset of environmentally induced migration related to rapid-onset environmental hazards – largely because there are policies and mechanisms in place for prevention/risk reduction, humanitarian

assistance and post-disaster rehabilitation. However, these mechanisms are mostly oriented towards the immediate aftermath of a disaster, and practice indicates important gaps which can make it difficult for people who have been displaced by a disaster to return to their homes and resume their normal lives.

Governance gaps: slow-onset events and migration

For slow-onset events, the intervening factors that prevent or enable people to return (or avoid migration and displacement in the first place) become more complex. The urgency for flight is temporally less pressing because the rate of environmental change is slower. People may not have a choice to return to their former place of residence due to the physical loss of their land, for example, due to coastal erosion or sea-level rise. However, in cases where the physical land is still available, people may have the opportunity to return to their original place of living, particularly if they can implement alternative livelihoods. Accelerated or slower environmental change can affect the livelihoods of people to a degree that some or all household members migrate. The relative importance of environmental factors in livelihoods helps determine how important the environment is when migration decisions are made. In some cases, alternative livelihoods or other coping capacities are possible in the affected area. Yet people may still choose to leave the area, anticipating worsening conditions. If alternative livelihoods are not possible in the relevant timeframe, or if the impacted area ceases to fulfill its function (such as succumbing to desertification or sinking below the sea level) then forced migration could occur. Policy interventions will largely shape the outcome.

Slow-onset climate events and migration

Table 2 (see page 16) examines some of the governance issues related to environmentally induced migration and slow-onset events.

Slow-onset environmental changes can negatively affect livelihood systems and contribute to migration pressures in the long term; the underlying environmental factors, however, may not be accounted for in migration patterns because they are slow and harder to observe. The occurrence of migration related to slow-onset events is more challenging to identify because the impacts of the environ-

mental event are incremental, and seldom reported by the media until they become acute crises. Such events include climate change impacts like regional changes in rainfall variability and seasons; sea level rise or the gradual degradation of ecosystems like desertification and land degradation; and loss of biodiversity. When slow-onset environmental degradation occurs, livelihoods like farming, herding and fishing deteriorate. Yields fall, and the ability to diversify (such as supplementing farm yields with hunting or fishing) may decline. Communities and families may increasingly see migration (to urban areas or across borders) as offering more attractive possibilities to worsening life quality in areas affected by slow-onset environmental change. The way that the degradation is managed plays a role in people's mobility decisions.

Role of policy interventions and governance gaps (livelihoods, resettlement and legal issues)

First, it is possible that existing institutions can make effective interventions to protect livelihoods, and in ways that are relevant to human mobility. Policies can, in theory, facilitate human mobility where appropriate, and make staying possible where appropriate. Deciding what is appropriate and under what circumstances is one of the key challenges policymakers face related to human mobility and slow-onset environmental change. This is an area where many governance and policy gaps exist – consisting of a mix of gaps in development governance, overlaid by environmental and climate change.

There is a potential for interventions to reduce vulnerability, enhance resilience, develop livelihood alternatives, improve risk management alternatives and so forth. Yet some institutions with proficiency in such areas – like livelihood creation and protection – are not a full part of the governance regime for human mobility. If measures are effective to preserve livelihoods (as well as reduce vulnerability), then affected people maintain their freedom of choice of whether to migrate away from environmentally degrading areas. If this is the case, one can identify a governance gap: Policy communities needed to address "environmentally motivated migration" related to slow-onset environmental change often lack platforms for communication. This can prevent the formation of effective governance of human mobility and environmentally driven livelihood degradation. Livelihoods are governed largely within the realm of development or

sectoral ministries such as agriculture, while environmental degradation is largely within the realm of environmental protection. Similarly (ground) water and soil quality, coastal erosion, and storm surge or sea level rise issues may be managed in separate, silo-like policy arenas. To address this gap, there is a need to involve affected people in the definition of intervention and adaptation alternatives – ranging from helping people remain in their traditional homes, facilitating movement where appropriate (possibly in larger groups of people) and involving affected people in resettlement decisions and design.

Second, an alternative livelihood was not possible in the relevant time period, or if the impacted area no longer exists then people may have no choice about whether they can remain at home. In such cases, people or groups of people may be either displaced or forced to migrate if governance approaches do not effectively protect livelihoods in the face of slow-onset environmental change. For such "environmentally forced migrants," a governance gap exists. There are few examples worldwide of legal provisions for internal resettlement due to environmental degradation (when in place, such provisions are more often related to rapid-onset environmental hazards). Dialogue about resettlement "good practice" or experiences is limited. These are challenges that are already observed in some coastal areas. In the case of Shishmaref, Alaska, for example, local, state, and federal authorities are struggling to address accelerating coastal erosion that is forcing several communities to relocate (Bronen, 2008). A 2006 study identified several critical governance gaps that require attention if relocation is to occur, including that no government agency has the authority to relocate communities, no funding is designated for relocation and no criteria are defined for identifying relocation sites (US Army Corps of Engineers, 2006). Governance in developing countries may be even more challenged with the prospect of resettling people in the face of environmental change. The case of needing assistance for sovereign resettlement, or even policy dialogue about resettlement between countries or facilitated by relevant institutions is in nascent stages (Boncour and Burson, 2009). Additionally, the current governance framework does not systematically provide an outlet for the participation of affected peoples.

In summary, few regions of the world currently appear equipped to manage human mobility related to slow-onset environmental degradation – some of which may be caused by climate change. The governance gaps related to this subset of environmentally induced migration come in part because of policy silos, because of the gradual nature of change itself and because of the challenges of sustaining traditional livelihoods or creating alternative livelihoods. Further, the rising possibility that some areas of the world could become unable to support livelihoods at all – either because of extreme degradation or because they no longer exist in habitable forms (in the case of permafrost melt, sea level rise, or desertification) – presents a major challenge to the governance of human mobility. Some countries, such as New Zealand, extend the opportunity for work-related visas to endangered low-lying island countries like Tuvalu, but these programs remain limited in numbers. The New Zealand visa program reaches less than 100 people per year, a quota which often goes unfilled because of concerns among sending communities of depopulating the country of Tuvalu (Jäger et al., 2009).

Those who remain behind

The focus of much political and academic debate is centered on migrants or refugees, rather than the equally important question of people who remain behind (Zetter, 2008). Some people who remain behind may be able to do so because of resilient capacity, an ability to adapt to changing environmental conditions. These people may be vulnerable, but they are not always helpless. People who do not migrate away from environmental change can be active agents with resilient characteristics. Literature on social capital and networks suggests that there are public and private elements of adaptive action, based on trust, reputation and reciprocal action of those individuals involved. In many cases, adaptation to environmental and climate change will be in the form of collective action at the community level (Adger, 2003). Adaptive activities can enhance resilience of communities against rapid- and slow-onset environmental change, particularly if networks of people engage and share their learning experiences.

There may also be circumstances where people are forced to remain behind or who are unable to migrate because of poverty or other kinds of vulnerability, such as lack of education or vocational skills, lack of social networks and so forth. The current governance regime does not account

for those who remain behind – both those with resilience capacity and those who have no opportunity to move away. This also constitutes a gap in the governance of human mobility. Future studies could compare and contrast motivation for staying and leaving in order to offer insights about the differences that there might be between those who leave and those who stay behind.

Potential policy approaches: challenges, new modes of governance

The paper so far has outlined gaps and partial gaps for managing environmentally motivated and forced migration and displacement. This section examines some of the challenges in addressing the gaps identified in this paper: institutional and policy "silos," identifying where to administer help and assigning authority to address the problems. Then the section examines potential policy approaches and new modes of governance for environmentally related human mobility.

Challenges: short-term, emergency-focused institutions and policies

Institutional and policy "silos"

Some facets of the current governance system may actively encourage approaches that may be too narrow to manage complex issues like environmentally induced migration. For example, the management of human mobility today falls largely within the mandates of international humanitarian organizations and national governments. Humanitarian organizations focus traditionally on crisis and disaster management, often with a short-term perspective and not with the goal (or capacity) to maintain long-term guidance, support and protection. Silos of institutional management will be hard pressed to effectively address the needs of migrants and their families if the wider context of resilience and adaptation is not considered.

Where to administer help?

Dynamics of migration and coupled socio-ecological systems today make it less clear where and how to administer help: at the source of environmental degradation and where people stay behind, for migrants in transit, or in receiving communities. This has the potential to create differentiated groups with different capacities and needs. While large groups of people may migrate in the future, even among such a group there may be little homogeneity, except for the unifying environmental stressor that set them on the move. Environmental change will affect what individuals or households in a community become mobile. Characteristics like gender, age and socioeconomic status will all affect unfolding patterns of environmentally induced migration. In the face of slow-onset environmental change those who are able to move – those with money, social networks, and alternative livelihoods – may migrate independently. The vulnerable poor, those with no capacity to move, the very young and the elderly may be left behind initially, and forced to resettle later. Gender and demographic structure also play a role in environmentally induced migration patterns. Property rights, resource distribution and family roles affect men and women's migration patterns, particularly when the environment becomes a strong push factor. Young healthy males forced to abandon their farming lands will have different governance demands than a household of young children and aging parents, headed by a single mother in flight from advancing deserts or a hurricane. One group may need livelihood assistance, another may need resettlement assistance, another may need humanitarian assistance, and all may need some kind of differentiated legal protection.

Authority

Several questions related to authority arise for the future: what institutions will have authority to classify environmentally induced migrants, and protect the interests of receiving or sending countries? The international community can play a role in shaping norms and standards related to environmentally induced migration (for example, the role it has played in creating principles for IDPs). Yet national states will largely remain the implementing actors and will retain authority for classifying and administering assistance to environmentally induced migrants, motivated or forced. A number of operational issues arise: How can the voluntary or forced nature of environmentally induced migration be determined and by whom? Would those who migrate voluntarily be able to qualify for government assistance, even if their choice to move was not part of a government policy or program? In Mozambique, Vietnam and Egypt,

the government relocated people into planned settlement areas, but more needs to be known about how decisions were made and how programs were sustained over time.

Are new modes of governance needed?

Current institutional frameworks for managing migration and environmental change divide institutional management and responsibility along lines of environmental, migration and humanitarian needs (Zetter, 2008). Likewise for governments, many of the environmental stressors they face within their territories result from transboundary issues including river delta management, desertification and climate change. Responses and management often occurs within a country's borders and within specific ministerial lines (i.e., environment ministry, agricultural ministry, disaster management, immigration services, etc.) (Vlassopoulos, 2008). This structure is partly suitable to address some forms of environmentally induced migration. For example, following rapid-onset disasters, governments and humanitarian organizations mobilize to provide assistance to environmental emergency migrants on a largely short-term basis.

For longer-term displacement, however, assistance of different forms and of a more durable nature may be required. Institutional responsibility and governance become more blurred for slow-onset events such as drought. For example, in Niger, the Nile Delta, and the Mekong Delta, migration has occurred when slow-onset environmental change altered the ability of people to maintain their livelihoods and a certain quality of life. In these cases, the vulnerability of both those who departed and those who remained behind increased (Afifi, 2009a, 2009b; Dun, 2009). Gradual changes in ecological systems and related social shifts will require that governance address the vulnerability of those who migrate or are displaced as well as those who remain behind. Ideally, this governance would be comprehensive and coordinated to prevent "protection gaps" (Kolmannskog, 2008).

Mapping exercise of available frameworks and good practices

To develop various frameworks and provide a set of options to countries dealing with environmental migration, a mapping exercise of available frameworks and good practice solutions could be undertaken. Such a mapping exercise

could start at a national or sub-national level and identify good practice processes like relocation or resettlement. The mapping could start by gathering answers to the following questions in countries affected by environmental migration:

- What are current institutions, laws and governance practices in respect to environmentally induced migration?

- Are there gaps?

- What dynamics do we see with migration?

- What does climate change mean for institutional set-up and robustness?

- Are there available scenarios based on climate science?

- Where are the challenges, barriers and opportunities of environmentally induced migration?

This first attempt at data gathering at the national level could be expanded with case studies of legal institutions in identified hot spot areas. Site visits could foster a policy dialogue about potential future climate change impacts. The policy dialogue could extend to affected communities in order to involve the communities in the process of responding to climate change-induced migration. Additionally, an assessment for institutions under future climate change scenarios could identify gaps and help to avoid inefficient practices. The gathered information could influence a dialogue at a national and regional level in order to provide institutions with the required policy alternatives and legal governance approaches. The outcomes of the above mentioned assessment would be the following:

- Impact scenarios for institutions, legal frameworks and governance frameworks

- Specific focus of resettlement areas

- Indicators to signal transitions in mobility

Although many governance mechanisms must be forged at the national level (both because this is the frontline and be-

cause much of the impact of migration will be experienced within national borders), the capacity of national agents as noted elsewhere in the literature, particularly in the LDCs, is sometimes severely limited. Both financial and technical support from international governance mechanisms and foreign agencies may be necessary. The assessment of institutional and governance needs could be expanded to encompass the multiple tiers of governance involved and it would be useful to note the complex process of interaction between these tiers.

Opportunities to enhance resilience of both migrants and those who remain behind

Despite challenges, opportunities exist for institutions and policies to play a mediating role in the form that environmentally induced migration takes. Effective policy interventions may increase the quality and quantity of alternatives available to people faced with environmental pressures, therefore preventing human mobility from becoming a humanitarian crisis. States will implement policies and institutions that will largely make a difference in whether environmental factors including climate change motivate (other options available, including return) or force (few if any options available) migration and displacement. These governance interventions will therefore play a leading role in determining the degree to which migration is a form of adaptation, or an indicator of a failure to adapt.

Guiding principles and dialogue

Recognizing that states will be the main implementing actors, sets of guiding principles can be established to assist countries in the implementation of policies that govern environmentally induced migration. A more substantial evidence base of cases and lessons learned from practice is needed to support such a set of principles. Policy dialogue, especially at the national level, is needed to understand how climate change impacts affect livelihood potential. Mechanisms and policy processes for managing environmental change largely ignore human mobility issues. Existing mechanisms for managing human mobility cover economic migrants and humanitarian crises, rather than environmental change. Humanitarian organizations will need greater capacity to respond to disaster-related displacement and

migration. Currently, organizations involved in development, disaster and humanitarian assistance only partially participate in dialogues on environmental change and migration. It would be useful to provide a dialogue platform for exchange about the experiences in countries which are already using resettlement programs as a response to environmental stressors. Migration is a livelihood issue not only reflecting from where people are emigrating, but also to where they are immigrating. Little is known about the longer-term capacity of receiving countries to accommodate larger numbers of (environmentally forced or motivated) migrants (Warner and Laczko, 2008).

Foster adaptive capacity through migrant networks

There is potential to foster adaptive capacity and resilience in migrant networks. Migrants often remain linked to communities that remain behind, whether as individual migrants or as larger groups, such as environmentally displaced people. These links may be material (remittances), cultural/social or political, and shape the resilience and adaptation capacity of both those who leave and those who stay (Adger et al., 2001). Networks provide security for migrant passage and livelihood security. Effective networks mutate to adjust to changes in external circumstances and in response to internal changes among network members. Research indicates that networks are perceived by migrants as having costs (obligations to help others in the network, sanctions against detrimental behavior) and benefits (gaining information, access to livelihoods or entitlements). When internal and external cost-benefit surrounding a network changes, such as when environmental conditions change, a member can become more inclined to actively participate, stay in or rejoin a network.

Flexible policies and institutions

An opportunity and challenge for governance systems is to create policies and actions that flexibly manage migration and environmental change, which in themselves are highly dynamic and nonlinear processes. This may mean a combination of approaches that have been shown to be effective in the past, including: improving education and training that facilitate access to alternative livelihoods in communities affected by environmental change; technical measures that

complement better resource and land management; enhancing access to other types of risk management tools, such as risk sharing and risk transfer tools like (micro)insurance.

Participation in policy formation

Migrants face high costs in creating and preserving new network ties, which requires the development of mutual trust and obligations, and social ties. New links are time- and resource-intensive, and these links are also geographically fragile. Resettlement or other mobility can interrupt networks and represent a loss of investment and risk diversification. When resources like ecosystem services become scarce, migrant networks commonly "resize" themselves. Instead of cleanly breaking from a kin-based network, network boundaries are often redrawn to manage conflict and redefine mutual obligations. Because of the complex and dynamic nature of social networks among migrants, one conclusion for governance is that people should be actively involved in planning activities such as resettlement, and as much as possible be given the freedom to move and react to micro-level incentive structures. Heavily controlled migration management systems may be ill-equipped to address the nuances of migrant needs in the face of environmental change and the fluid boundaries of migrant networks and other resilience or adaptation capacities. Involvement of affected populations will help policy makers identify relevant risks and a range of solutions (including but not limited to migration). Such participation can put migration in positive terms of a range of options to manage environmental and climate change. Policy approaches may also find ways to facilitate the involvement of diaspora communities and migrant networks where possible.

Conclusions

The paper has examined how institutions and policies affect environmentally induced migration, and gaps in current governance frameworks for rapid- and slow-onset environmental change. The analysis above identified the major gaps in governance for 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 climate change migrants who cannot return after disasters, and people

made mobile because of longer-term environmental change. New governance approaches will need to consider the role of migration in adaptation: not only will support be needed for migrants, but also for those who remain behind. These new modes of governance must take into account dynamic social and migrant networks, and enhance resilience in flexible rather than control-based ways.

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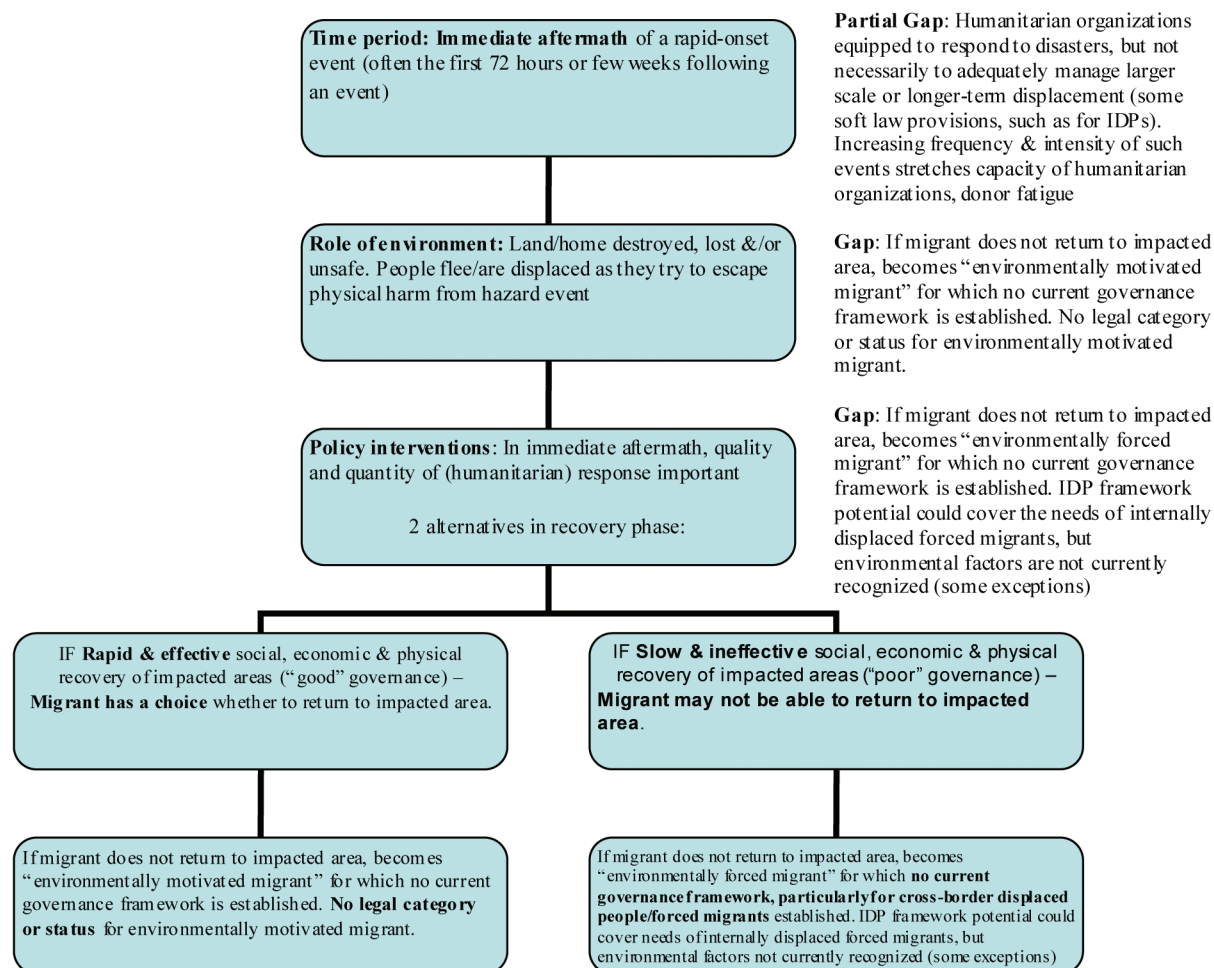
Appendix

Table 1a: Governance gaps, environmentally induced migration and rapid-onset events[2]

Rapid-onset Hazards (e.g. Floods, Hurricanes/Cyclones): Gaps related to humanitarian assistance, rehabilitation, legal status/ protection of affected migrants					
Time period	Role of environment	Intervention	Governance gap?	Explanation	Comment
Immediate aftermath of a rapid-onset event (often the first 72 hours or week following an event)	Land/home destroyed, lost &/ or unsafe. People flee to save their lives.	In immediate aftermath, quality and quantity of (humanitarian) response important 2 alternatives in recovery phase:	Partial gap	Humanitarian organizations equipped to respond to disasters, but not necessarily to adequately manage larger scale or longer-term displacement (some soft law provisions, such as for IDPs)	Increasing frequency & intensity of such events stretches capacity of humanitarian organizations, donor fatigue.
		IF Rapid & effective social, economic & physical recovery of impacted areas ("good" governance)— Migrant has a choice whether to return to impacted area.	Gap	If migrant does not return to impacted area, becomes "environmentally motivated migrant" for which no current governance framework is established	No legal category or status for environmentally motivated migrant
		IF Slow & ineffective social, economic & physical recovery of impacted areas ("poor" governance)— Migrant may not be able to return to impacted area.	Gap	If migrant does not return to impacted area, becomes "environmentally forced migrant" for which no current governance framework is established	IDP framework potential could cover the needs of internally displaced forced migrants, but environmental factors are not currently recognized (some exceptions)

[2] An earlier version of this table appeared in Warner, K. 2010. *Global Environmental Change and Migration: Governance Challenges*. Global Environmental Change, Special Issue focusing on Resilience and Governance. Published online January 6, 2010. doi: 10.1016/j.gloenvcha.2009.12.001

Table 1b: Rapid-onset hazards (e.g., floods, hurricances/cyclones): Gaps related to humanitarian assistance, rehabilitation, legal status/protection of affected migrants

Time period: Immediate aftermath of a rapid-onset event (often the first 72 hours or few weeks following an event)

Partial Gap: Humanitarian organizations equipped to respond to disasters, but not necessarily to adequately manage larger scale or longer-term displacement (some soft law provisions, such as for IDPs). Increasing frequency & intensity of such events stretches capacity of humanitarian organizations, donor fatigue

Role of environment: Land/home destroyed, lost &/or unsafe. People flee/are displaced as they try to escape physical harm from hazard event

Gap: If migrant does not return to impacted area, becomes "environmentally motivated migrant" for which no current governance framework is established. No legal category or status for environmentally motivated migrant.

Policy interventions: In immediate aftermath, quality and quantity of (humanitarian) response important

2 alternatives in recovery phase:

Gap: If migrant does not return to impacted area, becomes "environmentally forced migrant" for which no current governance framework is established. IDP framework potential could cover the needs of internally displaced forced migrants, but environmental factors are not currently recognized (some exceptions)

IF **Rapid & effective** social, economic & physical recovery of impacted areas ("good" governance) – **Migrant has a choice** whether to return to impacted area.

IF **Slow & ineffective** social, economic & physical recovery of impacted areas ("poor" governance) – **Migrant may not be able to return to impacted area**.

If migrant does not return to impacted area, becomes "environmentally motivated migrant" for which no current governance framework is established. **No legal category or status** for environmentally motivated migrant.

If migrant does not return to impacted area, becomes "environmentally forced migrant" for which **no current governance framework, particularly for cross-border displaced people/forced migrants** established. IDP framework potential could cover needs of internally displaced forced migrants, but environmental factors not currently recognized (some exceptions)

Table 2: Governance gaps, climate change-induced migration, and slow-onset events[3]

Slow-onset Hazards: Gaps related to livelihood protection, resettlement and legal issues (including sovereignty for sinking islands)					
Time period	Role of environment	Intervention	Governance gap?	Explanation	Comment
Accelerated degradation of ecosystems like pollution events, rapid soil erosion. Livelihoods impacted, contributing to migration.	Environmental change contributes to worsening livelihood situation	Are effective interventions undertaken to protect livelihoods, & in ways that are relevant to human mobility (i.e. facilitating mobility where appropriate, or facilitating "staying" where appropriate). 2 alternatives, depending on efficacy of livelihood protection and governance interventions:	Gap	Mix of gaps in development governance, overlaid by environmental and climate change. Existing governance of human mobility does not account for environmental reasons contributing to livelihood degradation. Livelihoods are governed largely within the realm of development, & environmental degradation is largely within the realm of environmental protection.	Potential for interventions to reduce vulnerability, enhance resilience, develop livelihood alternatives, improve risk management alternatives. Need to involve affected people in the definition of intervention & adaptation alternatives – ranging from helping people remain in their traditional homes, facilitating movement where appropriate (possibly in larger groups of people), & involving affected people in resettlement decisions & design.
Gradual degradation of ecosystems like land degradation, loss of biodiversity, sea level rise. Livelihoods impacted, contributing to migration.		If an alternative livelihood is possible in affected area, then people have a choice of whether to migrate or not.	Gap		
		If an alternative livelihood was not possible in the relevant time period, or if the impacted area no longer exists then people may have no choice & may be either displaced or forced to migrate	Gap		Lack of legal provisions for resettlement & sovereign resettlement. Little policy dialogue about resettlement between countries or facilitated by relevant institutions

Figure 1: Environmental processes and migration, rapid- and slow-onset events (Renaud et al., 2010)
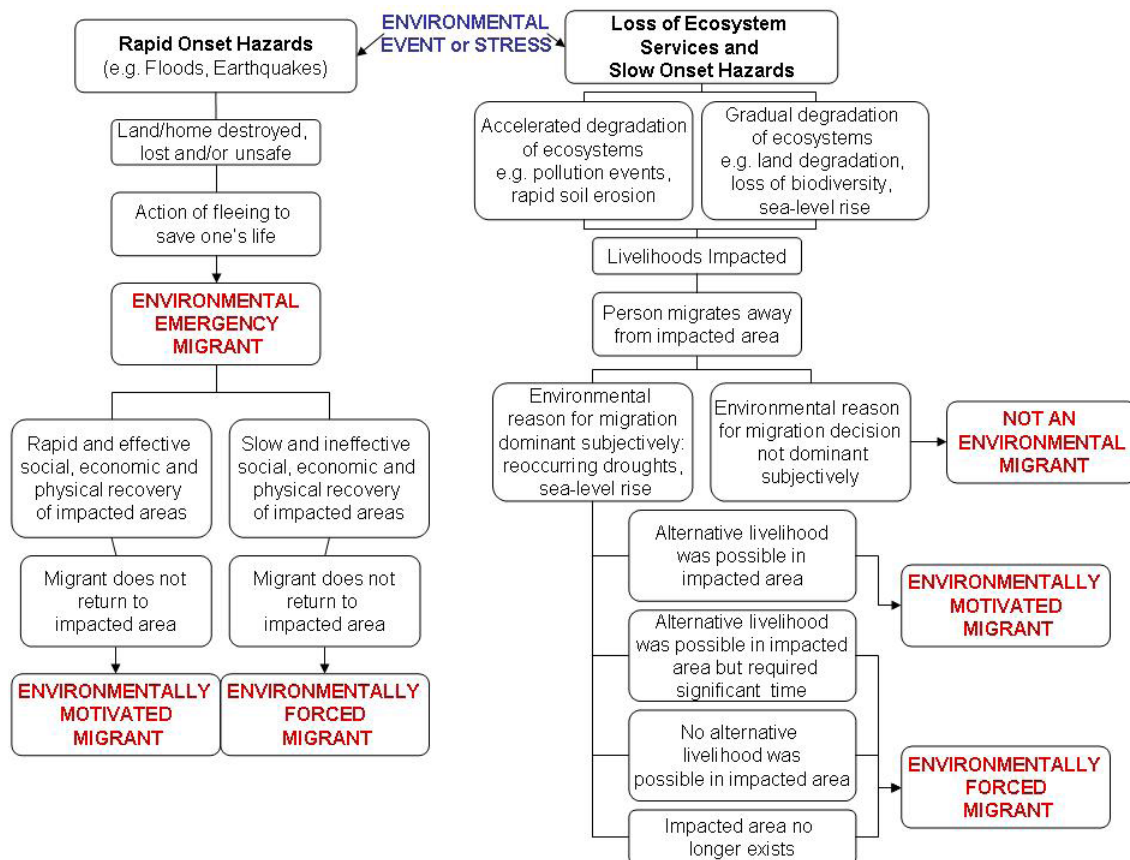
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List of papers

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

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.