

Assessing the Security Implications of Climate Change-related Migration

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Abstract

Researchers suggest that the implications of climate change include future changes in human migration patterns. Evidence from past migration events suggests that adverse climatic conditions or events of extreme magnitude, duration or frequency can indeed influence migration behavior. It is reasonable to expect future climate-driven migrations may occur with greater frequency, since many of the biophysical implications of climate change represent exacerbations of existing climatic conditions or events. Implications of climate-related migrations can be examined from the perspectives of households exposed to the effects, communities and government in the exposed area, and other states concerned with the implications of the migration response in exposed areas. Our work addresses how households make migration decisions, and how communities and states respond to migration pressures within their borders and from without.

Our research in the southwestern USA suggests that household migration decisions during periods of climatic stress are influenced by the household's access to economic, social and cultural capital. Some households have the option of migrating away from the exposed areas and choose not to do so, while others do. Still others lack this option altogether. Similarities among members of each of these groups and the differences between groups may be reflected in particular patterns of household capital. For example, migration to California from drought-stricken Oklahoma during the 1930s was not a random outpouring of impoverished farmers. Rather, migrant households typically possessed particular forms of social, cultural and economic capital.

This research suggests that household capital endowments and the effects that climatic conditions have on such endowments provide a basis for assessing household security and the potential adaptive responses, including migration, during times of climatic adversity. The security implications of climate-related migration for communities and states differ considerably between the exposed areas and migrant-receiving areas. Communities that marshal sufficient capital to assist residents in coping with adverse conditions may be able to forestall out-migration, and may attract in-migrants from less fortunate communities. At higher levels of government, migration may be viewed as a beneficial means of streaming populations into more durable patterns. At the same time, receiving areas may vigorously resist the inflow of migrants out of concern for the potential economic and social costs.

Where migrant streams spill across international boundaries, concerns about the presence of organized crime and terrorists within such streams existed prior to September 11, 2001, and have only been magnified since. Key sources of clandestine migration to North America and Europe include North Africa, the Middle East, South Asia and China. Not only are these regions home to groups or organizations that pose security threats to the receiving nations, but many areas within these regions are expected to experience significant adverse impacts from climate change in coming years. While members of such organizations typically represent a tiny proportion of the migrant stream, climatic events that increase the size of the overall migrant stream and/or the presence of such organizations within it are of considerable concern to security agencies in the receiving areas.

1. Introduction

In recent decades, researchers in a variety of disciplines have suggested that environmental change, degradation, changes in climatic conditions and changes in the frequency, spatial extent and intensity of extreme weather events may lead to political and civil instability in affected parts of the world (e.g. Homer-Dixon 1994, Edwards

1999, Barnett 2003). This in turn, it is suggested, may lead to breakdowns in security, conflicts and consequent flows of migrants away from affected areas (Hugo 1996, Myers 2002). Such ideas have been noticed by western security agencies, prompting region-specific studies on potential environmentally-driven flashpoints that may lurk ‘over-the-horizon’ (e.g. Rodal 1994, Strizzi & Stranks 1996, Gizewski 1997, George 1998, Szonyi 2000) and on the linkages between climate change, migration and security (McLeman & Smit, 2004).

This paper investigates particular aspects of such arguments from the point of view of the security of western states that are host to transnational communities of migrants. It pulls together previously unrelated scholarship on environmental change, security, migration and sustainable development with two particular objectives:

- to develop conceptual models for use in research into environmental security concerns
- to assess the idea that fostering sustainable development abroad is in the security interest of western nations

Discussion focuses on the security implications of environmental change for Canada, but the broader lessons likely apply to a range of other western nations as well.

2. Security concerns in the context of the Canadian state

State security in Canada is coordinated through the Canadian Security Intelligence Service, though particular activities may draw in a range of other government departments and agencies as well. Security operations in CSIS include three broad organizational categories: counter-intelligence, counter-proliferation and counter-terrorism (www.csis-scrs.gc.ca). For the purposes of this paper, it is counter-terrorism that is the security concern of most interest, though the proliferation of nuclear, biological and similar weapons may often go hand in hand with terrorist activities.

Canada’s security interests in this respect can be seen in three general contexts:

- preventing the occurrence of terrorist activities in Canada or being staged from Canada;
- preventing the participation of Canadian citizens and residents in the activities of terrorist organizations elsewhere in the world; and
- a general interest in preventing or resolving conflicts and other conditions or events that reduce human security and well-being throughout the world.

In these ways, Canada's security interests are similar to most nations governed by rule of law.

The question examined here is how environmental change and degradation in other parts of the world may affect these security interests and Canada's ability to respond to them. One way to begin doing so is through the understanding of transnational communities, of which Canada is host to many, and within some of which there exist populations where individual members present security concerns.

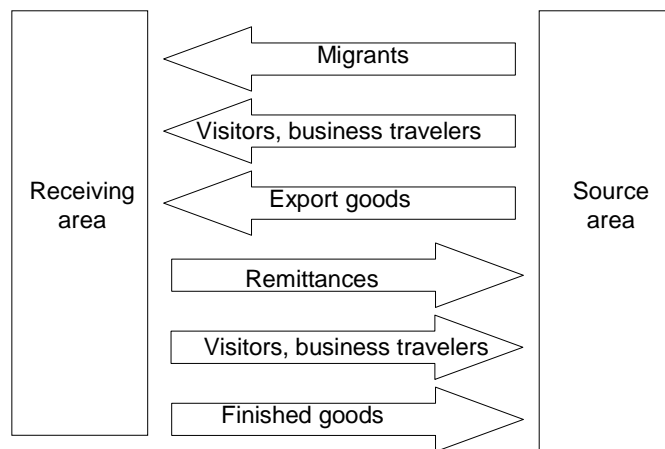
3. The nature of transnational communities

Transnational social spaces consist of circular flows of people, goods, and information between two countries (Faist 1998), typically emerging where people originating in one country migrate to another and do not fully assimilate with the population in the receiving nation. Canada, which has an official policy of multiculturalism that encourages migrants to maintain many of their social and economic linkages with their source regions, has any number of migrant communities occupying such transnational social spaces. Not all of these groups originate in areas that are of security interest, and security interests change over time, so places and populations that were once of security interest are now less so, and vice versa. Moreover, even where a transnational community originates in a region of security interest to Canada, the proportion of the community that actually participates in activities of a security concern is typically very small. It is therefore worthwhile considering in greater detail the nature of flows of people, goods and information in transnational communities so as to reveal where the security concerns reside. After doing so, the impacts of environmental change on these flows are more easily revealed, and the

location and nature of the linkages between environment and security become more apparent.

Figure 1 provides a simplified representation of the relationship between a migrant receiving area, such as Canada, and a source area of migrants. Its construction is based on our own past experience and research. Such relationships are often referred to in terms of “trans-national communities”, a term which captures the idea that many of the traditional attributes of communities – especially social and financial relationships between people – flow back and forth between source and receiving area, notwithstanding the intervening political boundaries. Figure 1 does not suggest the origins of a transnational community; theories of their origins can be found in Faist (1998) and (Massey 1990). In Figure 1 it is assumed that the receiving area is more economically developed than the source area; where this is not the case, the relationships in Figure 1 may not hold true.

Figure 1: Flows in transnational communities



The arrows in Figure 1 represent the flows between source and receiving area. The size of each flow in proportion to the others may vary from one community; in this figure they are made equal in size for simplicity. Typical flows from source to receiving area include most obviously people seeking to immigrate, and this group is often

accompanied by smaller but significant flows of temporary migrants, such as visitors for family or business purposes. Flows of export items produced in the source area also develop, some for sale specifically to expatriates, such as culturally specific foods, gifts, religious items, as well as other items for sale to residents of the receiving area generally. Return flows from the receiving area to source area also include people, typically visitors and business travelers, as well as exports of goods, typically finished goods not produced, readily available or affordable in the source area. There is also typically a flow of money in the form of remittances to the source area, the relative amounts varying from one cultural group to another.

As noted above, among the contexts in which Canadian security can be considered are the commission of terrorist acts in Canada and the support by Canadians for terrorist activities elsewhere. It is straightforward to identify where these activities may occur within the flows typical of a transnational community.

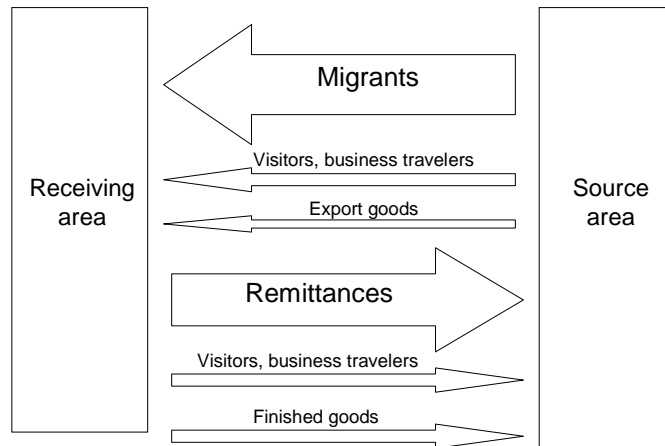
If the source area is one where individuals within that population are engaged in or facilitate acts of terrorism, a concern arises that such individuals may enter the flows of migrants and/or temporary entrants to the receiving area. At the same time, a concern arises that among the flows of remittances to the source area are funds destined for the hands of terrorist organizations. Much effort may consequently be directed by security agencies in the receiving area to identifying those members of the incoming migrant stream who pose security risks and to identifying organizations, groups and individuals that co-ordinate the transfer of funds to terrorist groups overseas, and indeed these are key activities of Canada's security services.

4. Effects of climate change, environmental change and degradation on flows in transnational communities

We now consider how environmental degradation or adverse changes in climatic and environmental conditions in the source area affect the flows within a transnational community. As shown in Figure 2, the size of each flow is expected to change, some increasing, some decreasing. Environmental changes may stimulate increased levels of migration out of the source region, from both people who had not previously traveled to

the receiving country and from people who had previously traveled for temporary purposes and now seek to remain in the receiving country indefinitely.

Figure 2: Effects of environmental change in source area on flows in transnational communities



At the same time, worsening environmental conditions in the source area may result in worsening economic and political conditions there, in turn resulting in less frequent travel of visitors and business travelers between the two areas. Similarly, the flow of goods between the two areas might result from worsening economic conditions. Remittances, however, may remain the same or actually increase as community members in the receiving area increase their financial support for relatives in the source area.

In other words, the two streams in which security concerns for the source area reside – in the flow of migrants from source to receiving area and in the flow of remittances from receiving area to source area – are the very ones most likely to expand in importance under adverse environmental conditions in the source area. An example of such relationships – in the transnational community of Tamil Sri Lankans living in Canada – follows in section 6 below.

5. The role of capital

The flows represented in Figures 1 and 2 can be seen in the context of flows of economic, social and human/cultural capital. Research into out-migration from rural Eastern Oklahoma to rural California during a period of harsh climatic conditions in the 1930s suggests that land tenure patterns, household access to economic, social and cultural capital, and demand for agricultural labour in California had a significant influence on migration patterns that emerged under such conditions (McLeman 2004a). During the period 1935-1941, approximately 300,000 people migrated out of the southern Great Plains states to California, one-third from the state of Oklahoma. A large proportion of Oklahoman migrants originated in the cotton and corn-producing counties in the eastern part of the state, that were struck by severe droughts in 1934 and 1936 and extreme thunderstorms in 1935, causing widespread crop failure.

The migration out of that region was neither wholesale nor random. Rather, particular patterns of household capital were observable, patterns which served to distinguish migrants from non-migrants (Table 1). Migrants tended to be young families with children, of limited economic means but not entirely destitute. They were skilled in growing and harvesting cotton and managing draft animals, skills that were much in demand in places like California's San Joaquin Valley during that period because of US government restrictions placed on Mexican migrants who traditionally performed such tasks. They were drawn primarily from the landless part of the population. Family connections to people who had migrated to California in the past assisted them in making the transition to life in California.

Table 1: Forms of capital common to migrant and non-migrant groups in rural Eastern Oklahoma, 1930s

Form of capital	Migrants to California	Wealthier non-migrants	Poorer non-migrants
Economic	<ul style="list-style-type: none"> - sell farm equipment to raise cash - vehicle ownership 	<ul style="list-style-type: none"> - farm ownership - income from government crop subsidies 	<ul style="list-style-type: none"> - landless - no money, income - no farm equipment
Social	<ul style="list-style-type: none"> - relatives in California willing to provide settlement support - receive information about employment in California through social networks - form tight-knit communities in California 	<ul style="list-style-type: none"> - strong local social networks in Oklahoma (e.g. church, business associations) - gain access to government infrastructure projects through local connections 	<ul style="list-style-type: none"> - lacking social networks, local or inter-regional - families often broken up
Cultural	<ul style="list-style-type: none"> - young, healthy families able to perform difficult work - skilled in growing cotton, managing draft animals - skills in demand in rural California 	<ul style="list-style-type: none"> - older, more established, transfer of land from one generation to next - increased significance of farm women in maintaining household well-being 	<ul style="list-style-type: none"> - subsistence livelihood - unskilled or skill not in demand locally because of recession - may be infirm, unable to work - may resort to squatting on unclaimed land, roadsides, riversides

Adapted from McLeman, 2004a

Those who did not leave the same region of Oklahoma consisted of those who owned farms, were able to take advantage of government crop-reduction programs and could draw upon local social networks for support. Also displaced from their homes but unable to leave Oklahoma were people who lacked the financial means to migrate, who had no extended family networks for support, or were unable to work. Squatter camps

developed along transportation routes, rivers and on the outskirts of urban centres where such people congregated.

While the 1930s and the socio-economic conditions that prevailed at that time may seem remote from today, that migration event and its patterns conformed remarkably well to vulnerability-based approaches used to investigate human sensitivity and migration in response to future climate change. They are also consistent with developments in migration scholarship, where it is recognized that access to capital in its various forms plays a key role in migration behaviour (Nee & Sanders 2001). Particularly relevant for the present research is that the rural population of that region was adapting not only to unfavourable climatic conditions, but also to a number of significant social and economic changes driven by global economic forces, technological developments and sudden shifts in government policies – all conditions to which many developing country populations today are attempting to adapt. As in 1930s Oklahoma, the dynamic of changing climatic and/or environmental conditions occurring in addition to ongoing socio-economic changes adds an additional destabilizing force is present in many parts of the developing world today. Consequently, the potential for migration as an adaptive response to adverse climatic changes may increase in some areas in the near future.

6. Breaking the environmental change-security linkage through sustainable development: the evidence from Hurricane Mitch

The outcomes shown in Figure 2 need not occur. Evidence from the aftermath of Hurricane Mitch shows that the practice of sustainable development in migrant source areas may reduce the impacts of adverse environmental conditions on exposed populations, and reduce the displacement of people and subsequent migration pressures that ensue.

Any number of definitions of sustainable development have emerged since the concept gained popularity with the publication of the 1987 report of the World Commission on Environment and Development (also known as the ‘Brundtland Report’ (WCED 1987)). Three fundamental elements nonetheless appear in most definitions (after McLeman 2004b):

- the integration of economic, social and environmental concerns in policy- and decision-making;
- international justice (often referred to as “intra-generational equity”);
- recognition and preservation of the rights of future generations to enjoy equal or better access to resources and opportunities as do we (often referred to as “inter-generational equity”)

It has been observed repeatedly in literature investigating the human impacts of environmental change, degradation and natural hazards that such impacts are rarely distributed equally across affected populations, but that particular groups and individuals invariably suffer greater hardships than others (e.g. (Hewitt 1983, Blaikie 1985, Blaikie & Brookfield 1987, Burton et al. 1993). Most often, it is those groups that occupy the most precarious socio-economic positions in an affected population that are most vulnerable to adverse environmental conditions or changes. The weakest members of a population – women, children, the elderly and infirm – are also seen to be particularly vulnerable. Commensurate with their economic marginality, vulnerable groups often occupy geographically marginal areas.

Migration out of areas affected by environmental degradation and adverse environmental changes is one possible response by vulnerable populations, but it is not a simple stimulus-response type of relationship. Within an affected population, different groups and individuals may have differing ranges of adaptive options, and migration out of the area may or may not be among those options. In East Africa, populations in areas where drought is a recurring problem, migration of young male community members to urban centres, where they seek wage employment, is part of the ongoing strategies by which rural populations cope (Ezra 2001). Similarly in West Africa, ongoing degradation of arable land in Burkina Faso appears to be a driver of migration patterns in certain agricultural populations (Henry et al. 2004). There is less empirical evidence from other parts of the globe to reveal the nature of the relationship between environmental change and migration.

With its emphases on equitable distributions of resources among and between generations, and its exhortation to make environmental considerations an ongoing part of public policy and decision-making, sustainable development would seem to offer a means of reducing the potential for environmental change-related migrations generally, or moderating those that do occur. It is also particularly consistent with the findings in section 5 above, which suggest that economic, social and cultural capital have particular influences on migration behaviour. More equitable distributions of such capital in migrant source areas and enhanced environmental stewardship may reduce migration pressures. More particularly for the case considered here, if fostered in areas where western nations have a state security interest, sustainable development may provide a means of reducing instability and conflict, along with the related migration pressures and flows of financial resources to groups that undermine security. This is not simply an academic or idealistic concept, as the evidence from Hurricane Mitch shows.

Hurricane Mitch struck Central America in October, 1998, with Honduras and Nicaragua experiencing the worst of the storm. In Honduras, over 5,600 people were killed, 35,000 homes destroyed and the economy devastated (Morris et al. 2002). Migration of Hondurans (legal or otherwise) to neighbouring countries and the US rose dramatically the following year, declining to lower levels in subsequent years, but at levels higher than before the hurricane. US immigration authorities are still managing the post-hurricane migration response, continuing the Temporary Protection Status it granted to 80,000 Hondurans in the US following the hurricane. In other words, the immigration management requirements for the US from this one storm have continued for years thereafter.

Honduras and Hondurans do not pose the types of security concerns described in section 2 above. However, the point of interest for this paper is research done by (Girof 2002) that demonstrates a clear link between the sustainability of land use in Honduras and the differential post-Mitch displacements of people that occurred. The groups within the population who were displaced in the greatest numbers from the direct impact of the storm were the poorest members, who because of inequitable land policies and lack of income were obliged to live on steep hillsides and on known floodplains. These groups were then obliged to seek shelter in crowded conditions at relief shelters, conditions

which facilitated outbreaks of water-borne diseases that ensued as a result of storm damage to drinking water supplies and sewage systems. Years of occupation and clearance of hillsides served to increase the devastation of the storm by exacerbating the occurrence of landslides and flooding.

7. Implications: Examples from South Asia

Rarely is a link made between international development assistance and the security of donor countries, and yet it should be. If we consider the case of South Asia, we find a region where Canada has a variety of state security-related interests. It is also a region where can be found ongoing problems of civil unrest and conflict, degradation of land resources on large scales, profoundly unequal distributions of resources within countries and a scarcity of water resources that it seems likely will only be exacerbated by climate change in coming years (Lal et al. 1998, Lal et al. 2001, Khan 2003).

Several countries in the region – India, Pakistan and Sri Lanka, in particular - have been for some time key sources of immigrants to Canada, and sizeable transnational communities have emerged of the type described above (see Table 1). Canada has a variety of self-interests in reducing regional conflicts and tensions in South Asia, including ensuring orderly flows of people in these transnational communities, reducing the flow of funds from Canada to violent groups in the region, and enhancing the safety of Canadians in the region. It seems clear that, to respond to these security-related self-interests, a linkage needs to be made to the fostering of sustainable development in the region through international development assistance.

For example, Pakistan's geographic proximity to Afghanistan and the consequently large refugee population it shelters, as well as the small but concerning number of radical fundamentalists within its own population reportedly linked to violent organizations, creates the potential for movements of individuals and funds of Canadian security concern within the broader flows of legitimate migrants, travelers and remittances. Unequal distributions of wealth and resources in Pakistan are considerable, and government is increasingly unable to provide basic services to large segments of its population (Hasan 2002). Agriculture remains a main livelihood for much of Pakistan's

population, and ongoing land degradation in the countryside and an increasingly strained water supply are conditions are expected to worsen as a result of climate change (Khan, 2003). Both Pakistan and Canada have an interest in reversing the trajectory on which Pakistan presently finds itself, and the fundamental elements of sustainable development clearly need to be put into practice in order to do so.

Table 2: Major source countries of immigrants to Canada, 2003
(South Asian nations in bold)

Country	No. of permanent resident immigrants
China	36,116
India	24,560
Pakistan	12,330
Philippines	11,978
Korea	7,086
United States of America	5,990
Iran	5,648
Romania	5,465
United Kingdom	5,194
Sri Lanka	4,442

Source: Citizenship and Immigration Canada statistics, 2003 (www.cic.gc.ca)

Afghanistan presents a different set of security concerns for Canada. The transnational community between the two countries is relatively small, and migration to Canada from Afghanistan is dwarfed in relative terms by migration from its neighbours. Canada is, however, an active participant in post-conflict peacekeeping in Afghanistan, exposing Canadians directly to the possibility of violence directed against outsiders. By definition, a country that produces large numbers of refugees, as has Afghanistan over the past several decades, is unsustainable (McLeman, 2004b). In a nation so devastated by conflict already, concerns about environmental degradation and change may seem frivolous but, as with other states in the region, agriculture remains a key livelihood for the bulk of Afghanistan's population. Such livelihoods are inherently and directly linked

to environmental conditions, and so attention to the fundamental elements of sustainable development would seem a worthwhile component of efforts at stabilizing and rebuilding this country.

In India, where agriculture remains the main livelihood for the majority of people, many agricultural areas are being confronted with falling groundwater tables and declining water quality, including the Punjab (Bathla 1999). This area has also been the source of conflict between Sikhs seeking an independent state of Khalistan and the Indian government. The single greatest act of terrorism committed in Canada, the bombing of an Air India flight in 1985, is believed to have been carried out by a small number of Sikh extremists residing in Canada, part of a large transnational community. At the time of this writing, a trial of two men believed to have perpetrated this act ended in the accused being found not guilty, and the government of Canada is assessing whether to hold an inquiry into the event and subsequent investigation. Terrorist activities related to this conflict have been at low ebb in recent years. That said, it seems reasonable to expect that future strains on the basic resources of land and water in the Punjab could result in a flare up in this conflict should they be left unmet.

The case of Sri Lanka provides an excellent example of the relationships shown in Figure 2 above. A large transnational community exists between Canada and Sri Lanka, primarily Sri Lankans of Tamil origin. Within the Tamil community in Canada there are organizations such as the Tamil Relief Organization (TRO) that actively raise funds for the Liberation Tigers of Tamil Eelam (LTTE), an organization that has actively waged a guerilla and terrorist war against the Sri Lankan government. This situation gained attention in the aftermath of the Boxing Day tsunami that hit particularly hard the primarily Tamil regions of eastern Sri Lanka (International Development Research Centre 2005). Disputes arose between the Sri Lankan government and LTTE over the access to and distribution of international funds intended to help devastated areas; at the time of writing, such disputes threaten to bring about the collapse of the Sri Lankan government (The Australian 2005). It also threatens the tenuous ceasefire currently in place between LTTE and government forces (USAID Office of Transition Initiatives 2005). The dynamics of this situation have yet to fully unfold, but the potential for renewed civil conflict, which would prevent recovery of those areas destroyed by the

tsunami and stimulate new flows of refugee migrants out of the country, remains high (Center for Security and Intelligence Studies 2005).

This very brief review of Canada's security interests in South Asia and the environmental linkages is far from comprehensive, and considerable empirical research needs to be done to identify those areas and/or populations where the linkages are greatest. We strongly suspect that in those areas where environmental conditions and security issues are most tightly linked, it will also be found that the key elements of sustainability are not being met.

8. Conclusions

It has been believed for some time now that environmental change and degradation can contribute to instability and conflict, although environmental factors rarely act in isolation from political, social and economic processes in creating such instability. Climate change in many parts of the world is likely to exacerbate these existing environmental processes. This article has shown that it is in the self-interest of western states like Canada to be actively engaged in international development assistance and the fostering of sustainable development abroad, not least as a means of addressing international security concerns that arise from this dynamic. The particular sources of such concerns can be traced through an understanding of the flows of resources and people that occur in transnational communities. These flows respond to changes in environmental conditions and conflict in the areas of origin of members of transnational communities. With its key elements of equity, long-term management of resources and mainstreaming environmental considerations into policy and decision-making, sustainable development offers the potential to mitigate flows of people and resources within transnational communities that give rise to security concerns. Such findings provide a basis for supporting further empirical research into the environmental implications of western state security.

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