Climate Change and Climate Refugee in Egypt: An Overview from Policy Perspectives

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Abstract

The discourse about the climate induced displacement has been sidelined by the fact that the existing international Agreements and/or Treaties do not recognize climate refugees. It is unlikely either that an immediate action will be undertaken to address this evolving issue. It is important to recognize that the international and national recognition of environmental migration is a burgeoning need - the reinforcement and adaptation of infrastructure in countries at risk, and the development of infrastructure to manage migrants once they move, both in local and urban areas, and in destination countries, in the case of international movement. Redefinition of refugees is important to immediately address this issue, and countries prone to climate change such as Egypt merit serious consideration.

Key words: Climate change, drought, Egypt, refugees, sea level rise

INTRODUCTION

> 'Environmental migrants are understood to be those individuals, communities and societies who choose, or are forced, to migrate as a result of damaging environmental and climatic factors' (Morton Andrew, Philippe Boncour and Frank Laczko, 2008).

The significance of the discourse about climate and climate refugee lies in the alarming fact that the world will witness 200 million climate refugees in the coming four decades (Myers, 2005; Hugo, 2008). Some other organizations fear that the number may go up to a billion. In October 2008, a summit was held organized by the United Nations University to specifically address the issue of human mobility caused and induced by environmental degradation (United Nations, 2008). This topic obviously is not a fresh one. This was, however, considered the first major concerted discussion that dealt with causes, policies and rights surrounding environmental displacements. The results of this summit attached considerable emphasis on this growing phenomenon that is causing human displacement on the global front. From a number of high-profile weather related disaster such as the Tsunami of 2004 and Fukushima Disaster in 2011, it has become clear that the world is facing an environmental shift. This shift is obviously adverse. International, national and multi-lateral organizations have been expressing serious concerns about this change and its attendant consequences (Hugo, 2008). However, the significance of the issue of displacement and migration in response to environmental changes, and the magnitude of the problem is still largely left unattended by policy makers, researchers and academics (Brown, 2007). Displacement is a challenge faced by the international community that represents states, international organizations, intergovernmental organization and international bodies governed by international law. Policy makers

grapple with the responsibility of source and destination countries to provide humane options for these transient populations (Brown, 2007).

Without defined and internationally agreed-upon mechanisms for managing migration of this population, human rights violations may go rife, and these populations continue to be viewed as a burden for societies they settle in (Black, 2001). This is no less the case for environmentally-forced or induced migrants in particular (Reuveny, 2007). However the situation is further complicated by their claim to vulnerability, and the ambiguous ethical responsibilities of the responsible states, should it be decided that its contribution to climate change had a causal factor in the conditions that forced these population mobility (Afifi and Warner, 2008). Hugo (2008) argues that the most environmental migration occurs intra-nationally. However, the counter argument is that intra-national and international migrants have never been segregated by causes. It might be true that the climate degradation may not create migrants immediately. Therefore, we are not aware if most of them are moving internally. Based on Hugo's claim, however, a question comes on how much can be done through international policy and what jurisdiction the international community has in imposing or ensuring the status and rights of these migrants.

If we look at the root causes of the grim climate changes, we may wonder about the emissions rate of CFC. Obviously, industrialized nations have the highest. There are some nations that emit CFC far higher amount than the Treaties allows. They are, therefore, more or less responsible for the dramatic degradation of the environment. This paper takes the position that climate change is occurring some of which can be attributed to the responsible states. In addition, although climate change, and much of the resultant migration, is a slow process, it is necessary, for the international community, in particular the responsible states, to set up policy systems to reduce and manage this form of human mobility, for security reasons as well as humanitarian causes (Brown, 2007; Hugo, 2008). Human mobility caused directly or indirectly by climate change and environmental degradation is referred to here as climate or environmental refuge.

This problem is no longer confined within one country or a region. It has rather become a global concern. Therefore, this has to be faced and managed with global effort. In the Middle East and North Africa (MENA), Morocco, Tunisia and Libya, for instance, are each losing over 1000 square kilometres of productive land a year to desertification. In Egypt, which is uniquely dependent upon irrigation, half of irrigated croplands suffer from salinization (Myers, 2005). Turkey has lost 160,000 square kilometres of farmlands to soil erosion (SAAW International, 2007). This statistics may not look that grave. However, the implications for the respective countries are really crucial.

This paper takes a particular look at Egypt, as a country in the Global South, which is in the intriguing position of being a potential source country, as well as current and future destination country for both migrants and refugees in Africa (Afifi, 2009). It has become increasingly clear that the 1951 definition of a refugee is inadequate for determining the protection rights of the multitude of vulnerable displaced peoples, given the complex migration pressures in the globally current circumstances (Hugo, 2008). In addition, current refugee and migration policy, including international programs managed by International Organization for Migration (IOM) and United Nations High Commissioner for Refugees (UNHCR), aimed at managing the flow of refugees and migrants are

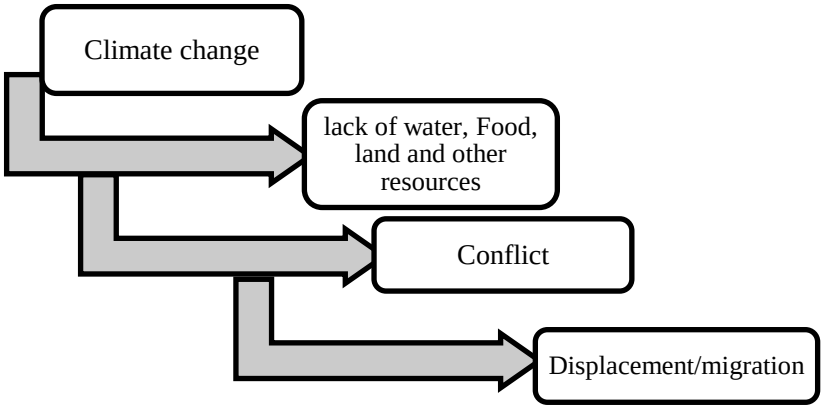
inadequate for the volume, and ineffective (Myers, 2005), creating populations of indigent dependents rather than productive members of society.

CLIMATE CHANGE, DISPLACEMENT CORRELATES

The inextricable link between climate change and displacement has been recognized by policy makers, scientist, researchers and academics (Black et al., 2008). However, actions about solving this grave problem are not loudly heard. The major dilemma facing advocates for the recognition of climate migration is the lack of an appropriate terminology and definition. Currently, environmental migrants are not internationally recognized. Therefore, policies that exist to protect refugees do not entail to protect the causes of the climate refugees (Myers, 2002; Ramolgan, 1996). El-Hinnawi's (1985) call for the recognition of climate refugees has sparked a debate. El-Hinnawi represented UNEP, and the use of a more 'urgent' term (i.e. refugee) would have been expedient in terms of securing potential funding for his agency (Black, 2001). This type of political motivation has continued to serve as the driving force in the debates as to whether individuals or families who move due to environmental pressures are 'refugees' or 'migrants' and whether they are environmentally 'motivated' or 'forced' (Renaud et al., 2007). Each of these terms is loaded and carries significance in terms of what type of aid this population is entitled to.

Currently, the only term or definition to be put forth by a UN body is that of El-Hannawi, despite the fact that there is clear disagreement among UN agencies, as evidenced by the fact that UNHCR refuses to recognize environmental migrants as 'refugees' under its mandate (Myers, 2002). However, there is of course debate about the scope of El-Hannawi's definition. Some find it too broad and there have been numerous calls to narrow and specify it (Renaud et al., 2007). Even the preliminary findings of the European Union's extensive EACH-FOR project did not produce consistent terms to refer to environmental migrants (Environmental Change and Forced Migration Scenarios, 2008).

Figure 1: Showing Climate change-displacement link



Source: by the author, 2012

Bates (2002) presented three categories of disruptions that may cause environmental displacement: disasters, expropriations and deterioration. The first two categories are acute and can be either anthropogenic or natural events; individuals who are forced to migrate due to these events which Bates refers to as environmental refugees (Bates, 2002), or in the case of development projects, expropriation refugees. The third category of environmental disruption is the most ambiguous, occurring progressively by either natural or anthropogenic means, and often affects the population indirectly. This type of environmental migration also follows a pattern similar to economic migration, characterized by 'dispatch migration,' where individual members of households are sent out initially to take advantage of possible economic advantages elsewhere, and later followed by their family, if greater opportunity comes up there (Afifi, 2009).

Expropriation refugees are usually provided for by the state, as a condition of the development project that displaces them (Bates, 2002). However, environmental emigrants are generally treated similarly to economic migrants, and thus are subject to similar forms of exploitation. Given the gradual, and often localized, progression of this type of environmental degradation, usually a result of desertification, salinization of agricultural land, or sea level rise and encroachment - this type of migration generally occurs within a country or region, leaving individuals internally displaced, and therefore reducing international jurisdiction (Bates, 2002). In addition, the lack of intensity of this type of movement, unlike migration spurred by the first two categories, makes it seem less urgent, both to policy makers and to the public.

I trust the debate about climate change is anthropogenic or nature and will continue. The reality is the predicament in determining whether migration is environmentally sourced is resolving the degree to which climate change or environmental degradation causes population's displacement. According to Renaud, Bogardi, Dun, and Warner (2007), migration decisions are not made based on a single reason: commonly a number of factors play into a decision. This indicates the complexity of such a decision, and the difficulty of leaving one's home (Ullah, 2010). The international debate has focused on whether this move is made out of 'choice' or 'necessity' (Hugo, 2008; Renaud et al., 2007); whether environmental degradation spurs voluntary or forced migration. This leads to some questions about the demarcation line between voluntary and forced. Who determines at which point an individual or family can no longer maintain a secure livelihood? Must they have exhausted their resources completely, arriving at a new location utterly destitute and completely dependent on an administrative body to provide for them?

It must be recognized that, at a very basic level, environmental emigration is integrally intertwined with economic migration, which is the root of the difficulty in distinguishing appropriate policies for the two (Adamo, 2003; Henry, 2006). All people who are threatened by environmental hazards do not move out. Some stay back as they think they are resilient enough. Resilience is not all about psychological strength; it is also about economic strength particularly, given the evidence that there has been a high contribution to climate change and environmental degradation by the responsible states (Hugo, 2008; Renaud et al., 2007). Ethical arguments come into play surrounding the recognition and protection of this form of migrant. At some point the responsible states have to come to terms with the devastation that their economic policies—notably neoliberalism (Marfleet, 2009)—have wreaked on much of the Global South. Therefore, an element of the debate will be the extent of ethically responsible societies.

Like mentioned above, one of the major distinguishing factors of the majority of environmental migrants, currently, is that they move, most commonly, within their country of residence. Since the degradation of land affects agriculturalists significantly more than any other employment sector, migration flows most frequently run from rural to urban centers, in search of other livelihood means. Except Tsunami 2004 and Fukuhshima disaster in 2011, the impact in most cases is slow and the mobility is slow as well. This means step migration is also constituted by climate migrants along with economic ones. Once they get to urban centers, they face a number of challenges including overcrowding, disease, discrimination, and a lack of the necessary skill set to gain employment suitable for their skills (Afifi, 2009; Hugo, 2008). This renders them a burden on the society, which breeds resentment and frustration in the local population, particularly in situations where there are low or dwindling resources to begin with (Reuveny, 2005). Most developing countries do not have an infrastructure in place to help integrate migrants, and many do not have the resources to initiate such a project.

Reuveny (2005) argues that there are two possible reactions to devastating climate change: either to develop ways to adapt and defend against it, or to vacate the area in favor of a more hospitable environment. He goes on to state that the developed countries are more likely to have the resources and the technological capabilities to adapt and defend against potential devastation by climate change, while the under-developed countries of the Global South are more likely to resort to migration away from devastated areas. This fact is notable when one takes into account that studies have indicated that the primarily developing countries of the Global South (Africa, Asia and South America) are experiencing higher degrees of environmental degradation than the primarily developed countries (Reuveny, 2005).

The economy of the most countries of the Global South is dependent on agriculture and environmentally-based livelihoods (Renaud et al., 2007). This dependency has put them into more vulnerable situation because their livelihoods are contingent on the whims of nature. Since this trend appears to be happening across the Global South (Bogardi, 2007) it is comprehensible that, although, visibly at least, currently most environmental migration occurs within countries, eventually, should this trend continue, the pressure may go simply beyond our imagination (Environmental Change and Forced Migration Scenarios, 2008). This implies that problems related to environmental degradation could not be overlooked.

This means it is in the best interest of the developed states to intervene early in the process with directed aid and infrastructure support programs. This is also the most prudent option in psychosocial terms because, being mindful of the distress caused by the disintegration of communities and the general break-up and loss of social networks that results from displacement (Baron, Jensen and De Jong, 2002), migrants are usually in positions of greater vulnerability, and in need of greater aid investment after they have moved.

EGYPT AND CLIMATE CHANGE

The persistent climate change signals severe environmental devastation in the world. Egypt is no exception. The vast majority of the Egyptians lives on the Nile Delta and the rest of the country remain almost abandoned (Sterman, 2009; Ullah, 2011). The geographical location of Egypt has placed in a position to face several environmental threats. Droughts and rise in sea level are the main causes among others. The Nile

Delta is already subsiding at a rate of 3-5 mm per year. Only a 0.25-meter rise in sea level would devastate most cities that keep Egypt's economy vibrant (Agrawala et al., 2004). A rise of 0.5 meters would place 67% of the population, 65.9% of the industrial sector, and 75.9% of the service sector, below sea level. Thirty percent of the city's area would be destroyed, 1.5 million people would have to be evacuated, and over 195,000 jobs would be lost (Agrawala et al., 2004).

Tourism is one of the principal sectors that generate major foreign currency reserve. Climate change is predicted to harm this sector through SLR. About 20% of Egypt's foreign currency earnings come from tourism and 12.6% of the workforce depends upon this industry (Yeranian, 2009). Water crisis already begins to surface in the region. The Nile waters originate outside Egypt, flowing through nine countries to the south - Kenya, Burundi, Uganda, Rwanda, Zaire, Tanzania, Ethiopia, Eretria, and Sudan. Egypt and Sudan currently claim the vast majority of the Nile's water. Ethiopia which already faces severe water crisis is demanding more water from the Nile than the Nile Basin Treaty of 1959 allows for. As the Nile's waters dwindle, the survival of communities in Ethiopia and other states currently disputing water rights with Egypt will also be placed in jeopardy. Climate change could exacerbate the food security issues that Egypt already faces. The Climate Institute and others warned about Egypt's vulnerability to drops in Nile flow, loss of arable land, and changes in Egypt's trade balance for critical crops.

It is important to provide some information on the country profile. Egypt is an interesting case due to its status as a signatory to the 1951 and 1967 conventions on refugees, as well as the 1969 OAU Agreement, its interest to the international community as a gateway to Europe, and its status as a country itself at risk of major devastation due to environmental change (Jäger and Frühmann, 2009).

Strategically located in the Middle East and North Africa (MENA), Egypt is a party to a number of international Treaties and Agreements as well as a number of environmental treaties, including the Kyoto Protocol. Egypt is located in northern Africa, bordering the Mediterranean Sea between Libya and Gaza Strip. To the south it shares a border with Sudan. The country has a total area of 1,001,450 sq km, with 3,500 km of coastline facing the Mediterranean in the north and the Red Sea in the east. The dominant feature of the northern coastal zone is the low-lying delta of the River Nile, with its large cities, industry, flourishing agriculture and tourism (EEAA[1], 1999). The agricultural area represents 3.5% of the Egyptian territory (1.0 million km2 leaving 96.5% as arid desert lands (Abdel-Dayem, 1987). Egypt's Climate is semi-desert, characterized by hot dry summers, moderate winters and rare rainfall. The Climate in Egypt has been changing in phase with global change, but with lower rates of variation. There is a downward trend in maximum temperature over the delta, over the northern part of Upper Egypt and over the extreme south of Upper Egypt (EEAA, 1999).

The growth of the Egyptian population has increased exponentially particularly in the last few decades, making it one of the most populated counties in the world. By mid-1990, the Egyptian population reached around 56 million; now in mid-2010 the Egyptian population is estimated to be 80 million. The urban population was recorded at 43% in 2008, with an estimated annual growth rate of 1.8%, indicating urban migration (Afifi, 2009). To date, farmers do not pay for water use for irrigation, which is potentially problematic since this means that they have no motive to adjust irrigation methods, and

[1] Egyptian Environmental Affairs Agency

flood irrigation is still widely used, although it has proven wasteful and highly damaging, contributing to increased soil salinity. Currently the two major environmental stressors facing Egypt are desertification and water shortages, compounded by saline intrusion in regions. There are recorded instances in both the Western and Eastern Deserts where sand dunes, caused by desertification and wind erosion, have eradicated villages and oases; however no systematic research has been done to track the migration of the former inhabitants of these locales (Afifi, 2009).

A rise of 0.5m in the sea level is expected in the coming four or five decades. As a result flood will occur in the Nile Delta and at least 1,800 square kilometers of agricultural land, including the metropolises of Alexandria, Rosetta and Port Said which will submerge, causing several billion in damages, the loss of over 70,000 jobs, and displacing 1.8 million people (Afifi, 2009). The Nile delta is the most significant agricultural region in the country; therefore the chance of its submersion would mean a true disaster for the country. Aside from surface intrusion, there is a risk of salinization of the aquifers, rendering groundwater unusable for agricultural use or human consumption.

Afifi (2009) seems to be surprised at the silence about this issue from policy makers, low level of awareness among general population and no concerns among academics. As with environmental emigration in general, currently and for the near future environmental pressures will likely only cause migration within the country, either from rural to urban environments or from degraded rural environments to those that can still sustain agricultural growth. Eventually, however, as the pressures grow and a higher number of people are displaced, it is likely that more individuals will be willing to take the risk to cross to Europe in search of a secure, and stable lifestyle.

Environmental Change and Forced Migration Scenarios (EACH-FOR) -- a research project – has been orchestrated by the European Union to determine likely source countries for migration to Europe. The project has been conducting research in a number of countries, including Egypt. They found that should the predicted environmental changes in Egypt occur, the increase in internally displaced individuals flocking to Cairo could be overwhelming for the country's economy and social welfare (Afifi, 2009).

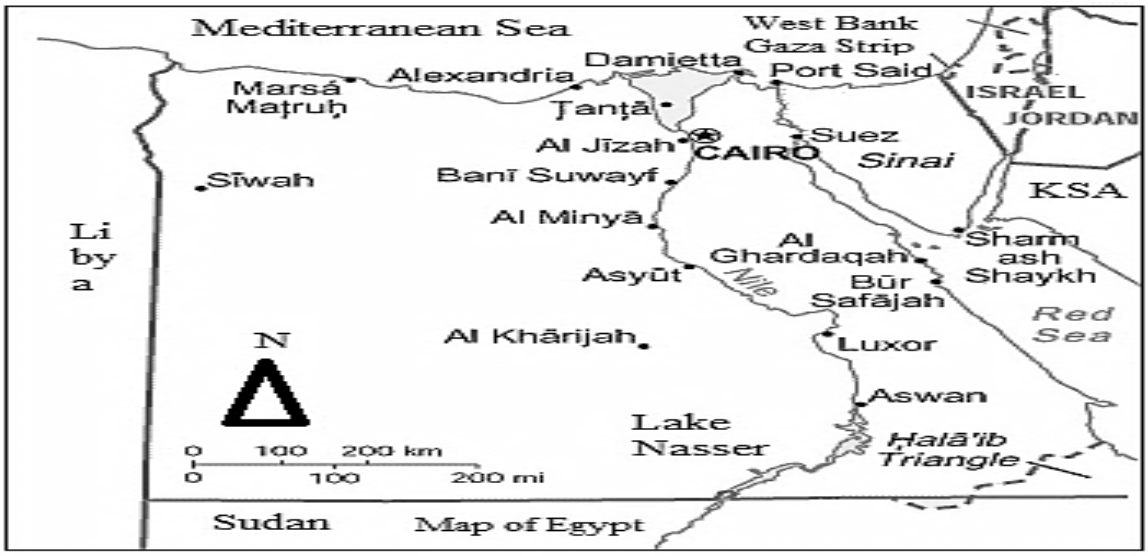
In addition to managing its own population, under the growing threat of environmental crisis, Egypt has historically been a destination country for traditional refugees and economic migrants alike, mostly from bordering countries and East Africa (Bilsborrow, 1992). Egypt already hosts refugees from at least 35 countries especially from the African countries. The number of refugees in Egypt reached 4 million including more than 26,000 from Sudan, among them about tens of thousands from Darfur and the rest from east and south Sudan, in addition to the Sudanese working in Egypt or those who have family commitments. There are also unknown numbers of refugees from Somalia (ESIS[2], 2012). Both East Africa and Sub-Saharan Africa are regions identified as being most at risk of environmental degradation in the African continent (Myers, 2002).

Given the established migration routes from these areas to Egypt, it is quite predictable that many of these people may end up crossing the border, should the situation continue to be untenable in their own regions. This suggests that as pressures grow in East and Sub-Saharan Africa, there may be an increased influx of environmental emigrants into Egypt, increasing the burden on the country's resources and population. Most of these

[2] Egypt State Information Service

international emigrants are likely to end up in an urban setting. This implies that Egypt will have to be prepared for its own rural migrant people to come in and besides those people from neighboring countries.

Figure 1: Map of Egypt showing major financial hubs



Source: Map created by the author from a layout.

As emphasized by several researchers (Ramlogan, 1996; Reuveny, 2005), Egypt has a high likelihood of conflict resulting from a severe shortage of resources combined with the influx of an ethnically differentiated population. This indicates that, unless there are clear and extensive directives taken, backed by international funding, Egypt could be facing a humanitarian crisis in combination with major security problems within a few decades (Hugo, 2008). Given Egypt's proximity to Europe, and the current flow of irregular migrants across the Mediterranean, it is extremely likely that these issues will not be confined within the country, but will be pushed over into neighboring countries and the European Union (Environmental Change and Forced Migration Scenarios, 2008). The inevitable problem is that many will go through illegal channels to leave.

Though the policy makers kept mum about this threat, recently the Ministry of Environment of Egypt warns about the likely millions who could be forced to migrate as climate change makes their livelihoods untenable. Egypt's coastal zone, home to more than 40 per cent of the population, will be hit hardest. As the sea-level rises, flooding and salt-water intrusion is expected to 'lead people to abandon land and homes, which could trigger social unrest' (Sawahel, 2005).

Internal migration is generally seen as economic migration. Since there is no technique to segregate migrants by causes, environmental migration has always been subsumed in the economic migrants. For example, in South Asia, river erosion constitutes largely the rural urban migration pattern. However, this has never been termed as environmental migration. Likewise, internal migration in Egypt is characterized by the migration trend from South to North; from South and North to the Canal Zone; from Egypt's hinterland to Cairo and Alexandria, and from Egypt's centre to its peripheries

(Zohry, 2005; Adams 1986; Aldakhil, 1999; El-Boraey, 1986; Ibrahim, 1986; Nassef, 1985). 'South' refers to the governorates of Middle and Upper Egypt includes Fayoum, Menia, Beni-Sueif, Assiut, Souhag, Qena, Luxor, and Aswan. These governorates represent a narrow strip of green land on both sides of the Nile. Cairo's net gain from the South averages about 40% of its total in-migrants. The Delta governorates have contributed the balance of 60% during the twentieth century (Zohry, 2005). Most of this hinterland contribution to Cairo's population has come from Menoufia, Souhag, Assiut, Gharbia, Daquhlyya, Qualyoubyya and Qena (Aldakhil, 1999; Nassef, 1985). This means that the multi-directional internal migration is not just about economic migration. If we take a look at the following Egyptian map, we can clearly understand the spread of population across the country. The numbers representing governorates of Egypt Governorates do not seem to be divided based on landmass but rather on the population. Ninety percent of the total land is occupied by only 5% of the population.

RECOMMENDED POLICY OPTIONS

The Intergovernmental Panel on Climate Change (IPCC) in the nineties argued that the greatest single impact of climate change could be on human migration (Brown, 2008). There is a consensus among researchers that research, awareness-building, legislation change, empowering humanitarian aid, and policy provisions are primary steps to manage consequences of climate change. Reuveny (2005) proposes a number of techniques that are more applicable in destination countries than in origins. However, this may further instigate migration due to opportunism. In contrast, Myers' (2005) policy suggestions are strongly focused on source country techniques and preventive policies aimed at stemming the need for migration, which are certainly necessary, but ignore the fact that some migration has and will continue to occur. In combination, these could balance the development of local infrastructure to defend against environmental change, and to develop opportunities, support and resources in its inevitability, as well as provide for those who will inescapably be forced to leave their homes for another destination. Maintaining an international overseeing body, which coordinates the appropriation and use of funding from United Nations Development Program (UNDP), IOM and national governments, is a clear necessity.

The need for a definition is a crucial step in the conceptualization of environmental migration, and the development of policy responses to address these flows. 'Terms and concepts such as environmental migration, climate change-induced migration, ecological or environmental refugees, climate change migrants and environmentally-induced forced migrants are found scattered throughout the literature' (Dun and François, 2008). Myers' (1997) definition of environmental refugee, among several others (Jacobsen, 1988) includes the mention that individuals not only have to have left their homelands, permanently or semi-permanently, but that they are unlikely to return. Each local intervention must start with assessment to evaluate whether the environmentally degraded land could be rehabilitated and migrants resettled.

This assessment should be on an international level of execution and auditing in order to have a significant degree of transparency. However, if this is not a viable option, the next step would be to instigate a system to track and manage migration flows within the region, and develop infrastructure to support permanent refuge in other regions of the country, or, as a last resort, internationally. In order to do this, the local government and supporting agencies must evaluate the coping capacity of the community, and the extent of the assistance already available at the local or national level as compared to the

need. A focused program design should follow to fill in the gaps, ideally before the crisis period, and in such a way as to encourage those who have already migrated to return and re-integrate into the community, perhaps in a new role.

Skill building and education for people at risk of emigration due to environmental degradation and loss of a secure and humane lifestyle could be an important step of any sustainable intervention. This skill building should encompass education about the environmental threat and ways to combat or decelerate it. If necessary, this may involve re-training agriculturalists in new methods of agriculture or even in new vocations entirely. An example could be re-training Egyptian farmers in areas close to the Western Desert, where desertification and wind erosion are causing sand dune encroachment on agricultural land, as wind farm technicians, able to do maintenance on windmills that generate electricity for export. These programs could be coordinated with skill building programs initiated in urban areas that house a high proportion of environmental emigrants, offering an opportunity for them to re-train in vocations now desirable in their region of origin, and encouraging them to repatriate. An additional aspect of community education should be focused on developing social support and strengthening individual coping skills to deal with the increased stress of lifestyle shift (Baron, Jensen and De Jong, 2002).

Having a well-developed and properly administered infrastructure that distributes resources and records and manages the flows of settlement, either within the community of origin, emphasizing 'adaptation in place' (Reuveny, 2005), or ensuring that newly settled migrant communities are able to integrate in a productive manner, thereby preventing them from becoming a drain on social programs, is a key element of a sustainable solution to environmental migration. These two elements of infrastructure development, adaptation in place and integration at destination, need to be maintained in balance: One of the arguments resisting the development of infrastructure to provide services for migrants is that it creates a pull force and, thereby, increase the flow of migrants (Reuveny, 2005).

In situations of international migration, this results in a nation spending a high proportion of its budget for social services providing for non-nationals which, as exemplified by the case of Egypt, where the country is having difficulty providing a humane standard of living for it national population, is highly problematic. However, if development occurs dualistically, initiating with skill building and infrastructure development in source regions, including providing services such as emergency food distribution, followed by the development of services strategically in destination regions, it may allow an agency to direct the flow into areas that need development, and which can retrain migrants by providing work and a secure standard of living conditions.

There is growing debate over whether climate change-affected populations are a 'new' group in need of protection and if existing legal frameworks are sufficient to provide for their protection. Within the humanitarian and risk reduction communities, however, these same populations have generally been seen as falling within existing, and expanding, caseloads (Kirsch-Wood, Jacob and Linde, 2008). A normative framework for people displaced by the effects of climate change inside their own country is better developed than that for people displaced outside their country (Koser, 2008). One debate concerns the definition of internally displaced persons, a descriptive rather than legal definition provided in the Guiding Principles. The proposed interventions above, although crucial for suspending increasing environmental emigration, are likely to be untenable for most

developing countries to implement independently. This means that it would fall, at least in part, under the responsibility of international community to reallocate aid in such a way as to support these initiatives.

Reuveny (2005) argues that the states have a moral responsibility, as well as a security incentive, to help bear the burden of protection against environmental degradation, both due to its part in contributing to climate change and detrimental economic policies, and in order to stem the flow of environmental emigrants before they begin attempting to cross international borders. Indeed, the analysis findings for EACH-FOR's Egypt scenario (Jäger and Frühmann, 2009) determined that, in the case that policy changes are implemented prior to a security crisis, Egypt would still face pressures of population growth and unavoidable climate change. However, these stresses would be manageable, particularly with support from international bodies. However, should policy changes follow the security crisis; the model found that there would likely be large migration flows towards Europe (Jäger and Frühmann, 2009). Ultimately, preventative measures, although they might not be popular due to their lack of immediacy, will prove significantly less costly, in economic and non-economic terms, than emergency measures after the fact.

Countries that are responsible must recognize and take responsibility for their role in disasters and move to ease the burden that currently sits with countries of first asylum, most usually in the Global South (Afifi and Warner, 2008). If they do not, they will not only be acting unethically, but will lose out on the possible economic benefits which countries and governments can obtain through international projects and alliances among both sending and receiving states of productive, regulated migratory workers.

This is particularly the case, currently, with environmental migration. There is great reluctance, internationally, to recognize environmental migrants as in need, or deserving of services (Brown, 2007). This is due in part to the fact that currently most environmental migration occurs within a nation, resulting in internally displaced persons, and limiting international jurisdiction over policy and intervention for this population (Dun and Femenne, 2008). In addition, many causes of migration tend to be interrelated, conflating economic and environmental migration, both of which may spring from a lack of resources due to climate change or an unstable or inefficacious government spurring migration from a rural area to an urban one, perhaps even instigating conflict between ethnic groups as in the creation of the 1951 refugees (Westing, 1992; Reuveny, 2005). Debates around the definition are like that those 'displaced as a result of environmental or climate change are refugees and advocate for the expansion of the definition of a refugee in the 1951 Refugee Convention in order to include them; others call for the adoption of new instruments to provide them with protection similar to that provided for refugees'. Some others believe that any notion of the existence of 'environmental refugees' and their need for refugee-like protection is at best 'exaggerated and at worst politically motivated and dangerous' (Stavropoulou, 2008).

It is the high time to broaden the definition of refugee. The existing definition which came from the 1951 Convention does not officially recognize environmental refugees. This puts humanitarian organizations often times into a dilemma when it comes to extension of assistance. Whether or not environmental emigrants can be distinguished from economic migrants is significantly less of an issue than the fact that these mass movements of people from regions of relative deprivation to regions with more resources

are occurring, and they are getting larger annually, causing strain on national and international governing systems.

Undoubtedly, water is at the heart of the climate change debate, for instance, sea temperature and sea-level rise, increased frequency and intensity of precipitation and flooding, more severe heat-waves and droughts, and increased intensity of tropical cyclones (Cronin, Dinesh and Paul, 2008). Human beings are historically nomadic, moving from areas of exhausted resources to new grounds, however, we are also historically adaptable, and thus it is imperative as we face increasing threat from climate change, that the international community recognize the trends in migration and implement a balance between retentive infrastructure and resettlement infrastructure in regions most affected by migration. Myers (2005) points out that these emigrants are usually from impoverished backgrounds, and therefore have no constituency and lack political leverage. This leaves it up to agencies and researchers to act as advocates, for, ultimately, aren't all migrants forced? Who wants to leave their home, relatives and community in order to live in inhumane conditions?

CONCLUSION

Preparing for the health implications of climate change-induced migration requires a mapping of the epidemiological profile of the areas that may become 'sending' areas and of those that could become 'receiving' ones (Carballo, Chelsea and Karen, 2008). Morton and colleagues emphasized that credible, evidence-based forecasts are needed to raise awareness, analyze impacts and direct corrective action but work has yet to start on targeted research to develop valid estimates of potential migration and to correlate them with climate models and predictions (Morton, Philippe and Laczko, 2008). Countries such as Kiribati and Tuvalu that are seriously considering to be relocated due to sea level rise could be the best reminders for us today to really be aware of the dangers of climate change.

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