www.eprawisdom.com e-ISSN : 2347 - 9671, p- ISSN : 2349 - 0187
EPRA International Journal of Economic and Business Review Vol - 4, Issue- 7, July 2016
Inno Space (SJIF) Impact Factor : 5.509(Morocco) ISI Impact Factor : 1.259 (Dubai, UAE)

CLIMATE CHANGE AND POPULATION DISPLACEMENT

P. Arokiasamy[1]
[1]Assistant Professor of Economics, Government Arts College, C.Mutlur, Chidambaram Taluk, Tamil Nadu, India.
R. Gopalakrishnan[2]
[2]Assistant Professor of Economics, Government Arts College, C.Mutlur, Chidambaram Taluk, Tamil Nadu, India.

ABSTRACT

Environmentally induced population displacement is a hot topic. Concerns about the consequences of climate change for human populations, the recognition that migration may be one of the most viable adaptation strategies, and the view that such population movements would present security challenges fuel this increasing interest. The process of climate change – and the natural disasters and conflicts it engenders – will add to the scale and complexity of human mobility and displacement. While climate change has been the subject of intense debate and speculation within the scientific community, insufficient attention has been given to its humanitarian consequences. Just as the causes of climate change are being analyzed and their likely effects assessed, it is equally imperative to anticipate displacement scenarios and improve the quality and readiness of our response. This paper examines the population displacement scenario consequent upon climate change. It outlines the hotspots of displacement and impact of climate change on migration. Further impact of drought, storms and floods on human displacement has been pointed out. This paper concludes with some policy measures to prevent the negative impact of climate change on human displacement.

KEY WORDS: *Population Displacement, Climate change, Migration.*

INTRODUCTION

It is well known fact that climate change has effects here and now. In 2007, the Fourth Assessment Report of the IPCC authoritatively established that human-induced climate change is accelerating and already has severe impacts on the environment and human lives. A significant impact of climate change is the increase in the frequency and severity of certain hazards. Hazards combined with vulnerability can result in disasters. It could be noted that climate change can influence both in terms of frequency and severity. These include the meteorological for example storm, the hydrological for example flood, and the climatological for example drought.

CLIMATE CHANGE, DISASTERS AND DISPLACEMENT

There and some relation between climate change, disasters and displacement, the existence of a clear link between the phenomena is increasingly recognised. Voluntary migration can be a form of coping or adaptation, but climate change and disasters also contribute to forced displacement as a survival strategy.

The current projections for the number of people who will be displaced in the context of climate change vary greatly. For example, the last IPCC report estimates that 150 million people may be displaced by 2050, and the Stern Review of the Economics of Climate Change cites estimates of 200 million displaced by 2050. These estimates are generally accepted to be subject to high degrees of uncertainty, primarily because there is no baseline information on current levels of disaster related displacement. To address the need for basic answers to inform policy, advocacy and operations, an expert group was established in 2008 under the humanitarian forum Inter- Agency Standing Committee. A typology based on the work of the Representative to the UN Secretary General on the Human Rights of Internally Displaced Persons, was further developed to clarify how people can be displaced in the context of climate change and their protection status.

DISPLACEMENT AND MIGRATION

Climate change causes displacement of people in several ways, the most obvious—and dramatic—being through the increased number and severity of weather-related disasters which destroy homes and habitats causing people to seek shelter or livelihoods elsewhere. Slow onset phenomena, including effects of climate change such as desertification and rising sea levels gradually erode livelihoods and force communities to abandon traditional homelands for more accommodating environments. This is currently happening in areas of Africa's Sahel, the semi-arid belt that spans the continent just below its northern deserts. Deteriorating environments triggered by climate change can also lead to increased conflict over resources which in turn can displace people (Keim ME 2008).

Extreme environmental events are increasingly recognized as a key driver of migration across the world. According to the Internal Displacement Monitoring Centre, more than 42 million people were displaced in Asia and the Pacific during 2010 and 2011, more than twice the population of Sri Lanka. This figure includes those displaced by storms, floods, and heat and cold waves. Still others were displaced drought and sea-level rise. Most of those compelled to leave their homes eventually returned when conditions improved, but an undetermined number became migrants, usually within their country, but also across national borders.

Asia and the Pacific is the global area most prone to natural disasters, both in terms of the absolute number of disasters and of populations affected. It is highly exposed to climate impacts, and is home to highly vulnerable population groups, who are disproportionately poor and marginalized. A recent Asian Development Bank report highlights "environmental hot spots" that are particular risk of flooding, cyclones, typhoons, and water stress (Luber G, 2008).

To reduce migration compelled by worsening environmental conditions, and to strengthen resilience of at-risk communities, governments should adopt polices and commit financing to social protection, livelihoods development, basic urban infrastructure development, and disaster risk management. Though every effort should be made to ensure that people can stay where they live, it is also important to recognize that migration can also be a way for people to cope with environmental changes. If properly managed, and efforts made to protect the rights of migrants, migration can provide substantial benefits to both origin and destination areas, as well as to the migrants themselves. However, migrants – particularly low-skilled ones – are among the most vulnerable people in society and are often denied basic protections and access to services.

The links between the gradual environmental degradation of climate change and displacement are complex: as the decision to migrate is taken at the household level, it is difficult to measure the respective influence of climate change in these decisions with regard to other influencing factors, such as poverty, population growth or employment options. This situates the debate on environmental migration in a highly contested field: the use of the term 'environmental refugee', although commonly used in some contexts, is disrecommended by agencies such as the UNHCR who argue that the term 'refugee' has a strict legal definition which does not apply to environmental migrants.

POPULATION DISPLACEMENT SCENARIO

Many research findings have indicated the population displacement scenario consequent upon climate change. They are

People at risk of sea-level rise by 2050: 162 million (Myers 2002), people at risk of droughts and other climate change events by 2050: 50 million (Myers 2002).

1. People potentially at-risk of being displaced because of desertification: 135 million (Almería Statement 1994).
2. Number of people who have fled because of floods, famine and other environmental disasters: approximately 24 million (UNHCR 2002).
3. Environmentally displaced people by 2010: 50 million (UNFCCC 2007).

4. Refugees due to by climate change by 2050: 250 millions (Christian Aid cited in Bierman and Boas 2007).
5. People estimated to become permanently displaced "climate refugees" by 2050: 200 millions (Stern 2006).

The first category of the Inter Agency Standing Committee typology concerns displacement linked to sudden onset disasters, such as floods and storms. According to the OCHA-IDMC study, approximately 36 million people were displaced as a result of sudden-onset natural disasters in 2008. The Sichuan earthquake in China alone displaced 15 million people. Had it not been for this earthquake, climate related disasters would have been responsible for over 90 percent of disaster-related displacement in 2008. More than 20 million people were displaced due to climate-related sudden-onset disasters.

The second category concerns displacement linked to slow-onset disasters, such as drought, which can seriously impact on people's livelihoods. According to the OCHA-IDMC study, more than 26.5 million
people were reported affected by 12 droughts in 2008, but estimates for displacement are not readily available. Determining the element of force and ascribing causation is much more complex than in sudden-onset disasters. A particular slow onset disaster case, which is separated out as a third category in the Inter Agency Standing Committee typology, is that linked to sea-level rise and resulting in loss of state territory, as in the case of small island states. As of 2008, the only found permanent relocation plans identified in the OCHA-IDMC study concerned the forced displacement of the 2000 inhabitants of the Tulun (Carteret) and 400 of the Takuu (Mortlock) Islands in Papua New Guinea. However, according to current IPCC findings, this trend is likely to substantially accelerate in the future. The final Inter Agency Standing Committee category concerns displacement linked to conflict.

There are many interlinkages that also need consideration: Disasters and degradation can trigger displacement and conflicts, and conflicts and displacement, in turn, often cause further environmental degradation. The Inter Agency Standing Committee typology can be considered a work in progress.

HOTSPOTS OF DISPLACEMENT

In one way or another, all countries will eventually be affected by climate change, but some are more immediately and particularly exposed. The IPCC report highlights the following groups of countries: Small Island Developing States (SIDS), Africa, Mega-deltas particularly in Asia, and the polar regions. As already mentioned, the impacts of climate change such as disasters depend on exposure, hazard, vulnerability and coping capacity. The locations of the disasters are not predicted to change much in the near future. Of the 20 disasters that caused most displacement in 2008, 17 were in Asia. In all the categories of displacement discussed above, the displacement may be internal or cross-border, temporary or permanent, but it is likely that the majority of the displaced remain within their country of origin. Much of the sudden-onset disaster displacement is temporary and short distance. The effectiveness and success of response, recovery and rehabilitation efforts largely determine how long people are displaced.

THE IMPACTS OF CLIMATE CHANGE ON MIGRATION

Climate change will affect societies through an extensive range of impacts. The prediction of such impacts, however, remains marred by uncertainties, especially at the regional and local levels. Uncertainties are even greater when one needs to factor in the wide range of possible human reactions to these impacts. Empirical studies remain scarce and experimentation is impossible, as is often the case in social sciences. Thus an assessment of the impacts of climate change on migration is, by its nature, a daunting task. It nevertheless appears possible to identify three types of impacts that seem most likely to have an effect on migration patterns, although these effects are not certain.

a) Extreme weather events:-

Extreme weather events include heat waves, tropical cyclones, droughts and flooding. The latest Intergovernmental Panel on Climate Change (IPCC) report predicts, by the end of this century, a 'very likely increase in hot extremes, heat waves and heavy precipitation', a 'likely increase in tropical cyclone activity', with 'less confidence in the decrease of tropical cyclone numbers', as well as 'very likely precipitation increases in high latitudes and likely decreases in most subtropical land regions'. In addition, it is expected that annual run-off and precipitation will increase in high latitudes, whereas water resources will decrease in mid-latitudes and in the tropics, as well as in arid regions. The IPCC notes that the increases in both droughts and tropical cyclone activity present a potential for population migration.

The latter claim, however, can be disputed, as the impacts of extreme weather events on migration flows are diverse and sometimes controversial. Disasters can indeed result in highly diverse patterns of displacement.

For example, it is widely thought that disasters are more likely to induce temporary displacement, allowing people to return home once the danger is gone. As a result of this assumption, people forced to flee to another country because of a disaster have often been granted temporary protection status: for example, temporary protection status in the USA was granted to the people of Montserrat displaced by the volcanic eruption in 1997, and to the people of Honduras and Nicaragua displaced by Hurricane Mitch in 1998. The experience of Hurricane Katrina, however, showed that people displaced by natural disasters were not always able to go home, as a significant proportion of the population of New Orleans has still not returned, and seems unlikely to do so in the future. It is now increasingly acknowledged that disasters result in both temporary and permanent displacement, as well as in both proactive and reactive displacement.

b) Sea-level rise:-

The most obvious consequence of climate change with regard to environmental migration is probably sea-level rise. Though sea-level rise will not be uniform across the globe, some studies suggest that the rise could be about 1 m by the end of the century. The IPCC notes that : Many millions more people are projected to be flooded every year due to sea-level rise by the 2080s. Those densely-populated and low-lying areas where adaptive capacity is relatively low, and which already face other challenges such as tropical storms or local coastal subsidence, are especially at risk. The numbers affected will be largest in the mega-deltas of Asia and Africa while small islands are especially vulnerable. Unlike extreme weather events, sea-level rise is more predictable in the longer term, and populations at risk can be more easily identified, which facilitates the implementation of adaptation plans. Given that coastal and deltaic areas are usually very densely populated, the potential for large numbers of migrants is particularly high.

The projection of sea-level rise is usually based on a 2°C average temperature increase. In a world with a 4°C+ temperature increase, sea-level rise would be higher, especially with the increased probability of the deglaciation of the Greenland and West Antarctic ice sheets. Sea-level rise would also induce greater coastal erosion, as well as bigger storm surges. It is especially important to understand and forecast local sea-level rises, as the associated migration potential depends on the local sea-level rise rather than the average one. In that regard, a 4°C+ temperature increase would increase not only the average sea-level rise, but also—and probably more importantly—the uncertainties associated with the migration potential.

Water stress:-

Water stress will be caused by a series of cumulative factors: droughts, salt water intrusion due to sea-level rise, and also the melting of mountain glaciers in the long run. The IPCC forecasts that 'freshwater availability in Central, South, East and Southeast Asia, particularly in large river basins, is projected to decrease due to climate change which, along with population growth and increasing demand arising from higher standards of living, could adversely affect more than a billion people by the 2050s'. The water supplies stored in glaciers and snow cover are also expected to decline, reducing freshwater availability in regions supplied by melt-water from mountain ranges. The situation is expected to be most difficult in Africa, where an estimated 75 million to 250 million people will be at risk of water stress due to climate change by 2020. Given that this water stress will be associated with higher demand, especially in big cities, water-related problems are very likely to be exacerbated.

The effects of water stress on migration patterns remain heavily contested: some authors argue that droughts and desertification are a major push factor for migration, while others contend that people affected by droughts have a choice between different coping strategies, including migration, and note that international migration actually decreases during these periods. In a recent review of empirical case studies conducted in Africa, Jonsson asserts that 'environmental stressors such as droughts do not necessarily lead to migration'. In any case, the nexus between drought and migration is not straightforward and depends on a wide range of factors.

Here again, a larger temperature increase towards 4°C would further exacerbate problems of water stress, and would also increase uncertainties: the impact of aggravated water stress on human mobility remains unclear and poorly documented. According to the case and the wider context, it could result in different mobility patterns, with an increase in some regions and a decrease in others. In the Sahel, Jonsson observes that 'whether and how people migrate in response to environmental change depends largely upon the role that mobility already plays in their lives and livelihoods'. The impacts of climate change in a 4°C+ world are difficult to translate into migration forecasts: increased temperatures might have different effects on migration flows, and it is impossible to conduct experimentation in this field to adjust the forecasts.

Implications for a 4°C+ world:-

Given the uncertainties associated with a 2°C temperature rise, an assessment of climate-induced

displacements in a 4°C+ world is a very tricky task. Though empirical evidence cannot predict future population displacements, it suggests that, in a 4°C+ world, people might move in a very different way than in a 2°C world: the very nature of the displacements might be affected more than just their magnitude. Three changes in particular can be expected.

Empirical research shows that mobility is often one possible option among different coping strategies to deal with environmental disruption. Over the years, people have developed traditional mobility patterns that allow them to cope with environmental changes, especially when these changes affect agricultural yields or livestock herds. For some people, mobility is an integral part of their livelihood, which allows them to increase, diversify or secure their incomes. Such traditional coping strategies are jeopardized by increased environmental pressure due to climate change. As environmental disruptions would be exacerbated with a 4°C+ temperature increase, mobility might become a less-viable coping strategy.

For example, Van der Geest observes that traditional nomadic patterns, which were used by pastoralists to cope with droughts, have been modified due to rapidly changing environmental and socio-economic conditions. A similar phenomenon is observed in Bangladesh, where the traditional movement of people from char to char is disrupted by flash floods that are more violent and frequent than they used to be. Thus, it appears that, if the impacts of climate change become more severe, they could disrupt traditional patterns of mobility and people might need to leave their usual place of residence. Migration options would become more limited. In that case, it is expected that the movement would most likely be a long-term or permanent migration instead of a temporary displacement—a trend that has been observed by the EACH-FOR project in different countries of Southeast Asia and sub-Saharan Africa most notably Ghana, Vietnam and Bangladesh. In Vietnam, for example, rice farmers usually undertake seasonal labour migration to urban centres during the flooding season, in order to increase and diversify their incomes. Successive floods, however, leading to the destruction of crops, have prompted farmers to migrate permanently in search of a new livelihood.

Permanent dislocation affects the ability of migrants to cope and adapt in the destination region, but might also affect the rights and protection to which they are entitled, especially in the case of forced migration abroad, as no international protection regime exists for those displaced by environmental changes. Though the distinction between forced and voluntary migration is increasingly blurred, and probably no longer fit to describe the realities of contemporary migration, it remains a defining element of migration policies and law.

It could be noted that in a 4°C+ world, where environmental pressure to migrate could be higher, traditional patterns of mobility might be deeply affected: an increasing number of people could be deprived of the choice to leave or to stay, and feel forced to move. Another consequence of a temperature rise of 4°C+ might be, paradoxically and in some cases, a decrease in the number of people on the move. Numerous studies show that migration flows tend to decrease when environmental crises peak. This is especially true in the case of droughts, as people tend to allocate their income primarily to meet their household's basic needs rather than to moving. People will move only if they have the resources that allow them to do so: this includes financial resources—moving is a costly process—but also access to social networks facilitating mobility. Furthermore, empirical evidence shows that the most vulnerable are often unable to move when faced with an environmental crisis. For example, prior to Hurricane Katrina, about 60 000 people were unable to leave the city of New Orleans: evacuation required money for food, gas and lodging, and many poor families were unable to afford the expense.

It is significant to note that international migration requires considerable financial resources for the migrants: unless significant financial transfers are made or developing countries undergo rapid economic development, these resources are unlikely to be available. This trend is observed in both the North and the South, as exemplified by the recent building of a security barrier at the border between India and Bangladesh. The barrier is supposed to protect India against intrusion by Islamist militants from Bangladesh, as well as smuggling and illegal immigration. Bangladesh also ranks among the countries that are the most vulnerable to climate change impacts. In the event of climate-induced displacements from Bangladesh, the barrier would also, most likely, serve as a deterrent to prevent these migrants from entering India.

Drought and displacement:-

There are many links between the conflict, disasters and human mobility. There can be more or less direct displacement due to drought, and part of the increase in displacement in Somalia has been ascribed to the drought. The drought may force people to move, while others are forced to settle. The poor pastoral households with smaller livestock herds, and those who cannot afford to transport their livestock by truck, generally remain behind in areas that receive less rainfall.

Drought and conflict:-

There may also be an indirect link between drought and displacement through conflict. Some interviewees believed the drought exacerbates the conflict by increasing competition over fertile land and resources. Now that automatic weapons have become common among people, traditional dispute and coping mechanisms have been weakened. Conversely, the armed conflict may exacerbate the drought. War and military activities have detrimental impacts on the environment. Lack of state control or any other effective form of governance has led to widespread misuse and overuse of natural resources and environmental degradation. For example, the commercial charcoal production and export resulting in deforestation and thereby contributing to drought, is an important part of the war economy with much of the proceeds going to warlords.

Access and ability to move:-

There is also the question of access and ability to move. The armed conflict can hinder the normal movement of pastoralists and others moving due to drought, as they cannot pass through certain unsafe areas. Land grabbing and new enclosures also restrict pastoralist movement and trigger conflicts. Furthermore, the armed conflict impacts on the access of humanitarian agencies to the drought affected. Somalia is one of the most dangerous places for aid workers in the world, and humanitarian space is shrinking at an alarming.

The escalating conflict is occurring in the same areas where agencies are recording the greatest problems of food access and malnutrition. This places additional burdens on the people already in crisis and makes it difficult for humanitarian agencies to reach the people in need. Floods may also hinder the movement of persons displaced both due to drought and conflict. The flash floods in South Somalia in the summer of 2009 may temporarily have made it more difficult for people to flee across to Kenya.

Competition:-

The arrival of environmental migrants can burden the economic and resource base of the receiving area, promoting native emigrant contest over resources. Pressures are expected to rise with the number of migrants and residents, particularly when resources are scarce in the receiving area and property rights are underdeveloped. The excess demand for resources may also generate lateral pressure, expansion of economic and political activities beyond the region's or state's borders in order to acquire resources, which increases the risk of conflict. Ethnic tension when environmental migrants and residents belong to different ethnic groups, the migration may promote tension. Residents may feel threatened, host countries may fear separatism, migrants may attempt to reunify with their home country, and residents may respond aggressively. Situations involving long-standing ethnic disputes between migrants and residents are likely to be particularly prone to conflict. Distrust Environmental migration may generate distrust between the area of the migration's origin and host area. For example, the migrants' origin country may suspect that the receiving country accepts migrants in order to upset the ethnic balance in the origin. The receiving government may suspect that the origin seeks to penetrate the host, while the origin side may resent actual or perceived mistreatment of migrants by the receiving side.

CONCLUSION

Climate change is likely to lead to increasing rates of displacement, and it is vital that evolving frameworks for climate change adaptation address displacement issues. Consistent application of a natural disaster displacement monitoring methodology would provide a baseline for informed estimates as to how current trends may be affected by climate change in the future, and would be a necessary element for any improvement in the response for the displaced. In addition, data should be collected on related factors, including the duration of displacement and the needs of displaced populations. There is also a need for further research on displacement related to slow onset disasters and sea level rise, the links between climate change, conflict and displacement, and climate change impacts on those who already are displaced. But, as should be clear by now, a lack of information can no longer be used as an excuse to delay action.

SUGGESTION

1. Considering that climate change is a global process, the international community also has a responsibility to support and strengthen different states' ability to provide protection from displacement, during displacement and to end displacement.
2. Some displaced persons may qualify as either stateless persons or refugees, and states should recognise them as such, but states should also ensure that migration management systems provide for the entry and protection of others in need. While a bilateral deal, such as those under the American TPS, is one option, the receiving states must also use their sovereign right to grant safe haven in accordance with basic human rights commitments.

3. As many of the domestic approaches to cross-border Displacement are discretionary and vary greatly, there is a need to address these questions at a regional and international level, but states should also already start adapting their national laws. Hopefully, Copenhagen results in a political agreement with clear commitments on key elements that can provide protection against and during displacement, including climate change mitigation and adaptation, and we will see a binding legal agreement within 2010. Both the political agreement and the binding legal agreement should explicitly recognise and address migration and displacement issues, as well as the wider risk management and reduction issues.
4. What we need is politics of the next disaster. Longer-term development and mainstreaming climate change adaptation and environmental considerations in humanitarian response are needed to mitigate the cycle of disasters and emergency relief. There is a need for sensitization, education, technology, capacity and finance. There is a need for information and assistance in accessing information and funds generated through the UNFCCC.
5. Facilitating migration both internally in countries and across borders, and creating and encouraging alternative livelihoods, are two important ways of increasing resilience.
6. Countries that are already affected by conflict, droughts and floods are on the one hand particularly vulnerable to further climate change, but may also, on the other hand, have certain strengths; for example local customary law frameworks and mechanisms that can be relevant in the context of climate change and should be improved and supported. Donors must respond generously to funding appeals to address the humanitarian crises now, so they do not turn worse with accelerating climate change.

REFERENCES

1. *Wood, W.B.(2001),"Ecomigration: Linkages between Environmental Change and Migration," in Global Migrants, Global Refugees, Oxford: Berghahn.*
2. *Cooper, J, (1998), "Environmental Refugees: Meeting the Requirements of the Refugee Definition," 6 N.Y.U. Envtl. L.J. 483 1997-1998.*
3. *Rivers Run Dry: An Interview with Fred Pearce" by Paul Comstock, California Literary Review, 03.04.2007.*
4. *Climate Change as a Security Risk, German Advisory Council on Global Change (WBGU), London, 2007.*
5. *Climate Change as a Security Risk, German Advisory Council on Global Change (WBGU), London, 2007, available at: http://www.wbgu.de/wbgu_jg2007_engl. Html*
6. *Schwartz, M. L., & Notini, J. (1994). Report on desertification and migration: Case studies and evaluation. San Francisco: Natural Heritage Institute.*
7. *Scoones, I. (1992). Coping with drought: responses of herders and livestock in contrasting Savanna environments in Southern Zimbabwe. Human Ecology, 20(3), 293e314.*
8. *Patterson, J. (1995). Rwandan refugees. Nature, 373(6511), 185e186.*
9. *PBS. (2002). Surviving the Dust Bowl. The American experience. Washington, DC: Public Broadcast Service.*
10. *Percival, V., & Homer-Dixon, T. F. (1998). Environmental scarcity and violent conflict: the case of South Africa. Journal of Peace Research, 35(3), 279e298.*
11. *Lawson, L. (1991). The Ghetto and the Greenbelt. In J. Cock, & E. Koch (Eds.), Going green: People, politics and the environment in South Africa (pp. 46e62). Cape Town: Oxford University Press.*
12. *Lee, S. W. (2001). Environmental matters: Conflict refugees and international relations. Tokyo: World Human Development Institute Press.*
13. *IPCC. (2001). Special report on the regional impacts of climate change: An assessment of vulnerability. Geneva: Intergovernmental Panel on Climate Change.*
14. *Hirschman, A. O. (1970). Exit, voice, and loyalty: Responses in firms, organizations, and states. Cambridge: Harvard University Press.*
15. *Homer-Dixon, T. F. (1999). Environment, scarcity, and violence. Princeton: Princeton University Press.*
16. *Gregory, J. N. (1989). American exodus: The Dust Bowl migration and Okie culture in California. New York: Oxford University Press.*
17. *Hafiz, F. A., & Islam, N. (1993). Environmental degradation and intra/interstate conflicts in Bangladesh. Environmental and conflicts project e Occasional Papers, No. 6. Zurich: Center for Security Studies and Conflict Research.*
18. *HDR. (2000). Human development report (HDR). UNDP. New York: Oxford University Press.*
19. *Keim ME. Building human resilience: the role of public health preparedness and response as an adaptation to climate change. Am J Prev Med. 2008;35:508–516*
20. *Myers, N. (ca.2002) Environmental security: what's new and different? Based on a policy backgrounder for the University of Peace. Available from <http:// www.envirosecurity.org/conference/working/ newanddifferent.pdf>*
21. *UNHCR (2002) Environmental migrants and refugees" Refugees. No.127. Available from <http://www.unhcr.org/ publ/ PUBL/3d3fecb24.pdf>*
22. *UNFCCC (2007) Climate change: impacts, vulnerabilities and adaptation in developing countries. Bonn, UNFCCC. Available from <http://unfccc.int/files/ essential_background/background_publicationshtmlpdf/ application/txt/pub_07_impacts.pdf>*
23. *Biermann, F. and Boas, I. (2007. Preparing for a warmer world. Towards a global governance system to protect climate refugees. Amsterdam, Global Governance Project. Available from <http:// www.glogov.org/images/doc/ WP33.pdf>*
24. *Stern, N. (2006) The Economics of Climate Change: The Stern Review. Cambridge, UK: Cambridge University Press. Available from <http://www.hm-treasury.gov.uk/ independent_reviews/ stern_review_economics_climate_change/ stern_review_report.cfm>*