

**ENVIRONMENTAL CHANGES AND MIGRATION
IN THE SAHEL:
AN EXPLORATORY NOTE**

Aderanti Adepoju

Prepared for the

International Conference

TOWARDS THE G8 SUMMIT

Climate Change and Human Mobility in Africa
Dialogue for a strategic cooperation between Italy and Africa

Rome, 21st of April 2009

Introduction

In this note, I briefly explore the following: the nexus between environmental change and human mobility; the implications of environmental change on human mobility; the connection between environmental vulnerability, migration, peace and stability in areas most vulnerable to environmental change, with a focus on human mobility; how climate change could work as a threat-multiplier from a human security point of view, breeding grounds for conflicts over resources and large population movements; the connections between climate change and forced migration and managing the environmental issues at local level.

Migration is a way of life in West Africa and for centuries people have migrated in response to population pressure, environmental disasters, poor economic conditions, conflicts, and adverse effects of macroeconomic restructuring. These migrants include temporary cross-border workers, seasonal migrants, clandestine workers, refugees and professionals. Cross-border movements involve farm labourers, unskilled workers, female traders and nomads (Adepoju, 1995; 2003). The literature on forced displacement and the migration of people in the West African/Sahel region emphasises the impact of natural and environmental-related disasters on those directly affected, as well as the resulting impact of the migrating population on their host social and ecological environments. But conceptually, there is no consensus among researchers on where to precisely place so-called environmental migration in both the internal-international migration continuum and the voluntary-forced migration continuum (Oucho, 2009).

Over time, people have chosen the option of migration as a means of coping with the effects of environmental changes, particularly those of a sudden and disastrous nature. Usually, affected people seek out environments that would support their survival and their desire for an existence possibly more stable than the one lived before disaster struck. While the occurrence of disastrous environmental events is a significant – and increasingly important – cause of environmentally induced migration, more often migration occurs as a result of less dramatic, gradual deterioration of environments.

It is not sufficient to consider the migration–environment relationship only in terms of migration induced as a response to the occurrence of single, particular environmental events. In recent times, it has become increasingly recognised that major drivers in both forced and voluntary migration are general, on-going environmental degradation, and climate change.

The Sahel region experienced severe droughts and famine in the late twentieth century, resulting mostly from a combination of natural climate variations and human-induced atmospheric changes, the latter related, it would appear, to an increase in greenhouse gases, as well as to other causes. The Geographical Fluid Dynamics Laboratory (GFDL) models project a drier Sahel in the future, due primarily to increasing greenhouse gases.

Droughts are a recurrent environmental problem in the Sahel region¹. The Sahel received, in general, less than 20 inches of rain a year, and it endured a severe drying trend into the early 1980s, during which annual rainfall amounts dropped by 40 per cent, resulting in large-scale famine. This was followed by partial recovery, but future prospects remain decidedly uncertain (Held et al., 2005). While the frequency of drought in the region is thought to have increased from the end of the nineteenth century, three extremely long droughts have had dramatic environmental and societal effects. Famine followed severe droughts in the 1910s, in the 1940s, and in the 1960s, '70s and '80s – although a partial recovery did occur from 1975 till 1980. From the late 1960s to early 1980s, then, famine killed about 100 000 people, left 750 000 dependent on food aid, and affected most of the Sahel's population. The economies, agriculture, livestock and human populations of much of Mauritania, Mali, Chad, Niger and Burkina Faso were severely impacted.

The period from 1982 to 1984 was particularly destructive to the pastoral Fula people of Senegal, Mali and Niger, and to the Tuareg of northern Mali and Niger. Compounding the sufferings during the 1968 to 1974 drought, many of these people were unable to rebuild herds destroyed a decade earlier. In addition, the shift of political power to settled, rather than nomadic, populations, which came with independence in the 1960s, further undermined the livelihood of these peoples.

Environmentally induced population movements

Globally, millions of people have been forcibly displaced from their homes, having been affected either by natural disasters such as famine, drought, floods and earthquakes, or by man-made disasters such as wars, ethnic and religious conflicts, government policies and ill-advised projects. Environmentally induced population movements across the world are caused by the following: environmental stress such as an earthquake, cyclone or other natural disaster; development projects which create a permanent change in the habitat; cumulative changes or slow-onset changes such as deforestation, land degradation or climate warming; industrial accidents; conflict and warfare where environmental degradation is both a cause and effect (UN, 1994; Hugo, 2008).

The key environmental problems in Africa include natural resources degradation such as deforestation, desertification, climate change leading to drought (as in the Sahelian region), and soil erosion, degradation and floods in the coastal regions. Among other problems experienced are natural disasters, dam construction and various levels of conflict. To these must be added water, air and ground pollution, especially in overcrowded cities. These crises often result in

¹ The Sahel is a climate zone sandwiched between the semi-arid area to the south of the Saharan Desert and north of the rainforests of Central Africa and the Guinean Coast.

population displacements and intensify internal migration, but they may also spark international migration that may become self-perpetuating.

Climate change, migration and human security

Climate change can cause land degradation, coastal flooding and drought, all of which threaten human security and can breed conflict over resources – with the victors acquiring territorial superiority and the vanquished escaping by out-migration. It is important to state *ab initio* that, while recognising the fact that environmental change can be an important driver of migration, the multi-causality of factors that prompt emigration make it difficult to establish precisely any undisputed causal relationship between environment change and migration (Hietenen, 2009). There are other issues such as poverty, poor living conditions, and cultural and religious factors that dispose people to stay or to move – even in the face of disasters. This is one of the key conclusions of the workshop on environmental change and displacement, ‘Assessing the Evidence and Developing Norms for Responses’, held by the Refugee Studies Centre and the International Migration Institute of Oxford University on 8–9 January this year. That current knowledge on this relationship is not well-founded should also caution policy-making in this area. Research-based understanding of the relationship is limited and the debate regarding the placing of so-called ‘environmental migrants’ in the voluntary–forced migration continuum is as yet unresolved. And there is another consideration: for a number of little-explored reasons, most people impacted by environmental degradation do not in fact migrate. As is the case with economically motivated migration, the emphasis of research has been focused on why people *migrate* rather than also, concurrently, why people *do not* migrate. Although there are clusters of emigration-prone localities and regions, only about 3 per cent of the world’s population do in fact migrate.

The general belief has been that the drought in the Sahel was caused primarily by the intensive use of natural resources, through overgrazing, deforestation and poor land management. In the late 1990s, however, climate-model studies suggested that large scale climate changes were also triggers for the drought. In the early 2000s, it was speculated that the drought was probably caused by global warming – because of air pollution generated in Eurasia and North America. This pollution has changed the properties of clouds over the Atlantic ocean, disturbing the monsoons and shifting the tropical rains southwards. Further climate-modelling studies in 2005 suggested that this late twentieth century Sahel drought was likely to have been a climatic response to changing patterns of sea surface temperatures. These changes were also attributable to human-induced factors; largely due to an increase in greenhouse gases, and partly due to an increase in atmospheric aerosols (see among others, Hugo, 2008; Gray and Clara, 2007; Brown, 2008; Barrios et al, 2006 and Kniveton et al, 2008).

The connections between climate change and forced migration

Climate change in terms of floods, drought, famine has often occasioned forced migration, what El Hinnawi once called ‘environmental refugees’, but this is a disputed concept since the use of the term ‘refugees’ is strictly restricted by the UN Convention of 1951 and the OAU Convention of 1969.

Movements of displaced persons by any of the aforementioned reasons are often associated with immediate, concentrated ecological damage, especially when dislocations are sudden, and involve large numbers of people. Principally, on being compelled to move unexpectedly, affected persons are often cut off from the normal systems on which they had depended for basic necessities such as food, shelter, fuel and water. Under such circumstances, wild animals and plants become food, forests are stripped for firewood, and streams become both sources of water and depositories of waste. Distressed displaced persons are forced to live a hand-to-mouth existence, foraging for basic necessities from the natural systems of the places to which they have fled. The stress on the ecosystem of host communities or countries thus becomes significant: as a result of this physical upheaval – and in addition to severe human hardship – such involuntary relocation takes a significant toll on the environment as the mass flights of people profoundly disrupt natural resources and regional ecosystems.

Migration in an ecological context

In view of the significance of agriculture in the Sahel, population dynamics, especially migration, needs to be considered in an ecological context. Agriculture is the lifeline of the people, and for many decades a delicate balance was maintained between the extensive, long-fallow agricultural production system and the fragile environment. But prevailing migration trends now attest to an acute and potentially disastrous imbalance between human and land-environmental systems.

There is very limited information available on the relationships between migration and environmental change in the Sahel region. Nevertheless, two important pieces of information do exist: firstly most of the migrations which appear to be environmentally induced occur *within* nations – as internal rather than international migration. Secondly, as the scale and pace of environmental change has accelerated, so has environmentally-influenced migration increased.

Positing environmental change and migration in an historical context

Findley et al (1995) argued that the traditional long-fallow agricultural production system had maintained a balance between man and his environment, but several factors were disrupting this balance. Firstly, during colonisation, land was confiscated for forest reserves, thus reducing the

amount available for cultivation and livestock range (and in due course, livestock production became more commercialised for sale in Abidjan and other major cities). Secondly, rapid population growth increased demand for land, for additional cereal production. The resulting intensive land use destroyed the traditional balance: fallow periods were shortened, soil fertility declined and grazing lands deteriorated through overgrazing. Above all, drought accelerated the deterioration process, causing the land to have less potential to support the population.

Sporadic weather patterns and the shifting of the region of adequate rainfall to the south have rendered larger areas in the north Sahel arid and un-arable. Inadequate rainfall reduced the productivity of grazing land and its potential for regeneration after droughts. As I have already explained, the much-publicised ‘Sahel drought’ was a *series* of historic droughts which affected the Sahel region. The result was famine and dislocation on a massive scale which killed thousands of people in the past and severely impacted the economies, agriculture, livestock and human populations of much of the region.

This population-environment disharmony has had very severe negative impacts on agriculture, food production, nutrition, health of the people and general quality of life. As the quality and quantity of biomass cover deteriorated, nomadic pastoralists in Chad, Mali, Niger and Mauritania – countries with the largest nomadic populations in the Sahel – extended the areas over which they moved their herds. This trend has led to conflicts between the groups over access to water and control over land use. The Sahelian countries² are mostly land-locked and lack viable resource bases; they are classed among the poorest in the world, and are inhabited mostly by nomads, semi-nomads and sedentary farmers.

Conflict over limited resources

It is apparent that this region is facing some of the greatest environmental challenges imaginable in modern times as water resources dwindle rapidly and the population grows at an alarming pace. Many are resorting to guns to settle their grievances with each other as the steady creep of the Sahara desert into more and more of Mali’s arable land, and the falling levels of the Niger River force agricultural and pastoral communities into each others’ territories, provoking frequent clashes. Runaway population growth, shrinking water resources and deteriorating pastoral and agricultural land are turning neighbours into enemies.

Pastoralists in the north of Mali are, apparently, feeling very marginalised from the development process that is happening in the south of the country. This is another source of tension. Some ethnic Tuaregs in that area have launched a rebellion, demanding political and economic equality for the north. However, the conflict between the Tuareg and the government of Mali reflects, in

² Senegal, Mauritania, Mali, Burkina Faso, Niger, Chad and Gambia.

large part, the underlying conflict between the needs of the traditional nomadic populations and those of the sedentary farmers.

A large majority of the Sahelian populations live on agriculture and livestock production, using wood and hay as their sole sources of energy and also as their only construction materials, thereby contributing to more rapid desertification. In the dry Sahelian region reforestation efforts are hampered by the ubiquitous land tenure system which does not encourage tree planting.

The precarious living conditions have also resulted in strained social relations, and family dislocation, causing, in turn, an increased youth migration to urban areas (Some & Sedgo, 2001).

Family coping strategies

There are a variety of mechanisms for coping with the vicissitudes of droughts. One proven measure at the family level is a shift away from cattle to the more drought-resistant goats. Most subsistence farmers on the Senegal River Valley, for example, who experienced severe declines in food and livestock production levels during droughts adopted fall-back coping strategies that substitute alternative food and economic supports for drastically reduced local production. Some families diversified their employment portfolio by ensuring that members worked as casual labourers: hauling and carting, selling firewood, selling beans cultivated along the river basin, doing odd jobs in the towns, and masonry work at construction sites.

International migration also featured among the coping strategies, including migration to Dakar, Abidjan and other Sahelian cities to find work. The strategy also involved expanding the destinations of migrants – within Africa and to France. During periods of droughts, migrants resident in France send money to household members back home, to cover medical and related expenses, as well as for clothing and household utensils (Findley, 1997). Those still within the region, especially in Cote d'Ivoire and Gabon, send remittances in kind in the form of food items to sustain the livelihood of their drought-affected family members.

Managing environmental concerns: Following the West African Sahel drought of 1968–197, the United Nations Sahelian Office (UNSO) was created in 1973, to address the problems of drought in the Sahel region. Following the adoption of the United Nations Convention to Combat Desertification in the 1990s, UNSO became the United Nations Development Programme's Office to Combat Desertification and Drought, to reflect its broadened global scope – beyond the focus on Africa.

Environmental and ecological degradation and natural disasters require the intervention of specific policy sectors or actors. Thus agencies dealing with environmental issues focus on combating desertification; the humanitarian sector has responsibility for emergency relief operations for victims of natural disaster, and the asylum sector takes care of refugees. The

problem is that the boundaries of these sectors and actors overlap and coordination is often difficult to ensure.

Intermediate actors could help improve the resilience and adaptive capacities of the people to the hazards of drought and environmental damages and the dwindling resource base. This should include measures to empower people to plan and manage their own local adaptive mechanisms. Managing local environmental issues, and the connected emergencies in terms of human mobility, should involve the local people – who best know of their environment, the changes taking place on it, and the forms of rehabilitation or response to emergencies that are most appropriate and desirable.

At the macro level, development policy and assistance programmes can be explicitly targeted towards localities and regions that are sources of environmental emigrants, with the aim of reducing migration ‘push’ factors: a basket of measures should be pursued to increase production opportunities: promoting irrigation; developing efficient early-warning system that will permit farmers to use drought-resistant crop varieties; emphasising activities that are less drought-sensitive, such as livestock production; and promoting soil and water conservation practices by improved land tenure with appropriate laws regarding soil and water conservation practices; aggressive and genuine reforestation with specifically adapted tree species that are more resilient to tree mortality; increasing the number of small dams and barrages; promoting lower grazing and dry season crop production; as well as any possible income-generating activities (Some and Sedgo, 2001). Intervention should also include measures to reduce wood cutting, such as developing and promoting solar-powered cooking. On top of all these is the need for creating a good database for rainfall prediction.

These changes will not happen on their own. Land degradation caused by desertification and global warming needs to be countered by *educating and training* people on sustainable and natural resource-management practices, and on the stakes and options related to polluted water use. Promoting environmental education, including health at school and village levels is thus of prime importance. As I have already said, local involvement is an essential part of any hope of success. Deforestation caused by poverty and lack of viable alternatives for survival can be minimised by supporting viable local NGOs to address these issues at the village level. Reducing the cost of alternative technologies, and implementing efficient civic education at the school and community levels are non-negotiables.

With respect to wars and conflicts caused by declining resource base, it is pertinent to develop a good early-warning system for conflict prevention as well as strategies that would permit efficient and swift settlement of differences, promote social harmony, democratic principles and popular participation. Finally, of paramount importance is an advocacy for investment in these Sahel countries, which are currently at the bottom of the Human Development Index.

Conclusion

Although climate change is a global phenomenon, prompted by abuse of the environment by both rich and poor countries, the flash points are not normally distributed, and the ability to cope with its consequences is severely constrained in poor countries that lack the resources, capacity and technology. In the Sahel, in particular, famine, drought, desertification and related environmental challenges have been compounded by rapid population growth, making migration a necessary survival strategy for many households. Such migration, initially in the form of movements to the cities of neighbouring countries, is often translated into international migration to developed countries – again in search of survival. The limited efforts by local communities, national and international NGOs, and provincial and national authorities to tackle the complex environmental challenges need to be supported by development partners and relevant United Nations agencies. In this context, researchers have a critical role in ensuring conceptual clarity of terms such as ‘environmental refugees’, ‘environmental migrants’, ‘environmentally displaced persons’, ‘involuntary forced migrants’, and so on, in order to promote appropriate and correctly targeted policy-making in the Sahel, as well as elsewhere in Africa.

References

- Adepoju, A, 1995 'Emigration Dynamics in sub-Saharan Africa' *International Migration*, Special Issue: Emigration Dynamics in Developing Countries. Vol 33, Nos 3/4, pp 315-390.
- Barrios S, Bertinelli, L and Strobl, E. 2006 'Climate change and rural-urban migration: the case of sub-Saharan Africa'. *Journal of Urban Economics* 60, pp357-371.
- Brown, O. 2008 *Migration and Climate Change*. Migration Research Series 31. Geneva: International Organisation for Migration.
- Findley, S, 1997 'Migration and family interactions in Africa' in Adepoju, A (Ed) *Family, Population and Development in Africa*. London: Zed Books Ltd.
- Findley, S, Traore, S, Ouedraogo, D and Diarra, S, 1995. 'Emigration from the Sahel', *International Migration*, Special Issue: Emigration Dynamics in Developing Countries. Vol. 33, Nos 3/4 pp 469-520.
- Gray, L and Clara, S. 2007 Discussion of population and environment interactions in West Africa' <http://www.populationenvironmentresearch.org/seminars.jsp>.
- Heitonen, M. 2009 Environmental change and displacement: Assessing the evidence and developing norms for responses: Report of a workshop held by the Refugee Studies Centre and the International Migration Institute of Oxford University, 8-9 January.
- Hugo, G. 2008. *Migration, Development and Environment*, Migration Research Series No. 35. Geneva: International Organisation for Migration.
- Kniveton, D et al 2008 *Climate Change and Migration: Improving Methodologies to estimate flows*, Migration Research Series 33. Geneva: International Organisation for Migration
- Oucho, J. O., 2009 'Voluntary versus Forced Migration in sub-Saharan Africa' Keynote Address, Conference on Migration and Displacement in Sub-Saharan Africa", 13-14 February Bonn
- United Nations, 1994 *Migration, Development and Environment*, New York: United Nations
- Batterbury, S 2001. The Sahel region; assessing progress twenty-five years after the great drought, *Global Environmental Change* Vol. 11, No 1, 1-95.
- Some, S and Sedgo, J, 2001. 'Improving community sustainability in the Sahelian region of West Africa' Document presented at the Global Blueprint for Change International Workshop on Disaster Reduction, August 19-22
- Tuareg <http://en.wikipedia.org/wiki/Tuareg>