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## Climate Change and Human Migration: a Tenuous Relationship Symposium

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# CLIMATE CHANGE AND HUMAN MIGRATION: A TENUOUS RELATIONSHIP?

*Gaim Kibreab\**

## I. INTRODUCTION

The 2007 report of the Intergovernmental Panel on Climate Change (IPCC), a panel of international experts created to assess the current scientific knowledge on climate, confirmed its earlier predictions that the earth's climate system is warming at an unprecedented level<sup>1</sup> (see also Fig. 1). The panel's conclusions were derived from growing scientific evidence of shifts in the climate and its consequent effects on ecological processes and natural habitat. Some of the effects of climate change relevant to the issues examined in this article as stipulated in the IPCC 2007 report, are that climate change is likely to lead to increased sudden onset disasters, such as floods and storms; to frequent occurrences of droughts and severe water shortages; and increased sea-level rise. Although the scientific evidence of the social consequences of climate change still remain indicative rather than conclusive, the IPCC report asserts that these changes are likely to trigger sudden, gradual, internal, regional and international migration.

After discussing the manner in which climate change may contribute to human migration and the uncertainties inherent in the current predictions concerning the social effects of climate change, as well as the possible adaptive responses of people inhabiting the affected areas, the article critically analyses firstly, the debate on 'environmental refugees;' secondly, the existing estimates of the

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1. LENNY BERNSTEIN ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE SYNTHESIS REPORT 30 (Abdelkader Allali et al. eds., 2007), available at [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf).

numbers allegedly displaced by climate change; and thirdly, the debate on whether those displaced by climate change should be accorded rights and protection similar to those available for persons who flee due to 'well-founded fear of persecution'—refugees. The points of departure of the article are firstly, it is impossible to isolate climate change as a cause of migration as this is to a large extent a function of mitigation and effectiveness of adaptation. Secondly, displacements triggered by a combination of climate change and other factors are likely to be internal and short-term rather than external and permanent.

Some of the environmental changes that induce populations to abandon their homes or areas of habitual residence are prompted by natural and/or man-made disasters. Man-made disasters result from the introduction of hazardous substances into the natural environment. When disaster strikes, the physical environment in question may become temporarily or permanently life-threatening or hazardous for human habitation thereby prompting people to move. These people are generally referred to in the literature as 'disaster victims' not as refugees, even when it is clear that the events that cause their displacement are beyond their control.<sup>2</sup>

Some disasters are sudden whilst others are slow onset. Sudden onset disasters include floods, forest fires, hurricanes, earthquakes, volcanic eruptions, tornadoes and pest infestations. Examples of sudden/man-made disasters include the Bhopal chemical spill,<sup>3</sup> the release of dioxin in Seveso<sup>4</sup> (Italy) and the nuclear accident in

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2. Gregory Button & Anthony Oliver-Smith, *Disaster, Displacement, and Employment*, in CAPITALIZING ON CATASTROPHE: NEOLIBERAL STRATEGIES IN DISASTER RECONSTRUCTION 123, 125 (Nandini Gunewardena & Mark Schuller eds., 2008).

3. Elizabeth Guillette, *The Foul Odor of Capital: The Union Carbide Disaster in Bhopal, India*, in CAPITALIZING ON CATASTROPHE: NEOLIBERAL STRATEGIES IN DISASTER RECONSTRUCTION 173, 173 (Nandini Gunewardena & Mark Schuller eds., 2008).

4. See Mick Corliss, *Dioxin: Seveso Disaster Testament to Effects of Dioxin*, May 6, 1999, <http://www.getipm.com/articles/seveso-italy.htm>. Corliss notes:

Today, birds chatter in the trees and people take Sunday strolls along the paths of Bosco delle Querce, or Seveso Oak Forest park. One would not suspect that beneath the lush green carpet and vegetation lurk the poisonous remains of a chemical disaster nearly 23 years ago. The origin of the park, roughly 15 km north of Milan in Italy's Lombardy region, can be traced back to the afternoon of July 10, 1976. A little after noon that

Chernobyl. Gradual natural/man-made disasters include desertification, land degradation, global sea rise induced by global warming, deforestation and aquifer depletion.<sup>5</sup> Examples of gradual man-made disasters include long-term exposure to toxic chemicals or low level radiation as in the case of the Micronesia. Some of the consequences of disasters are reversible whilst others are not. When the consequences are irreversible, the site in question becomes unfit for human habitation, i.e. it loses its productive capability to support life. Displacement from such sites under the existing technological know-how is permanent.

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Saturday, a valve broke at the Industrie Chimiche Meda Societa Azionaria chemical plant in Meda, releasing a cloud of chemicals containing dioxin that wafted an estimated 50 meters into the sky. Carried southeast by the wind, the toxic cloud enshrouded the municipality of Seveso and other communities in the area. About 3,000 kg of chemicals were released into the air, according to some researchers. Among them was 2,4,5 trichlorophenol, used in the manufacture of herbicides, and anywhere from about 100 grams to 20 kg of dioxin, said Dr. Paolo Mocarelli of the Hospital of Desio. The accident was not immediately noticed. No one was at the plant when it happened and ICMESA -- the company responsible -- failed to swiftly address the event. The first sign of health problems, burn-like skin lesions, appeared on children a few hours after the accident. Beginning in September of that year, chloracne, a severe skin disorder usually associated with dioxin, broke out on some of the people most exposed to the cloud. Authorities began an investigation five days after the accident, when animals such as rabbits began to die en masse. Nearly two weeks later, a chemist deduced that the cause was dioxin. And within three weeks, some 736 people living closest to the plant were evacuated. About 37,000 people are believed to have been exposed to the chemicals, according to researchers familiar with the case. Approximately 4 percent of local farm animals died, and those that didn't -- roughly 80,000 animals -- were killed to prevent contamination from filtering up the food chain.

*Id.*

5. BERNSTEIN ET AL., *supra* note 1, at 26; see also Michel Boko et al., *Africa*, in CLIMATE CHANGE: IMPACT, ADAPTATION AND VULNERABILITY 433 (Frederick Semmazzi & Mohamed Senouci eds., 2007), available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter9.pdf>; Rex Victor Cruz et al., *Asia*, in CLIMATE CHANGE: IMPACT, ADAPTATION AND VULNERABILITY 471 (Daniel Murdiyarsa & Shuzo Nishioka eds., 2007), available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter10.pdf>.

## II. DROUGHT AND MIGRATION

There is a general agreement among scholars that environmental change is a factor that contributes to population displacement, but it is difficult to determine its role with certainty.<sup>6</sup> This is because, more often than not, what appears to be the result of drought or climate change can turn out to be the consequent result of market or political failure.<sup>7</sup> If we take the example of famine, one of the major proximate causes of population displacements in many arid and semi-arid regions of the developing world, appearances notwithstanding, political factors are more to blame than the environment or the climate.<sup>8</sup> Wisner *et al.* argue that famine can take place in the absence of “a well-defined ‘trigger’ event in nature at all, but instead as a result of war or conscious attempts to use food as a weapon (which may become a device for ‘ethnic cleansing’).”<sup>9</sup>

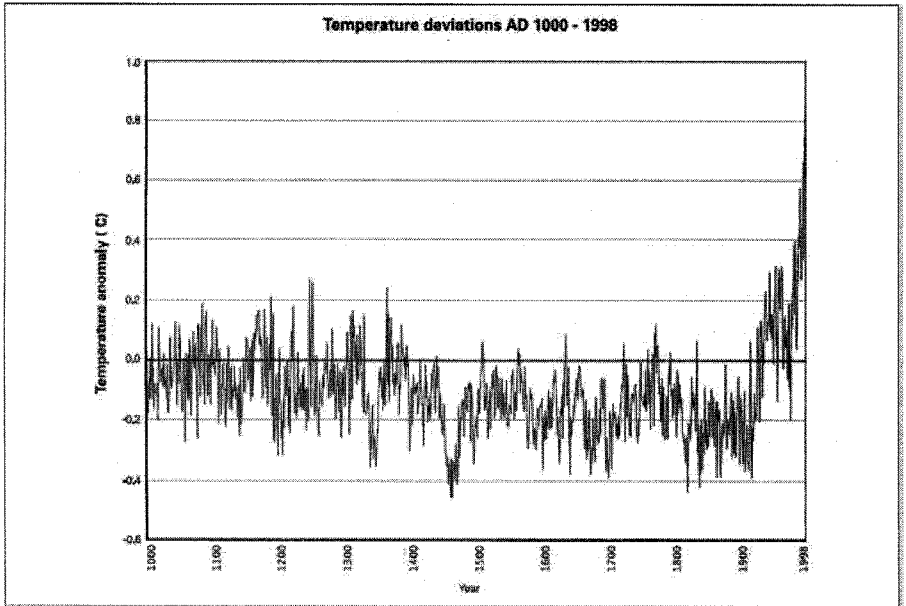
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6. See ASTRI SUHRKE, PRESSURE POINTS: ENVIRONMENTAL DEGRADATION, MIGRATION AND CONFLICT (1993) [hereinafter SUHRKE, PRESSURE POINTS], available at <http://www.cmi.no/publications/file/?1374=pressure-points-environmental-degradation>; Astri Suhrke, *Environmental Degradation, and Population Flows*, 47 J. INT’L AFF. 473 (1994); Graeme Hugo, *Environmental Concerns and International Migration*, 30 INT’L MIGRATION REV. 105 (1996); William B. Wood, *Ecomigration: Linkages between Environmental Change and Migration*, in GLOBAL MIGRANTS, GLOBAL REFUGEES: PROBLEMS AND SOLUTIONS 42 (Aristide R. Zolberg & Peter Benda eds., 2001).

7. GAIM KIBREAB, PEOPLE ON THE EDGE IN THE HORN: DISPLACEMENT, LAND USE AND THE ENVIRONMENT IN THE GEDAREF REGION, SUDAN (1996).

8. STEPHEN DEVEREUX, THEORIES OF FAMINE 22-23, 129-30 (1994); JEAN DRÈZE & AMARTYA SEN, HUNGER AND PUBLIC ACTION 68 (1989); see generally ALEXANDER DE WAAL, FAMINE THAT KILLS: DARFUR, SUDAN, 1984-1985 (1989); AMARTYA SEN, POVERTY AND FAMINES (1981).

9. BEN WISNER ET AL., AT RISK: NATURAL HAZARDS, PEOPLE’S VULNERABILITY AND DISASTERS 128 (2003).

Fig. 1 Temperature deviations AD 1000-1998<sup>10</sup>Figure 1. Temperature Deviations AD 1000-1998 for the Northern Hemisphere<sup>10</sup>

Droughts have historically been some of the causal agents of human migration and according to some analysts, even to the collapse of pre-historic and early historic societies.<sup>11</sup> However, as will be seen throughout this article, migration is a multi-causal phenomenon, and drought is only one of the multiple factors that prompt people to emigrate in search of alternative sources of incomes or livelihoods. The corollary is that drought alone does not necessarily drive people to emigrate. Contrary to public perception, natural factors are not necessarily the cause of drought. Although natural factors may be partly responsible for drought, it is important to guard against naturalising its effects on famine and human

10. Nils P. Gleditsch, Ragnhild Nordås, & Idean Salehyan, *Climate Change and Conflict: the Migration Link: Coping with Crisis 2* (International Peace Academy, Working Paper Series, 2007), available at [http://www.ipinst.org/media/pdf/publications/cwc\\_working\\_paper\\_climate\\_change.pdf](http://www.ipinst.org/media/pdf/publications/cwc_working_paper_climate_change.pdf).

11. Boko et al., *supra* note 5, at 437.

migration. This is because droughts' impacts on human settlements, livelihoods and economic activities are mediated by political, economic and social factors which determine people's coping mechanisms in terms of their ability to resist, or withstand the effects of droughts and other associated hazards.<sup>12</sup> In the arid and semi-arid regions of the global south, the effects of droughts on livelihoods and human migration are difficult to isolate from livelihood threats, dislocations and displacements caused by the combined effects of conflict and war.<sup>13</sup>

Scholarly opinions on the cause of the massive drought that afflicted the Sahel region in the 1970s and 1980s were deeply divided between those who attributed the problem to anthropogenic factors<sup>14</sup> and those who argued that the drought was caused by natural phenomena reflected in natural climate cycle.<sup>15</sup> The social consequences of the Sahelian drought were also equally contested. Some activists, including a few vocal ecologists, envisaged the draught completely wiping out the basis of livelihoods and forcing tens of millions of people to flee in search of relief food and alternative settlement sites. For example, Norman Myers claimed that in "parts of Sub-Saharan Africa, where 80 million people were considered to be semi-starving due primarily to environmental factors, seven million people had been obliged to migrate in order to

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12. KIBREAB, *supra* note 7, at 19.

13. *Id.* at 18-19.

14. See FOUAD N. IBRAHIM, *ECOLOGICAL IMBALANCE IN THE REPUBLIC OF SUDAN WITH REFERENCE TO DESERTIFICATION IN DARFUR* (1984); see also JOHN A. DIXON, DAVID E. JAMES, & PAUL B. SHERMAN, *THE ECONOMICS OF DRYLAND MANAGEMENT* 1 (1989); ERIK .P. ECKHOLM, *LOSING GROUND: ENVIRONMENTAL STRESS AND WORLD FOOD PROSPECTS* 22 (1976); ALAN GRAINGER, *THE THREATENING DESERT: CONTROLLING DESERTIFICATION* 1-2 (1990); Paul Harrison, *Beyond the Blame Game: Population-Environment Links*, 17 *POPULI* 14, 14-16 (1990); R. D. Mann, *Time Running Out: The Urgent Need for Tree Planting in Africa*, 20 *ECOLOGIST* 48, 48-49 (1990); H. F. Lamprey, *Report on the Desert Encroachment Reconnaissance in Northern Sudan*, in *DESERTIFICATION CONTROL BULLETIN* at 1-7 (United Nations Environment Programme, No. 17, 1988).

15. See EVA ALHCRONA, *THE IMPACT OF CLIMATE CHANGE AND MAN ON LAND TRANSFORMATION IN CENTRAL SUDAN: APPLICATIONS OF REMOTE SENSING* (1988); Ulf Helldèn, *Desertification: Time for Assessment?*, 20 *AMBIO* 372, 382 (1991); ULF HELLDÈN, *DROUGHT IMPACT MONITORING: A REMOTE SENSING STUDY OF DESERTIFICATION IN KORDOFAN, SUDAN* (1984); Lennart Olsson, *Integrated Resource Monitoring by Means of Remote Sensing, GIS and Spatial Modelling in Arid Environments*, 5 *SOIL USE AND MGMT.* 30, 30 (1989).

obtain relief food.”<sup>16</sup> It was further argued by Myers and other like-minded scholars that these so-called massive population movements may constitute a threat to the national security of receiving societies.<sup>17</sup>

Although it is imprudent to deny the link between drought and migration, the generalisation that people inhabiting drought-prone regions are most vulnerable to famine and to environmentally-induced large-scale displacement because they lack the capacity to adapt to such environmental conditions is made with limited examination of the long-standing coping strategies developed over time through trial and error. The inhabitants of the Sahelian countries, have, for example, throughout modern history lived on the razor’s edge of survival, eking out meager existence under adverse and uncertain conditions. This is because cyclical drought has always been a characteristic feature of the region. As a result, the inhabitants have been able to develop intricate natural resource management systems to cope with such ecological stresses.<sup>18</sup> Undoubtedly, migration has been increased by the severity and intensity of drought in some parts of sub-Saharan Africa, but the explanation cannot be sought solely in environmental or population changes. During the last five decades, the problem of drought in this region has been compounded by wars, conflicts and lack of political stability.

For example, in the Horn of Africa, the preponderance of conflicts and wars have broken down the resilience of the natural environment and the coping strategies of the inhabitants. This is mainly because war has created safe and unsafe areas. The safe areas have become overcrowded and the resources degraded due to over use whilst the

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16. Norman Myers, Professor, Green College, Oxford University, Remarks at the 13th Economic Forum of the Organization for Security and Co-operation in Europe: Environmental Refugees: An Emergent Security Issue 1 (May 22, 2005) (transcript *available* at [http://www.osce.org/documents/eea/2005/05/14488\\_en.pdf](http://www.osce.org/documents/eea/2005/05/14488_en.pdf)).

17. *Id.* at 3.

18. Deborah F. Bryceson & Jodie Fonseca, *Risking Death for Survival: Peasant Responses to Hunger and HIV/AIDS in Malawi*, 34 WORLD DEV. 1654, 1656 (2006); Ian Scoones, Stephen Devereux, & Lawrence Haddad, *Introduction: New Directions for African Agriculture*, 36 IDS BULL. 1, 1-2 (2005); L.T. Ajibade & O. Shokemi, *Indigenous Approach to Weather Forecasting in Asa. L.G.A., Kwara State, Nigeria*, 2 INDILINGA: AFR. J. OF INDIGENOUS KNOWLEDGE SYS. 37 (2003).



unsafe areas have remained underutilised. This has rendered the previously sustainable land use practices or systems obsolete. As a result, those faced with imminent risk of subsistence insecurity have had to emigrate in order to eke out a meager existence.<sup>19</sup>

The assumption that drought-induced migrations are permanent is also misconceived. Sally Findley states that until recently it was thought that drought-induced displacements were permanent and further observes that recent studies cast doubt on these assumptions.<sup>20</sup> Using a longitudinal study undertaken in 1982 and 1989 in Mali, she concluded, "the level of migration did not rise during the drought of 1983-1985. However, there was a dramatic increase in the migration of women and children during the severe 1983-1985 drought . . . there was a shift to short-cycle circulation, with 64% of the migrants adopting circular patterns."<sup>21</sup> She also refers to a study conducted in Bamaco which showed that both women and men were circular rather than permanent migrants.<sup>22</sup> She distinguishes circular migrants from other migrants by the duration they stay away from home:

A circular migrant stays away between one and six months and upon return participates in the economic and social life of the household. He or she retains an economic and social role within the original household unit. In contrast, permanent migrants stay away more than six months, do not return to participate as regular members in the life of the household, and do not plan to return. The migrant has shifted his or her work and residence completely to the new location.<sup>23</sup>

Other studies show that climate *per se* seldom constitutes a root cause of migration but functions as an exacerbating factor.<sup>24</sup>

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19. Gaim Kibreab, *Migration, Environment and Refugeehood*, in ENVIRONMENT AND POPULATION CHANGE 115, 116-117 (Basia Zaba & John Clarke eds., 1994) [hereinafter Kibreab, *Refugeehood*]; GAIM KIBREAB, *supra* note 7, at 18-21.

20. Sally Findley, *Does Drought Increase Migration? A Study of Migration from Rural Mali During the 1983-1985 Drought*, 28 INT'L MIGRATION REV. 539, 539 (1994).

21. *Id.*

22. *Id.*

23. *Id.* at 540.

24. See sources cited *supra* note 6.

Elizabeth Meze-Hausken, in her study of one of the poorest and drought and famine stricken areas of Ethiopia—the Tigray—region concluded, “*any speculative scenario of mass migration under climate change must be rejected for dryland populations whose main strategies are built on adaptation rather than on resignation.*”<sup>25</sup> There are, however, other studies to show that the Sahelian drought not only had catastrophic effects on the inhabitants’ livelihoods, but it also induced thousands of people to migrate in search of food relief. For example, Hal Sheets’ and Roger Morris’ study described the dramatic effects of the Sahelian drought as follows:

The drought struck the Sahel with savage effect. From the spring of 1968 there were ebbing water supplies, chronic crop failures, and a recurrent need for emergency food shipments to a million or more people. The disaster was visibly etched in the ecology of the region. By 1971, Lake Chad was reduced to one-third its normal size. The great Senegal and Niger rivers were shrunken in many places to shallow streams. Each year the wasteland of the Sahara moved to shallow streams. Each of the wasteland of the Sahara moved relentlessly southward across the 2,600-mile belt. Ten miles here, fifty miles there, the desert consumed the parched land without vegetation or moisture to hold it back. The flight of some pastoral people began as early as 1968 as hunger hit various areas of Mali, Niger, and Senegal. By 1972 the migrations were massive, ending in the refugee camps, new urban slums, or death. USAID reports estimated the loss of livestock, the livelihood of nine out of ten people in the region, at 33 percent at the lowest in Niger to virtual annihilation in Mali.<sup>26</sup>

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25. Elisabeth Meze-Hausken, *Migration Caused by Climate Change: How Vulnerable are People in Dryland Areas? A Case Study of Northern Ethiopia*, 5 MITIGATION & ADAPTATION STRATEGIES FOR GLOBAL CHANGE 379, 402 (2000) (emphasis added); see also Elisabeth Meze-Hausken, *Contrasting Climate Variability and Meteorological Drought with Perceived Drought in Northern Ethiopia*, 27 CLIMATE RES. 19 (2004).

26. Hal Sheets & Roger Morris, *Disaster in the Desert*, in THE POLITICS OF NATURAL DISASTER: THE CASE OF THE SAHEL DROUGHT 25, 31-32 (Michael H. Glatz ed., 1976).

Although the immediate damaging effects of the drought were undoubtedly true, the fact that Findley's and PUM's studies conducted a decade after Sheet and Morris' study showed no such dramatic effects may show that even in drought-prone areas, such as the Sahel region, droughts are cyclical climatic events and their effects are reversible. Consequently, drought-induced displacements or migrations are in the majority of cases, temporary or circular.

It is, however, important to note that it is not just climate change that induces circular migration in sub-Saharan Africa. Seasonal migration has always been a vital coping mechanism and an integral part of the production systems. This is confirmed by the Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change in which it is stated:

The role of migration as an adaptive measure, particularly as a response to drought and flood, is . . . well known. Recent evidence, however, shows that such migration is not only driven by periods of climate stress but is also driven by a range of other possible factors. *Migration is a dominant mode of labour (seasonal migration), providing a critical livelihood sources. The role of remittances derived from migration provides a key coping mechanism in drought and non-drought years . . .*<sup>27</sup>

The report further states that in the case of Africa, there are no detailed studies to show a causal link between climate change and migration. "A variety of migration patterns could thus emerge, e.g., repetitive migrants (as part of ongoing adaptation to climate change) and short-term shock migrants (responding to a particular climate event). *However, few detailed assessments of such impacts using climate as a driving factor have been undertaken for Africa.*"<sup>28</sup>

In spite of the paucity of data, there was and still is a tendency to attribute the recurrent problems of famine that afflicted the Sahel region of West Africa, the Horn of Africa and northeast Brazil solely

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27. Boko et al., *supra* note 5, at 452 (emphasis added).

28. *Id.* at 450 (emphasis added); see also Gertrud Schreider & Beatrice Knerr, *Labour Migration as a Social Security Mechanism for Smallholder Households in Sub-Saharan Africa: The Case of Cameroon*, 28 OXFORD DEV. STUDIES 223 (2000).

to drought and other events such as floods. However, climate change has recently surfaced as an additional exacerbating factor in the explanations of food insecurity, population displacement, conflict at the source and destination.<sup>29</sup> It is undoubtedly true that drought is one of the many factors that contribute to food shortages, but not all crop shortages or failures caused by natural conditions create a famine situation.<sup>30</sup> As Hugon observes one of the significant differences between people who flee from persecution and from environmental change is “environmental migration is often the result of a complex set of multiple pressures of which an environmental event is only the proximate cause.”<sup>31</sup>

Suhrke observed that when perceived from a broader development perspective, environmental degradation represents a proximate rather than ultimate cause of migration. She further asserts that demography and political economy rather than the environment are more salient causal factors. She further states, “[y]et, these obviously interact in critical ways with specific environmental variables. Sometimes the result is stress of a kind that leads to massive outmigration. But to understand why, it is necessary to focus on the broader development process.”<sup>32</sup> Richmond reiterates the same by stating, “when environmental degradation leads to migration it is generally as a proximate cause linked to questions of economic growth, poverty, population pressure, and political conflict.”<sup>33</sup> As Hugon correctly argues, in most cases, especially in the developing societies, the deeper underlying causes of migration are not environmental but are related to political, economic, social and demographic processes. It is important therefore that policy interventions address the more fundamental causes of the migration rather than the triggering event which initiates migration.<sup>34</sup>

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29. Boko et al., *supra* note 5, at 456; Cruz et al., *supra* note 5, at 471; NICHOLAS STERN, *THE ECONOMICS OF CLIMATE CHANGE: THE STERN REVIEW* 97, 111 (2006), available at [http://www.hm-treasury.gov.uk/d/Part\\_II\\_Introduction\\_group.pdf](http://www.hm-treasury.gov.uk/d/Part_II_Introduction_group.pdf).

30. SEN, *supra* note 8; Philippe Hugon, *Food Insecurity and Famine in Southern Africa, and Economic Debate: Lack of Availabilities, Market Failures, Inequalities of Rights, Effects of Shocks or Systemic Risks?* (unpublished paper prepared for SARNP Meeting: Food Security in Southern Africa, Pretoria, March 18, 2003).

31. Hugon, *supra* note 30, at 109.

32. SUHRKE, *PRESSURE POINTS*, *supra* note 6, at 7.

33. Hugon, *supra* note 30, at 117.

34. *Id.* at 118.

As noted earlier, in war-torn or conflict-ridden societies, migration is a complex multi-causal process in which different factors interact to engender varied responses, including internal migration and, in few cases, migration across an international border. In the 1980s, the Horn of Africa was a major refugee producing region. These displacements were due to interplay between persecution, conflict, war, drought and environmental degradation.<sup>35</sup> In the 1990s, there were about 4 million internally displaced persons (IDPs) in the Sudan of which about one million were in the capital Khartoum. Johnathan Bascom, among others, states:

The vast majority of these people fled to the capital to escape the brutalities of a protracted civil war in the southern region of the country, exacerbated further by drought, a series of famines, the erosion of their agricultural production systems, and finally, the collapse of their former way of life.<sup>36</sup>

From the 1970s onwards, sub-Saharan Africa faced rising numbers of forced migrants caused by a combination of political instability, persecution, civil wars, drought, high population densities, poverty, lack of off-farm income-generating opportunities, climate variability, land degradation, inequitable resource distribution, inauspicious property rights regimes in conjunction with corrupt and inefficient administrations and commercialisation of agricultural production.<sup>37</sup> As a result, some ecologists have argued that most population displacements occurring in the poor countries in the global south were environmentally rather than politically-induced.<sup>38</sup> Interestingly,

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35. KIBREAB, *supra* note 7, at 18-20.

36. Johnathan Bascom, 'Internal Refugees: The Case of the Displaced in Khartoum,' in GEOGRAPHY AND REFUGEES: PATTERNS AND PROCESSES OF CHANGE 33, 33 (Richard Black & Vaughan Robinson eds., 1993).

37. KIBREAB, *supra* note 7, at 19; see also GAIM KIBREAB, STATE INTERVENTION AND THE ENVIRONMENT IN SUDAN, 1889-1989: THE DEMISE OF COMMUNAL RESOURCE MANAGEMENT, at xviii (2002) [hereinafter KIBREAB, STATE INTERVENTION]; Gaim Kibreab, *Property Rights, Development Policy and Depletion of Resources: The Case of the Central Rainlands of Sudan, 1940s-1980s*, 7 ENV'T & HIST. 57 (2001).

38. See NORMAN MYERS & JENNIFER KENT, ENVIRONMENTAL EXODUS: AN EMERGENT CRISIS IN THE GLOBAL ARENA 24-27 (1995); JODI L. JACOBSON,

the view that environmental degradation rather than persecution lay at the heart of mass population movement in South Asia and Africa was shared by the states in the global north, which feared that the erosion of livelihood systems in such regions would force millions of starving people into their territories. Most governments used such a perceived catastrophic scenario to justify their restrictive refugee and immigration policies. According to this view, the overwhelming majority of the internally and internationally displaced persons were to be considered environmental rather than political refugees.<sup>39</sup>

### III. CLIMATE CHANGE AND HUMAN MIGRATION: THE NEW SURGE OF INTEREST

The debate on climate change and migration has taken a sharp turn in the recent past with a resurgence of interest in the debate on climate change and its social consequences, especially human migration. Wisner *et al.* state that climate change “is becoming a major focus in understanding the possible increase of extreme events, in which natural hazards are magnified in intensity and frequency. Yet it is almost certain that the reasons for this climate change are

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ENVIRONMENTAL REFUGEES: A YARDSTICK OF HABITABILITY 5, 6 (Worldwatch Inst., Worldwatch Paper 86, 1988); David S. Lazarus, *Environmental Refugees: New Strangers at the Door*, 2 OUR PLANET 12 (1990); Norman Myers, *Environmental Refugees*, 19 POP. & ENV'T 167 (1997); Norman Myers, *Environmental Refugees in a Globally Warmed World: Estimating the Scope of What Could Become a Prominent International Phenomenon*, 43 BIOSCIENCE 752 (1993) [hereinafter Myers, *Globally Warmed World*]; Norman Myers, *Environmental Refugees: A Growing Phenomenon of the 21st Century*, 357 PHIL. TRANS. R. SOC. LOND. B. 609 (2001); Myers, *supra* note 16; Arthur H. Westing, *Environmental Refugees: A Growing Category of Displaced Persons*, 19 ENVTL. CONVERSATION 201 (1992). *But see* Gaim Kibreab, *Environmental Causes and Impact of Refugee Movements: A Critique of Current debate*, 21 DISASTERS 20 (1997) [hereinafter Kibreab, *Environmental Causes*]; Kibreab, *Refugeehood*, *supra* note 19, at 116-117; JoAnn McGregor, *Refugees and the Environment*, in GEOGRAPHY AND REFUGEES: PATTERNS AND PROCESSES OF CHANGE 157, 158-60 (Richard Black & Vaughan Robinson eds., 1993); Richard Black, *Environmental Refugees: Myth or Reality?* (EPAU Working Paper No. 34, 2001), available at <http://www.unhcr.org/research/RESEARCH/3ae6a0d00.pdf>. *See generally* ESSAM EL-HINNAWI, ENVIRONMENTAL REFUGEES (1985).

39. *See* L. Timberlake et al., *Environment and Conflict: Links Between Ecological Decay, Environmental Bankruptcy and Political and Military Instability* (Earthscan Briefing Document No. 40, 1984).

rooted in human activities generating increased levels of 'greenhouse gases' in the atmosphere."<sup>40</sup> It is commonly agreed that climate change, or what is commonly referred to as global warming, has been leading to incremental and rapid ecological change and disruption. Some of the common impacts of climate change are increased frequency and severity of tropical cyclones, landslides and flooding, increased droughts, desertification, sea-level rise and coastal inundation, as well as more frequent extreme weather events.<sup>41</sup>

Some analysts have predicted that this is likely to diminish the human carrying capacity of the environmental resources as reflected in severe shortages of food, water and energy, as well as extreme natural events or processes.<sup>42</sup> Although there may still be a few dissenting opinions, the science of climate change is recognised by the majority in the scientific community, many of whom argue that climate change is likely to have a dramatic effect on human migration. For example, the *Stern Review* estimates that by the middle of the twenty-first century, about 200 million 'climate refugees' may be permanently displaced due to rising sea-levels, floods, and droughts.<sup>43</sup>

Nevertheless, as seen earlier, the impact of climate change on human migration and conflict is still less clear. Whatever claims exist on climate change and human migration, as well as climate change and conflict are indicative or tentative not conclusive. This is because the state of the current knowledge on the climate change-migration-conflict nexus is still at its inchoate stage. The thinking underlying postulation that climate change is likely to trigger massive human migration is underpinned by the yet unproven but plausible assumption that climate change can render some environments uninhabitable or dramatically reduce their productive capacity. Consequently, the subsistence security of populations whose

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40. WISNER ET AL., *supra* note 9, at 136.

41. See BERNSTEIN ET AL., *supra* note 1, at 53; Boko et al., *supra* note 5.

42. See PETER SCHWARTZ & DOUG RANDALL, AN ABRUPT CLIMATE CHANGE SCENARIO AND ITS IMPLICATIONS FOR UNITED STATES NATIONAL SECURITY 1 (2003), *available at* [www.environmentaldefense.org/documents/3566\\_AbruptClimateChange.pdf](http://www.environmentaldefense.org/documents/3566_AbruptClimateChange.pdf).

43. See STERN, *supra* note 29; see also BERNSTEIN ET AL., *supra* note 1. For the extent of climate change for the period between 1000 and 1998 see Fig. 1.

livelihoods are directly dependent on environmental resources, sensitive to climate change, may be compromised.<sup>44</sup>

Climate change could lead to variation in the amounts and patterns of rainfall leading to droughts, floods and sudden onset extreme weather conditions. It may also lead to the melting of the polar icecaps leading to sea-level rise and substantial temperature increase (see Fig. 1) which may adversely affect agricultural production, fisheries, common resources and other related income-generating activities.<sup>45</sup> A study conducted on the impact of climate change on Himalayan Glaciers and Glacial Lakes in 2007, for example, concluded:

The global mean temperature is expected to increase between 1.4 to 5.8°C over the next hundred years. The consequences of this change in global climate are already being witnessed in the Himalayas where glaciers and glacial lakes are changing at alarming rates. Himalayan glaciers are retreating at rates ranging from 10 to 60m per year and many small glaciers (<0.2 sq. km) have already disappeared. Our study shows that the terminus of most of the high altitude valley glaciers in Bhutan, China, and Nepal are retreating very fast; vertical shifts as great as 100m have been recorded during the last fifty years and retreat rates of 30m per year are common.<sup>46</sup>

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44. Gleditsch et al., *supra* note 10, at 1; see also CAMILLO BOANO, ROGER ZETTER & TIM MORRIS, UNIVERSITY OF OXFORD, ENVIRONMENTALLY DISPLACED PEOPLE: UNDERSTANDING THE LINKAGES BETWEEN ENVIRONMENTAL CHANGE, LIVELIHOODS AND FORCED MIGRATION (2008) available at [http://www.reliefweb.int/rw/lib.nsf/db900sid/OCHA-7GMHJF/\\$file/rsc\\_Nov2008.pdf?openelement](http://www.reliefweb.int/rw/lib.nsf/db900sid/OCHA-7GMHJF/$file/rsc_Nov2008.pdf?openelement); Sara Curran, *Migration, Social Capital, and the Environment: Considering Migrant Selectivity and Networks in Relation to Coastal Ecosystems*, 28 POPULATION & DEV. REV. 89 (2002).

45. STERN, *supra* note 29, at 81.

46. SAMJWAL R. BAJRACHARYA, PRADEEP K. MOOL & BASANTA R. SHRESTHA, INTERNATIONAL CENTRE FOR INTEGRATED MOUNTAIN DEVELOPMENT, IMPACT OF CLIMATE CHANGE ON HIMALAYAN GLACIERS AND GLACIAL LAKES: CASE STUDIES ON GLOF AND ASSOCIATED HAZARDS IN NEPAL AND BHUTAN, at xi (2007), available at [http://www.rrcap.unep.org/reports/file/Impact\\_Climate\\_Change.pdf](http://www.rrcap.unep.org/reports/file/Impact_Climate_Change.pdf).



The consequence of this on the livelihood systems of the inhabitants is likely to be considerable. In the absence of effective adaptive capacity and appropriate preemptive or counteracting measures, such changes may also potentially trigger migration.

In the short and medium-terms, climate change is likely to affect different areas of the world differently. Whilst some parts of the world may become too hot and consequently uninhabitable, others may become fertile and available for agricultural production and habitation.<sup>47</sup> The IPCC report asserts that by 2020, between 75 and 250 million people may face water shortage due to climate change and crop yields may be reduced by 50 percent in some regions.<sup>48</sup> The reduction in agricultural production due to climate change is likely to be more detrimental to societies whose livelihoods are dependent on agriculture, such as Africa and South Asia than, the developed world whose livelihood systems are highly diversified.

Climate change may also have detrimental effects on human health due to shortage of food, water, malnutrition, diseases, such as diarrhea, cardio-respiratory diseases due to higher concentrations of ground-level ozone in urban areas, malaria, cholera and yellow fever.<sup>49</sup>

The social impact of climate change or vulnerability to such change is a function of access to resources, technology, information, environmental circumstances, and institutional stability and effectiveness.<sup>50</sup> Those regions, countries and localities with greater access to resources, information, technology and institutional capacity are more likely to adapt to climate change than others.<sup>51</sup> The IPCC report states, “[v]ulnerability to climate change can be exacerbated by other stresses. These arise from, for example, current climate hazards, poverty, unequal access to resources, food

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47. Gleditsch et al., *supra* note 10, at 2.

48. BERNSTEIN ET AL., *supra* note 1, at 50.

49. *Id.* at 48; Boko et al., *supra* note 5, at 435.

50. BERNSTEIN ET AL., *supra* note 1, at 56.

51. See Neil W. Adger, *Approaches to Vulnerability to Climate Change* 5, 20 (Ctr. for Soc. and Econ. Res. on the Global Env't, Working Paper GEC 96-05, 1996), available at [http://www.uea.ac.uk/env/cserge/pub/wp/gec/gec\\_1996\\_05.pdf](http://www.uea.ac.uk/env/cserge/pub/wp/gec/gec_1996_05.pdf); see also Neil W. Adger et al., *Adaptation to Climate Change in the Developing World*, 3 PROGRESS IN DEV. STUD. 179 (2003) [hereinafter Adger et al., *Developing World*].

insecurity, trends in economic globalisation, conflict and incidence of diseases such as HIV/AIDS.”<sup>52</sup>

#### IV. CLIMATE CHANGE, POVERTY AND ADAPTATION

Whether climate change results in massive population displacement is very much dependent not only on the nature of the change, but more importantly on the adaptive capacity of the affected population.<sup>53</sup> However, not only is adaptive capacity dynamic but it is also a function of “a society’s productive base, including natural and man-made capital assets, social networks and entitlements, human capital and institutions, governance, national income, health and technology. It is also affected by multiple climate and non-climate stresses, as well as development policy.”<sup>54</sup> Although all societies are essentially able to adapt to climate change and other similar risks, some parts of the ecosystem are more sensitive to climate change and some groups in society are more vulnerable to risks posed by climate change than others.<sup>55</sup>

Poverty is one of the major constraints on the capacity to cope and adapt to environmental change.<sup>56</sup> Poor people, due to lack of access to resources, information, technology and social connections have very low adaptive capacity. As a result, they tend to be vulnerable to the damaging effects of climate change and other calamities. In South East Asia, for example, poverty in combination with socio-economic and infrastructural constraints limit the ability of people to conserve biodiversity and to adapt to climate change.<sup>57</sup> As the IPCC report indicates, countries where there is high incidence of poverty have lower adaptive capacity.<sup>58</sup>

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52. BERNSTEIN ET AL., *supra* note 1, at 56; *see also* STERN, *supra* note 29.

53. WISNER ET AL., *supra* note 9.

54. BERNSTEIN ET AL., *supra* note 1, at 56.

55. Adger et al., *Developing World*, *supra* note 51, at 179.

56. Neil Adger, P. Mick Kelly & Nguyen Huu Ninh, *Environment, Society and Precipitous Change*, in *LIVING WITH ENVIRONMENTAL CHANGE: SOCIAL VULNERABILITY, ADAPTATION AND RESILIENCE IN VIETNAM* 6 (Neil W. Adger, P. Mick Kelly, & Nguyen Huu Ninh eds., 2001).

57. Navjot S. Sodhi et al., *Southeast Asian Biodiversity: An Impending Disaster*, 19 *TRENDS ECOL. EVOL.* 654, 658 (2004).

58. Cruz et al., *supra* note 5, at 492.

The corollary is that regions such as Africa have relatively low adaptive capacity to climate change due to the high level of poverty, recurrent natural disasters, e.g. droughts and floods. The situation is further exacerbated by the dominance of rain-fed agriculture and unfavourable terms of trade resulting from reliance on export of primary rather than manufactured goods. The IPCC Fourth Assessment Report, Working Group II, states, "Africa is one of the most vulnerable continents to climate change and climate variability, a situation aggravated by the interaction of 'multiple stresses,' occurring at various levels, and low adaptive capacity."<sup>59</sup> The report further states:

Africa's major economic sectors are vulnerable to current climate sensitivity, with huge economic impacts, and this vulnerability is exacerbated by existing developmental challenges such as endemic poverty, complex governance and institutional dimensions; limited access to capital, including markets, infrastructure and technology; ecosystem degradation; and complex disasters and conflicts. These in turn have contributed to Africa's weak adaptive capacity, increasing the continent's vulnerability to projected climate change.<sup>60</sup>

A region's or a country's adaptive capacity is also influenced by local and national governance, civil and political rights and literacy.<sup>61</sup> Although, as stated earlier, there are no evidence-based studies that examine the link between climate change and migration in Africa, environmental factors are likely to influence settlements and population movements. However, this is an empirical question that needs to be established rather than taken for granted.

The *Stern Review* asserts that millions of people whose adaptive capacities and livelihoods are eroded by resource scarcities, droughts, desertification, floods, and rising sea levels may be left with no other alternative but to emigrate as a last resort adaptation. It is further stated that radical climate change could cause large-scale migration and conflict in some parts of the developing societies. This is likely

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59. Boko et al., *supra* note 5, at 435.

60. *Id.*

61. *Id.* at 452.

to be exacerbated by the fact that the populations in these areas are expected to grow by an additional 2-3 billion people in the coming few decades.<sup>62</sup>

#### V. CLIMATE CHANGE AND VULNERABILITY

Nations', communities' and households' responses to environmental processes and events are widely varied depending on their vulnerability and resilience. The latter is the function of access to rights, resources and assets.<sup>63</sup> Vulnerability refers to "*the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard (an extreme natural event or process).*"<sup>64</sup> Wisner *et al.* further state that some groups are more vulnerable to hazards in terms of being more prone to damage, loss and suffering in the face of differing hazards. To them, this differentiated effect is a reflection of the fact that vulnerability is a function of class, occupation, ethnicity, caste, gender, disability, health status, age, and immigration status and social networks.<sup>65</sup> Other analysts use the concept of vulnerability in terms of capacity of a community, a group or an individual to resist the damaging effects of hazards and the ability to recover from their effects with relative ease.<sup>66</sup>

Vulnerability is not solely measured in terms of a certain group's ability to resist, withstand or recover from the deleterious effects of sudden or slow onset hazards, but also in terms of inability to reconstruct livelihoods after being struck by such a disaster. This inability makes the group more vulnerable to the effects of future disasters.

Vulnerability to the consequences of environmental change is experienced differently by each household in the face of commonly faced environmental risk. Whilst some households may adapt to

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62. STERN, *supra* note 29, at 111.

63. Mark Pelling, *Paradigms of Risk, in* NATURAL DISASTERS AND DEVELOPMENT IN A GLOBALIZING WORLD 3, 6, 9, 11 (Mark Pelling ed., 2003); *see also* IAN BURTON, ROBERT W. KATES, & GILBERT F. WHITE, *THE ENVIRONMENT AS HAZARD* 18-21 (1993).

64. WISNER ET AL., *supra* note 9, at 11 (emphasis added).

65. *Id.*

66. MARY B. ANDERSON & PETER J. WOODROW, *RIISING FROM THE ASHES: DEVELOPMENT STRATEGIES IN TIMES OF DISASTER* 10-11 (1988).

environmental change by mobilising their economic and social resources, those without such resources may adapt by resorting to seasonal or permanent migration. It is important to emphasise, however, that migration decisions do not always involve whole families. More often than not, families respond to adverse environmental changes through diversification of their sources of income by allocating their family labour to different economic activities in different locations. This may mean that whilst some family members stay at home to prepare the farms for the next season, others may migrate in search of income-generating activities. Some family members may also migrate to relief camps to benefit from food rations. It is only when the basis of subsistence is completely eroded that families and groups adopt migration as a means of overcoming the threat of vulnerability to hunger and in extreme circumstances to famine.<sup>67</sup>

Migration is one of the myriad coping strategies people inhabiting drought-prone areas adopt. Such people, i.e. those living in arid and semi-arid areas have well-developed varieties of adaptation mechanisms and coping strategies that underpin their capability to cope with the consequences of slow onset processes and extreme and unpredictable climatic events. Coping refers to the manner in which people act within the limits of available resources and range of expectations to achieve various ends.<sup>68</sup> It involves defence mechanisms which enable the group concerned to resist or withstand the effects of hazards, ability to solve problems, as well as to develop methods of handling stress.<sup>69</sup>

People in disaster prone environments are faced with recurrent crises which require effective mobilisation of resources, diversification of income sources either to minimise their effects or to cope with their impact. The people often develop the capacity to predict future similar events based on their past experiences as well as the capacity to cope with such adversity.<sup>70</sup> Such coping strategies are built on the basis of the assumption that the future hazard is likely to be similar to the one that struck in the past and inasmuch as most

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67. See GAIM KIBREAB, REFUGEES AND DEVELOPMENT IN AFRICA: THE CASE OF ERITREA 269-73 (1987).

68. WISNER ET AL., *supra* note 9.

69. *Id.* at 113.

70. *Id.* at 115.

disasters tend to have precedents, especially in hazardous social and physical environments, such knowledge constitutes the edifice of the foundation on which such population's coping strategies rest.<sup>71</sup>

In the Horn of Africa where the majority of the rural populations live dangerously close to the subsistence margin, pastoralists' and small farmers' adaptation to the stern weather conditions reflected in erratic and inadequate rainfall include raising different species of livestock, e.g. camels, cattle, sheep and goats. During dry seasons, water is conserved by keeping camels away from water points or wells for at least one week. Cattle are brought to wells or water points once every three days, sheep every other day and goats every day.<sup>72</sup> Grazing resources are also conserved through rotational grazing. Often dry cattle and camels are kept away from settlements and only milking cattle and goats are kept around settlements. Small farmers on the other hand avoid or minimise the risk of crop failure or low crop yields by growing fast maturing and less thirsty crop varieties.<sup>73</sup> These resource and land use practices constitute the central thrust of the coping strategies that enable the inhabitants of the stern environment to cope in adversity.

At the national level, the degree of vulnerability of a country, a community or a household is to a large extent influenced by social, economic and institutional factors. This suggests, therefore, that climate changes, whether sudden or slow onset, do not occur in a socio-economic and institutional vacuum. Consequently, their effects are spatially and socially differentiated.

## VI. CLIMATE CHANGE AND UNCERTAINTIES

In spite of the recent advances on the science of climate change, there are many uncertainties regarding the various assertions hitherto made on the link between climate change and migration. For example, there is a tendency to take for granted the negative impact of climate change on precipitation, food insecurity and water supply. There are studies to show that the relationship is not that

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71. *Id.*

72. KIBREAB, STATE INTERVENTION, *supra* note 37, at 254-56.

73. Kibreab, *Environmental Causes*, *supra* note 38, at 22; KIBREAB, *supra* note 7, at 134-35; *see also* KIBREAB, STATE INTERVENTION, *supra* note 37.

straightforward. The Contribution of Working Group II to the Fourth Assessment Report of the IPCC states:

While climate models are generally consistent regarding the direction of warming in Africa, projected changes in precipitation are less consistent . . . . The links between land-use changes, climate stress and possible feedbacks are not yet clearly understood. The contribution of climate to food insecurity in Africa is still not fully understood, particularly the role of other multiple stresses that enhance impacts of droughts and floods and possible future climate change. While drought may affect production in some years, climate variability alone does not explain the limits of food production in Africa. Better models and methods to improve understanding of multiple stresses, particularly at a range of scales, e.g. global, regional and local, and including the role of climate change and variability, are therefore required . . . . Impacts in the water sector, while addressed by global—and regional-scale model assessments, are still relatively poorly researched, particularly for local assessments and for ground water impacts . . . . There is still much uncertainty in assessing the role of climate change in complex systems that are shaped by interacting multiple stressors.<sup>74</sup>

The reason why climate change is said to constitute a major cause of displacement is because of its potentially detrimental effect on precipitation, food security and water supply. The implication of these findings is, therefore, critical in the sense that it is important to exercise caution when predicting the effect of climate change on human migration. The relationship is still tenuous.

The impact of climate change on human migration is equally uncertain. This is underscored by a study undertaken by the International Migration Organisation (IOM) in which it is stated:

Considering the volume of recent academic and policy publications about the impacts that climate change might

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74. Boko et al., *supra* note 5, at 457.

have on migration, the number of empirical studies of contemporary manifestations of the influence of climate on migration is surprisingly small. *Of these, empirical results of the impact of drought on migration have found, that drought seems to cause an increase in the number of people who engage in short-term rural to rural types of migration, but does not affect, or even decrease international, long-distance moves.*<sup>75</sup>

The IOM study further states that studies on the effect of hurricanes on migration have produced even fewer results than the studies that examined the impact of drought on migration.<sup>76</sup> The study is consistent with the findings of the Contribution of Working Group II to the Fourth Assessment Report of the IPCC which concluded that the assumption that environmental change inevitably leads to population displacement is not backed by empirical evidence.

In all societies where livelihood systems are derived directly from renewable resources, such as land, water and common property resources, the environment has always been one of the direct or indirect multiple drivers of migration. Like in all social phenomena that result from a combination of inextricably interwoven multiple factors, it is methodologically and empirically difficult to determine with an acceptable degree of accuracy the factors that induce people to move. Migration whether it is forced or voluntary must always be seen as a complex multi-causal phenomenon.

However, although it may be statistically possible to establish the contribution of each factor using multivariate statistical analysis, correlation is not the same as causation. This leads to difficulty in isolating the role of each of the multiple factors that cause migration, including the environment in the calculus of migrants' decision-making. Understanding human motivation, including the decision to migrate even in the presence of seemingly apparent explanations is one of the most complicated problems analysts in refugee and

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75. Dominic Kniveton et al., *Climate Change and Migration: Improving Methodologies to Estimate Flows* 6 (International Organization for Migration, Research Series No. 33, 2008), available at [http://www.reliefweb.int/rw/lib.nsf/db900sid/PANA-7FNH8T/\\$file/IOM\\_june2008.pdf?openelement](http://www.reliefweb.int/rw/lib.nsf/db900sid/PANA-7FNH8T/$file/IOM_june2008.pdf?openelement).

76. *Id.* at 35.



migration studies face. Appearances notwithstanding, migration decisions are complex because, *inter alia*, people migrate for a variety of reasons. As a result, it is difficult to establish causal relations between the environment and migration. As Vikram Kolmannskog perceptively argues:

Humans are not entities that can be understood easily within the natural science reductionist/isolationist cause and effect framework. Migrants should no more than others be reduced to and seen as mere passive victims. There is a myriad of factors in a person's life that may motivate him or her to act in one way or another and the degree of force will vary.<sup>77</sup>

As noted earlier, climate change as a cause of displacement cannot be isolated from other inextricably interacting factors. When people are exposed to external stressors, including climate change or violence, their responses are rarely identical. Irrespective of the severity of the exposure to external pressure, migration is one of a variety of responses or options that the affected populations resort to. This is because, *inter alia*, people's resource endowments and consequently their adaptive capacities are varied. Drawing some insights from a previous study conducted by the author, on the dynamics of forced migration among Eritreans who were exposed to drought and imminent danger of violence,<sup>78</sup> an attempt is made here to discuss the potential responses to climate change.

During the thirty years' war of Eritrean independence, the large majority of Eritreans were subjected to gruesome violence.<sup>79</sup> Notwithstanding the fact that people were subjected to similar life-threatening circumstances, different individuals and groups responded differently to the threats. The responses of the people, facing imminent dangers to their lives, fell under six categories. One

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77. VIKRAM O. KOLMANNSKOG, NORWEGIAN REFUGEE COUNCIL, FUTURE FLOODS OF REFUGEES: A COMMENT ON CLIMATE CHANGE, CONFLICT AND FORCED MIGRATION 11 (2008), available at [http://www.nrc.no/arch/\\_img/9268480.pdf](http://www.nrc.no/arch/_img/9268480.pdf); see also Lamprey, *supra* note 14.

78. See KIBREAB, *supra* note 67; Gaim Kibreab, *Rural Refugee Land Settlements in Eastern Sudan: On the Road to Self-Sufficiency?*, in REFUGEES AND DEVELOPMENT IN AFRICA 63, 63-71 (Peter Nobel ed., 1987).

79. See KIBREAB, *supra* note 67, at 15.

group, the large majority, adopted a 'wait and see' attitude and stayed put in spite of their awareness that this option was risky. A second group abandoned their places of origin and became internally displaced temporarily until the intensity of the threat eased. A third group, albeit a few, accepted the option of being relocated to state-designated 'security villages' or commonly known as 'strategic hamlets.' A fourth group abandoned their villages and relocated to the rebel-controlled or liberated areas. A fifth group joined the liberation struggle to be part of the forces that were determined to eliminate the root and proximate causes of the violence that disrupted their lives. A sixth group crossed an international border in search of protection or refugee status.

Although five out of the six responses involved some form of movement, the nature of the movements in terms of destination, length of stay and the profile of the movers varied considerably.<sup>80</sup> For the majority of the categories, migration was a mechanism of adaptation resorted to in response to adverse circumstances which were perceived as being transient. For those who fled the country to seek protection in a neighbouring country or far afield, migration was a manifestation of inability to adapt to adverse circumstances.

The insight drawn from this experience is that when people are faced with severe environmental problems precipitated by climate change, some may depending on their degree of vulnerability and coping capacity stay put and face the consequences. However, this can only happen when the environmental stressor in question is not related to sudden onset natural disaster, such as floods, forest fires, hurricanes, earthquakes, volcanic eruptions and tornadoes or sudden/man-made disasters, such as the Bhopal chemical spill, and the nuclear accident in Chernobyl. In the case of gradual natural/man-made disasters, such as desertification, land degradation, global sea rise induced by global warming, deforestation and aquifer depletion, the large majority of the affected populations are likely to stay put and face the consequences.

Another group may, depending on their resources, undertake pre-emptive, adaptive or restorative measures to alleviate the adverse effects of the environmental stressors. This option may be adopted as an additional measure to offset, countervail or alleviate the effect of climate change, *inter alia*, by diversification of sources of income.

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80. *See id.*

Different family members may thus engage in diverse income-generating activities, such as wage labor, petty trade, handicrafts, and raising of different species of livestock without being uprooted from their places of habitation. Like Eritreans, others may become IDPs while a few may cross international borders in search of alternative livelihood and settlement. It is for these reasons that it is difficult to predict the responses of people subjected to stressors of climate change.

This is further complicated by the fact that neither the environment nor migrants are homogenous. Some environments are sensitive to human interference and natural processes, but others are more resilient in terms of their capacity of absorption of the effects and shocks, as well in terms of their recovery from such effects or shocks.<sup>81</sup> For example, there is ample evidence to show that the environment in the arid and semi-arid regions of the world is less sensitive and more resilient than in the rest of the world. This is acknowledged in the IPCC Fourth Assessment Report in which it is stated, "impacts of climate change may occur beyond certain thresholds in the ability of some ecosystems to adapt without dramatic change in their functions and resilience. The inherent sensitivity of some ecosystems, habitats and even species with extremely narrow ranges of biogeographic adaptability will also limit the options and effectiveness of adaptation."<sup>82</sup>

## VII. THE DEBATE ON 'ENVIRONMENTAL REFUGEES'

The term environmental refugee was coined by Lester Brown of the World Watch Institute in the 1970s. In 1984, the term was used in an Earthscan's publication.<sup>83</sup> In 1985, Essam el-Hinnawi of the United Nations Environment Programme (UNEP) defined 'environmental refugees' as "those people who have been forced to

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81. B. H. Walker & I. Noy-Meir, *Aspects of the Stability and Resilience of Savanna Ecosystems*, in *ECOLOGY OF TROPICAL SAVANNAS: ECOLOGICAL STUDIES, ANALYSIS AND SYNTHESIS* 556, 556-57 (B. J. Huntley & B. H. Walker eds., 1982); B. H. Walker, *Stable Production Versus Resilience: A Grazing Management Conflict*, 15 *PROCEEDINGS OF THE GRASSLAND SOC'Y OF SO. AFR.* 79 (1980); B. H. Walker et al., *Stability of Semi-Arid Savanna Grazing Systems*, 69 *J. ECOL.* 473 (1981).

82. Cruz et al., *supra* note 5, at 492.

83. Timberlake et al., *supra* note 39.

leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardised their existence and/or seriously affected the quality of their life.”<sup>84</sup> El-Hinnawi identified three categories of ‘environmental refugees,’ namely, those who are displaced temporarily, but return when the factors that prompted them to flee cease to exist; those who move permanently and are settled elsewhere; and those who migrate from their homes of origin temporarily or permanently because the environment on which their livelihoods depend are degraded and are consequently unable to eke out a living.<sup>85</sup>

According to Jodi Jacobson of the Worldwatch Institute, the term ‘environmental refugee’ was used in 1984 in reference to the Haitian boat people.<sup>86</sup> In her view, the extent of land degradation in the country was so bad that people had no choice but to take the dangerous journey to south Florida thereby becoming the first ‘environmental refugees’ in the world. She identified the causes of this environmentally-induced displacement as land degradation, unsustainable farming methods, high rate of population growth and over cultivation which led to land exhaustion and industrial waste.<sup>87</sup> She distinguishes between three types of environmental refugees, namely:

[T]hose displaced temporarily due to local disruption such as an avalanche or earthquake; those who migrate because environmental degradation has undermined their livelihood or poses unacceptable risks to health; and those who resettle because land degradation has resulted in desertification or because of other permanent and untenable changes in their habitat.<sup>88</sup>

In 1989, a former UNDP official, David Barker, defined ‘environmental refugee’ as referring “to individuals whose movement is caused by a combination of environmental and political and/or who

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84. EL-HINNAWI, *supra* note 38, at 4.

85. *Id.* at 4-5.

86. *See generally* JACOBSON, *supra* note 38.

87. *Id.* at 8-9.

88. *Id.* at 37-38.

are unable or unwilling to avail themselves of the protection of their own countries in dealing with the impacts of environmental disruptions.”<sup>89</sup>

Anthony Catanese identifies David Barker’s definition of ‘environmental refugees’ as the clearest especially because it “uses Haiti’s deforestation as an example of ‘slow-onset disruptions.’” These environmental disruptions “have complex root causes in which ecological and human activities interact over extended periods, leaving large numbers of people vulnerable.”<sup>90</sup> Barker further argues that these “causal factors are mutually interdependent; they create feedback which accelerates the process and reduces the capacity of the ecosystems to regenerate themselves.”<sup>91</sup>

Barker’s definition is inextricably linked to the state or the government sector and specifically to the slow-onset disruptions caused by humans and more importantly by government agents. The interdependence of ecological, economic and political factors in prompting people to flee was first recognised by Mats Lundahl.<sup>92</sup> DeWind and Kinley, as well as Lundahl argue that the predatory Haitian government relentlessly abused the agricultural environment and consequently eroded the basis of the livelihood systems of the Haitian population.<sup>93</sup> Norman Myers defined ‘environmental refugees’ as “people who can no longer gain a secure livelihood in their erstwhile homelands because of drought, soil erosion, desertification, and other environmental problems. In their desperation, they feel they have no alternative but to seek sanctuary elsewhere, however, hazardous the attempt.”<sup>94</sup>

An important question that arises is whether people who emigrate due to actual or perceived threat to sources of livelihoods should be defined as refugees. The definitions presented in the preceding paragraphs have nothing in common with Article 1A of the 1951 U.N. Convention which defines refugees as:

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89. ANTHONY V. CATANESE, HAITIANS: MIGRATION AND DIASPORA 50 (1999).

90. *Id.*

91. *Id.*

92. MATS LUNDAHL, THE HAITIAN ECONOMY: MAN, LAND AND MARKETS 39-40 (1983); Mats Lundahl, *A Note on Haitian Migration to Cuba, 1890-1934*, 12 CUBAN STUDIES 22 (1982).

93. CATANESE, *supra* note 89, at 51.

94. Myers, *Globally Warmed World*, *supra* note 38, at 752.

[A]ny person who . . . owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it.<sup>95</sup>

Persons whose displacement is environmentally-induced do not flee from ‘well-founded fear of persecution.’ As a result, the use of the term ‘refugee’ to refer to persons whose displacement is prompted by environmental degradation would point to nature as the persecuting agent instead of man’s unsustainable use of resources.<sup>96</sup> Neither the environment nor climate change can by any stretch of the imagination fall under the five reasons—*race, religion, nationality, membership of a particular social group or political opinion*—stipulated in the 1951 U.N. Convention. Unlike refugees who cross an international border to seek asylum because of ‘well-founded fear of persecution,’ most environmentally-induced migrants are likely to remain within their countries of origin.

The only time environmentally-induced displacees may be regarded as ‘refugees’ is when the state uses environment as an instrument of political oppression. This is because at the heart of the notion of persecution lies state failure to provide protection. This happens when the state is either the perpetrator of persecution or is unwilling or unable to protect its citizens against harm perpetrated by non-state actors. None of this is true in environmentally-induced displacement save the exception in which a state may use the environment as an instrument of persecution. As Renaud *et al.* state, “[u]nless it is assumed that ‘nature’ or the ‘environment’ can be the

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95. Convention Relating to the Status of Refugees, *opened for signature* July 28, 1951, 189 U.N.T.S. 137, 137-38, *available at* <http://www2.ohchr.org/english/law/pdf/refugees.pdf>.

96. See Boko *et al.*, *supra* note 5, at 450; *see also* STERN, *supra* note 29.

persecutor, the term refugee does not appear suitable for describing those displaced by environmental factors . . . .”<sup>97</sup>

Notwithstanding this fact, some scholars, including Renaud *et al.*<sup>98</sup> prefer to refer to those who are allegedly displaced by drought and environmental degradation as ‘environmental refugees.’<sup>99</sup> For example, William Wood identifies a specific sub-set of a category of refugees who can be regarded as ‘true ‘environmental refugees.’ This sub-category in his view includes people who are victimised by an explicit ‘ecocidal’ policies or activities of oppressive regimes. The Marsh Arabs in southern Iraq or refugees whose repatriation opportunities are stifled by the littering of their homelands with landmines or destruction of infrastructure by combatants or government forces.<sup>100</sup>

The question to ask however is why the Marsh Arabs of Southern Iraq cannot be considered political refugees rather than ‘environmental refugees.’ Wood further notes that “this ecological destruction is less the root cause of refugee flight and more the means of military oppression.”<sup>101</sup> As such, people who are targeted and militarily oppressed as was the case of the Marsh Arabs are refugees and it is unclear why Wood prefers to describe them as ‘environmental refugees.’ However, his observation that the environment is a relevant factor in all types of migration, including in refugee flights is apt. The reaction of migration specialists to the advent of the concept of ‘environmental refugee’ has been to say the least, lukewarm, and its use has been heavily criticised and rejected by forced migration and refugee studies scholars.<sup>102</sup>

Graeme Hugo suggests that the term ‘environmental migrant’ is more appropriate than ‘environmental refugee,’ and although he agrees with Richmond’s assertion that, “the reality of external and

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97. FABRICE RENAUD ET AL., CONTROL, ADAPT OR FLEE: HOW TO FACE ENVIRONMENTAL MIGRATION? 14 (Institute for Environment and Human Security, U.N. Univ., Intersections Publication Series No. 5, 2007), available at <http://www.ehs.unu.edu/file.php?id=259>.

98. *Id.*

99. Timberlake et al., *supra* note 39; see also EL-HINNAWI, *supra* note 38, at 4-5; JACOBSON, *supra* note 38, at 6.

100. Wood, *supra* note 24, at 46.

101. *Id.*

102. McGregor, *supra* note 38, at 157-58; see also Black, *supra* note 38; Kibreab, *Refugeehood*, *supra* note 19, at 122-25.

internal migration induced mainly, or partly, by environmental factors cannot be denied,”<sup>103</sup> he argues that environmental change is a factor that leads to involuntary migration and should be recognised academically and politically as such.<sup>104</sup> In his view, the major difference between political and civil conflict induced and environment-induced displacement is that whilst in the latter the affected people can seek refuge within their own countries, the former flee to seek asylum in another country.<sup>105</sup>

Renaud *et al.* define a forced environmental migrant “as a person who ‘has’ to leave his/her place of normal residence because of an environmental stressor (. . .) as opposed to an environmentally motivated migrant who is a person who ‘may’ decide to move because of an environmental stressor.”<sup>106</sup> To them, what distinguishes forced environmental migrant from environmentally motivated migrant is the degree of severity of the stressor. If the stressor is so severe that it leaves the people concerned with no other option but to leave their homes, those people are according to Renaud *et al.*’s definition refugees or forced environmental migrants. There is nothing wrong with their definition. It is their use of this description interchangeably with the term ‘refugee’ that makes it problematic. They argue “in this essay we retain the term refugee to characterize people precipitously fleeing their place of residence because of an environmental stressor regardless of whether or not they cross an international border.”<sup>107</sup> The question that arises is: how could the term ‘refugee’ apply to a person who has not crossed an international border and whose flight has nothing to do with state failure to protect?

#### VIII. THE MAGNITUDE OF ENVIRONMENTALLY-INDUCED MIGRANTS/’REFUGEES’

Assuming it is possible to distinguish environmentally displaced persons from other types of migrants, it is interesting to estimate the number. In spite of many bold attempts to invent such figures, the honest answer is no body knows how many they are because no one

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103. Hugo, *supra* note 24, at 109.

104. *See id.* at 107-08.

105. *Id.* at 109.

106. Renaud *et al.*, *supra* note 97, at 11-12.

107. *Id.* at 14.



has counted them. Besides, given the multi-causal nature of the factors that prompt them to migrate; they are not easy to distinguish from other types of migrants save those who are displaced by extreme climatic events. This is exacerbated by the fact that there is no agreed definition of what constitutes an 'environmental refugee.' However, this has not deterred some analysts from attempting to estimate the number of what they call 'environmental refugees.'" In 1989, Myers stated, "[a]lthough there are no accurate breakdown figures, the author believes, on the basis of 24 years' residence in the region [Africa], that many more refugees deserve to be classified primarily as environmental refugees rather than as political refugees."<sup>108</sup> El-Hinnawi estimated the total number of environmental refugees at 30 million in 1985 while UNEP's director predicted that the total number of environmental refugees will reach 50 million by the end of 2010.<sup>109</sup> We are already in 2010 and there is no evidence to suggest that this happened. In 2005, Myers stated:

As far back as 1995 (latest date for a comprehensive assessment), these environmental refugees totalled at least 25 million people, compared with 27 million traditional refugees . . . . The environmental refugees total could well double between 1995 and 2010. Moreover, it could increase steadily for a good while thereafter as growing numbers of impoverished people press ever harder on overloaded environments. *When global warming takes hold, there could be as many as 200 million people overtaken by disruptions of monsoon systems and other rainfall regimes, by droughts of unprecedented severity and duration, and by sea level-rise and coastal flooding.*<sup>110</sup>

He further opined that by 2050 there will be 30 million environmental refugees in China, 30 million in India, 15 million in Bangladesh, 14 million in Egypt, 10 million in other delta areas and

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108. Kibreab, *Refugeehood*, *supra* note 19, at 116 (quoting Norman Myers, *Population Growth, Environmental Decline and Security Issues in Sub-Saharan Africa*, in *ECOLOGY AND POLITICS* 211, 253 (Anders Hjort af Ornas & M. A. Mohammed Salih eds. 1989)).

109. BOANO ET AL., *supra* note 44, at 12.

110. MYERS & KENT, *supra* note 38, at 1 (emphasis added).

coastal zones, one million in Island states, and 50 million in agriculturally dislocated areas—in total 150 million.<sup>111</sup> Myers' figures are invariably quoted or referred to by those who want to show the 'catastrophic' or dramatic effects of climate change, including by the Intergovernmental Panel on Climate Change (IPCC) and the *Stern Review*. But, as Oli Brown perceptively states, "repetition does not make the figure any more accurate."<sup>112</sup> This figure, even by Myers' admission, involved some "heroic extrapolations"<sup>113</sup> and cannot therefore be used for evidence-based policy formulation. None of the figures referred to above are based on either total enumeration or representative sample. They are all manufactured by well-meaning analysts and environmental lobbyists who on the one hand, wrongly believe that it is possible to isolate climate change as a cause of migration and on the other, want to warn the world that it is 'sleep walking into a disaster.'

In 2005, the U.N. University's Institute for Environment and Human Security predicted that by 2010, there will be 50 million 'environmental refugees.'<sup>114</sup> According to the *Stern Review*, "[t]he total number of people at risk of displacement or migration in developing countries is very large. This ranges from the millions at risk of malnutrition and lack of clean water to those currently living in flood plains."<sup>115</sup> The report notes that, "[w]orldwide, nearly 200 million people today live in coastal flood zones that are at risk; in South Asia alone, the number exceeds 60 million people."<sup>116</sup> In addition, there are potentially between 30 to 200 million people at risk of hunger with temperature rises of 2 to 3°C—rising to 250 to 550 million people with a 3°C warming; and between 0.7 to 4.4 billion people who will experience growing water shortages with a temperature rise of 2°C."<sup>117</sup>

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111. Myers, *Globally Warmed World*, *supra* note 38 at 757.

112. OLI BROWN, MIGRATION AND CLIMATE CHANGE 9 (Int'l Org. for Migration, Res. Ser. No. 31, 2008).

113. *Id.* at 12.

114. *Id.* at 11. It is 2010 and there is no indication to suggest that there has been marked change since this prediction was made in 2005.

115. STERN, *supra* note 29, at 111.

116. *Id.*

117. *Id.* at 112; *see also supra* Fig. 1.

The IPCC also predicted that by 2050, there will be about 150 million environmental refugees.<sup>118</sup> Nicholls also observed that by 2080, between 50 and 200 million people may be displaced by climate change.<sup>119</sup> Friends of the Earth estimate that the total number of climate refugees will reach 200 million world-wide by 2050.<sup>120</sup> According to UNEP, in Africa alone, there could be as many as 50 million environmental refugees. Christian Aid's figures are astronomical—one billion people could be permanently displaced by 2050—250 million due to climate change-related occurrences, such as droughts, floods, and hurricanes and 645 million by dams and other development projects.<sup>121</sup>

The absence of accurate figures should not be construed to imply that sudden onset climate events do not displace very large numbers of people. This is not a moot point. For example, Hurricane Andrew which hit the southern tip of Florida on 24 August in 1992 displaced 353,000 people temporarily and according to Stanley Smith and Christopher McCarty, about 40,000 people left the county permanently as a direct result of the hurricane.<sup>122</sup> Hurricane Katrina, which devastated the Gulf Coast of the United States in August 2005, temporarily displaced over a million people.<sup>123</sup> It is not clear how many of these people will leave the county permanently. The Indian Ocean tsunami that hit a dozen of Asian and African countries on 26 December 2004, resulted in 230,000 dead or missing people and 2.1 million displaced.<sup>124</sup> More specifically, the tsunami, which affected

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118. FRIENDS OF THE EARTH AUSTRALIA, A CITIZEN'S GUIDE TO CLIMATE REFUGEES 11 (2007), available at <http://www.foe.org.au/resources/publications/climate-justice/CitizensGuide.pdf>.

119. *Id.* (citing Robert J. Nicholls, *Coastal Flooding and Wetland Loss in the 21st Century: Changes under the SRES Climate and Socioeconomic Scenarios*, 14 GLOBAL ENVTL. CHANGE 69 (2004)).

120. *Id.*

121. Sustainable Development and Much More, Over a Billion Climate Change Refugees in 2050?, <http://www.elrst.com/2008/05/19/over-a-billion-climate-refugees-in-2050>, (May 19, 2008) ("According to two sources—UNHCR and the NGO Christian Aid—as much as a billion people may find themselves homeless or stateless by the middle of the century.").

122. Stanley K. Smith & Christopher McCarty, *Demographic Effects of Natural Disasters: A Case Study of Hurricane Andrew*, 33 DEMOGRAPHY 265, 265 (1996).

123. Button & Oliver-Smith, *supra* note 2 at 123.

124. AlertNet.org, Indian Ocean Tsunami, [http://www.alertnet.org/db/crisisprofiles/SA\\_TID.htm](http://www.alertnet.org/db/crisisprofiles/SA_TID.htm) (last visited Apr. 7, 2009).

13 countries, displaced 2,089,883 people, destroyed the livelihoods of 1.5 million people, and destroyed 392,544 houses whose reconstruction cost was estimated at \$10,375 billion.<sup>125</sup>

The extent to which the tsunami is linked to climate change is not clear. The British government's chief scientific advisor, Professor King, warned, "[t]he tsunami disaster underlines the threat posed by climate change."<sup>126</sup> He further stated, "[w]hat is happening in the Indian Ocean underlines the importance of the earth's system to our ability to live safely. And what we are talking about in terms of climate change is something that is really driven by our own use of fossil fuels, so this is something we can manage."<sup>127</sup> However, Dr. Klaus Toepfer, the director of the U.N. Environment Programme, asserted that the tsunami and changing climate were not linked, but warned, "it would be a huge mistake to concentrate on just one threat while giving less attention to the second."<sup>128</sup>

It is not disputed here that environmental degradation is one of the main drivers of migration. It is also foolhardy to deny that the role of the environment in population displacement is likely to intensify with the dramatic climate change that is in the process of unfolding worldwide. What is rejected here is the application of the term 'refugee' to those whose migration is triggered by environmental degradation without reference to state action or inaction.<sup>129</sup>

To the author's knowledge, hitherto none of the well-meaning analysts who uncritically apply the term 'environmental refugee' to describe those who flee due to climate processes reflected in slow onset changes, such as sea-level rise induced by global warming, land degradation, desertification, deforestation, aquifer depletion, growing water scarcity and food insecurity, as well as climate events such as cyclones, floods, tsunamis, hurricanes, typhoons, forest fires has

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125. *Id.*

126. *Tsunami Highlights Climate Change Risk, Says Scientist*, GUARDIAN.CO.UK, Dec. 31, 2004, <http://www.guardian.co.uk/education/2004/dec/31/highereducation.uk1>.

127. *Id.*

128. Alex Kirby, *Beware Tsunamis and Climate—UN*, BBC NEWS, Jan. 6, 2005, <http://news.bbc.co.uk/1/hi/sci/tech/4152331.stm>.

129. See McGregor, *supra* note 38, at 157; see also Kibreab, *Environmental Causes*, *supra* note 38; Kibreab, *Refugeehood*, *supra* note 19, at 116; Black, *supra* note 38.

provided convincing scientific and systematic argument to justify their position.

Although there has recently been a new surge of academic and policy interest in the issue of 'environmental refugee' as a result of the debate on climate change and projected large numbers of population displacement, the substance of the debate has not progressed beyond what it was in the 1990s.

In the remaining part of the article, the arguments and counter arguments concerning whether or not environmentally displaced persons or what some analysts refer to as 'environmental refugees' should be accorded similar rights and protection as those available to political refugees will briefly be discussed.

#### IX. THE DEBATE ON PROTECTION OF FORCED ENVIRONMENTAL MIGRANTS

In 1989, David Barker argued that "the distinctions between environmental migrants and environmental refugees are not just semantic."<sup>130</sup> Environmental refugees," he said, "unlike others who move, require outside protection of the actions, or in some cases inactions, of their own countries against them."<sup>131</sup> The distinction between environmental migrants and environmental refugees, according to Barker, is that in the latter, the state is culpable and only those whose displacement is attributable to state culpability either in terms of its actions or inactions "require outside protection" because they have lost the protection of their government.<sup>132</sup> It seems that Barker is talking about only those who have fled their country to seek protection elsewhere because the state has destroyed the single most important source of their livelihood—land. Those who are displaced internally for the same reasons are excluded from his realm of protection. And so are those who emigrate due to environmental degradation but in which there is no direct or indirect state collusion or culpability. This is a very reasonable position except that the group which Barker refers to as 'environmental refugees' can be accorded protection as political refugees.

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130. CATANESE, *supra* note 89, at 50.

131. *Id.* (internal quotations omitted).

132. *Id.*

In 2003, the New Economic Foundation forcefully argues that people displaced by environmental change regardless of state involvement directly or indirectly should be accorded protection and the cost of catering for their needs should be met by the culpable or pollutant states.<sup>133</sup> As we shall see in the following paragraphs, although the reasoning underlying Molly Conisbee's and Andrew Simms' arguments are different from those espoused by scholars of the 1980s and 1990s, they argue in favour of granting the same rights and protection to those who are displaced by climate change as refugees.<sup>134</sup> In their view, "[t]he case for expanding the Geneva Convention to include those displaced by environmental degradation is based on the notion that the environment can be used as an instrument of harm."<sup>135</sup> They further point out, "the Geneva Convention should be expanded to incorporate a category of 'environmental persecution' . . . [the] Convention defines a refugee as someone forced to flee because of a well-founded fear of persecution." In their view, "[a] well-founded fear of starvation or drowning is a compelling reason to escape."<sup>136</sup> No one can dispute the fact that the threats posed by climate change and their effects on subsistence security constitute a 'compelling reason' to force people to flee. But does that fact alone make them refugees? The New Economic Foundation and like-minded analysts and lobbyists do not seem to realise the danger of opening the Refugee Convention for renegotiation in the current context of inauspicious political and economic climate.

Renaud *et al.* state:

Interestingly, Kibreab argues that the term 'environmental refugee' was "invented at least in part to depoliticise the causes of displacement, so enabling states to derogate their obligation to provide asylum. The rationale is that states have no obligation to provide asylum to those who flee their homes because of environmental deterioration rather than political persecution. In international refugee law,

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133. See MOLLY CONISBEE & ANDREW SIMMS, ENVIRONMENTAL REFUGEES: THE CASE FOR RECOGNITION (2003).

134. *Id.*; see also RENAUD ET AL., *supra* note 97.

135. CONISBEE & SIMMS, *supra* note 133, at 30.

136. *Id.* at 30-31 (emphasis added).

environmental conditions do not constitute a basis for international protection.” *We argue, to the contrary, that environmental conditions should be considered as one element forcing people to flee their places of origin and as such should be afforded similar rights and protection as refugees fleeing because of other causes.*<sup>137</sup>

Inasmuch as people flee due to interplay between inextricably interwoven factors, such as war, conflict, persecution, economic hardship and environmental degradation, evidently, the environment must be factored in as one of the diverse elements that drive migration. In that sense, Renaud *et al.*'s contention is not a moot point. However, what they leave unexplained is the fact that if forced environmental migrants, as they argue, are people who are forced to relocate internally or across international borders due to environmental deterioration, on what grounds can the term ‘refugee’ be applied to describe them? Furthermore, on what grounds are they to be accorded similar rights and protection as those whose flight is prompted by political persecution perpetrated by the state or by non-state actors in the context of state complicity or impotence? Renaud *et al.* and other scholars who share these views fail to address this critical question and therefore leave their readers in limbo.

If people whose displacement is prompted by severe environmental stressors are to be accorded similar rights and protection as refugees, is there a reason why such rights and protection should not be extended to all persons who flee life threatening conditions regardless of the cause or the nature of the stressor? After all, persons who are forced to migrate because of environmental stressor, no matter how severe, are fundamentally doing so because their place of origin or habitual residence has become hazardous for human habitation or the productive capacity of resources is severely depleted. What this essentially suggests is that people who migrate due to environmental degradation or climate change, in the absence of state complicity or culpability, no matter the severity of the deterioration, are indistinguishable from people who abandon their places of origin due to severe economic hardship in search of employment, food relief or self-employment.

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137. RENAUD ET AL., *supra* note 97, at 14 (internal citations omitted, emphasis added).

In view of the fact that the overwhelming majority of forced environmental migrants are likely to relocate themselves within their countries of origin, is there any rationale that justifies the use of the term 'refugees' rather than IDPs to describe them? According to paragraph 2 of the Introduction of The Guiding Principles on Internal Displacement, IDPs are:

[P]ersons who have been forced or obliged to flee or to leave their homes or places of habitual residence in particular as a result of, or in order to avoid the effects of, armed conflict, situations of generalized violence, violations of human rights or *natural or human-made disasters*, and who have not crossed an internationally recognized state border.<sup>138</sup>

The reasons most well-meaning advocacy groups and some scholars mainly apply the term 'refugee' to environmentally displaced persons is to highlight their plight and to raise public awareness. No person, scholar or otherwise, would argue against the need to provide material and technical assistance to those whose livelihoods are threatened or are eliminated by climate change. However, the obvious question that arises is: do they need to be defined as 'refugees' considering that refugees are people who have lost not only their livelihoods and all their possessions, but also the protection of their governments? On the contrary, environmentally displaced persons are people who have lost their livelihoods not because they are targeted by their governments or their governments are unwilling to help them. It is this that defines the fundamental difference between refugees and environmental migrants. Nevertheless, the fact that people displaced by natural or man-made disasters are included in the definition of Guidelines on IDPs indicates the need for protection and assistance of persons who are displaced within the territories of their own countries is clearly recognised not within but outside the international refugee protection regime.

The question of whether the international protection regime should be extended to accommodate the protection and material needs of

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138. Francis Deng, *Guiding Principles on Internal Displacement*, 33 INT'L MIGRATION REV. 484, 465-66 (1999) (emphasis added).



new categories of displaced persons whose advent was envisaged neither by the lawyers who drafted the Refugee Convention nor by the states that ratified it has been one of the most vexing problems facing the international community. The initial temporal and the geographic limitations in the 1951 U.N. Convention indicated that the refugee problem was conceived as a European problem and as such a transient one. However, the conflicts that accompanied the decolonisation process and nation-building generated large numbers of displaced populations in areas where there was a gap in the international protection regime. One way by which the international community responded to the new developments was by employing the 'good offices' doctrine in which UNHCR was authorised by the U.N. General Assembly to provide protection and assistance in particular countries where it did not have a mandate. Between 1957 and 1962, many such resolutions were adopted. Those who benefited from the UNHCR 'good offices' doctrine included IDPs, returnees and people in refugee-like situations.<sup>139</sup>

Even though the temporal and geographic limitations of the 1951 U.N. Convention were eliminated by the adoption of the 1967 Protocol relating to refugee status, the large majority of those who were displaced by the conflicts and tensions that permeated the decolonisation process and nation-building remained outside the purview of the Convention. In response, the OAU Convention Relating the Specific Refugee Problem in Africa was adopted in 1969. The OAU Convention considerably broadened the definition of the term refugee by including "external aggression, occupation, foreign domination or events seriously disturbing public order"<sup>140</sup> as additional grounds for claiming a refugee status. The Cartagena

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139. See GAIM KIBREAB, *THE STATE OF THE ART REVIEW OF REFUGEE STUDIES IN AFRICA* (Uppsala Papers in Economic History, Res. Rep. No. 26, 1991); see also G.A. Res. 1784 (XVII), U.N. Doc. A/5217 (Dec. 7, 1962); G.A. Res. 1672 (XVI), U.N. Doc. A/5100 (Dec. 18, 1961); G.A. Res. 1500 (XXV), U.N. Doc. A/4684 (Dec. 5, 1960); G.A. Res. 1389 (XIV), U.N. Doc. A/4354 (Nov. 20, 1959); G.A. Res. 1388 (XIV), U.N. Doc. A/4354 (Nov. 20, 1959); G.A. Res. 1286 (XIII), U.N. Doc. A/4090 (Dec. 5, 1958); G.A. Res. 1167 (XII), U.N. Doc. A/3805 (Nov. 26, 1957); G.A. Res. 1129 (XI), U.N. Doc. 3572 (Nov. 21, 1956); Inter-Am. C.H.R., *Declaration de Cartagena*, in *ANNUAL REPORT OF THE INTER-AMERICAN COMMISSION ON HUMAN RIGHTS 1984-1985*, OEA/Ser.L/V/II.66, doc. 10 rev. 1 (1985).

140. Convention Governing the Specific Aspects of Refugee Problems in Africa art. 1 § 2, Sept. 10, 1969, 1001 U.N.T.S. 45.

Declaration also adopted similar formulation in which it was stated that people who flee from “generalised violence, foreign aggression, internal conflicts, massive violations of human rights or other events which have seriously disturbed public order, could be granted a refugee status.”<sup>141</sup>

However, in spite of the expanded definition of the term ‘refugee,’ many categories still remained outside the realm of the protection regime and this led to proliferation of diverse, but ill-defined and confusing terminologies, such as ‘mass distressed migrants,’ ‘environmental refugees,’ ‘persons in refugee-like situations,’ ‘persons of concern to UNHCR,’ ‘internally displaced persons,’ ‘environmental refugees,’ ‘economic refugees,’ and ‘climate change refugees.’ In the global north, some of these categories are referred to as ‘bogus refugees,’ ‘asylum shoppers.’<sup>142</sup> This has led to calls by some social scientists for either the broadening of the definition to encompass all or most of these categories or the creation of a special international apparatus to deal with the category of IDP.<sup>143</sup> Zolberg *et al.*, for example, strongly argued in favour of broadening the definition of the term refugee to include even those persons who flee their places of origin because of being subjected to life-threatening violence. It was argued:

Movement is most clearly involuntary when it is forced—that is, when it occurs as a response to life-threatening violence, exercised by an agent or occurring as a by-product of circumstances. *Violence* includes both clear and immediate physical violence, and coercive circumstances that have similarly threatening effects. *Life* includes both biological existence and social existence, and basic material and organizational conditions necessary to maintain them. The more immediate and intense the life-threatening

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141. Inter-Am. C.H.R., *supra* note 139, at 180.

142. Kibreab, *Refugeehood*, *supra* note 19, at 123.

143. See ARISTIDE ZOLBERG ET AL., *ESCAPE FROM VIOLENCE: CONFLICT AND THE REFUGEE CRISIS IN THE DEVELOPING WORLD* (1989); see also Kibreab, *supra* note 19.

violence, the more clearly a person is a refugee rather than a migrant.<sup>144</sup>

Although Zolberg *et al.* do not directly refer to people displaced by natural and man-made disasters and environmental degradation, depending on the intensity of the pressure they are subjected to, people fleeing from life-threatening violence or circumstances can be considered as 'refugees.' Coercive circumstances even when not perpetrated by a state or by a state's agents are said to be sufficient grounds for 'refugee' status. The key criterion used by the authors is the degree or intensity of need. If the circumstance regardless of its cause is life-threatening, then the victim is a refugee and not a migrant and should consequently be accorded full protection.<sup>145</sup>

The fear of persecution stipulated in the 1951 Convention only implies reasonable risk of harm to an individual's life, liberty and safety. The questions that arise include: if coercive circumstances not linked to civil or political status are considered adequate grounds for protection, why should the risks involve life or death consequence for the victims to qualify for refugee status? Or does this suggest that more stern criteria should be applied to those who flee for reasons unrelated to violation of political and civil rights to be considered as refugees? Would this not imply double standards? Non-political and slow onset coercive circumstances are protracted, i.e. they are cumulative. According to Zolberg *et al.*'s definition, those who flee before the circumstances degenerate to life-threatening proportions would not be accorded protection or refugee status. For example, one of the indicators of land degradation is yield decline per unit of land cultivated. In order to qualify for a refugee status, does it mean that one should stay put until yields decline to zero levels and until the food crops saved from previous seasons are exhausted? How is this to be determined and by whom?

Zolberg *et al.* further state:

Situations in which the economic prerequisites for sustaining life have suddenly been removed equally constitute life-threatening violence, and such victims need protection. This definition would include the poverty-

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144. ZOLBERG ET AL., *supra* note 143, at 31.

145. *Id.* at 270.

stricken masses of the developing world, the victims of structural violence *who are systematically pressed toward starvation levels, and the victims of drought and famine, with or without the compounded effect of warfare.*<sup>146</sup>

If one adopts this broad definition, people displaced by climate change will be granted international protection and assistance.

Inasmuch as people flee due to interplay between inextricably inter-woven multiple factors, such as droughts, persecutions, political instabilities, wars, reduction of productive capabilities of life-sustaining renewable resources caused by environmental degradation; it is methodologically and empirically difficult to isolate and determine the order of importance of each factor. Consequently, it is difficult to distinguish between politically, environmentally and economically motivated displacements. In view of the multiplicity and complexity of the factors that prompt people to flee their places of origin, the definition of the term 'refugee' suggested by Zolberg *et al.* would represent an effective short-cut response to situations of mass displacement.

Lazarus also argues in favour of the reconsideration of the definition of the term refugee as defined by the 1951 U.N. Convention. He proposes a simple definition in which he states that, "anyone forced to leave their habitat because of environmental destruction"<sup>147</sup> should be entitled to refugee status regardless of whether there is direct or indirect state action or complicity. Asylum is a scarce resource and in the context of the current climate marked by recession and compassion fatigue, it is unrealistic to expect the institution of asylum would be able to cope with the demand that would be placed on it by people who flee their countries of origin due to any form of life-threatening circumstances unrelated to the principle of 'well-founded fear of persecution' perpetrated by the state or its agents. Inasmuch as the causes of displacement are varied and complex, it is important that responses should also reflect these complexities and variations. Lumping together all categories under the refugee label may on the one hand, confuse rather than clarify the

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146. *Id.* (emphasis added).

147. David S. Lazarus, *Environmental Refugees: New Strangers at the Door*, 2 OUR PLANET 12, 14 (1990).

situation and on the other, worsen the quality of protection accorded to those persons who flee from persecution.

Notwithstanding the fact that accurate definitions are difficult in migration studies—forced and unforced—they are indispensable because the entitlements of the persons concerned, the obligations and responsibilities of the sending and receiving states, as well as the responsibilities and mandates of inter-governmental and non-governmental organisations are determined by how the persons in question are defined. Long-term solutions are also determined by the kind of category a displaced person belongs.<sup>148</sup>

## X. CONCLUSION

Although the warming of the earth's climate system is not any longer controversial, its social impacts, for example, on precipitation, food insecurity, land use changes and overall agricultural production are still ambiguous.<sup>149</sup> More equivocal are also the impact of climate change on human migration. This should not be construed to imply that climate change is an irrelevant factor in causing migration—be it forced or voluntary. What is emphasised is the fact that climate change operates in interaction with other multiple factors from which it is impossible to isolate. The claim that climate change causes population displacement is based on the wrong assumption that displacement is partly mono-causal and climate change can be isolated from other inextricably interwoven drivers of migration or displacement.

The reason the available estimates of people displaced by climate change are unreliable is due to the fact that migration is the result of multiple causes and, therefore, it is difficult to isolate the role of the environment from the other drivers of migration. Therefore as argued in this paper, the available figures are based on educated guesses and cannot therefore be the basis of evidence-based policy which can help with pre-emption, mitigation or adaptation. Nevertheless, given the likelihood of the potential effects of climate

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148. Refugee Policy Group, *Migration and the Environment*, (Draft Briefing Paper, Prepared for Conference on Migration and the Environment, Nyon, Switzerland, January 19-22, 1992); see also SUHRKE, *PRESSURE POINTS*, *supra* note 6.

149. See, e.g., Boko, *supra* note 5.

change, including on human migration and settlement in the future, there should be no room for complacency, including on the question of catering for the needs of those who are displaced by sudden onset climate change and slow onset changes, such as global sea rise.<sup>150</sup>

In spite of the uncertainties concerning the effect of climate change on human displacement, given the fact that displacement is caused by inseparably interlinked multiple drivers, including the environment and in view of the mounting evidence of shifts in the climate (see Fig. 1) and consequent potential effects on future livelihoods, the contribution of climate change to human migration may become more pronounced in the future.

Therefore there is need for concerted international action not only in terms of addressing the root causes of climate change and in mitigating its detrimental consequences, but also in meeting the protection and assistance needs of those who are affected. In the presence of political will, negotiated scheme of burden-sharing, international and regional solidarity, investment in poor and vulnerable countries' disaster preparedness and effective early warning systems, the protection and assistance needs of many of the persons whose displacement is induced by environmental change can be met within the framework of the existing international protection regime manifested in the 1951 U.N. Convention, the 1967 Protocol, the 1969 OAU Convention, the 1984 Cartagena Declaration and the 1998 Guidelines on the Principles of Internal Displacement.

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150. See John Connell, *Losing Ground? Tuvalu, the Greenhouse Effect and the Garbage Can*, 44 ASIA PACIFIC VIEWPOINT 89 (2003); see also Lester R. Brown, *Rising Sea Level Forcing Evacuation of Island Country*, EARTH POLICY INSTITUTE, Nov. 15, 2001, <http://earth-policy.org/Updates/Update2.htm>.

