

Climate Change and Displacement in Sudan

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The issue of climate change and displacement is a pressing one, with little specific public health studies to date on the topic (1). António Guterres, the UN High Commissioner for Refugees, has stated: “Although there is a growing awareness of the perils of climate change, its likely impact on human displacement and mobility has received too little attention.” (2).

Health and Climate Change

Climate change is set to be one of the most significant challenges to global populations over the next fifty years and in some areas of the world there are already signs of unrest and poor health as a result of these changes (1). The loss of human life and significant human displacement as a result of violent conflict and environmental insecurity in Sudan and South Sudan is one such example of the detrimental impacts of climate change. This article will highlight the impact of climate change in Sudan and South Sudan through a discussion of the impact of climate change on displacement.

Currently, climate change is proceeding at an unprecedentedly high rate with the oceans warming, snow and ice levels reducing, sea levels rising and increased atmospheric greenhouse gases (3). There is very little room for debate on the cause of this drastic climate change, with modern human activity resulting in (anthropogenic) climate change (3).

Table one (1) highlights some of the most significant threats to health as a result of climate change:

Table 1: Summary of major categories of health risks from climate change (1)

Direct-acting risks	More complex, indirect, risk pathways
Increased risk of injury or death from extreme weather events such as floods, fires or storms.	Increased risk of malnutrition from impaired/failed agriculture (and from associated impoverishment from loss of rural livelihoods).
Increased illness and death associated with more frequent and intense heatwaves.	Increased gastroenteritis (for example, from salmonella, campylobacter and temperature-sensitive vibrios).
Increased risk of respiratory illness from higher ground-level ozone and some other air pollutants.	Changes in the range and seasonality of outbreaks of mosquito-borne infections such as malaria, dengue fever or Ross River virus.
Exacerbation of asthma and other respiratory allergic conditions from increases in air-borne pollens and spores.	Health risks in displaced people/groups, and possible risks to their host populations.
	Increased mental health risks such as post-traumatic stress disorder associated with extreme weather events, or depression/suicide associated with impoverishment or lost livelihood (for example, long-term drying in rural regions) or displacement.

Epidemiological research to date has focused on diarrheal disease, increases in the number of deaths from the impact of heatwaves and changes in disease patterns including mosquito borne diseases such as malaria and dengue (1). In the 2002 WHO World Health Report (4), deaths as a result of climate change are discussed, and Figure 1 below illustrates this mortality on a global level.

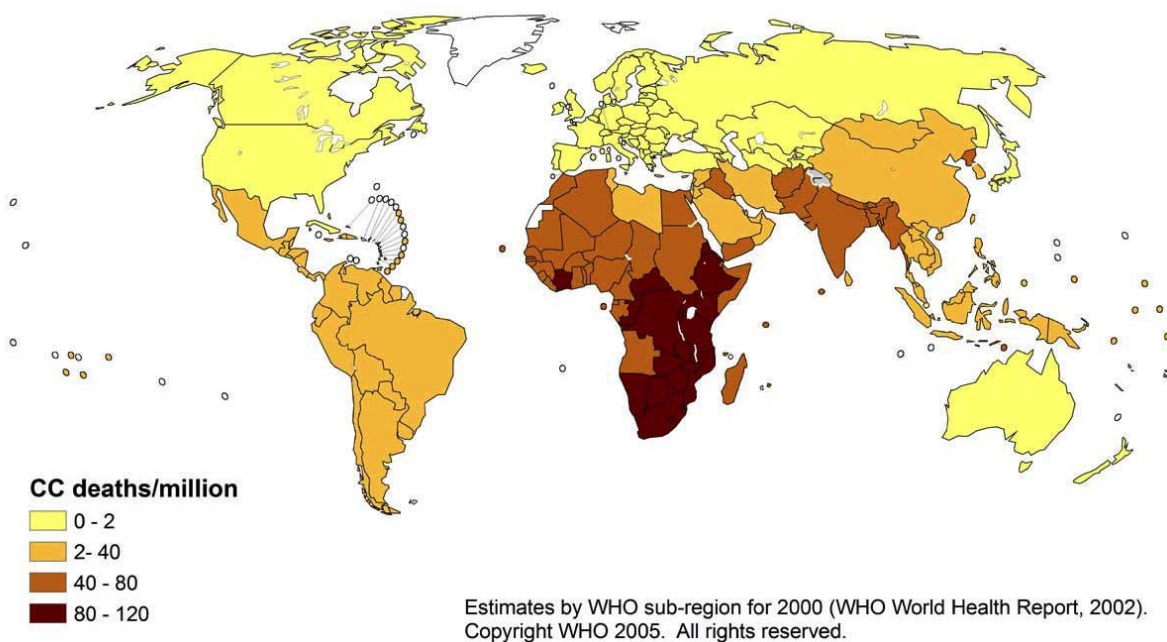


Figure 1: Deaths per Million as a result of climate change (4)

From the above graphical representation of global climate change deaths, we can see that Sub-Saharan Africa has historically had the highest death rates as a result of climate change. This is particularly significant, as it is not a large greenhouse gas producer, relative to other regions of the world (5).

Causes of displacement in Sudan

There are three significant causes of displacement in Sudan: 1) Conflict-related insecurity and loss of livelihood; 2) Drought, desertification and flooding ; 3) Government sponsored development schemes (6). This article will focus on conflict and environmental related impacts leading to displacement.

Conflict in Sudan

Sudan has experienced over two decades of violent conflict, ending with the signing of a peace deal in Nairobi on January 9, 2005 (6). In 2011, the world's newest nation, South Sudan, was born (7). Popular media described the birth of the new nation as a 'loose-loose situation' reporting increasing inflation and significant food insecurity with 2.7 million South Sudanese (one third of the population) needing food aid in 2012 (8). Renewed intense conflict is currently plaguing South Sudan as a result of the multi-layered complex interactions of climate change, poor socioeconomic development and ongoing political insecurity (7).

Sudan has one of the world's largest populations of internally displaced people (IDP), with almost two million IDPs in Darfur alone (6). Those displaced in Sudan face additional risks as a result of being situated in an area of the world experiencing chronic drought and significant food insecurity. These risks and barriers associated with reaching safety include:

- Borders which are more strictly policed
- Reduced natural resources in host population areas
- Concerns regarding geo-political destabilisation
- Risks of violence at place of reception
- Less supportive host populations
- Hostile confrontation
- Alienation
- Impoverishment
- Possible detention (1)

Mental Health Impacts of Climate Change

In addition to the physical health impacts of climate change displacement, the above barriers to safety have had mental health impacts on populations. There has been some research done in the field of mental health. It was found that 52.9% of the population of two IDP camps in Central Sudan was affected by a mental disorder (9). The study found that the most common diagnoses were major depressive disorder (24.3%), generalized anxiety disorder (23.6%), social phobia (14.2%) and post-traumatic stress disorder (12.3%) (9). The results of this study provide evidence that mental health concerns are significant for IDPs in both Sudan and Southern Sudan. These mental health concerns, in combination with the health risks outlined in Table 1 above, paint a bleak picture of health in regions affected most severely by climate change.

Climate Change as a Precursor for Violent Conflict

Climate change in the region has caused reduced rainfall and the region has one of the most rapidly warming temperatures on the globe, with a temperature increase of 1.3 degrees Celsius between 1975 and 2009 (7). Data from Figure 2 above indicates that in 2000, Sudan (before the division between North and South) experienced 40 to 80 deaths per million as a result of climate change (4). These deaths are in addition to the two million that died from armed conflict and the additional millions displaced due to the combined impact of drought, extreme weather events, food insecurity and violence (6). Climate change leading to insecurity in the region cannot be ignored as a possible precursor for violent conflict.

Drivers for Positive Health Outcomes

Literature that proposes solutions to the health risks (both physical and psychosocial) of displacement in the context of climate related change is very limited. This may be due to the challenges associated with measuring and conceptualising psychological, social and physical experiences of displacement and resultant implications for population health (1). Therefore, assessment of literature relating to communities displaced for reasons other than climate change may provide some insight into solutions. The two main drivers of positive health outcomes in areas of significant climate change are social resilience and improved coping abilities (1).

In order to build social resilience and improve coping abilities to result in better health conditions for IDPs, good governance, diversification of social networks and diversification of agricultural practices (10) is required on a local level. In order to achieve this diversification and capacity building, government must engage with the public health profession to improve health status through engaging the health, social, economic and environmental sectors. Capacity building, resilience building and mental and physical health promotion fall well within the scope of the role of public health. When assessing solutions to the issue of displacement, public health professionals must consider the fact that current health inequities compound the impacts of climate change and extreme weather events, with climate change being an amplifier of current public health challenges globally (1).

Violent conflict results in significant lack of preparedness for climate change related challenges. Poor governance, in combination with vulnerable populations experiencing poverty, to be associated with negative health outcomes (10). Sudanese and South Sudanese populations therefore fit these criteria, with ongoing political instability and widespread poverty. This underlying health inequity, in combination with violent conflict, drought and flooding affecting vulnerable populations can lead to destruction of infrastructure, human settlements, increased mortality and morbidity and disruption to food production and water supply, and this has been observed in both Sudan and South Sudan (10). Therefore, a key factor in securing the future of Sudan and South Sudan is peace building.

There has been much foreign aid investment into rebuilding Sudan and South Sudan (11), however with ongoing violence and civil unrest limited positive change has been observed, and it appears that government efforts to date have been isolated. This limited and isolated nature of change has been reported as a general trend across the entire African continent (10). Many national governments are initiating governance systems to stimulate adaptation. These include plans to improve disaster risk management, changes to technology and infrastructure,

ecosystem-based approaches, improving basic public health measures, and industrial diversification are reducing vulnerability; however outcomes and implementation of these plans have been very limited (10). The United Nations Environmental Programme executive director, Achim Steiner is quoted to have said: "A big part of the future, and central to keeping the peace will be the way in which Sudan's environment is rehabilitated and managed." (12).

The Question of 'Climate Change Refugees'

The lack of significant positive change for people in Sudan and South Sudan means that the issue of displacement is ongoing, and the refugee situation is also ongoing as violent conflict prevails. The additional question remains, of whether those displaced due to environmental factors as a result of climate change may seek refugee status.

The United Nations High Commissioner for Refugees (UNHCR) has stated that people may only claim refugee status if they meet the definition of a refugee from the Convention relating to the Status of Refugees. This Convention stipulates that refugees are persons that 'owing to 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, is 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' (13). Therefore, the UNHCR report that the use of the term 'climate change refugee' is inaccurate and misleading, as the term 'refugee' is a legal term and the legal community has not endorsed its use in the context of climate change or environmental disasters (2). Despite this, due to the violent conflict in Sudan and Southern Sudan, some people fleeing to a second country will receive recognition as refugees. This is because refugee movements have been provided by violence rooted in environmental factors (2).

To address the issue of those displaced due to climate change impacts on the environment, the UNHCR recommends capacity building and increased international aid funding to help mitigate the negative impacts of climate change and to facilitate adaptation, disaster preparedness and reduce risks and improve humanitarian responses at a national level (2).

The issue of climate change and displacement in Sudan and South Sudan is complex and challenging to remedy. Intensified efforts to build peace appear to be the first step towards a healthy future for both countries. Once peace is achieved, efforts to diversify agricultural practices, rebuild communities and improve access to livelihoods for communities must be made. This will result in increased social resilience and improve coping abilities for communities and families. An essential underlying element to achieving these goals is successful environmental rehabilitation. On a global level, countries that are responsible for high levels of greenhouse gas emissions must begin to pay close attention to humanitarian disasters, such as the example of Sudan and South Sudan, because anthropogenic climate change has been one of the root causes of this human tragedy.

Note that the views expressed in this article are those of the author and do not necessarily represent the views of PHASA.

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