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NTS ALERT

Climate Refugees: a Crisis in the Making?

Climate refugees has become an interesting yet increasingly problematic issue in the lists of security challenges posed by climate change. As mentioned in the IPCC report in 1990, the greatest single impact of climate change could be on human migration. However, there is a lack of studies concerning this issue. This edition of NTS-Alert examines the complexities of the issue of climate refugees by discussing the contentions surrounding the concept itself and the dire consequences of such a phenomenon in Asia.

Climate Refugees: an Overview

The issue of climate refugees has caught the attention from both academics and policymakers following the International Panel on Climate Change (IPCC) Report in 1990 which stated that climate change could become a major driver of population displacement. Reports and predictions showing the number of population being or might be displaced due to environmental events have been published to highlight the growing gravity of this issue. From the mid-1990s to 2001, it was repeatedly reported that there had been up to 25 million people displaced due to serious environmental pressures, including pollution, land degradation, droughts and natural disasters. Prof. Norman Myers of the Oxford University has been repeatedly cited for his estimation that there could be as many as 200 million climate refugees by the year 2050.

The gravity of this issue is not solely indicated by the estimates of climate refugees as mentioned above, but also by the uncertainty and complexity of the extent to which climate change directly relates to population movement and the relation between climate refugees and other aspects of human security. Although scientific studies of climate change have grown increasingly better, there is still a lack of empirical analysis of the effect climate change can have on population displacement. The complexity between the science of climate change and the vulnerabilities as well as capacities of different societies to cope with the impact of climate change that may lead to population displacement warrant a deeper study.

Climate change could serve as the "push" and "pull" factor on population displacement. Despite the problematic relationship between climate change scenarios and population displacement, it is imperative to look at the preparedness of governments and international community to cope with such phenomena. Climate change itself can potentially challenge the adaptive capacity of different societies, states and regions. Moreover,

In this edition:

- **Climate refugee: an overview**
- **Refugee or migrants: a problem of semantics?**
- **Protection (or lack thereof) under the International Law**
- **The threat of climate refugee in Asia**

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non-climatic drivers also play an equally significant part. The role of governance in responding and adapting to climate-related events would have either positive or negative implications on population displacement. The impact of climate refugees may overwhelm local and regional capacities in responding to such event. Climate refugees would also have an impact on poverty alleviation, especially in developing countries. It would affect different aspects of human lives such as public health, economic growth and social cohesion of the recipient countries. These would in turn pose challenges to state security and regional stability.

Refugees or Migrants: A Problem of Semantics?

The term "climate refugees" originated from a broader concept of environmental refugees. According to Essam El-Hinnawi in the report for the United Nations Environment Program in 1985, environmental refugees are "people who have been forced to leave their traditional habitat, temporary 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. Environmental disruption in this definition refers to any physical, chemical and/or biological changes in the ecosystem (or resource base) that renders it, temporarily or permanently, unsuitable to support human life". The term "climate refugees" refers to population displacement that is caused by severe impact of climate-induced environmental degradation such as rising sea level, sudden and dramatic natural disasters, drought, etc.

The use of the term "climate refugees" or "climate migrants" is highly disputable. This is not merely a problem of semantics as it would have further implication on the obligations that comes under the international law, especially with respect to the responsibilities of states and the international community for climate refugees' security. The term "refugee" is used to sensitise the gravity of this issue. Since the term "migrant" tends to imply a voluntary movement of people, largely influenced by economic reasons. However, developed countries are reluctant to expand the definition of "refugee" to include climate refugees because they are not ready to provide the same protection as they had done so for political refugees.

Apart from those two terms, there is also the term "environmentally displaced persons", defined as "persons who are displaced within their own country of habitual residence or who have crossed an international border and for whom environmental degradation, deterioration or deconstruction is a major cause of their displacement, although not necessarily the sole one", as well as "environmental migrants" that was suggested as a working definition by the International Organisation for Migration (IOM) which categorises such people as "persons or groups of persons who for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either

Basis for typology of environmental-related events that may lead to human migration:

- Natural disasters/sudden disasters
- Gradual environmental degradation/ slow-onset disasters
- Environmental conflicts
- Environmental destruction as a consequence of or as a weapon in conflicts
- Environment conservation
- Development projects (such as damn construction)
- Industrial accidents (such as leak at nuclear power plant)

Further sub-categories would include:

- Human-made or natural change
- Climate change-induced or all environmental change
- Temporary or permanent environmental change
- Temporary or permanent migration
- Internal or international/cross-border migration

Source
Vikram Odedra Kolmannskog, *Future Floods of Refugees- a comment on climate change, conflict and forced migration,* Norwegian Refugee Council, 2008.

temporarily or permanently, and who move either within their country or abroad".

Protection (or Lack Thereof) Under the International Law

The UN 1951 Convention and 1967 Protocol stated that "a refugee is a person who owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social groups, or political opinion, is outside the country of his nationality, membership of a and is unable to or, owing to such fear, is unwilling to avail himself of the protection of that country". The definition of "refugee" used here categorised only those who are displaced across national borders. By restricting the definitional scope of "refugee", the international law renders climate/environmental refugees without protection. Moreover, the concept of "refugee" tends to imply the right of return once the persecution that triggered the original flight has ceased, which will be impossible for some instances of climate change such as sea-level rise. Therefore, the use of "refugee" does not fully encompass the nature of the problem.

However, there is a possibility to apply the principle of *non-refoulement* to climate refugees. It is a principle found in the human rights law which stated an absolute and general ban on returning people to places where they risk certain ill-treatment. This could be relevant to cases of forced migration due to climate change-related events, although the scope and interpretation may be contested.

The International Organisation for Migration Research on Migration and Climate Changes noted that this problem with the definitions may understate the problem of climate-induced migration since most of those displaced by climate change would likely stay in their own borders. They are referred as "internally displaced persons (IDPs)". They remain under the protection of their own government. Paradoxically, however, in some cases governments have become part of the problem rather than the solution. A large number of the world's environmental refugees reside in weak or failed states that lack resources to provide adequate protection. When state capacities could no longer cope with such events, the governments should be provided with international assistance.

However, the lack of an adequate definition under the international law has ramifications on the kinds of policy responses within the international community. There is no institution responsible for collecting data on the numbers of climate refugees and to provide them with basic security needs. Neither the Geneva Convention nor the UNHCR recognised environmental-induced migration as a prerequisite of refugee status. Therefore, individuals displaced by environmental pressures including climate change do not fall under the jurisdiction of the international community. Moreover, they also do not fall under the purview of asylum law. The lack of international rules and arrangement could pose an even greater problem to climate refugees. If national governments fail to provide protection then it is uncertain to whom they could turn for help.

The Threat of Climate Refugees in Asia

In order to understand the processes that drive migration, a discussion of climate change and the various effects it has on the planet need to be discussed. Migration is often portrayed as a fluid movement that has both push and pull factors. Push factors are those that drive a population to leave its traditional homes, and may include short or long-term disasters. However, it is the climate change-induced push factors that serve as a cause for concern, since the scientific community is divided on the magnitude of impact on local and regional ecosystems. A typology of push factors has been provided by Robert McLeman, who divides them into *climate processes* and *climate events.* Oli Brown quotes McLeman who defined climate processes as "slow-onset changes such as sea-level rise, salinisation of agricultural land, desertification, growing water scarcity and food insecurity. Sea level rise makes certain coastal areas and small islands uninhabitable". Climate events are defined as "sudden and dramatic hazards such as monsoon floods, glacial lake outburst floods, storms, hurricanes and

Case: Bangladesh

- Soil erosion in the country has increased by 40%.
- 2007 was the worst year on record for intense hurricanes
- Rate of saline inundation has trebled in the past 20 years
- Cyclone warnings are now released as much as 12 times a year, when the average was once thrice a year.
- Death toll from Cyclone Sidr in 2007: 3,000 people
- Surface temperatures in the Bay of Bengal have risen steadily for the past 40 years. Intensity of cyclones has risen by 39% on average.

Source
Hari, Johann. "Bangladesh is set to disappear under the waves by the end of the century." *The Independent.* 20 June 2008, http://www.independent.co.uk/news/world/asia/bangladesh-is-set-to-disappear-under-the-waves-by-the-end-of-the-century--a-special-report-by-johann-hari-850938.html (accessed September 25, 2008).

typhoons". The difference between the two is that climate processes can permanently displace many more people over the long-run, while climate events displace people for shorter periods of time.

In the case of Asia, grave threats emanate from climate processes. Increasing global temperatures had been observed to cause droughts and desertification in Northern China, Mongolia, and Australia. Desertification in the Gobi Desert has also increased beyond its normal rate. Desertification and soil erosion are also key factors in reducing the productivity of agricultural lands, especially in continental Asia. Some crops may eventually cease to produce optimal output due to the rising temperatures, resulting in food shortages in densely populated countries such as China and India. It has been estimated that there will be a 2.5 percent to 10 percent decline in crop yields by 2020, and 5 percent to 30 percent decrease by 2050, altogether poised to create additional hunger for 132 million people by 2050. However, the increase in frequency of droughts not only harms food production, but also fresh water supplies for much of Asia's population. More than one billion people would be affected by reduced rainfall due to global warming in Asia.

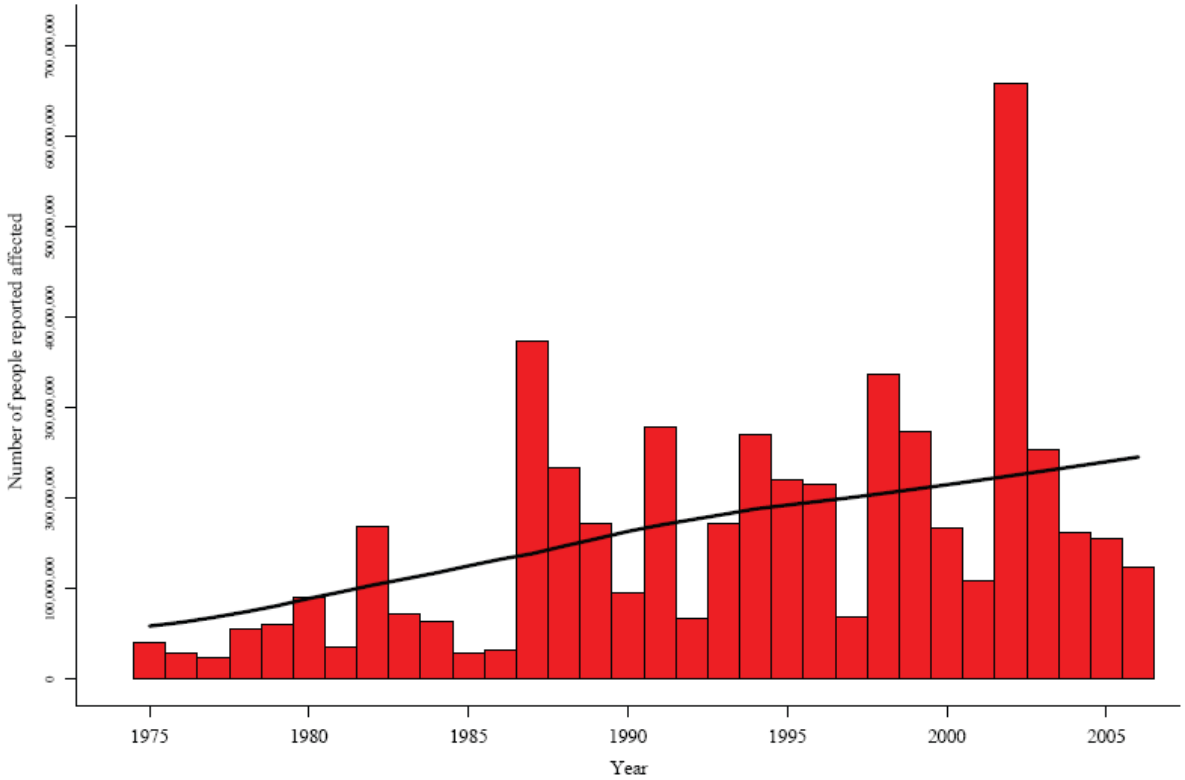
Desertification aside, a rise in sea level is also projected to lead to the loss of productive land, especially those in riverine deltas such as the Irrawaddy, the Ganges, the Mekong, the Red River and the Yangtze. Much of Asia's agriculture depends on these fertile floodplains for food, and the rise in sea levels could lead to salt water intrusion into the groundwater used to irrigate farmland, leading to the salinisation and eventual abandonment of the land, as is already happening in Bangladesh. Bhola, the largest island in the country, lost over 40 percent of its land over the past decade. James Hansen, the director of the NASA Goddard Institute for Space Studies, has estimated that all of Bangladesh's population of 144 million people could become climate refugees by the end of the century. Due to salt water intrusion, many fresh water sources have become contaminated, leading people to drink from unsafe sources and causing the spread of diarrhoea and dysentery. A more frequent rainfall has greatly increased the speed of current in the Brahmaputra and Ganges rivers, causing some riverine islands to disappear completely, leading to population displacements.

Urban areas that are home to millions of people and are built near the sea levels are also at risk. Manila, Jakarta, Bangkok, Shanghai, Dhaka, and Yangon are all vulnerable not just to storm surges but also long-term sea level increments, which could disrupt economic activity as infrastructure is slowly swamped by the rising seas. The Asian Development Bank listed Manila as one of the cities vulnerable to flooding, and as a whole the Philippines is at high risk to climate change manifestations. Provinces such as Bicol and Leyte in particular are vulnerable to typhoons coming from the Pacific, and the typhoon damage had cost the country 1.17 percent of its GDP and 4.21 percent of its agricultural output. Water supplies and transport infrastructure are particularly vulnerable. While these zones account for only 2.2 percent of dry land, they contain more than 10 percent of Earth's population, which includes over 430 million Asians. Evidence that links migration to a rise in sea levels has so far been stronger and more

conclusive than that for desertification and storm frequency. Asia contributes 75 percent of the population at risk in floodplains around the world, with special mention given to the Indus, Ganges-Brahmaputra, Mekong, Yangtze and Pearl river deltas. Small island nations such as Tuvalu, Kiribati, and the Maldives are also at risk, due to their low elevation and lack of a hinterland to retreat to when sea levels rise. Tuvalu had already signed an agreement with the New Zealand Government to allow limited immigration into the country. Australia however has refused to allow any such special arrangement with Tuvalu, despite the fact that Canberra is one of the largest contributors to global warming. The United Nations Climate Panel estimated that oceanic levels will rise by 18cm, up to 50cm by the year 2100, which will render Tuvalu uninhabitable. This problem is compounded by the environmental degradation created by the United States when it scoured coral to build military runways on the island during World War Two. The pits left behind, so called "borrow pits" since they were supposed to be filled in when the war ended, were in fact never restored. The pits have begun to enlarge and this damaged the foundations of buildings on the island due to water intrusion.

Climate events, on the other hand, are more immediately destructive and their effects are more visible. Rising ocean temperatures have contributed to the increasing frequency and destructiveness of tropical storms, and this also had an effect on El Niño and the La Niña phenomena. The increase in ocean temperatures has led Bangladesh to encounter more than 12 storm warnings per year when the previous average was three. The increase in precipitation in some latitudes has also aggravated the damage caused by flash floods, especially when it is compounded by deforestation in areas such as Bangladesh, China, and the Philippines. In the Philippines alone, over 1,000 people died when a

Number of people reported affected by natural disasters 1975–2006



Source: EM-DAT: The OFDA/CRED International Disaster Database – www.em-dat.net -Universite Catholique de Louvain, Brussels – Belgium, extracted from Vikram Odedra Kolmannskog, *Future Floods of Refugees-a comment on climate change, conflict and forced migration,* Norwegian Refugee Council, 2008.

succession of typhoons hit the country in 2006 and displaced over 40,000 people. During a cyclone season in Bangladesh, over two-thirds of the country was left inundated. Cyclone Sidr, which hit the country in 2007, killed over 3,000 people. The costs in human lives, economic and agricultural damage as a consequence of these new 'superstorms' are horrendous, yet their incidence and power are only increasing. It may only be a period of time when Asia experiences its own Hurricane Katrina. For the past 20 years, an annual average of over 400 million people had been exposed to floods in Asia, claiming 93 percent of all flood-related deaths worldwide. In China, the floods of 1998 and 2003 cost US $30 billion in economic losses, claimed 4,000 lives, displaced 3.5 million people and devastated staple crops – with some calculations estimating that yields would fall by 37 percent.

One disaster that may become a possibility this century, if global temperatures continue to increase dramatically, is glacial lake outburst floods. These are caused by melting glaciers which spawn reservoirs trapped behind the glacier faces. When the glacier melts saturate, the dam holding the water back would break and release millions of gallons of water into the valleys below. Areas in Asia particularly at risk to such a phenomenon are the Himalayas, which are bordered by China, India, Nepal and Bhutan. Fortuitously, no major glacial lake outburst floods have occurred as yet.

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Despite the uncertain relationship between climate change and population displacement, the potential impact of climate refugees requires governments and the international community to fully comprehend the gravity of the issue and to be well-prepared. Sound policies should be pursued. Therefore, further studies should be conducted in order to unravel the complexity of this issue.

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Security Risk Associated with Climate Change: Selected Hot Spot

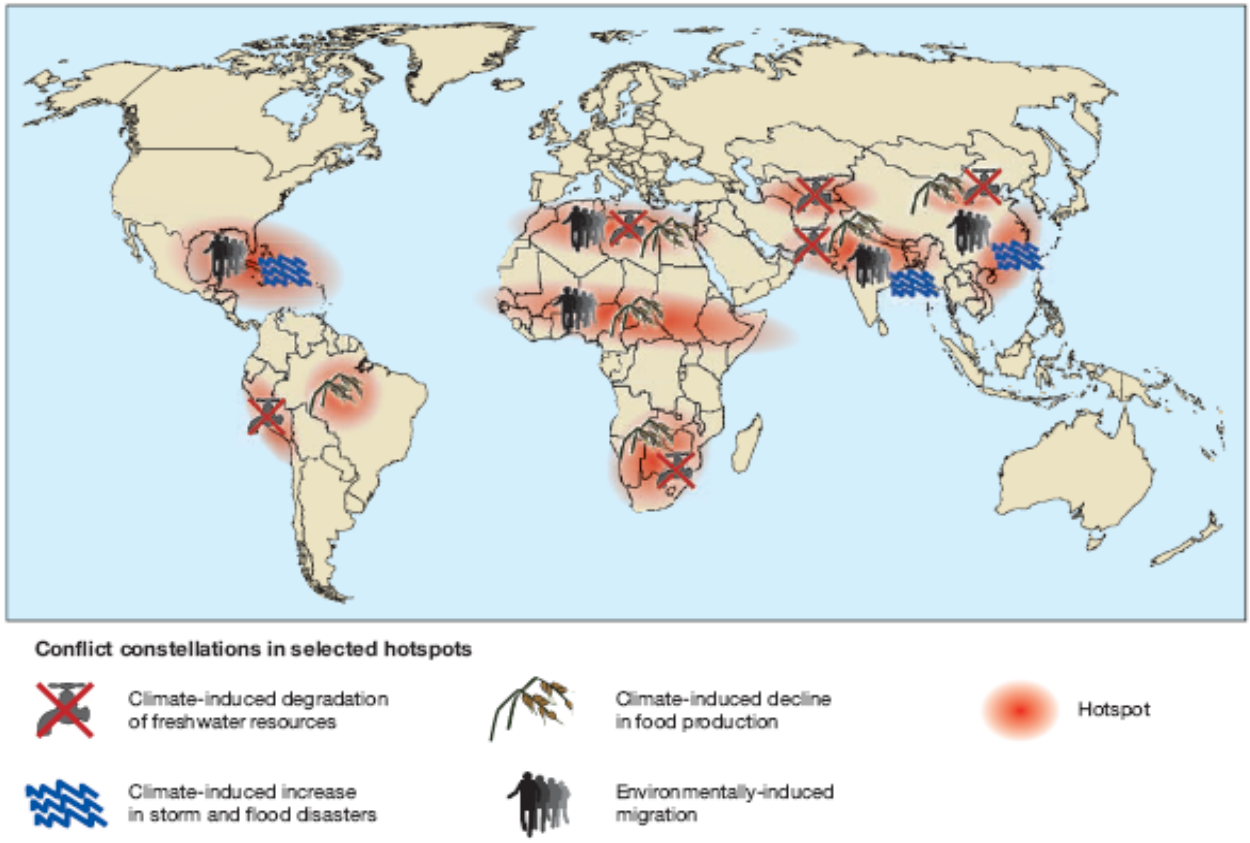

Figure 1
Security risks associated with climate change: Selected hotspots. The map only shows the regions which are dealt with in this report and which could develop into crisis hotspots.
Source: WBGU

Source: R. Schubert et al, Climate Change as a Security Risk, German Advisory Council on Global Change (WGBU), London & Sterling: Earthscan, 2008.

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