

Millions on the Move

Understanding Climate Migration

By Julia Tilton

As climate change worsens around the globe, an unintended consequence is that the world's most vulnerable are poised to lose their homes. Defined by the United Nations as climate migration, this phenomenon is increasing in severity as the climate continues to warm and generate a variety of natural hazards (IOM, 2019). In contrast to disaster displacement, which results from rapidly-occurring natural events such as floods, hurricanes, wildfires, and earthquakes, among others, climate migration results from the slow-onset of environmental hazards (Nansen, 2015). These hazards are the consequences of much longer processes, from ocean acidification to desertification to air pollution, that are accelerated by global warming. For the purposes of this paper, only the effects of desertification and sea-level rise will be explored. Already, communities in South Asia, sub-Saharan Africa, and the Americas are beginning to feel the impacts of these processes, and the scientific consensus is that the effects will only worsen if action is not taken to address the causes of climate change on a global scale. Unfortunately, as the planet grapples with other ramifications of climate change, climate migration is not afforded much attention, though World Bank researchers estimate 143 million people could be displaced as a

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result of natural hazards over the next three decades (Podesta, 2019). The movement of millions of people, especially across borders, is likely to put strain on international governance. Therefore, it is essential that the grave realities associated with increasing climate migration be further publicized and evaluated as a serious repercussion of global climate change that will only worsen as the planet continues to warm.

To contextualize climate migration as it arises from desertification, scientific research focusing on sub-Saharan Africa and the Middle East can be examined. Desertification describes the degradation process by which land in already dry regions becomes increasingly dry, often losing its water sources and capacity to support vegetation (McSweeney, 2019). As temperatures continue to rise as a result of global warming, the changes to landscapes have made it difficult for agricultural production to persist in dry regions, which can promote conflict (McDonnell, 2018). Between 1950 and 2010, for example, average annual temperatures in western Afghanistan and southwestern Pakistan rose by one to three degrees Celsius, alarming given the widely-agreed upon threshold for global temperature increase is two degrees Celsius (Somini and Popovich, 2018). In Syria, the trend is similar, for between 2006 and 2011, the nation experienced what ecologist Gary Nabhan called the “worst long-term drought and most severe set of crop failures since agricultural civilizations began in the Fertile Crescent many millennia ago” (Gleick, 2014). In West Africa, desertification has impacted Lake Chad, drying up what was once a significant water source in the region and empowering terrorist organizations, forcing more than four million people to flee due to the danger and lack of resources in the area (McDonnell, 2018). These trends are likely to be exacerbated as positive feedbacks, which produce a snowball-like effect accelerating existing warming,

which will increase temperatures over the next few decades, putting the livelihoods of those in the most affected areas at risk (Collings, 2014).

When temperatures increase in the already dry sub-Saharan and Middle Eastern regions, migration often follows, for vulnerable communities are ill-equipped to deal with the crop failures that result from desertification. For instance, in Syria between 2006 and 2009, crop yields of wheat and barley declined by 47% and 67%, respectively, as a result of sustained dry conditions (Gleick, 2014). The United Nations estimates that during this same period, 1.5 million people fled rural areas for better prospects in Syria's cities (Gleick, 2014). Indeed, a historical example affirms that reduced crop output drives migration, especially out of rural areas. Following the 1816 volcanic eruption of Mount Tambora in Indonesia, there was a “year without summer” where aerosols from the eruption caused widespread crop failure and forced peasants to leave their farms (Missirian, et al., 2017). The aftermath of Tambora's eruption could very well be a foreshadowing of what is to come in the twenty-first century if climate action is not taken. A 2017 study published in *Science Magazine* predicted that before 2100, warmer average temperatures will increase applications for asylum in the European Union between 28% and 188%, depending on whether the situation remains constant or further deteriorates (Missirian, et al., 2017). In the next few decades, rising temperatures will introduce a host of consequences, particularly to those desert climates where communities rely on crop production for survival, prompting a mass exodus from those regions to areas better suited for agricultural purposes.

In other areas around the globe, people face a different kind of slow-onset threat as rising sea levels encroach upon their living spaces. Ocean-side communities on multiple

continents are already experiencing the side effects of glacial melt, but small Pacific islands are bearing the brunt of the impact. In the Western Pacific, where the sea level is rising at 12 millimeters per year, eight islands have already been submerged and a predicted forty more will disappear by 2100 (Podesta, 2019). So far, residents of these small island nations have sought refuge in larger countries as their homes become uninhabitable, and that trend is likely to continue throughout the remainder of the century. In Bangladesh, coastal flooding has uprooted so many people that researchers estimate close to 70% of the five million living in the slums surrounding the capital city of Dhaka were displaced from their original home by environmental disaster (McDonnell, 2018). The effects of sea-level rise are not limited to Asia though, as coastal communities in Alaska and Louisiana are increasingly at risk of disappearing into the sea. In the U.S., attempts to relocate these communities inland proves how difficult it is to do so on a large scale, for moving less than one hundred residents of Isle de Jean Charles — an island off the coast of Louisiana that has lost 98% of its land since the 1950s — has taken years and cost the government \$50 million (McDonnell, 2018). Regardless of the cost, rising sea levels will prompt people to permanently evacuate from their homes when flood waters and erosion leave them with no other choice.

As climate migration increases out of vulnerable areas, scientists predict there will be an emergence of hotspot locations around the world to which migrants will flee. People are likely to continue moving away from low-lying cities and coastlines vulnerable to sea-level rise, as well as desert areas, in favor of locations with better climatic conditions to provide for better agricultural and living opportunities (Riguad, 2018). These hotspot locations as the destination of climate migrants are expected to emerge by 2030, according to the World Bank

study (Riguad, 2018). In 2015, the Nansen Initiative expanded upon this notion, claiming sea-level rise will force tens or hundreds of millions of people to move from areas that cannot be protected by measures aimed at improving coastal infrastructure (Nansen, 2015). Indeed, as more climate migrants are created over the next decade, it falls upon international leadership to be proactive in order to avoid a refugee crisis unprecedented in terms of scale.

The climate is warming and as it does, it is slowly threatening people's homes and livelihoods on a magnitude that cannot be ignored. The regions most at risk include sub-Saharan Africa, South Asia, and the Americas, which together represent 55% of the developing world's population, meaning the communities impacted will be some of the world's poorest and most ill-equipped to handle such overwhelming loss of land and resources (Riguad, 2018). So far, the United Nations High Commission for Refugees (UNHCR) has neglected to grant these migrants refugee status, meaning they currently do not have an organized effort supervising their migration (Podesta, 2019). As the crisis escalates, a lack of leadership from the UNHCR regarding climate migration will only augment existing social-political problems as migrants end up in places that cannot necessarily support them. In understanding that climate change is expected to worsen over the next decades, it is imperative that global leadership take actions sooner than later.

Furthermore, in considering the Earth's natural processes as studied by scientists with regard to continuing climate change, the following question arises: how will the Earth's positive feedback mechanisms, which researchers forecast will accelerate global warming, impact climate migration trends? Does there exist a tipping point whereby once reached, Earth

will no longer be able to sustain some desert and coastal regions for human life, and if so, when will this occur?

WORKS CITED

- Collings, David. "Stolen Future, Broken Present: The Human Significance of Climate Change - Time's Up." *University of Michigan Library Publishing*. 2014. Web.
<https://quod.lib.umich.edu/o/ohp/12832550.0001.001/1:4/--stolen-future-broken-present>
- Gleick, Peter. "Water, Drought, Climate Change, and Conflict in Syria." *Pacific Institute of Oakland California*. 1 July 2014. Web. <https://journals.ametsoc.org/doi/full/>
- IOM. "International Migration Law Glossary on Migration." *International Organization for Migration, United Nations*. 2019. Web.
<https://publications.iom.int/system/files/pdf/>
- McDonnell, Tim. "The Refugees the World Barely Pays Attention To." *NPR*. 20 June 2018. Web.
<https://www.npr.org/sections/goatsandsoda/2018/06/20/621782275>
- McSweeney, Robert. "Explainer: 'Desertification' and the role of climate change." *Carbon Brief*. 8 June 2019. Web.
<https://www.carbonbrief.org/explainer-desertification>
- Missirian, Anouch, et al. "Asylum applications respond to temperature fluctuations." *Science*. 22 Dec. 2017. Web.
<https://science.sciencemag.org/content/358/6370/1610>
- Podesta, John. "The climate crisis, migration, and refugees." *Brookings*. 25 July 2019. Web.
<https://www.brookings.edu/research/the-climate-crisis-migration-and-refugees/>
- Rigaud, Kumari. "Groundswell: Preparing for Internal Climate Migration." *The World Bank*. Pg 2. 2018. Web.

<https://openknowledge.worldbank.org/handle/10986/29461>

Sengupta, Somini, and Nadja Popovich. "Global Warming in South Asia: 800 Million at Risk." *The New York Times*. 28 June 2018. Web.
<https://www.nytimes.com/interactive/2018>

The Nansen Initiative. "Disaster-Induced Cross-Border Displacement." *The Nansen Initiative*. Dec 2015. Page 6. Web. <https://nanseninitiative.org/wp-content/uploads/2015/02>