



**Justyna Orłowska,
PhD**

is a sociologist specializing in the anthropology of climate change. She is a member of the Climate Crisis Advisory Team to the President of the Polish Academy of Sciences. In 2018–2020, she worked in the COP 24 Presidency Office as an expert on Just Transition and adaptation in the UNFCCC climate negotiations. She simultaneously served as a climate migration consultant for the UN Norwegian Refugee Center. As a long-time researcher of climate change in the Maldives, she has coordinated projects commissioned by UNICEF or in collaboration with UNEP GRID-Arendal. She is currently acting head of the Unit of Socioeconomic Effects of Climate Change at Poland's National Center for Climate Change – National Research Institute (IOŚ-PIB).
justyna.orlowska@ios.edu.pl

MOBILITY IN RESPONSE TO ENVIRONMENTAL CHANGE

On the difference
between environmental
and climate migration
and the reasons
why migrants should be
treated as active agents,
rather than passive
victims.

Justyna Orłowska

Unit of Socioeconomic Effects of Climate Change
National Center for Climate Change

Karolina Sobczak-Szelc

Centre of Migration Research
University of Warsaw



The tsunami-stricken island of Kandholhudhoo in the Maldives, revisited years later by its former inhabitants

Migration triggered by environmental changes is such a complex phenomenon that its study demands a thoroughly interdisciplinary approach. This article represents a collaborative effort by two researchers both studying environmental migration, albeit from completely different perspectives, reporting the results of field research

we carried out in two very different regions of the world: North Africa (Karolina Sobczak-Szelc) and coral islands in the Indian Ocean (Justyna Orłowska). By describing these findings from the perspective of our respective disciplines, we hope to bring topics related to environmental migrations into sharper focus.

Why is this topic important?

Environmental migration is not a new phenomenon. Throughout history, there have been countless examples of people being forced to abandon their homes as a result of natural disasters or the overexploitation of natural resources. The Great Famine in Ireland and the Dust Bowl in the United States (caused by drought and improper farming in the 1930s) are good cases in point. But the topic is now rising to the fore, as there is more and more discussion about the far-reaching

effects of climate change. In 1990, the UN Intergovernmental Panel on Climate Change (IPCC) predicted that climate migration would be one of the most serious consequences of climate change, estimating conservatively that millions of people would be displaced as a result of shoreline erosion, coastal flooding, and droughts.

Difficulties of definition

People may be prompted to make the decision to leave their home villages, towns, regions, or countries by a broad range of very complex and overlapping factors. Herein, we focus on migration that is related to environmental change. There is much discussion nowadays about how consequences of climate change can drive migration, such as rising sea and ocean levels and the growing frequency of such disasters as hurri-



Karolina Sobczak-Szelc, PhD

is a researcher at the Centre of Migration Research, University of Warsaw, a member of the IMISCOE International Migration Research Network, the International Association for the Study of Forced Migration (IASFM), Population-Environment Research Network (PERN), and the Euro-Mediterranean Research Network on Migration (EuroMedMig). She brings physical geography, social geography, spatial development, and sociology together to study the impact of the natural environment and its changes on migration. Her expertise in this area is supported by research conducted primarily in North Africa. At the Migration Research Centre, she currently coordinates the work of a team within the project "A multi-directional analysis of refugee/IDP camp areas based on HR/VHR satellite data," funded under the POLNOR competition. She is involved in the Future Migration Scenarios for Europe (FUME) project, implemented by the Centre for Advanced Studies of Population and Religion (CASPAR) at Cracow University of Economics under the EU program "Horizon 2020." The presented research was carried out as part of the National Science Center (NCN) project No. 2014/13/D/HS4/03644, entitled "Environmental determinants of migration from African countries."

k.sobczak-szelc@uw.edu.pl



JUSTYNA ORŁOWSKA

canes, cyclones, and wildfires. But it is worth looking at the topic in a broader context to better understand the complex causes of possible migrations. Of course, we should remember that the natural environment also comprises the soil, water, and land relief, which can be altered not only by climate change (including climate variability), and natural processes, but also by human activity.

Some of the slow-onset changes in the environment may be far-reaching and affect various aspects of human life. For example, those living in coastal areas will face the consequences of rising sea and ocean levels not only once their homes are ultimately flooded. In fact, shortages of drinking water and the dying of vegetation caused by rising groundwater salinity will make themselves felt much earlier than that. In inland areas, in turn, the degradation of vegetation and groundwater pollution can make agriculture and pastoralism – which are still the primary sources of income for local inhabitants in many regions of the world – difficult or impossible. For such situations, the direct causes of migrations may include hunger and economic motivations, such as the pursuit of better living conditions.

Moreover, scholars of migration know that changes in the natural environment and climate can have many more subtle and indirect impacts, including in cases when migrations appear to be directly caused by human conflicts. A good example of this can be found in the long-term drought in Syria combined with earlier mismanagement of water resources that prompted many Syrians to migrate from villages to cities, thus adding to discontent with Bashar al-Assad's regime. Simultaneously, drought-induced crop losses throughout in Egypt and Libya led to unemployment

and worsened the standards of living, and frustration with that situation erupted in what became known as the Arab Spring.

What do the numbers tell us?

Seeing as the phenomenon of environmental migration is difficult to define, it is also hard to estimate the number of people it affects accurately. The problem can be approached in various ways. According to the Internal Displacement Monitoring Centre (IDMC), 24.9 million people were forced to migrate in 2019, by 2,000 natural disasters that occurred in 140 countries around the world. By contrast, 8.5 million were displaced in the same period by armed conflicts. This reveals the magnitude of migration caused by natural disasters and the scale of the challenges faced by the countries in which they occur.

Migrations resulting from the slow degradation of the natural environment and prolonged droughts are a lot greater in scale and a lot more difficult to estimate than those caused by natural disasters or conflicts. Estimates of future migrations are just as difficult, if not more so, especially because such projections must take into account the complex nature of the motives behind people's decisions to migrate. Most frequent forecasts place the number of people who will be displaced by 2050 in the range of 200–300 million (variations of the figure given by the British environmentalist Norman Myers back in 1993, predicting that the number of people forced to leave their homes would reach 212 million by 2050). Other noteworthy projections include the World Bank's analysis of climate hotspots in sub-Saharan Africa, South Asia, and Latin America, predicting the internal displacement of



Dunes encroaching on fields
in M'Hamid El Ghizlane,
Morocco

KAROLINA SOBČAK-SZELC

143 million people, mainly from rural areas to nearby cities and towns due to slow-onset changes in the natural environment.

North Africa – grappling with the desert

North Africa provides various examples of how environmental changes and constraints can affect people's migration decisions. In some of its regions, migration represents a last-resort choice, a means of escaping continual environmental degradation, water shortages, and sand dunes encroaching on fields and burying homes. There are also regions where migration is a form of adaptation, a way to secure the financial resources needed to make investments countering the effects of environmental changes and constraints.

A good example of the former situation can be found in the M'Hamid El Ghizlane Oasis in the south of Morocco, 300 km down the Drâa Wadi below the city of Ouarzazate. The El-Mansour Eddahbi dam, which was built there in 1972, had a significant impact on the life of the inhabitants of the oasis, who traditionally rely on agriculture as their source of income. The regulation of water flows in the riverbed was originally intended to ensure a stable water supply during dry periods. The Noor II solar power station, built nearby, was meant to spur the development of the region. By 2016, however, changing water flows in the Drâa riverbed played a role in lowering groundwater levels at M'Hamid El Ghizlane by even as much as 9 meters, degrading vegetation, and initiating the formation of dunes. The dunes first began to encroach on the fields at the western and southern edges of the oasis and later also started to bury houses. In addition, changes in the natural environment significantly reduced people's ability to earn a living from agriculture. The situation was further exacerbated by global events, such as the economic crisis in 2008, the Arab Spring in 2011, the subsequent rise in terrorism, and finally the COVID-19 pandemic. All of these made it significantly harder for the inhabitants of M'Hamid El Ghizlane to benefit from tourism, which had been their alternative source of income for years. Worsening living conditions, coupled with the need to seek sources of income other than agriculture, forced a significant part of the population to move away, mainly to Morocco's big cities. In 1994–2014, the population of the oasis dropped by half (from 10,000 to 5,000 inhabitants).

But migration is not always a choice of last resort, like it was for the inhabitants of M'Hamid El Ghizlane. For people for whom movement is related to the ongoing search for good living conditions, fertile pastures for their herds, migration is in their blood, and they see it as a natural life decision. El Faouar



KAROLINA SOBIEZAK-SZELC

Oasis in central Tunisia is a good case in point. Unlike M'Hamid El Ghizlane, El Faouar is a modern oasis, established in the 1960s thanks to the drilling of boreholes used as water wells, which enabled the planting of date palms. However, the small number of wells quite quickly proved insufficient to meet the irrigation needs of the intensively cultivated palm groves in the surrounding area, forcing their owners to look for new sources of water. Without government support, possible solutions included private drilling. Such investments, however, require considerable financial resources, which are scarce when income from agriculture is limited, and there are no jobs that might allow people to take out loans. The locals then had two options: either they could work together and jointly share the drilling costs and the resulting water, or they could raise funding for such investments by working in big cities in Tunisia or abroad. The example of the El Faouar oasis shows clearly that for the farms that are associated with economic migrants, income from emigration provides additional financial security. In addition, they earn more from agriculture because the extra funds allow them to invest in farm development, as well as experiment with new crop varieties.

A drip irrigation system and solar panels powering a well pump in El Faouar, Tunisia

The Maldives – the biggest victim of climate change?

The Maldives is an extensive chain of small and very flat islands, highly vulnerable to rising sea levels and extreme weather events caused by climate change. Even heavy rain is enough to disrupt life on the smaller islands. Additionally, the Maldives is among the world's top tourist destinations, often seen as a perfect island paradise, especially by those who live in Europe and North America. Seclusion, simple life, and closeness to nature all contribute to the picture of a perfect holiday locale. Due to both geographical

(the morphology of the islands) and cultural factors, the Maldives and other small island states are often seen as a victim of the world's powerful economies, which contribute most to climate change. "We're so small that everyone else looks like a tyrant and a bully in comparison," a Maldivian friend of mine once told me. This image is particularly advantageous from the perspective of the Maldives obtaining international support. For the purposes of climate negotiations, the world's island states have even formed a coalition, appearing jointly as a party in talks with the United States and China (which are the biggest emitters of greenhouse gases) on paying for the damage caused by the effects of climate change. The media are perpetuating this narrative, promoting black-and-white perceptions of climate change in the Maldives and positing a clear-cut distinction between victims and villains. The language used by international organizations that distribute funding for humanitarian aid embraces the notion of "climate refugeeism" that will soon affect the inhabitants of the islands. In the case of the Maldives, among those who promote this perception is Mohamed Nasheed, the charismatic former president who has been dubbed an "eco rock star." He has spoken out in the media about the Maldives' plans to purchase land in Australia and India because the islands will soon be flooded. It was from those reports that I drew inspiration for my subsequent research.

No problem for ocean nomads

However, the microworld observed from the inside often looks quite different from how it is presented to the outside world. Do the Maldivians actually

intend to leave their country, which is undoubtedly threatened by rising sea levels? It turns out they have a completely different idea for how to cope. What's more, this idea is not new, nor is it inspired by growing awareness of climate change and its consequences. It is based on something the Maldivians have practiced for hundreds of years, resorting to it whenever life on a specific island became impossible or uncomfortable.

The Maldivian archipelago consists of about 1,200 islands, of which only about 200 are inhabited and about 150 are entirely occupied by luxury resorts. The Maldivians are extremely aware of the transient nature of the environment and by the same token the fragility of their islands. One of the most distressing experiences that reminded them of this fact was the tsunami that swept through the Indian Ocean in 2004. But the Maldivians had long known that their homes could come under such attack by the waves. This can sometimes result from the natural activity of monsoons, which cause the flooding of beaches during their annual cycle, or from a hurricane that pollutes the already scarce freshwater resources. In the past centuries, the Maldivian sultans introduced themselves to outsiders as rulers of a "kingdom that appears and disappears," because the archipelago islands constantly change size, become inundated, or re-emerge from the ocean. Among the peoples of the Indian Ocean basin, the Maldivians used to be known as the ocean nomads.

So how are ordinary Maldivians really planning to deal with rising sea levels? In the same way as they did before: whenever the island they lived on ceased to satisfy their needs for reasons related to changes in the environment, they would simply move to another

Ksar Bounou, Morocco,
deserted and buried by sand



KAROLINA SOBČAK-SZELC



Abandoned houses
on Kunburudhoo,
the Maldives

one. There are plenty of islands in the archipelago, once inhabited, that have since become abandoned, such as Kandholhudhoo, hard-hit by the tsunami, and Kunburudhoo. Moreover, some islands that are attractively located but were considered too small to justify the construction of a mosque, school, and healthcare center are now being artificially enlarged with sand and raised to withstand higher sea levels. Efforts of this sort can hardly be described as “climate refugeeism.” Economic issues play a decisive role here, and so do the possibilities of finding employment and, of course, the natural conditions on a given island (trees to provide shade and coconuts, reefs with plenty of edible fish, and so on).

What do the examples from North Africa and the Maldives teach us?

In our experience, it would be a mistake to see the inhabitants of the regions we study merely as passive victims. In our research, we have sought to shed light on the situation of the inhabitants of desert oasis communities, who may see their settlements buried by sand dunes and are affected by shortages of water not only for field irrigation but often also for drinking, and remote islander communities, whose homes are gradually being inundated by the ocean. A similar conclusion, however, could apply to many other regions of the world and types of local communities, which in our view should always be treated as active agents in the context of migration. This conclusion

has very important practical implications, particularly for the formulation of social policies, often financed by foreign funds. Any decisions about imposing measures aimed at improving the local situation of people and preventing the effects of climate change (including decisions on displacement) should be made together with the local communities. Otherwise, huge amounts of resources from governments and charitable organizations may be spent on “forced rescue,” while the real problems remain ignored. Importantly, temporary migration can also be a form of adaptation that boosts the resilience of local communities, which is why such migration should be made legally possible.

What might this mean for Poland?

Poland is already affected by migrations related to environmental factors, including the effects of climate change. Perhaps they are not yet readily noticeable, but research should nonetheless be done to forecast possible migrations and take them into account in infrastructure plans. To put it bluntly, Poland has already experienced heat waves and droughts, and access to water may become increasingly difficult in the future. It is not out of the question that just a few decades from now, this may prompt people to migrate to regions with more water. Situations such as those in the Maldives and Morocco, where certain phenomena can already be observed, should be treated as a lesson and a warning. ■