

Environment and Migration

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Glossary

Adaptation The capacity of a society to cope with changes in its environment and to adjust to them.

Climate refugees A term commonly used in the media and for advocacy purpose as a synonym of “environmental migrants.” Climate refugees are not defined in international law as “refugees.” Most international organizations avoid the term to prevent confusion.

Environmental determinism Posits that nature is the main driver of the fate of human societies. It was very common in geography at the beginning of the 20th Century.

Environmental migrants People who are compelled to migrate due to environmental degradations which usually interact with other drivers.

Migrant A migrant is someone who changes her/his usual residence, irrespective of the reason for migration or legal status. A minimum of 3-month stay is often required to be considered as a migrant.

Remittances Financial transfers made by migrants to their family or friends in the region of origin. If properly used, remittances are considered major vectors of economic development.

Vulnerability The degree to which a society would be negatively affected by a change in its environment. Vulnerability is usually considered as the product of a society's endowment in different forms of capital (economic, social, etc.).

A Long History

Environmental migration is an issue commonly presented as new or as part of future trends. Yet, it is a long-standing phenomenon. The discipline of geography has long acknowledged the role played by climatic factors in the history of populations. For example, the passage across the Bering Straits from America 13,000 years ago was possible due to the low sea levels of the ice age, while the Medieval Climate Optimum which lasted between the 8th and 13th centuries CE has stimulated the populating of Polynesia by making navigation easier. The desertification of the Sahara and the Arabian Peninsula also seems to have played an important role in the densification of the population on the banks of the Nile and consequently contributed to the birth of the Egyptian civilization. More recently, the droughts of the 1930s in the plains of the American Dust Bowl (parts of Kansas, Oklahoma, Texas, New Mexico, and Colorado) forced hundreds of thousands of migrants toward California. In Africa, millions of nomads and peasants were forced to settle in cities during the 1969–74 drought in the Sahel, 500,000 during the floods of 1985 in Benin, and more recently hundreds of thousands in Nigeria (1994, 1999), Ghana (1995, 1999), Sierra Leone (1996), and Mozambique (2000). Many displacements linked to environmental issues also took place in the rest of the world, especially the Middle East, Central and South Asia, and South America. It is thought, for example, that the periodic droughts plaguing northeastern Brazil between 1960 and 1980 pushed 3.4 million people to emigrate.

Most early theoreticians of migration—and among them many geographers—indeed mention the environment as a major driver of displacements. In 1889, Ravenstein mentioned unattractive climate as having produced and still producing migration flows along with oppressive laws, heavy taxation, uncongenial social surroundings, compulsion and economic motivations). Several decades later, the American geographer Ellen Churchill Semple also mentioned soil fertility, milder climate and easier conditions of living as drivers of migration. This saliency of environmental explanation is the logical consequence of the deterministic paradigm within which geography developed at the end of the 19th Century. The role of the natural environment in migration is indeed central, though in a fairly implicit way, to Ratzel's *Anthropogeographie*, which, as noted by Emile Durkheim, lays the foundations for a general theory of migration. A similar emphasis on the influence of the physical environment on human migration is to be found in the work of the most famous figure of environmental determinism in geography, Ellsworth Huntington. In the context of his general project of highlighting the geographic basis of human history, Huntington is probably the first to describe what would today be considered “climate change migration” in eastern China in the 1920s.

The Disappearance of the Environment

Despite these early historical insights, references to the environment as an explanatory factor were progressively to disappear from the migration literature over the course of the 20th Century. Indeed, landmark publications of the time such as Gregory, Taft, or Isaac do not mention environmental factors. The same applies to Zelinsky's famous hypothesis on the “mobility transition” and

to Stouffer's "intervening opportunities" approach. The environment is also absent from neoclassical economic theory as well as from neo-Marxist theories of migration.

There seem to be at least three main reasons for migration studies' decreasing interest in the natural environment over the last century. First, powerful Western-centric ideologies insist that technological progress will decrease the influence of nature on human life and hence its role as migration driver. Petersen's classic *Typology of Migration* illustrates that point: Petersen viewed environmental migration as the first form of migration in history—people's inability to manage natural forces—while also claiming this was a "primitive" form of mobility that was bound to decline as human beings gradually increased their control over the environment. The second and related factor leading to the demise of environmental considerations in migration studies is the vigorous rejection of natural determinism that characterizes postwar human geography. Acknowledging the naivety of the monocausal explanations offered by determinism and its propensity to legitimize a natural hierarchy of economic development, geographers became suspicious of making causal links between environment and society. Many geographers simply chose not to study the environment–society relationship at all and to specialize in either human or physical geography. A third reason for the disappearance of the environment in migration studies is the hegemony of an economic paradigm: while already present in Ravenstein's work, economic factors were given an exclusive role in 20th-Century migration theory. Whether influenced by a structuralist or a neoclassical epistemology, economic theories of migration pushed aside other explanations, be they political, cultural, or environmental. The economics of amenities—which considers a pleasant environment as a pull factor—constitutes the single subfield of migration studies where the environment retained a central explanatory power.

During the second half of the 20th Century and in the intellectual context just described, ecological displacements, often linked to food scarcity or natural disasters, indeed happened to a large-scale worldwide. These displacements, however, went largely unnoticed and unregistered by migration experts. First, they often took place in the under researched Global South. Second, they were to a large extent overshadowed by the economic migration flows of guest workers from southern to northern Europe, braceros from Mexico to the United States, and former colonial subjects from Africa and Asia to Europe who were at the center of migration research at that time.

The Controversial Return of the Environment

Only at the very end of the 20th Century did "environmental migrants" come back in the picture as one of the pressing issues raised by climate change and environmental degradations. The Egyptian scientist El-Hinnawi coined the term "environmental refugee" in 1985, and at the beginning of the 1990s, landmark publications provided alarmist estimates of the number of people foreseen to move because of climate change. Norman Myers argued, for example, that up to 150 million environmental refugees were to be expected by the end of the 21st Century while the first United Nations (UN) intergovernmental report on climate change stated in 1990 that the gravest effects of climate change may be those on human migration as millions will be displaced.

These early research and policy discussions were heavily embedded in a climate change agenda, characterized by a strategy to raise awareness surrounding the potential impact of climate change on migration—and on security at large. Unlike abstract physical indicators such as temperature or humidity, migrants embodied a peril in the making and soon became iconic markers of climate change, alongside the Amazon rainforest and polar bears. "The human faces of climate change," as they were called by the chair of the IPCC (Intergovernmental Panel on Climate Change), thus provided an engaging simplification as well as a powerful advocacy tool for environmentalists and other actors. In this approach, "environmental migrants" were portrayed as forced to leave their country and as moving exclusively for climate change–related reasons, while the tone of the debate was future-oriented—hence favoring usually alarmist predictions rather than empirical analysis of already-existing flows.

This stance clearly clashed with most migration researchers' convictions regarding the complexities and multicausality of migration and led to a long-standing divide between natural and social scientists: while the former took for granted the interrelation between environmental deterioration and migration and stressed the very high number of people concerned, the latter considered the environment as, at most, one driver of migration among many others and were very cautious regarding the estimates put forward. Moreover, alarmist predictions that aimed at sensitizing governments and public opinions to the fate of the victims of climate change often contributed to further stigmatize migrants from less developed nations who were portrayed as threatening the security of wealthy countries.

Today, it would seem that, although the debate still goes on, the disciplinary divide is gradually being overcome: environmental scientists tend to be more cautious while migration specialists do recognize the role of the natural environment in migration dynamics. On the whole, most scholars now dismiss the apocalyptic predictions that used to influence debates. Yet, in a context in which climate change has become an overarching priority for a wide range of actors worldwide, the vision of "climate refugees" escaping environmental disasters remains a powerful way to catch the imagination of the public. The imaginative significance of environment and migration is evident in the numerous public awareness campaigns launched by politicians, environmental activists, international organizations, and to a certain extent, by lawyers, climatologists, or social scientists. The use by numerous authors of the term "climate refugee" has also led to certain confusion because it evokes the juridical status recognized by the UN Convention of 1951 to political refugees. The UN Refugee Agency (UNHCR), being very aware of a risk of confusion between political and nonpolitical refugees, has always treated with the upmost prudence the idea of including environmental motivations in the international definition of refugees, even if UNHCR also deems this category of the population as a possible part of his protective mandate toward displaced persons.

In sum, there are at least two lessons to be learned from this history of the debate. First, the controversy between natural and social scientists is deeply rooted in intellectual history and the weight given to environmental factors in migration dynamics is therefore both a matter of “hard facts” and of intellectual traditions. A single historical migratory event can be initially understood in environmental terms and be later reframed in economic or political terms. In this respect, the current focus on environmental migration appears less as a new research issue than as an expression of a paradigmatic shift. Second, this field of study is inherently political, which means that research and statements regarding the climate change-migration nexus are very hard to dissociate from the highly politicized debate on climate and environmental change itself.

Empirical Studies

While it is extremely difficult to elaborate scientific predictions by combining climate and migration prognoses, the expected consequences of climate change can be compared with past experiences so as to establish a list of the populations most at risk and the possible resulting emigration. Indeed, the amount of systematic research on environmental migration raised sharply in recent years (Fig. 1). A significant focus on Southern countries is witnessed (Fig. 2) and cannot be explained solely by the uneven vulnerability of southern regions to the environment. It must also be understood through the lens of postcolonial and securitization studies as the result of the framing of “environmental refugees” (and refugees in general) as an intrinsically “southern problem” and as a security risk for the Global North.

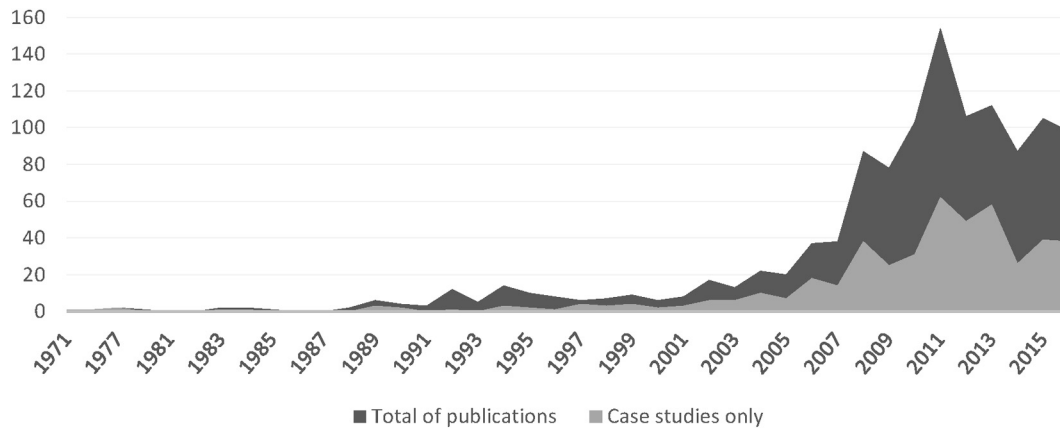


Figure 1 The evolution of the publications (N = 1187) and case studies (N = 461) on migration and climate change between 1970 and 2016. Source: CliMig, University of Neuchâtel (2017).



Figure 2 Countries where case studies on migration and climate change have been conducted (N = 532; an article can contain multiple case study locations). Source: CLIMIG Project, 1970–2016. Institute of Geography, University of Neuchâtel.

Empirical studies very often distinguish between slow and fast onset events. Droughts, sea level rise, coastal erosion, and glacial melting are usually labeled “slow-onset,” whereas hurricanes, flash floods, torrential rains, landslides, earthquakes, and tsunamis are labeled “fast onset” or “sudden onset.” A second common distinction is made between direct and indirect links. A direct link occurs if, for example, coastal erosion forces the inhabitants of a village to relocate or if people have to flee a hurricane. An indirect link occurs if progressive desertification affects traditional farming practices and leads some people to leave the affected region or if a drought exacerbates conflicts over resources, contributing to violence, which then may push people to flee. In practice there is often a continuum between fast and slow onsets as well as between direct and indirect impacts and clear-cut distinctions are impossible. Drought, for example, can be considered fast or slow according to circumstances. What is more, the degree to which a given society or community is able or not to adapt to changing environmental conditions needs to be factored into the analysis. In any case, none of the links can be considered as “natural.” The presence and actions of people alter the nature and extent of environmental phenomena and the same onset, fast or slow, will be apprehended and represented in different ways according to social, religious, cultural, and economic contexts. Despite these conceptual complexities, the abundance of literature on this topic makes it possible to make some general statements regarding human mobility and environmental change.

Three consequences of climate warming forecasted in the 2014 fifth report of the Intergovernmental Panel on Climate Change (IPCC) for the end of the 21st Century appear to be the most threatening potential causes of migrations:

1. The increase in strength of tropical hurricanes and in the scale of flooding due to the augmentation of evaporation correlative to temperature increase.
2. The growth in the number of droughts, with evaporation contributing to a decrease in soil humidity, often associated with food shortages.
3. The increase in sea levels resulting from both water expansion and melting ice.

Hurricanes, Torrential Rains, and Floods

The consequences of hurricanes and floods on population displacement are relatively easy to identify in that they manifest themselves in a brutal and direct manner. In most cases, displacements tend to be temporary and over short distances. Living mainly in poor countries, the victims have few resources for long-distance mobility and the majority of the displaced return as soon as possible to reconstruct their homes in the disaster zone. The results from numerous research projects conducted worldwide tend to confirm this point with remarkable regularity. On a global level, the general conclusion is thus that the potential of hurricanes and torrential rains to provoke long-term and long-distance migrations remains limited, especially when such migration involves crossing an international border. This is not to say that such migrations will not occur in the future and provisions for protecting the rights of the displaced are currently explored by such entities as the Platform on Disaster Displacement (<https://disasterdisplacement.org/>). Given a changing climate and the associated likely increase in the frequency of extreme events, a central research question today is the understanding of the impact of changes in the frequency of repetition of fast onset events on mobility.

Drought and Desertification

A lack of drinking and irrigation water only generates progressive departures. Case studies bring to light a contrasted picture of the consequences of these kinds of change for displacements. On the one hand, there are many well-known cases of mass population departures, in particular in Africa (Sahel, Ethiopia) but also in the Americas (Argentina, Brazil, Mexico), in Central Asia, and in Southern Asia. On the other hand, many researchers strongly relativize the possible direct link between drought and migration by highlighting that the latter, in general, is the last resort when all other survival strategies have been exhausted, and that environmental push factors are just one of several factors influencing displacement decisions. During the 1994 drought in Bangladesh, for example, only 0.4% of households had to resort to emigration. These researchers hold similar views to those of the Nobel Prize winner for Economics, Amartya Sen, in remarking that famines (and subsequent migrations) are, in general, only marginally the direct result of environmental factors and much more closely linked to political forces. A now classic multivariate analysis by Henry, Boyle, and Lambin on interprovincial migrations in Burkina Faso showed a long time ago that environmental variables only contributed a small part to explain migrations. In certain contexts, the impact can even be reversed, as was the case in Mali during the drought of the mid-1980s: a reduction in international emigration was observed due to the lack of available means to finance the journey. Overall, 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. The conceptualization of drought-affected peoples as helpless victims who are left with no choice but to flee seems to be false, since this view turns a blind eye to individual, community, and national adaptation efforts. Meanwhile recent literature also points to the fact that considering migrants as the emblematic victim of climate change misses the fact that those who are not in a position to move because of a lack of resources—so called trapped populations—are often the most affected by environmental hazards. This situation holds true not only in Southern countries but also in more affluent regions, as illustrated by the aftermath of Hurricane Katrina in the United States. Consequently, a new framing of the whole issue recently emerged which, rather than considering migration as the symptom of a failure to adapt,

attempts to take into account the possible positive impact migration can bring directly or indirectly, for example, through the channeling of remittances toward adaptation investments.

Rising Sea Levels and Coastal Erosion

While drought and desertification do not foreshadow massive population displacements due to climate change, the potential for migration linked to an increase in sea level is considerable. In contrast to droughts, this phenomenon is irreversible and manifests itself progressively over a long period of time. Rising sea levels could make migration the only possible option for the population affected. The localization of the consequences of rising sea levels is a relatively easy task because the configuration of coastlines, their altitude, and population are known and thus permit simulations and projections. Hence, it is possible to calculate—on a global scale—the number of persons living in low elevation coastal zones and threatened by rising water levels, higher tides, or farther-reaching waves. McGranahan et al. define low-elevation coastal zones as being situated at an altitude of less than 10 m. Even though these zones only account for 2.2% of dry land, they presently are home to 10.5% of the world population, some 602 million people, of which 438 million live in Asia and 246 million in the poorest countries of the world. On the basis of the scenario of a sea level increase of 0.3–0.8 m, it seems reasonable to consider the 150 million people living at an altitude of less than 1 m as directly vulnerable during the next century. Mainly situated in the major river deltas and estuaries, the flood zones are particularly populated in South Asia (Indus, Ganges, Brahmaputra, etc.) and East Asia (Mekong, Yangtze, Pearl River, etc.). These two regions account for three-quarters of the population at risk. Certain Island nations, such as Tuvalu or the Maldives, are—in the medium term—among the most threatened, as they are situated only centimeters above sea level. Their submersion might lead to a new form of statelessness.

Conclusion

Environmental hazards clearly have the potential to generate migration flows. Global warming could lead to major forced displacements. The latter will result principally from rising sea levels but will only progressively manifest themselves over the forthcoming centuries, with the exception of the flooding of certain islands or very low-lying areas. The increase in frequency and/or intensity of droughts and meteorological disasters predicted by climatic models will also have impacts in terms of migrations but these will mostly remain regional and short-term.

Three possible outcomes of environmental hazards can be identified in terms of population movements: long-term migration, short-term displacement, and immobility when populations are trapped without the resources to move. Each of these movements corresponds with multiple drivers and is embedded in socioeconomic, political, and demographic processes. For the most part, environmental factors are usually merely contributing to the decision to move beside economic, political, demographic, and social drivers, which are themselves mediated through socially, politically, and economically determined institutions and structures that influence human mobility. Due to the number of factors involved, no climatic hazards inevitably result in migrations. This is a message of hope: many authors note that even if natural disasters become more frequent in the future, political efforts and measures of protection will be able to lessen the need to emigrate. Even rising sea levels could be partially counteracted by the erection of dykes or the filling in of threatened zones. But there remain two conditions: first climate warming should remain moderate and second the necessary financial means should be provided to the most affected countries, which are often the poorest and the most populated.

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