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Routledge Handbook of Environmental Displacement and Migration

Edited by Robert McLeman and François Gemenne

Routledge Handbook of Environmental Displacement and Migration

The last twenty years have seen a rapid increase in scholarly activity and publications dedicated to environmental migration and displacement, and the field has now reached a point in terms of profile, complexity, and sheer volume of reporting that a general review and assessment of existing knowledge and future research priorities is warranted. So far, such a product does not exist.

The *Routledge Handbook of Environmental Displacement and Migration* provides a state-of-the-science review of research on how environmental variability and change influence current and future global migration patterns and, in some instances, trigger large-scale population displacements. Drawing together contributions from leading researchers in the field, this compendium will become a go-to guide for established and newly interested scholars, for government and policymaking entities, and for students and their instructors. It explains theoretical, conceptual, and empirical developments that have been made in recent years; describes their origins and connections to broader topics including migration research, development studies, and international public policy and law; and highlights emerging areas where new and/or additional research and reflection are warranted.

The structure and the nature of the book allow the reader to quickly find a concise review relevant to conducting research or developing policy on particular topics, and to obtain a broad, reliable survey of what is presently known about the subject.

Robert McLeman is a former foreign service officer specializing in migration management and is presently Associate Professor of Geography and Environmental Studies at Wilfrid Laurier University in Waterloo, Canada.

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“Environmental migration and displacement is a massive phenomenon, a new wicked universality whose political influence is felt everywhere. This book is important not only for those who document the pace and size of the phenomenon, but also for those in receiving countries who must learn how to cope with it.”

Bruno Latour, sociologist and philosopher, France

“This handbook allows us to anticipate impending disasters, such as the 2004 Indian Ocean tsunami which was one of the first topics of discussion for my government, and the volume calls for rapid solutions. I am optimistic and I believe that we can save the planet, because the world has equipped itself with the knowledge and technology to do so. This is a most helpful guide for political parties who want to formulate responsible and vote winning policies. It’s a blueprint for NGOs interested in doing good. It’s the definitive guide on the subject and a good read.”

Mohamed Nasheed, former President of the Maldives

“This handbook is essential reading and a key teaching resource for everyone interested in an interdisciplinary approach to climate change and migration. McLeman and Gemenne succeed in bringing together a state of the art collection of articles that provide a comprehensive survey of current thinking, not only on the theoretical and methodological underpinnings of a quickly expanding field of research, but also on the available empirical evidence as well as current developments in the areas of law and policy.”

Walter Kälin, Special Envoy of the Chairmanship of the Platform on Disaster Displacement

“This handbook will be a resource for policy makers to identify the current state of the science on the impacts, responses and best practices relating to environmental migration and displacement.”

Mary Robinson, President, Mary Robinson Foundation – Climate Justice, Ireland

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Foreword

If you have picked up this book (or accessed it online), you are probably already aware that people in many parts of the world are, at this very moment, on the move for reasons linked to changes and variations in the natural environment. You probably also did not need to be persuaded that this is a serious challenge for policymakers, for institutions, for communities, and for households and individuals, one that becomes increasingly serious the longer we put off taking meaningful action at global, regional, and local scales to tackle the root causes of land degradation, deforestation, biodiversity loss, climate change, and pollution on water and on land. And (hopefully) you may also be ready and willing to contribute in a meaningful way to creating responses, innovations, and actions to help people who are vulnerable to the impacts of environmental change, who may be at risk of displacement, who migrate reluctantly, who must make the best of a bad situation, or who find themselves trapped in worsening circumstances with no apparent way out. You may be a student thinking about doing research in this field, or are already doing it. You may be an established researcher who has already worked in this area, or are approaching it as a new initiative. You may work in a government agency, a multilateral organization, a development NGO or other organization that has some responsibility for policy or programming, and you want or need to learn more about the ‘who, what, where, when, how and why’ of environmental migration and displacement. Maybe you read something in a newspaper or in social media about climate refugees or environmental migrants, and simply out of curiosity want to know more about what’s going on, from a reliable source. This Handbook has been prepared for you – all of you.

This Handbook is intended to be a handy desk reference, a starting place for newcomers to the field and a resource people already working in the field can refer back to when needed. It is not an encyclopedia (though for those holding a physical copy, it may feel like one), and does not pretend to be an exhaustive collection that defines and describes every term and concept used in discussions of environmental migration and displacement. Neither is it a thematic, edited collection of academic research intended to be representative of the broad field of environmental migration and displacement, for the extent of knowledge in the field today is so wide and so deep that any such collection that is not focussed on a specific subset of the field would be little more than a miscellany. Consider that the University of Neuchâtel maintains a database of research and policy publications about environmental migration; at time of writing in the summer of 2017, the database contained more than 1,700 documents, most of which were published in the last fifteen years. Any book that pretended to provide an encyclopedic or comprehensive overview of this rapidly expanding and diversifying field would be too big to carry, and outdated on the day of publication.

As with any rapidly expanding field of research, a handbook is, well, handy. In assembling this Handbook, we have done two things. First, we asked a variety of established and emerging

Foreword

researchers from around the world to submit chapters that describe – in concise, accessible terms – overviews of the past and present state of research in their respective areas of expertise. Some have written about theoretical or methodological considerations, others about particular regions where they work and the key issues they face, and still others about the legal and policymaking challenges. Each of these chapters has been peer-reviewed, and contains a useful list of references to guide the reader to additional readings. Second, we asked representatives of the leading global multilateral organizations that engage on a daily basis with environmental migration and displacement to provide a concise overview of their experience, interests, and challenges they face. In addition to all this, we were also able to persuade Professor Lori M. Hunter – who was until recently the long-time editor of *Population and Environment*, the leading scholarly journal in the field – to contribute a concluding summary of the key unanswered questions and future challenges for researchers and policymakers. And, as you will also see, none other than Mary Robinson – former President of Ireland, United Nations High Commissioner for Human Rights, and activist for climate justice – has provided a formal introduction to this volume. If there is any truth to the old saying that, ‘you are judged by the company you keep’, we are fortunate and honoured to be in her company.

As editors, we have strived to ensure that the sum of these contributions captures, as best as we can muster, the important topics and conversations that engage established experts in the field, and with which newcomers to the field will want to become familiar. Despite containing thirty-six chapters, there will inevitably be gaps in the coverage of topics in this Handbook; that is our fault as editors, though not for lack of effort. Our concluding hope is that you, the reader, will find this volume to be a useful resource for inquiry into this subject of critical importance to achieving a sustainable future.

Robert McLeman and François Gemenne

Foreword

It is with pleasure that I write a foreword to this important *Routledge Handbook of Environmental Displacement and Migration*, coming as it does during a period of international cooperation and interest in this field. We have seen migration and human mobility on an unprecedented scale in recent years, and a corresponding deepening of understanding within the international community of drivers and root causes of mobility, including as a result of climate change and environmental impacts.

My Foundation, the Mary Robinson Foundation – Climate Justice, has been an advocate for action on climate displacement for some time, across international processes. A stark reality of this work has been the recognition that lack of a deeper understanding based on research and data in the international conversations is holding back effective solutions. I hope that this book will go some way to addressing that gap. This Handbook will be a resource to policy makers to identify the current state of the science on the impacts, responses and best practices relating to environmental migration and displacement.

Communities at risk of displacement as a result of environmental degradation, often exacerbated by climate change, have a lot to lose. And losses for these communities are not limited to material and economic impacts; they are also deeply personal. This is something I want to underline. The land one comes from is often deeply embedded within an understanding of self. It can act as the social fabric that binds communities together and from it stems culture and identity. This was something I learned from my friend Ursula Rakova, who is currently undertaking a move with her community from their ancestral lands in the Carteret Islands to Bougainville Island due to sea level rise. She explained that her communities' move was not just difficult because of the problems of management and guaranteeing livelihoods, but also included a significant trauma from leaving behind the 'bones of their ancestors'. This is a hugely valued asset these communities cannot get back, and it is a moral imperative for action. Sadly, a recognition of the loss of cultural identity has been largely missing from international conversations on environmental displacement.

It is this deeply personal aspect of displacement and migration that I hope readers of this Handbook will engage with and utilise to inform future policy work. Climate change is happening, we are seeing its impacts, including displacement, right now. Even in a best case scenario, in which we limit warming to the 1.5°C goal of the Paris Agreement, we are likely to see more people on the move. In Agenda 2030, countries agreed to take steps on migration, climate change, and development, and more importantly to 'leave no one behind' and 'reach the furthest behind first'. A person who loses their home and livelihood due to environmental impacts must be included within that category. The international community needs to come together to recognise these realities and to acknowledge that the people first to move are often those who did least to contribute to the problem. This is the injustice of climate change. Responses must

acknowledge these people as representing a critically vulnerable group and protect their human rights in a spirit of equality and burden sharing.

Environmental displacement is happening right now yet it is often unrecognised by governments. However, there is hope; the New York Declaration of September 2016, and the commitment to a Global Pact on Migration by 2018, demonstrate the renewed vigour with which the world is facing the challenges of displacement and migration. As people increasingly lose their homes, livelihoods, and culture to climatic and environmental impacts, we need to develop people-centred, rights-based policy responses. Climate change and environmental degradation are matters of grave urgency, and the impacts on the most vulnerable are persistent and unconscionable. This cannot be seen as a problem that is considered too complex for the global community to solve. As Nicolas Hulot stated, in his introduction to the *Atlas of Environmental Migration*: ‘The challenge lying ahead is to allow a population that has never been so large to attain a quality of life without precedent’ (Ionesco et al. 2017, p. vii).

Mary Robinson

About the Mary Robinson Foundation – Climate Justice

The Mary Robinson Foundation – Climate Justice is a centre for thought leadership, education, and advocacy on the struggle to secure global justice for those people vulnerable to the impacts of climate change who are usually forgotten – the poor, the disempowered and the marginalised across the world. It is a platform for solidarity, partnership, and shared engagement for all who care about global justice, whether as individuals and communities suffering injustice or as advocates for fairness in resource-rich societies. The Foundation provides a space for facilitating action on climate justice to empower the poorest people and countries in their efforts to achieve sustainable and people-centred development.

Mary Robinson is President of the Foundation. She served as President of Ireland from 1990–1997 and UN High Commissioner for Human Rights from 1997–2002.

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Part I

Existing knowledge, theories and methods



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Environmental migration research

Evolution and current state of the science

Robert McLeman and François Gemenne

The timeliness of this volume

We are at a moment in time when concerns about environmental challenges, migration, and international security are becoming increasingly intertwined – in political debates, in policy-making discussions, in media reporting, and in scholarly research. Thirty years ago – perhaps as recently as fifteen years ago – the present volume would have been neither possible nor needed. It would have been impossible because there was very little reliable research of a theoretical or empirical nature to show any systematic connections between environmental changes, human population movements, and the wellbeing and security of individuals, households, and states. This does not mean the connections never existed, but simply that a lot of research had yet to be done. This book would not have been needed because the audience for it would have been tiny. Relatively few researchers and even fewer policymakers paid much attention to environmental migration on any sustained basis until the mid-1990s, and even then, interest in the topic advanced in fits and starts for another decade. Most likely, such a volume would not have been thought of, period.

What has happened in the last decade to create interest in the subject of environmental migration and displacement (EMD) (Box 1.1) and a demand for research? Three things, we would suggest.

The first is that a threshold has been crossed in terms of societal awareness of the extent and scale of human degradation of the environment and of the worrying implications for human wellbeing, especially the risks posed by anthropogenic climate change. It was only thirty years ago that the UN General Assembly tasked the UN Environmental Programme (UNEP) and the World Meteorological Organization (WMO) with creating what would eventually become the Intergovernmental Panel on Climate Change (IPCC). Only twenty-five years ago was the UN Framework Convention on Climate Change (UNFCCC) drafted, and only twenty years ago were the first concrete steps to tackle climate change agreed upon by the international community through the Kyoto Protocol, in 1997. In the decade that followed, there was a veritable explosion in media coverage of climate change, especially in countries that were

most responsible for global carbon emissions (Schmidt et al. 2013). The IPCC and US Vice-President-turned-environmental-activist Al Gore were awarded the Nobel Peace Prize in 2007. Governments and institutions that fifteen years previously had had little knowledge or interest in climate science were being asked through UNFCCC processes and by media and interest groups in their home countries to assess their vulnerability to the impacts of climate change, and to explain their policies and programs for mitigating their greenhouse gas emissions. Climate change was no longer just an abstract, scientific concern, but was becoming a very concrete reality for millions. Demand for reliable research grew commensurately. In the meantime, climate science itself became increasingly sophisticated, continuously generating greater understanding of the teleconnections between the changing composition of the atmosphere and the resulting impacts on global and regional temperatures, precipitation patterns, biodiversity, ocean circulation, and so forth. Whilst the science continues to evolve rapidly, it has become increasingly evident what the physical changes are likely to be in coming decades if greenhouse gas emissions continue to grow unabated (IPCC 2013).

Box 1.1 What is EMD?

In this chapter, we use the acronym 'EMD' as a substitute for the phrase 'environmental migration and displacement', which forms part of the title of the present Handbook. In academic literature, many different terms have been used to describe the phenomenon of people moving for reasons related to events, conditions, and changes in the natural environment, some examples including ecomigrants, environmental refugees, and climate displacees. In selecting EMD, we have sought out a term that provides a broad but clearly delineated description of the phenomenon that is easily recognizable and does not carry any specific legal implications. It includes people who choose to migrate with full agency, those who have no choice but to migrate, and the full spectrum of possibilities in between. It reflects an oft-cited, widely accepted definition of what constitutes an environmental migrant put forth by the International Organization for Migration (IOM), which has considerable experience and expertise in working with such people:

Environmental migrants are 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 homes or choose to do so, either temporarily or permanently, and who move either within their country or abroad.

(IOM 2011)

Second, there has been growing awareness that environmental degradation has far-reaching consequences for human wellbeing and, consequently, for human mobility and migration patterns. Beginning in the late 1800s, there has been in western scholarly traditions a general understanding that human population processes and patterns are influenced to some degree by environmental conditions, but for reasons described ahead, social scientists – who do the bulk of migration research – were slow to engage with the subject. It was not until the 1970s and 1980s, when a series of catastrophic famines and natural disaster events struck countries in Africa and Asia, that significant numbers of scholars began investigating the question of how environment

and migration may be connected. Even then, most of the published research was carried out by researchers and NGOs not historically engaged in migration research, resulting in the emergence and popularization of terms like ‘environmental refugees’ that continue to be used by media, policymakers, and the general public, to the frustration of many social scientists. It was only with the emergence of the UNFCCC process and the sustained attention given to climate change impacts in successive Intergovernmental Panel on Climate Change (IPCC) reports that social scientists, legal scholars and others outside the traditional natural hazards research community began studying EMD systematically. The British government and the European Union (EU) played an important role in fostering a rapid expansion of EMD research in the early 2000s by funding large, multi-year research initiatives to provide policy-oriented research on the topic. Again, details follow.

Third, the end of the Cold War in 1991 meant that security agencies and security scholars began taking an interest in broader influences on international security, including environmental factors. Scholars such as political scientist Thomas Homer-Dixon (1991) and ecologist Norman Myers (1993) warned of environmental conflicts and environmental refugees to come in future decades. A story about environmental degradation, conflict, and refugees in West Africa published in the February, 1994, issue of the *Atlantic Monthly*, bearing the title “The Coming Anarchy”, was required reading in Bill Clinton’s White House (Dabelko and Dabelko 1995). By 2003, the US government was commissioning studies of the security implications of climate change (Schwartz and Randall 2003), and on two subsequent occasions the UN Security Council debated the international security implications of climate change. In 2007, civil conflict in Darfur among pastoral groups and sedentary farmers during a period of persistent drought was described by then-UN Secretary General Ban Ki-moon as being the first example of climate change-related conflict (on the basis of UNEP [2007]), although many researchers questioned the reliability of such claims (Brown and McLeman 2009). In the meantime, reporters began actively seeking out the world’s first ‘climate change refugees’, finding examples in locations as disparate as coastal Alaska, the South Pacific, dryland areas around Lake Chad, Chesapeake Bay, and Louisiana. Security researchers today generally agree that climate change and other environmental factors can indeed act as ‘threat multipliers’ in countries and regions where political tensions and instability are already strong, but that the connections between environment, violence, conflict, and migration are nuanced and context-specific (Gemenne et al. 2014; Chapter 28, this volume).

An overarching theme has been that, to a significant extent, policymaking needs have driven EMD research. Whilst there are many researchers in the field who pursue EMD research from the scholarly tradition of curiosity-based inquiry, a net benefit to all researchers working in this specialty field is that policymakers have an active interest in what they have to say. The common complaint of researchers in other fields and disciplines, and particularly in migration studies – that their work goes unnoticed by governments, decision makers, the media and the general public – does not apply here. The high-quality research that has been done in the past decade or so has successfully persuaded policymakers and the concerned public that environmental change, mobility, migration patterns, and human security can no longer be thought of in isolation. Further, policymakers’ need for high quality EMD research continues to grow. We see this in the evolution of the UNFCCC process, where the 2016 Paris Agreement set into motion, through Article 50, a process to recommend to signatory states how to proceed with respect to population displacements attributable to climate change. We also see it in the many other international policy arrangements being developed to respond to people displaced for environmental reasons, through initiatives such as the Platform on Disaster Displacement (Chapter 34, this volume) and the increasing engagement of multilateral organizations and agencies in EMD

policy-making and programming (see chapters by UNHCR, IOM, UNEP, and World Bank, later this volume).

Although the volume of EMD research and the attention given to it have exploded in a relatively brief period of time, the ways in which we currently think about and represent EMD have a much longer history of development. Geographer David Livingstone (2000) has observed that western thinking about the human-environment relationship traces through the Enlightenment, Renaissance, and on back to the ancient Greeks; we will not here dig so far into the past. However, we do in the following pages wish to trace the more recent evolution in EMD research and thinking, describing briefly contributors and conceptual developments that are critical to what we today believe EMD to be and to how we came to such an understanding.¹ We also offer a brief synopsis of what we believe to be important current trends and questions of interest to researchers, recognizing that the following thirty-plus chapters in this book will unpack these in far greater detail.

Origins and evolution of EMD research and scholarship

Current views on the relationship between migration and the natural environment have been influenced by a much older scholarship. Although a complete book might be written on the subject, we here wish to highlight some of the more important factors and contributors to its longitudinal development. Readers wanting to read additional, more detailed treatments of the development of EMD research (and critiques of it) may wish to consult Bettini and Gioli (2016), Gemenne (2011a), McLeman (2014, 2016), and Piguet (2013), among others.

Ravenstein's laws of migration

Contemporary migration scholarship (of any type) in the western tradition traces its theoretical and methodological origins to the work of Georg Ravenstein and a series of publications he wrote between 1885 and 1889 under the title, "The Laws of Migration". Using British census data as his evidence base, Ravenstein (1889) described a number of generalized characteristics about migration which, after updating the language, can be summarized as follows:

- most migration takes place over relatively short distances
- migration tends to flow from rural areas to urban centres
- the longer the distance travelled, the more likely the migrant is destined to an urban center
- migration in one direction tends to generate return flows of migrants in the opposite direction
- there are gendered differences in migration, with men being more likely to undertake international migration than women
- longer distance migration is more likely to be undertaken by individuals than by entire households
- urban centres grow more by in-migration than by natural increase
- improvements in transportation technology and infrastructure facilitate greater amounts of migration
- most causes of migration are economic in nature

Despite the use of the term 'laws', none of these statements are universally accurate (nor were they even in Ravenstein's day), and with the passage of time, many of them are now recognized as being gross simplifications that are unreflective of the complex, multi-scale processes that

influence migration patterns and behaviour. Nonetheless, Ravenstein's work remains influential today on migration scholarship in general and on EMD research in particular, in three important ways. First, Ravenstein's work represents the first systematic attempts to develop broad explanations of migration patterns and behavior on the basis of empirical evidence, an approach that stands in considerable contrast with many of his contemporaries (see ahead). In doing so, Ravenstein anticipated the 'grounded theory' approach to developing theory on the basis of empirical evidence that is widely used today by social scientists (Charmaz 2004), and established the practice of using census and similar statistical data in demographic and migration research, including EMD research (Fussell et al. 2014).

Second, although there are many obvious exceptions to Ravenstein's 'laws', a great many of his statements remain accurate more often than not. Most migration today does indeed flow from rural areas to urban centers (Samers 2010). Far more people migrate within countries than to international destinations, and more international migration flows between contiguous countries than between distant ones. Migration is often indeed heavily gendered (Chapter 11, this volume), a term Ravenstein did not himself use, but which he recognized in the differential statistics with respect to male and female migration within the United Kingdom in his day. What is perhaps more surprising than how often Ravenstein's 19th-century observations generalizations remain valid is how often they are overlooked in modern-day discussions of global migration patterns. For example, if one were to judge only by recent media reports and political debates, one would think that all of the world's refugees and most of the world's impoverished people were on the move to Europe and the US, or had already arrived. Whilst worldwide there are indeed hundreds of millions of migrants (UN DESA 2015) and an estimated 65 million forcibly displaced people (UNHCR 2017), few will ever make their way to western countries. For example, during the European migration 'crisis' of 2015–2016, 1.2 million people per year made asylum claims in EU countries (Eurostat 2017). By contrast, Uganda, Iran, and Lebanon each host approximately 1 million Convention Refugees, Turkey hosts nearly 3 million, and a single refugee camp in northern Kenya is home to nearly a quarter million people (UNHCR 2017).

Third, Ravenstein conceived migration as being driven by a variety of factors at the sending and destination locations—subsequently described by migration scholars as push and pull factors—some of them exogenous (i.e. beyond the control, influence, or knowledge of the migrant), and some of them endogenous. In Ravenstein's view, most influences on migration decisions, both endogenous and exogenous ones, were economic in nature, a view that would be heavily influential on migration scholarship well into the 1970s, and continues to be widely held today.

Malthus and Malthusianism

Another key influence on modern EMD scholarship has been Thomas Malthus and his 1798 *An Essay on the Principle of Population*, which he revised and updated several times over the following quarter-century (Malthus 1817). In his essay, Malthus considered the relationship between human populations and the productivity of arable land, available food supply, and similar types of what are today often referred to as critical ecosystem goods and services (Millennium Ecosystem Assessment 2005). Using statistics on population change in England and his own observations of the living conditions of the rapidly growing number of urban poor, Malthus concluded that human population numbers tend to grow until they outstrip the productive capacity of the land and water resources available to them. Lack of employment, falling wages, increased poverty, malnutrition, disease, famine, and conflict then begin to act as positive checks that reduce the population until an equilibrium between population and resource availability is regained—at which point the process repeats itself. Malthus used Christian theology and the historical

example of the decline of the Roman Empire to support his arguments, and critiqued government provision of relief to the poor, believing that it perpetuated poverty and increased the likelihood of the onset of the aforementioned positive checks on population.

Migration was seen by later scholars as being a means of relieving Malthusian 'overpopulation' and maximizing the utilization of natural resources, with Gregory (1928: 19) arguing that "the spread of settlers subdues the waste spaces of the earth and enables each clime to produce its special products for the general service". The fact that the global human population has increased more than seven-fold since his Essay was published two hundred years ago reflects many phenomena Malthus would have not been able to anticipate, such as industrial agriculture, advances in health and sanitation, changing cultural attitudes toward the role of women and girls in society, and the advent of birth control.² Nevertheless, neo-Malthusian concerns about population growth, resource availability, and overpopulation are found in late-19th century social Darwinism and early-20th century environmental determinism. Warnings of Malthusian-style population crashes were rekindled by Stanford ecologist Paul Ehrlich in his 1968 book, *The Population Bomb* and the Club of Rome's 1972 *Limits to Growth* report (Meadows et al. 1972), which in turn had influence on environmental refugee and environmental conflict literature of the late 20th century.

Social Darwinism and environmental determinism

The revolution in natural sciences stimulated in the second half of the 19th century by Charles Darwin's theories of evolution and natural selection was quickly embraced by many social scientists, as well. British scholar Herbert Spencer became an early proponent of what would become described as 'social Darwinism', a theory that social behaviour and social processes evolve in a fashion similar to biological evolution, and are shaped by competition between groups for control of resources and an underlying predisposition of individuals to act in their own self-interest (Hofstadter 1944). Political theorists, economists, and geographers began using evolutionary theory to explain the historical social and economic trajectories of states and societies. German scholar Friedrich Ratzel (1902) developed the concept of *lebensraum*, suggesting that states must acquire larger areas of land and resources to support population growth and economic development, particularly where physical geography is a limit to growth. The implication of this concept is that conflict and colonial expansion are thus understandable, natural outcomes of socio-economic development.

One of Ratzel's students, the American scholar Ellen Churchill Semple (1903, 1911), further developed Ratzel's theories by arguing that the natural environment was a key determinant of the historical evolution of global population patterns and, more controversially, of the social and economic success of nations and of racial groups. Her contemporary Ellsworth Huntington (1913, 1924) argued that climate change was responsible for many historical migrations and the collapse of civilizations, and combined maps of global climate regions with selected industrial output data to suggest that temperate climates were more likely to produce industrious people than hot, tropical climates. In this context, migration was seen as being driven by the interplay of the availability of natural resources, changes in ecological conditions due to such things as shift in climate, and the competition for resources triggered by population growth.

Environment as one of many push-pull factors

By the late 1920s, environmental determinism was discredited by other scholars for its dubious theoretical presuppositions, uneven methodological rigour, racist undertones, and *de facto*

legitimation of colonialism (Peet 1985). Gregory (1928), for example, disputed Huntington's theory that slight changes in average global temperatures stimulated large-scale migrations of the past, and Park (1928) expressed reservations about the normative assumptions being made about races and ethnicities. For most of the remainder of the 20th century, social science research on migration causes and behaviour would focus on the influence of economic, social, and cultural processes, with only occasional interest shown in environmental factors. One of the few exceptions was a brief flurry of research on interstate drought migration carried out by economists and rural sociologists during the 1930s Dust Bowl, which ebbed with the return of precipitation to the US Great Plains and the outbreak of the Second World War (Duncan 1935, Taylor and Vasey 1936, Holzschuh 1939; see Gregory 1989 for review).

Petersen's (1958) typology of migration captured the mainstream view of mid-century social scientists, that resource scarcity, population growth, and ecological pressure really only influence migration patterns in "primitive societies" (i.e. pastoralists, hunter-gatherers, and agrarian groups using simple technologies). With respect to environmental influences on migration more generally, the environmental determinist viewpoint had been replaced by much more subtle interpretations. For example, in the growing research literature on residential preferences in the US, urban environmental problems like air pollution, contaminated land, and noise – often described as "locational stressors" (Clark and Cadwallader 1973) – were recognized as being relevant considerations for some people when deciding where to live in a given city (Wolpert 1966, Seskin 1973, Speare 1974; see Hunter 2005 for review). Researchers also recognized that environmental amenities, such as a mild climate or access to open spaces, can be economic or quality-of-life factors that influence movements of people within the US and in other developed countries (Ullman 1954; Svart 1976; Dillman 1979; see Gutmann and Field 2010 for review). The overall tone was that environmental factors are among a large range of possible influences on migration decisions, and are usually secondary to social and economic considerations.

Environment as hazard

In the 1970s and 1980s, natural scientists began taking a greater interest in the economic, political and social dimensions of natural hazard and disaster events. Scientists had long known that losses of property and life due to floods, storms, droughts, and other hazards were influenced by social processes that determined where people lived,³ but most mid-century hazards research focused on understanding the physical causes of such events. A series of severe famines in West Africa (1968–1972), Ethiopia (1972–1973 and 1984–1985), Bangladesh (1974), Cambodia (1975–1979), and Uganda (1980–1981), along with multiple, deadly tropical cyclones in the Bay of Bengal, prompted many hazards researchers to look more systematically at the human dimensions of disasters. Burton et al. (1978) investigated how socio-economic limits on the choices available to institutions and individuals explain why a given hazard event might cause large scale loss of life and population displacement in one country but not another. Blaikie (1985, and with Brookfield 1987) showed how the problems of soil erosion and land degradation – important elements in famines and drought-related population displacements in Sahelian Africa – were caused not by lack of knowledge on the part of farmers and pastoralists, but by exploitative economic systems that oblige users to mismanage the land. Concurrent research by Sen (1981) and Watts (1983) showed that hunger, famine, and consequent economic and physical displacements of people arise primarily in situations where conflicts, corruption, and exploitative political systems deny people access to food. The overarching conclusion of these and other scholars in the emergent 'political ecology' field was that, while poor people are most often those who experience loss or harm, and who are displaced as a consequence of environmental hazards, poverty

alone is not the key reason. Rather, vulnerability – a condition of defencelessness, insecurity, and chronic exposure to physical hazards – is what distinguishes those who are most at risk (Chambers 1989; see Adger 2006 for review).

Environmental refugees and environmental security

Allusions to the potential for large numbers of people to be displaced by environmental degradation and thus requiring some form of refuge are found in many well-known neo-Malthusian works of the mid-twentieth century such as Vogt (1948) and Osborn (1953). In 1985, UNEP researcher Essam El-Hinnawi coined the explicit term ‘environmental refugees’, which continues to be used commonly in popular reporting on environmental migration and displacement, but is often avoided by scholars. El-Hinnawi’s (1985) contention was that so many people were being displaced worldwide because of natural hazard events, desertification, deforestation, famines, food shortages, conservation actions, and forced relocations to make way for the construction of dams that they constituted a new and distinctive category of displaced people. The Worldwatch Institute (Jacobson 1988) and ecologist Norman Myers (1986) further argued that existing environmental risks and emergent ones like ozone depletion, climate change, sea level rise, and the depletion of fish stocks raised the specter in coming decades of Malthusian-type food scarcities and resource-related conflicts. Such predictions seemed to be borne out by civil violence in Rwanda and Mauritania, diagnosed by security scholars, most notably Homer-Dixon (1994), as being attributable to environmental causes. A popular article in *The Atlantic Monthly* with the foreboding title ‘The Coming Anarchy’ (Kaplan 1994) elevated concerns among policymakers and the general public about the prospect of environmental conflicts and displacement.

Most social scientists, legal scholars, and migration and refugee researchers have tended to avoid using the term ‘environmental refugee’ or variants like ‘climate refugee’ for several reasons. An important one is the difficulty in isolating environmental factors from other non-environmental factors in the causation of displacement; another is the fact that an internationally agreed-upon definition of what constitutes a ‘refugee’ has been in place since the 1951 adoption of the *UN Convention Relation to the Status of Refugees*, and it explicitly does not include people obliged to migrate for environmental reasons (Richmond 1995; Bates 2002; Chapter 25, this volume). Other authors have noted the difficulty in isolating environmental factors from non-environmental factors as proximate causes of migration and displacement, noting that only rarely do environmental factors act in isolation as drivers of migration (Foresight 2011). Other scholars noted that environmental problems and resource scarcity are more often the outcomes of conflicts than the triggers for them (Kibreab 1997). Nonetheless, the term ‘environmental refugees’ continued to be used by Myers (1993, 1997, 2002), and often appears in popular media stories to this day. The role that environmental events play in the cause and consequences of violence, conflict, and subsequent forced displacement continues to be debated (Chapter 28, this volume), with security researchers increasingly treating environmental problems as ‘threat multipliers’ that increase the risk of conflict in places that are already politically unstable (Brown et al. 2007; Gemenne et al. 2014).

Vulnerability and adaptation to climate change

As scientific evidence accumulated in the late 1980s of the extent and scale of anthropogenic climate change, concerns emerged about the potential human implications. In 1988, the United Nations General Assembly charged the UNEP and WMO with creating an advisory body – the

IPCC – to report to global policymakers on the current status of physical science research on climate change, its impacts, and opportunities for reducing greenhouse gases (GHG) and their consequent forcing effect on the climate (generally referred to as ‘mitigation’). In 1990, the IPCC released its first synthesis report, in which the authors warned of the growing potential for migration and environmental refugees in the future. Specifically, the report suggested in Volume II that changes in temperature and precipitation could lead to human population displacements and migration due to: shifts in vector borne diseases; loss of houses due to hazard events like floods and mudslides; changes in availability of water, energy, food or employment; and disruptions to social networks (Tegart et al. 1990). The report further suggested that the most common types of climate-related migration will take place in developing countries, and will entail the movement of poor people from rural areas to urban centres and from coastal areas threatened by sea level rise to inland locations.

In 1992, the UNFCCC was negotiated and signed by most of the world’s countries, committing to track their greenhouse gas (GHG) emissions and take action to reduce them, to manage forests sustainably, to cooperate on technical and scientific initiatives to address climate change, and to cooperate in adapting to the impacts of climate change. The subsequent Kyoto Protocol (1997) to the UNFCCC assigned specific targets for GHG emission reductions to most developed nations and former Soviet Union states, and established a variety of mechanisms to help people living in vulnerable countries adapt. One effect of the language used in the Convention and the Kyoto Protocol was that the impacts of climate change and any responses taken to them – including migration, relocation, and displacement – became framed in terms of vulnerability and adaptation. Such terms were familiar to natural scientists, hazards researchers, and others who use socio-ecological systems approaches to understanding the relationship between people and the environment, but were not commonly used in social science research on migration. Although discussions of the migration effects of climate change also appeared in the next two reports of the IPCC (in 1995 and 2001), they continued to be discussed in terms of involuntary displacements of people by rising sea levels and hazard events, using very simple push-pull and environmental refugee language.

Social science interest in the human impacts of climate change expanded rapidly following the 2001 IPCC report, with researchers examining more carefully the meanings of vulnerability and adaptation in this context (Smit and Wandel 2006). The relationship between climate change and migration in particular came under increasing scrutiny, first by independent researchers and then through concerted, government-funded projects that sought to document the environment-migration relationship through empirical evidence. Drawing upon more traditional social science theories, scholars began demonstrating that climate-related migration was not simply the result of vulnerable people being displaced by natural hazards; rather, migration was one of any numbers of strategies by which people experiencing the impacts of climate change – or who perceive themselves to be at risk – may seek to adjust and adapt (McLeman and Smit 2006; Tacoli 2009; Black 2011). Research projects funded by the EU (EACH-FOR) and the British government (Foresight) assembled empirical evidence through case studies and modelling efforts to show that environmental factors, including climatic variability and change, interact with cultural, demographic, economic, political, and social processes operating at scales from the global to the local to influence migration decisions at household and community levels (Figure 1.1). In this way, environmental migration began to look a lot less like a simple push-pull phenomenon that affects only poor people in poor countries, and a lot more like a continually changing, complex interplay of processes that generate context-specific, heterogeneous outcomes in countries rich and poor.

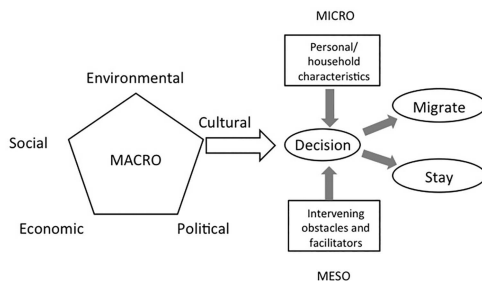


Figure 1.1 Conceptualization of the environmental migration process, simplified from final report of Foresight Report on Global Environmental Migration (Foresight 2011)

Current research: multidisciplinary and (re)engagement with general migration scholarship

Environmental migration scholarship has evolved considerably from its 19th century origins, and is today best described by two key characteristics. First is an increasing and ongoing engagement between researchers specifically interested in the migration outcomes of environmental phenomena with the much larger and wider body of migration and refugee research that looks at the socio-economic causes and implications. This engagement – or re-engagement, if we account for the historical origins of current research – works in both directions: researchers coming from a natural hazards/socio-ecological systems/vulnerability background increasingly draw upon social science concepts in their work, and social science-grounded migration and refugee scholars are showing increasing interest in studying the environmental dimensions of migration. With this re-engagement, a much wider range of theories, conceptual approaches, and methodological tools are being brought to bear, many of which are described in the chapters that follow in the current volume.

A second characteristic is a broadening in the range of disciplines interested in environmental migration questions, bringing to EMD research many talented groups of people who historically were not represented. Environmental migration was once a relatively obscure corner of scholarship, primarily of interest to small numbers of demographers, economists, ecologists, geographers, and the occasional political scientist. The subject now engages researchers from an ever-widening spectrum of disciplines such as computer modelling, gender studies, history, human rights, international development, law, media studies, medicine, philosophy, and psychology; many of these are represented in the chapters that follow.

It is now widely accepted that EMD results from complex interplays of environmental and non-environmental issues, as was illustrated in Figure 1.1. Many who migrate and self-identify (or are identified by officials) as economic migrants or asylum seekers may be motivated by environmental reasons as well as political or economic ones. It is also accepted that EMD spans the spectrum from purely voluntary, opportunity-seeking migration to refugee-like flight from environmental hazards, with any number of variants between these extremes. Researchers are also increasingly interested in the inability to migrate and the desire to stay put in spite of environmental risks, a topic expanded upon by Zickgraf (Chapter 5, this volume).

EMD research continues to be highly policy-oriented and policy-responsive, and concern about the future impacts of climate change continues to be a key driver of much of the research presently being done. Policymakers are particularly interested in receiving information about how many people presently migrate for environmental reasons and how many will migrate or be

displaced under various future climate scenarios, where these will occur, and what the social and economic implications will be. It is presently not possible to more than ‘guess-timate’ the number of people who currently migrate for environmental reasons, for reasons related to a lack of reliable global data on migration and challenges in defining what constitutes environmental migration – topics that are addressed in greater detail in the chapters that follow. We know that most migration – EMD or otherwise – takes place within national borders; we also know that in any given year, tens of thousands of people are displaced by environmental hazards, but that the number of people who migrate for other environment-related reasons is likely much larger (Gemenne 2011b).

To make more accurate measurements and predictions in the future, concerted research efforts using a range of methods will continue to be needed, in addition to better data and greater agreement on definitions. An emerging frontier in empirical EMD research is the generation of scalable models – quantitative and geospatial ones – that allow users to visualize potential future EMD patterns. Several chapters in Part I of this volume describe these in detail. At the same time, qualitative research is essential to ‘ground truth’ modelling efforts to better understand important non-environmental influences such as gender, perceptions, and behaviour, and to harness indigenous understandings of environment and human wellbeing. Again, Part I of this book provides the reader more details on the methodological and conceptual challenges and opportunities at hand, with Part II providing the reader with numerous regional examples of the application and results of research to date, and specific directions where more work is needed. Part III of this book summarizes key legal and policy developments that have been made to date and discussions that are still ongoing. It also provides insights from multilateral organizations at the centre of current policymaking discussions and debates relevant to EMD.

The conclusion Chapter 36 to this volume, by Professor Lori M. Hunter, offers a large number of prescient observations on the future directions and demands of EMD research, and we do not wish duplicate poorly here her excellent chapter. If we were to offer one specific critique of our own of current EMD research, it would be that there is a need to investigate more rigorously the many non-climate-change influences on migration and displacement. Efforts in this regard appear to have lagged behind. This is reflected in the content of this book; there is a heavy tendency in the following chapters to consider migration and displacement primarily in the context of climate change. That is fine, for it is an accurate reflection of where the field presently is. Were we to have expanded this book beyond its present thirty-six chapters – which might have given our publisher a figurative heart attack – we would have liked to include additional chapters on a wide range of topics that figure directly or indirectly on EMD writ large, such as food systems, desertification processes, water management, disaster preparedness, and population aging; but we had to draw the line somewhere. Perhaps these will find their way into a future edition.

Notes

- 1 For those who prefer more technically precise language, the epistemology and ontology of the field.
- 2 In Malthus’s day, abstinence was the only reliable form of birth control. Although Malthus advocated strongly in favour of abstinence, he had little faith people could control their urges.
- 3 White’s (1945) study of flood impacts in the US provides an early example.

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