Introduction: climate change and human mobility

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Since the Intergovernmental Panel on Climate Change (IPCC) in 1990 stated that 'the greatest single impact of climate change could be on human migration', there has been concern about the large-scale population movements that may take place because of climate change. This concern is growing as predictions on rising sea levels and increasing desertification are up-scaled and accompanied by new estimates on population growth and future regional food shortages. It has thus been predicted that as many as 200 million people will be displaced by environmental factors of various kinds in 2050. Norman Myers, the author of this prediction (Myers 2002: 610), concedes that this figure includes a range of mobile people: 'At one end there are those people who are driven by environmental factors outright, and at the other end are economic migrants who are voluntary opportunists [sic.] rather than refugees.' Though the exact numbers are inherently difficult, not to say impossible, to project, they nevertheless tend to stick in the mind and become tokens of a reality beyond doubt. Thus, the number of environmental refugees as projected by Myers was considered reliable enough to be included by Nicholas Stern in his comprehensive review of the economics of climate change as a very costly implication of greater resource scarcity (Stern 2006: 128ff). Numbers quickly take on a life of their own.

In the light of the uncertainty of the projected figures on climate related displacement it is hardly accidental that in the Fourth Assessment Report of the IPCC (2007) it is stressed that estimates of the number of people who may become environmental migrants are at best guesswork, since the reasons for migration are always complex and migration itself is rarely one-way or necessarily permanent (Wilbanks *et al*. 2007: 365). The problem, as noted also in the 2008 report *Migration and Climate Change*, is that numerical predictions, like those above, do not say much about the many 'social, economic and environmental factors' influencing the effect of climate change on migration (Brown 2008: 9). It is with regard to this issue that the present volume seeks to make a difference, by focusing on the complex and tightly interwoven human actions and social fabrics beyond the numbers and projected statistics.

One of the limitations of a statistical approach is that it can only measure items and phenomena that have already been identified. One argument that runs through this volume is that it is extremely difficult to separate out the environmental factors from other drivers of a social and economic kind (Barnett and Campbell 2010: 171; Piguet *et al*. 2010). Environmental migrants are thus difficult to identify as a distinct category. Added to this is the inherent problem of victimizing migrants, whose movements may actually be induced by a will to seek new opportunities, and thus reflect active agency rather than mere reaction to present circumstance. The general aim of this book is to explore emerging patterns of human mobility in relation to climate change as comprehensive social, historical, economic, political, ethical, and, of course, environmental phenomena. Whatever the cause and speed of global climate change, the balance between the regions of the world – and between different groups of people within regions – may be shifting. It is thus expedient to investigate the practices and wider implications of human mobility in recognition of the fact that environmental change has become a truly global issue, demanding new international regulations and possibly a new distribution of responsibilities – not to mention a new kind of scholarly attention.

Between them, the chapters of the book address both larger, general questions and concrete local cases, where *the link* between climate change and human mobility demands attention – empirically, analytically, and conceptually. Among the cases explored are both (pre)historical and contemporary instances of migration that occur at least partly in response to climate change, and which together illustrate the necessity of analysing new patterns of movement, old cultural images, and regulation practices in the wake of new global processes. The varying scales of analysis underscore the need to rethink the object of the social sciences, which has become increasingly fluid. In this process of rethinking, we go along with Mike Hulme (2009), who is wary of signposting climate change as the 'greatest problem facing humanity', and instead addresses it as an element in our collective thinking about the future. There are many social and scientific meanings attached to climate, and no less to climate change. This is evident from the chapters that follow; we may thus follow Hulme's suggestion to see climate change as 'an imaginative resource' shaping 'collective and personal projects' (Hulme 2009: xxxviii) – instead of treating it as the direct expression of a physical fact, acting as the prime mover of people across strained landscapes.

However much the idea of climate change is an imaginative resource, the idea is powerful only in so far as it resonates with actual experiences, albeit in diverse ways. We are not subscribing to a social constructivism here, although it does allow for bringing the social and discursive processes by which climate change is framed into view (Pettinger 2007: 7). The point is that there is not sufficient distance between knowledge, science, and power for us to

single them out; they cannot be assembled by the small word 'and'. They must be shown to be inextricably linked and to give shape to each other. This is what this book aims at showing.

The chapters in this book are written by social scientists, predominantly coming from anthropology and geography, but also from environmental history and political science. They show how the social sciences are particularly well placed to investigate the multi-faceted relationship between climate change and migration because of their long traditions of treating physical as well as socio-cultural, and contemporary as well as (pre)historical, factors as important aspects to be considered in research on the current environmental challenges to social life.

Liquid times

What distinguishes anthropology and geography in particular is their local or regional perspective on the one hand, and their generalizing objective on the other. From empirical studies of the actualities of environmental change as experienced on the ground, social scientists seek a general understanding of the interplay between natural and social histories. This is where studies of climate change and human mobility, as presented in this book, take a particular shape. It is not simply a matter of discussing how people may *react* to climate change by moving away from a degraded environment, but to open up for a deeper understanding of the complexities inherent in local *responses* to challenges that are rarely defined as unambiguously climatic, or natural. Responding implies reflecting and taking responsibility, which is a far cry from mere reaction or adaptation. The decisions taken in turn may affect the environment, negatively or positively.

Before we proceed towards a discussion of the intertwinement of the natural and the social dimensions of the emerging patterns of environmental migration, it is opportune to present some of the more sweeping diagnoses that in their own way set the scene for this work, and to which we want to add both substance and some critical reflection. Social scientists to a large extent seem to agree that the present times are marked by a sense of uncertainty, and that people all over the world are becoming increasingly unsettled. In Bauman's words, we are living in 'liquid times' (Bauman 2007). The liquidity of the world seeps into people's way of thinking about themselves and their future, and poses new conceptual challenges to the human and social sciences that were instituted on the 'solid' ground of a national ordering of the world in the late nineteenth and early twentieth centuries. In anthropology, this order may have been located in cultures or societies of a lesser scale than the European nation-state, but even so it operated on the idea of bounded and easily identifiable units (Olwig and Hastrup 1997). What is more, it reflected a remarkably sedentarist view of social life.

Climate change is an integral part of the present sense of liquidity, not least because it affects the presumed stability of sedentary life. The implications are complex; living with uncertainty and coping with an unknown and largely unknowable future cannot be seen as simply a matter of finding new technological solutions, but also of renegotiating the idea of society. New commitments must be made and old loyalties possibly abandoned or at least supplemented by new, and less easily bounded, responsibilities (Klein 2002; Garvey 2008). Given the profound entanglements between environment and society, the social life and national imageries that are vested in particular ideas of identity and locality will need rethinking in the wake of dissolving boundaries and permeated social systems. It could be argued that such refashioning is the fabric of social resilience, which clearly is something other than simple adaptation (Hastrup 2009).

Anthropologists have addressed the local implications of climate change all over the world and contributed to the discussion of the perceived turning points between ordinary weather variability and permanent climate change (Oliver-Smith and Hoffman 1999; Strauss and Orlove 2003; Crate and Nuttall 2009). For all their merits of providing local ethnographies, anthropologists are only now beginning to address the interpenetration of local and global climatic issues and of different registers of knowledge at a more comprehensive theoretical and conceptual level. This is what we need to do now, in view of the fact that the 'liquid fears' are multiplying (Bauman 2006). Thus, there is a fear of an uprooting of people on an unprecedented scale – even if the fear and the actual numbers may not be firmly grounded.

Local uncertainties may be different from scientific uncertainties about future climate scenarios, but they are clearly infiltrating each other. In both cases there is an implicit negotiation of the boundary between manageable risks on the one hand, and fears that are unknown both in origin and scope on the other. The concept of risk makes sense only in a routinized, monotonous, and repetitious world, where one may calculate risks with reference to precedents (Bauman 2006: 10, 98ff). Beyond the presumably calculable risks are those dangers that are non-calculable, because they belong in a setting that is irregular in principle, and where non-repetition is the rule (*ibid.*). While this distinction is not applied to climate change by Bauman himself, it seems that the distinction between known or at least identifiable *risk* and unknown and maybe even unknowable sources of danger and *fear* is socially very important when current ideas of climate change and their social implications are discussed. Present-day uncertainty is substantively different from previous discussions of risk as something to be 'managed'. As Bauman succinctly puts it:

> Risks that matter most and most need to be reckoned with grow thicker the closer they are, spatially and temporally, to the actors and their actions. Uncertainties, however,

are spread in an exactly opposite fashion; they expand and thicken the further away the eyes move from the actor and the action. As the *spatial* distance grows, so does the complexity and density of the mesh of influences and interaction; as the *temporal* distance grows, so does the impenetrability of the future, that notoriously unknowable, 'absolute' other. (Bauman 2006: 100)

This kind of uncertainty is not necessarily diminished by the expansive scientific discussion about possible climate scenarios. The natural sciences have produced a vast amount of knowledge about the current climate trends, atmospheric, terrestrial, and oceanic. There is no absolute consensus about the development, but in spite of the uncertainties and known disagreements about the root causes, populations all over the world are worried, especially when the scientific projections feed into their current experiences of extreme weather variability.

We should realize that 'global climate' in itself is a model (Tsing 2005: 101ff). As such it never truly fits social experience, and one might argue that the liquidity of the climate scenarios in itself is a social driver. As a non-human agent it infiltrates the perception not only of the environment, but also of social life, and knowledge (Latour 2004). In more general terms, this goes to say that local and scientific knowledge interpenetrate each other. This also implies that the modern 'social imaginary' (Taylor 2004) is at stake; for Taylor, this refers to the social, political, and moral orders encapsulated by the national order of the world established in the late eighteenth and early nineteenth centuries. In anthropology this was transformed into a notion of culture and a sustained holistic paradigm. When 'the global' forces itself upon imagination, 'the social' takes on a new meaning, however well it has served the social sciences and the national imaginaries over the past couple of centuries. In the present liquid times, the boundaries are dissolving owing to a global economic order (or, indeed, disorder), to the flows of images and commodities across the globe, and, with particular respect to this volume, to present environmental changes and new patterns of human migration.

The new patterns of migration of both people and images challenge not only received notions of culture but also well-established ideas of environmental spaces, which is to say the limits within which sustainable life-styles may be upheld (Agyeman *et al*. 2003: 22). In other words, with intensified global entanglements, local environments are increasingly permeated and the notion of 'sustainability' no longer captures the complexity of resource management and choices made by people, who may be facing radical degradation of what used to be the local livelihood. Sustainability itself has become a global rather than a local matter, and within that larger spatial framework, migration may actually be seen as a mitigating factor in relation to a degrading environment. One major challenge to the social sciences is precisely that received concepts of adaptation, vulnerability, and even sustainability no longer match the realities on the ground.

With the current perceived threats to the life-worlds of people posed by climate change, the intimate coupling of the natural and the social domains is of course still highly pertinent, but these domains can neither be identified on a purely local scale nor are they necessarily measurable on one and the same scale. Theoretically, the challenge of multiple scales will eventually allow for a new understanding of the effects of environmental change upon people's sense of emplacement in the world and, not least, of the responsibility that people take to ensure the survival of their community either locally or somewhere else.

Addressing climate change from below as social and human scientists – that is, from the point of view of people living with the (pending) hazards – entails that the focus be mainly on the actions taken by people, and the ways in which they reshape their histories in response to perceived possibilities. One question is *when* does the ordinary experience of weather variability become transformed into a sense of climate change on a larger scale, and when, therefore, does a new sense of uncertainty about the future enter into ordinary life and provoke unprecedented social responses (cf. Strauss and Orlove 2003)? From the outside the risk may look the same, but seen from within a particular life-world the threat becomes altogether different when it has been reclassified from weather variability to climate change. The timescale then changes, and with it the perception 'risk' has been transformed into a sense of danger beyond the calculable. This is, once again, where anthropology and other social sciences have an important, qualitative contribution to make in analysing the texture of uncertainties and their local interpretations, and when and how people decide to make a move for another world, near or far. Clearly, we are beyond simple statements of cultural responses to natural calamities, and way into the deep-seated complexity of social agency, and its circumscription by the material, political, and imaginative horizons.

Climate-induced migration

The concern with climate-induced migration has resulted in a substantial number of reports commissioned by large organizations such as the UN Refugee Agency (Piguet 2008), the International Organization for Migration (Brown 2008), and the World Bank (Raleigh *et al.* n.d.). Curiously, however, relatively little academic research has been carried out within the area of climate change and migration. Indeed, when we searched for articles on climate change and migration in Google Scholar – which supposedly lists publications according to their relevance – the first articles to appear carried titles such as 'How Plants Respond to Climate Change: Migration Rates, Individualism and the Consequences for Plant Communities' (Huntley 1991), 'Plant Migration and Climate Change' (Pitelka 1997), 'Avian Migration

Phenology and Global Climate Change' (Cotton 2003), and 'Timing of Autumn Bird Migration under Climate Change' (Jenni and Kéry 2003). The many articles on plant and fauna migration are, of course, an interesting reminder that population movements can involve many different living beings and communities. Still, given the focus on the expected large-scale human migration in the wake of climate change, it is surprising that we have not seen an outpouring of in-depth analyses of this topic. Indeed, according to a World Bank report, which explored especially the 'social dimensions of climate change', 'the social consequences of climate change generally, and migration and climate change specifically, are quite under-researched' (Raleigh *et al.* n.d.: v; see also McLeman and Smit 2006: 31, 48).

One reason for the limited research on human migration and climate change may be that investigation of the interrelationship between migration and climate change requires the linking of different traditions of scholarly investigation – notably the social science/humanities oriented migration studies and the more natural science studies of the environmental consequences of climate change (see also Piguet *et al*. 2010). That it is a difficult task to combine disparate academic approaches is apparent from the many critical voices that can already be heard in the debate on migration and climate change. There has, for example, been a critique of the terms used to designate the people affected by climate related migration. It has been argued that expressions such as 'climate refugees', 'ecological refugees', 'climate migrants', and 'environmental migrants' give the impression that climate change and environmental disasters force people to flee from their homes (Brown 2008: 12–15; Piguet 2008: 3). Furthermore, as Raleigh and Jordan (2010: 103) note, the notion of environmental refugees 'conflates the idea of disaster victim with that of refugee, and reduces the complexity of real situations'. Indeed, population movements, these critics maintain, can rarely be explained with reference to single climate related events, but must be analysed in relation to a combination of socio-cultural, economic, and political, as well as environmental and climatic, factors. This insistence on complex analyses, however, appears to give rise to frustration in other quarters because such analyses make it difficult to make 'scientific predictions by combining climate and migration models', as one report has expressed it (Piguet 2008: 5). There therefore seems to be a tension between the resolve to dig into the muddy reality of concrete cases, and the complexity of interrelated factors operating at varying levels, on the one hand, and, on the other, the wish to construct more general models that can account for climate-induced migration. This tension, of course, involves not only academics, but also practitioners and policy makers who are looking to researchers to give them the tools that they need to identify, and deal with, the issue of climate related migration at a more practical level.

In some social science approaches climate related migration is presented as a fact of increasing numbers, often portrayed as a side-effect of poverty and food scarcity (which is not wrong), which, in turn, explains new patterns of conflict and warfare (e.g. Stern 2006: 128ff). In both cases the notion of 'security' is prominent; while both the (renewed) definition of food security and the definition of international security are articulated in international documents, they are nevertheless very much caught up in a notion of national and/or regional boundaries (Lang and Heasman 2004; Lobell and Burke 2010; Webersik 2010). The transcendent notion of 'global commons' has yet to gain prominence (Raymond 2008).

It may seem that research on climate related migration has become bogged down in theoretical and methodological arguments before it really began. This is not, however, as we see it. On the contrary, we suggest that the budding hybrid field of climate change and migration research can open up for an exciting new area of research that should be of great interest not just to those who investigate migration and the social dimensions of climate change, but to academics who are interested in the role of mobility in human societies more generally. We shall here briefly sketch some of the interesting contributions that seem to be emerging from studies of climate change and human mobility.

Mobility and place

Broadly defined, migration merely refers to the act of moving from one place to another. It is quite apparent, however, that when it comes to human migration, researchers have primarily focused on population movements from one country to another and the social, economic, and political consequences of such movements – especially for the receiving countries. This must be seen in the light of the particular historical circumstances of the development of this area of investigation. Thus, migration research became established as an important research field in the US during the late nineteenth and early twentieth centuries, a time when the country was experiencing massive immigration from Europe. Migration research therefore became preoccupied with documenting what kind of people immigrated into the country and their impact on the development of the receiving society. Throughout the twentieth and early twenty-first centuries, migration research has been characterized by these concerns. But whereas population movements from east to west characterized the early period of migration, they shifted during the late twentieth century to a pattern of movement from the global south to the global north.

This research has been characterized by a sedentarist view, implying that migration is regarded as an exceptional event representing a rupture in normal settled life. Interestingly enough, this sedentariness appears to be defined in

terms of life lived within a nation-state. Thus, while there has been quite extensive documentation of the migration of as many as 300,000 from Oklahoma to California during the 1930s, after a series of disastrous harvests caused by droughts and hot weather, this massive population movement has not become part of mainstream migration research, because it occurred within the US and therefore within the confines of a place regarded as the 'natural' sphere of life of Americans. This research tradition therefore appears to have been guided by the rather narrow view that migration involves cross-border movement with the intent to settle in another country. Interestingly enough, however, the dust bowl migration of 'Okies' to California is today mentioned as an early, well-documented instance of human migration linked to climate change. This is because studies of climate related migration spring, to a great extent, from another research tradition, where migration has been viewed from a much broader perspective as a potentially important element in people's livelihood. From this point of view, migration is an aspect of people's lives and part of their ongoing exploration of social and economic opportunities in different places. As such it may involve seasonal and periodic as well as more permanent movements over short and long distances.

From the perspective of the research tradition in which migration is seen in terms of people's livelihoods, which is well developed in the study of the global south, migration is not viewed as an exceptional event that can be explained with reference to single cause factors, but rather as a possible course of action that can be evoked under varying circumstances. As noted recently, in the developing world '[m]igration is only one of a variety of survival strategies pursued by families, either simultaneously or consecutively with other coping strategies', as they 'incorporate environmental risk into their livelihoods, contingent on their available assets' (Raleigh and Jordan 2010: 104). Terms such as 'climate refugees' and 'climate migrants', coined to introduce a new kind of migrant expected to be of growing importance on the global arena, therefore represent a simplification of complex processes that involve many different factors, including long traditions of human mobility. This suggests that studies of climate related migration, grounded in the broader, explorative approach developed especially in the global south, can shed important light on a social phenomenon that has become a global concern. They can also challenge conventional understandings of population movements, constrained by the 'methodological nationalism' of established social science migration research in the north (Wimmer and Glick Schiller 2003; Levitt and Glick Schiller 2004), and thus lead to a broader understanding of the relationship between livelihood, place, and mobility (cf. Olwig and Sørensen 2002).

If we allow ourselves to see the idea of climate change as an imaginative resource, also within the social sciences, we may contribute to a renewed

understanding of the profound entanglement of the local and the global. This runs counter to the insistence, by some scholars, on seeing them as not only distinct but also even mutually exclusive. Thus it has been argued that the notion of global climate change in itself silences the native voices that fundamentally challenge Western ways of knowing, being, and doing (Smith 2007: 198). Our point is rather that all voices are of course localized, while evidently also talking about something beyond the place from which they speak. If anything, the well-established field of migration studies has shown how multiple sites of orientation suspend the simple notion of a unified cultural place (Olwig 1997). While the sensitivity to diverse viewpoints is, of course, the hallmark of anthropology, it seems unwarranted to attribute 'the natives' with a simple local view. Climate migrants do not move blindly across the surface of their arid lands; they generally have a destination outside of their well-trodden place of previous living.

Mobility and time

We have stated that migration research emerged as an area of study in Western academia during the latter part of the nineteenth century, especially in the US where immigration and the building of the young nation-state were closely linked (e.g. Waters 1999). This is, of course, not entirely correct, because archaeologists, physical anthropologists, linguists, and others looking at human culture and society in a long-term perspective began investigating human migration long before the subject matter was discovered by social scientists. In these studies, climate change has played a key role as an explanatory factor accounting for population movements. On the grand time-scale of these studies population movements are often not perceived as an undesirable result of climate changes that make local livelihoods unviable. They rather become viewed as great moments in the development of mankind, such as the populating of the northern hemisphere after the last Ice Age (Piguet 2008: 2).

In a similar vein it has been argued that the evolution of the earliest complex state-societies and cities in Mesopotamia is owed as much to environmental change as to human ingenuity. Post-glacial sea-rise created the Arabic-Persian gulf and inundated the region, which in turn made irrigation possible (Kennett and Kennett 2007). This is a simplified rendering of a well-argued and well-documented case, where the authors are careful to state that 'urbanism and cultural complexity in southern Mesopotamia resulted from a series of decisions by many people over several millennia under continuously changing environmental, demographic, economic, social, and political conditions' (*ibid.*: 253). They continue to stress that global climate changes greatly influenced the process, and that coastal and aquatic habitats played a critical