Chapter 4

Climate Change and Population Displacement: Disasters and Diasporas in the Twenty-First Century

Anthony Oliver-Smith

Introduction: Environmental Change and Migration

Throughout history humans have had to adapt to both short- and long-term environmental change. Adaptations have taken many forms, but migration, whether permanent or temporary, has always been a central response and survival strategy (Hugo 1996; Paul 2005). Traditional patterns of human adaptation have involved temporary and seasonal migration, particularly in Africa, Asia, and Latin America, or more long-term migration responses, for example, of people facing cyclical droughts in places like the Sahel (Merryman 1982) and Northeast Brazil (Kenny 2002). Drought was a climatic feature of those environments and people developed adaptive strategies to cope with it, largely by temporarily migrating and then returning once the drought broke. Anthropologists have long been among the leading researchers of these adaptive patterns, particularly those related to issues of famine and famine relief (Shipton 1990). Now, however, we are seeing those temporary migrations becoming permanent, some because of climate change and others because of inadequate government response to either the threat or impact of drought.

Based on their work with peoples engaging in seasonal or stress-related migration and the process of involuntary migration and resettlement, anthropologists are well positioned to address the potentials of mass uprooting, migration, and resettlement that global climate change presents. Over the last thirty years anthropologists working with uprooted people around the world have addressed an extremely wide array of issues in their work, spanning activities as diverse yet related as applied research, policy formation, theory building, evaluation, planning, implementation, and resistance. Anthropologists were among the first to recognize and report on the impoverishment, social disorganization, and violation of human rights that occurred among uprooted populations. They have probed the similarities and differences among the different kinds of displacement for insights to improve theory, policy, and practice (Cernea and McDowell 2000; Hansen and Oliver-Smith 1982). Anthropological knowledge and practice in areas associated with displacement and resettlement will take on increasing importance as more and more people and communities confront the impacts of global climate change.

Today, global environmental change is more extreme than at any other time in recorded history. Its local realities increasingly uproot large numbers of people. The complex interplay of social and economic factors in this backdrop of environmental change increases the vulnerability of both people and environments, intensifying the impacts of such changes when they occur. Moreover, greater numbers of people are more vulnerable to the impacts of such changes than ever before, due both to increases in population density and to environmental degradation and residence in dangerous areas. One of the main environmental forces humans face in the twenty-first century is global climate change.

Global Climate Change and Migration

Global climate change is increasingly accepted by both the scientific community and the general public as a reality that must be addressed in both policy and practice. The recent reports from the Intergovernmental Panel on Climate Change (IPCC 2007a, 2007b) affirm that human-induced factors are responsible for generating significant increases in temperatures around the world. Among the consequences of this rise in temperature are increases in the rate of sea level rise; increases in glacial, permafrost, Arctic, and Antarctic ice melt; more rainfall in specific regions of the world and worldwide; more severe droughts in tropical and subtropical zones; increases in heat waves; changing ranges and incidences of diseases; and more intense hurricane and cyclone activity. Additionally, many of these changes feedback into others to accelerate overall effects. These changes increasingly affect natural systems globally, altering hydrological, terrestrial, biological, and aquatic subsystems. Accordingly, they have great potential to uproot large numbers of people, forcing them to migrate as individuals and families or permanently displacing them and/or relocating them as communities. Local effects of global climate change will also combine with other negative factors, such as environmental contamination, to force migration and displacement of people. Overall there are three major effects of global climate change that will contribute most to uprooting people: loss of ecosystem services, loss of land, and increased intensity and frequency of climate-based natural disasters. Each of these three also interacts with the others to compound and intensify effects. The next sections explore each of these effects in-depth.

Loss of Ecosystem Services

First, global climate change is expected to seriously alter the availability of and access to ecosystem services. Human life in specific environments is maintained by the provision of a number of ecosystem services, including food,
water, fuel, and nutrition, as well as those cultural elements, largely spiritual and/or aesthetic, that sustain communities through expressive links to natural features (Renaud et al. 2007; UN Millennium Project 2005). However, in combination with other factors such as nutrient pollution, overexploitation, invasive species, and disease, and demographic, economic, sociopolitical, and cultural factors, global climate change will further strain the resilience of local socioecological systems beyond their capability to provide necessary services. The environmental degradation of local ecosystems compounded by the local effects of global climate change can result in the loss of sufficient resources and other ecosystem services, uprooting people and communities and forcing them to migrate. Drylands, which cover approximately 41 percent of terrestrial land surfaces and are home to roughly two billion people, are prone to desertification, a process that leaves environments depleted of ecosystem resources and services and no longer able to sustain human life. Increased temperatures and diminished rainfall in specific areas will exacerbate existing conditions and contribute to the deterioration of ecosystem services, already scant in many dryland regions (Renaud et al. 2007). Rising sea levels, as well as increased rainfall and flooding, particularly in low-lying river delta regions, may also result in loss of ecosystem services, obligating populations to relocate.

Loss of Land

Loss of land entails both the loss of ecosystem services and the actual disappearance of terrain. Current projections of temperature and sea level rise and increased intensity of droughts and storms suggest that population displacement due to loss of terrain will take place at significant scales within the next thirty to fifty years, particularly for populations in coastal zones. People who occupy global regions in the low elevation coastal zone (between one and ten meters above sea level) are vulnerable to the permanent inundation of their homes and livelihoods caused by global climate change–induced sea level rise. Although these areas constitute only 2 percent of total earth land surface, they contain 10 percent of the world’s population and 13 percent of the urban population, including almost two-thirds of all cities larger than 5 million people (McGranahan, Balk, and Anderson 2007). Recent research estimates that “in all, 634 million people live within such areas—defined as less than 10m above sea level—and that number is growing. Of the more than 180 countries with populations in the low-elevation coastal zone, about 70 percent have urban areas of more than five million people that extend into it, including Tokyo; New York; Mumbai, India; Shanghai, China; Jakarta, Indonesia; and Dhaka, Bangladesh.” Indeed, about 75 percent of all the people residing in low-lying areas are in Asia, and the most vulnerable are the poor (McGranahan et al. 2007). Over the last five years, some communities in coastal areas in Alaska, the South Pacific, and the Gulf Coast of the United States have been facing the threat of community-wide displacement and resettlement. The physical and social processes recently triggered by Hurricane Katrina on the Gulf Coast of the United States underscore the threat of this emerging reality. While some displacement is likely to be gradual as coastal land is increasingly inundated over the coming years, elevated sea levels will also increase the impacts of tropical storms, creating sudden, devastating disasters.

Increasing Intensity and Frequency of Climate-Driven Disasters

The third major effect of global climate change that will force migrations and displacements of peoples is the increasing intensity and frequency of climate-driven disasters, perhaps most profoundly understood by Hurricane Katrina. With the increase in ocean surface temperatures over the last fifty years, levels of damage from extreme weather events have also increased. On a global scale, losses from natural disasters have increased dramatically over the last half century, particularly so since the middle of the 1980s (Munich Re 1999, 16). As a purely economic index, annual dollar losses from environmental disasters increased from 3.9 billion to 40 billion a year by the 1990s (Renaud et al. 2007, 26). Dollar-based indices, while useful, do not capture the suffering endured by disaster victims, which generally extends far past the event, and is more and more frequently compounded by permanent displacement and resettlement. Global climate change will increase the risk of stronger tropical storms with higher storm surges, which, when combined with rising sea levels, will extend the onshore impacts of coastal flooding much further inland, particularly in the low coastal elevation zone. While damage from high winds in tropical cyclones and hurricanes can be devastating, the risk of increased flooding has the highest potential for the displacement and resettlement of communities. With increasing evidence that “what used to be ‘a once in a 100 year event’ is becoming more common” (Huq et al. 2007, 4), resulting displacements could become permanent as more and more coastal land is lost to the sea or eliminated as habitable zones because of tidal storm surges.

To some degree, the first two effects of global climate change that we have discussed—the loss of ecosystem services and the loss of land—can be glossed very often in terms of the third, that is, as disasters. Will the impacts of global climate change qualify as disasters? Indeed, the term disaster has been applied to the outcomes of all three of the climate change–based processes that will lead to displacement and resettlement. The choice of that term is often operationally driven. That is, in order to activate aid and assistance to affected populations, the drought/famine or the inundated coastline are defined as humanitarian emergencies or disasters. Disasters thus play a metonymic role for encompassing many processes and events currently unfolding in the contemporary world. While it is not my intention to digress into the deeply complex definitional debate around the concept of disaster...
(Oliver-Smith 1999; Quarantelli 1998), linking the concept of disaster to these important issues correctly relocates the focus of analysis from an event to a process. In focusing on an environmental or social problem and glossing it as “a disaster,” analysts are often actually dealing with part of the processual aspect of disaster, that is, the social and technological construction of conditions of vulnerability, often without being entirely aware of it. Moreover, regardless of how analysts view these processes, it is fairly clear that their outcomes will be seen and felt as disasters by the affected populations.

**Vulnerability and Environmental Refugees**

Although the problem seems to be an enduring one, until relatively recently most of the literature has characterized environmentally induced displacement as temporary, suggesting that people eventually return (Oliver-Smith 1991). However, most of this research has been event focused, both temporally and spatially, and has given far less attention to the longer term, more geographically dispersed aspects of postevent recovery or reconstruction. Today, with more precise spatial and temporal scales of analysis, natural disasters, rather than unanticipated and unique events caused by a natural agent, are seen to be much more explainable in terms of the “normal” order of things—that is, the conditions of inequality and subordination in the society rather than the accidental geophysical features of a place. This perspective has shifted the focus away from the disaster event and towards the vulnerability of peoples embedded in the “on-going societal and man-environment relations that prefigure [disaster]” (Hewitt 1983, 24–27).

The concept of vulnerability as it interplays with the dynamics of some sort of environmental change involves the totality of relationships in a given social situation producing a set of conditions that render a society unable to absorb the impacts of a natural or social agent without significant disruption of its capacity to fulfill the basic needs of its members. Risks and outcomes are thus largely socially produced. This more complex understanding of vulnerability and disasters enables researchers to analyze how social systems generate the conditions that place people, differentiated along axes of class, race, ethnic, gender, or age, at different levels of risk from the same hazard and subject to different forms of suffering from the same event. Vulnerability to these dynamic processes is particularly accentuated in the developing world, where people have fewer resources either to manage threats or to recover from impacts. Therefore, the impacts of global climate change, like any disaster, will be socially, politically, and economically mediated, distributed, and interpreted, with measures to mitigate and respond similarly structured.

Since the 1980s researchers have linked the issue of environmental change with human migration, explicitly designating people who are forced to leave their homes, temporarily or permanently, due to the threat, impact, or effects of a hazard or environmental change as “environmental refugees” (El-Hinnawi 1985). Although environmental studies have traditionally focused on the natural world, the impacts of pollution, deforestation, soil erosion, degradation, desertification, and other environmental processes on human beings have also been a source of both interest and concern to ecological and social scientists. Indeed, as mentioned, the impacts of many of these processes have often been framed as “disastrous” because they create stress, disrupt normal social processes, and force people to adapt by making temporary adjustments or permanent changes in how and where they live.

The debate over this issue, with claims of millions of environmental refugees being produced versus counterclaims that the evidence is uneven, unconvincing, and counterproductive, has been active since the 1980s. Norman Myers has asserted that recent human-induced environmental change, such as desertification, deforestation, or soil erosion, compounded by natural and man-made disasters, could force as many as 50 million people to migrate from their homes by 2010 (1997). Other researchers dispute the accuracy of the term environmental refugee, finding it misleading. They attribute the displacement of people to a complex pattern of factors including political, social, economic, and environmental forces (Black 2001; Castles 2002; Wood 2001). Environmental disruptions, including natural disasters, are seen to cause temporary displacement, but not some idea of authentic (i.e., permanent) migration. Indeed, if permanent migration does occur as the result of a disaster, it is seen as more the result of deficient responses of weak or corrupt states rather than the environment as expressed in the form of a natural hazard impact.

Black's critique, that focusing on environmental factors as causes of migration may obscure the role of political and economic factors, is well taken and echoes the position held by most disaster researchers today. Focusing solely on agents reveals little about the political or economic forces that also contribute to disasters or, for that matter, any forced migration that might ensue. But these objections in turn elide the fact that the environment, its resources, and its hazards are socially constructed and framed for people through social, economic, and political factors, even in the best of times (Oliver-Smith 2002). The environment cannot be separated from society to isolate it as a single cause. The displacement from the South Asian tsunami is probably the closest we come to migration as a result of a purely natural phenomenon. In most cases, however, nature and society produce socially constructed environments that are mutually constitutive. In other words, the environment cannot be a single cause because, in most cases, it is interwoven with society. A disaster is no longer defined in terms of its event aspect only, but also in terms of the processes that set it in motion and the postevent processes of adaptation and adjustment in recovery and reconstruction.
There is little question that some environmental disasters force people to migrate. Both socioeconomic and technological disasters, often in combination, may uproot communities by sudden destruction, as in the gas explosion of Guadalajara, Mexico (Macias and Calderon Aragon 1994), or by saturation of the environment with toxic substances, making it uninhabitable or unusable, as in Chernobyil; Valdez, Alaska; or parts of New Orleans (Button in press; Dyer, Gill, and Picou 1992; Petryna 2002). In some cases, depending on the agents, the scale of the event, and the physics of dispersal, saturation can be local, as in the Murphy oil spill in parts of New Orleans, whereas the contamination from Chernobyil affected large sections of a continent. The South Asian tsunami clearly displaced millions, and Hurricane Katrina uprooted more than one million people and left many hundreds of thousands permanently displaced. Their displacement, however, is not due to environmental reasons alone, but to the political economy of reconstruction as well.

The Great Flood of 1927 in the lower Mississippi Valley displaced nearly 700,000 people, approximately 330,000 of whom were African Americans who were subsequently interned in 154 relief "concentration camps," where they were forced to work (www.mvd.usace.army.mil/MRC-History-Center/gallery/flood/flood2.html).  Although there were many reasons for African Americans to leave the South, the flood and its consequences, especially the forced labor in the camps, were the final motivation for migrating for thousands (Barry 1997, 417).

**Displacement, Resettlement, and Loss**

For people affected by disasters and other environmental changes, displacement and resettlement constitute a second disaster in their lives. The impact of the initial disaster intensifies in the aftermath, both in that people experience losses and in the process of recovery. Serious disasters inflict terrible losses on people and communities, often breaking families and uprooting communities to relocate in radically changed and/or new environments. Displacement both compounds and makes permanent many of the losses incurred in disaster. Those who can reconstruct in situ, even in much diminished circumstances, stand a better chance at recovery.

The destruction or loss through uprooting of livelihood and community require those impacted to engage in a process of reinvention. As social creatures, people's reinvention of self will be intimately linked to the reinvention of social bonds and community. This process of reinvention or recovery will have both material and social aspects. Material and social losses compound each other. Those who are uprooted, having suffered almost complete loss, like political refugees, must migrate with fewer resources with which to reconstruct their lives.

Material elements such as housing, material possessions, infrastructure, services, health care, transportation, communication, and nutrition can all be endangered, damaged, or destroyed in serious disasters and/or lost in displacement. In addition to physical damage, material losses resonate profoundly in the social world, affecting the economic, social, and cultural life of survivors. For example, material damages frequently mean the loss of livelihoods, whether through destruction or loss of worksite, tools and equipment, land or common property resources, or physical injury. Loss of livelihood and the capacity to sustain oneself endanger individual and social identity, producing a loss of status and resulting in marginalization and social disarticulation through the fragmenting of social networks such as kin, religious, and other collaborative groups and associations. The loss of a house is also the loss of a social "place." The entire community or social world is thus endangered by such individual losses. The dispersal, displacement, or death of family members fragments not only a household, but erodes the social cohesion of a community as well. Disaster-caused deaths erode networks of relationships that form the basis of personal and social identity, setting people adrift without those ties that anchor the self in the social world. Survivors of serious disasters in which there is great loss of life and prolonged devastation and displacement also suffer a loss of personal identity and partial loss of self. The loss of significant others in high-mortality disasters is also a loss of the self, since that part of the self the other played is lost. Thus, the loss of a child means that one has lost that part of the self that was a parent. To reinforce this point, the loss of status, the social leveling, the reduction to a common level of misery, can constitute an assault on the sense of the self.

Cultural identity is at risk in uprooted communities. The loss and destruction of important cultural sites, shrines, and religious objects, and the interruption of important sacred and secular events and rituals, undermines the community's sense of itself. Disasters and displacement may endanger the identification with an environment that may once have been seen as nurturing and central to cultural identity but is feared and distrusted in the aftermath (Oliver-Smith 1992). Displacement for any group can be a crushing blow, but for indigenous peoples it can prove mortal, considering that land tenure is an essential element in the survival of indigenous societies and distinctive cultural identities.

These losses of community, family, and self compound each other to create a cumulative loss of meaning. Events and prolonged conditions of deprivation and displacement can shake the foundations of personal worldview and identity. They challenge the culturally constructed vision where the world is a place imbued with logic and life makes sense, even if it can be unfair. Major disasters rob people of the social context in which they live meaningful lives that are considered significant by others. This loss of personal relationships and the social context in which they were expressed and in which the individual was affirmed may leave people bereft of a sense of meaning and purpose in life. In this context, religion may cease to provide solace and can itself become a casualty in the aftermath of disasters.
Obviously, people forced from their known environments are separated from the material and cultural resource base upon which they have depended for life as individuals and as communities. Perhaps not so obvious is the fact that a sense of place plays an important role in individual and collective identity, in the way time and history are encoded and contextualized, and in interpersonal, community, and intercultural relations (Altman and Low 1992; Escobar 2001; Maalki 1992; Rodman 1992). A sense of place is crucial in the creation of what Giddens calls an “environment of trust” in which space, kin relations, local communities, cosmology, and tradition are linked (Giddens 1990, 102 as cited in Rodman 1992, 648).

In short, removal from a most basic physical dimension of life can mean removal from life. The disruption in individual or community identity and stability in place, resulting in resettlement in a strange landscape, can baffle and silence people like a strange language can (Basso 1988 as cited in Escobar 2001; Rodman 1992). Culture loses its ontological grounding and people must struggle to construct a world that can clearly articulate continuity and identity as a community again. The human need for “environments of trust” is fundamental to the sense of order and predictability implied by culture.

ENVIRONMENTALLY INDUCED DISPLACEMENT AND RECOVERY

Recovery and reconstruction for forcibly uprooted people take place in a new setting, generally far from familiar environments and people. In other words, getting to where they are going does not solve the problem. They may have stopped moving, but that is just the beginning of another process, that of resettlement. In all too many cases, resettlement, particularly when done at the community level, ends up becoming a secondary disaster. Therefore, when disasters damage or destroy communities, the uprooting of people and displacement of them far from homes and jobs makes the process of recovery doubly complex. These events/processes often set people on the road, breaking up families and communities. Uprooted people generally face the daunting task of rebuilding not only personal lives, but also communities—those relationships, networks, and structures that support people as individuals. The social destruction wrought by these phenomena takes place at both the individual level and at the community level. In some cases, survivors of these events resettle themselves individually or as families in new environments, facing the challenges of integration in new areas.

In the United States the government entrusts refugee resettlement to nongovernmental organizations (NGOs) with little attention paid to the idea of community of origin. This lack of attention to community is perhaps due to Americans’ ideological distance from the idea of community as something people need. Americans are portrayed as eminently mobile, able to adapt easily to new homes, new jobs, and new networks (Bellah et al. 1985). The degree to which that contention is true for Americans may be debated, but it is certainly not the case for many of the world’s people. However, the discourse of displacement and resettlement in American society, that is, the choice of terminology and the scale or unit of analysis most frequently addressed, is at the level of individuals and families, whereas most large-scale displacement very frequently involves communities. This is significant because what is often lost in displacement and resettlement is the community network that enabled people to access material resources and the social and emotional support critical to survival. The community is more than the sum of the total number of individuals, and the loss of community for displaced people, particularly when the loss is the outcome of aid policies that do not take community into account, can be devastating.

To compound the issue further, when a community is resettled, it is not simply lifted up and set down whole in a new site. In most cases the community is reconfigured in specific ways. Most resettlement projects, particularly in the developing world, directly or indirectly further two additional processes: the expansion of the state and integration into regional and national market systems (Scott 1998). Neither of these processes of inclusion is particularly simple or straightforward, but in most cases they produce a restructuring of social, economic, and political relationships toward the priorities of the larger society. Resettlement itself does not always necessarily destroy “local cultures,” but rather appropriates and restructures them in terms of the values and goals of distant interests, far beyond the local context. Such a process involves the reduction of local culture, society, and economy from all their varied expressions to a narrow set of institutions and activities that make them compatible with the purposes of the larger society (Garcia Canclini 1993).

The process of reconstruction, formally or informally, must address these losses, not only to reconstruct the community in a material sense, but also to support the community’s efforts to rebuild itself and reconstruct the fabric of community life. For the most part, the process of reconstruction has been approached largely as a material problem. The forms of aid and assistance that are marshaled to assist displaced peoples have generally focused on issues of material need in the form of housing, nutrition, and health care. There is no denying that the often-excruciating material needs of the displaced must be addressed, but the question that is often not satisfactorily answered is how they should be addressed. Material aid is often donor designed and largely a transfer process. It is frequently delivered in content and form in ways that compound the social and psychological effects of destruction and displacement by undermining self-esteem, compromising community integrity and identity, and creating patterns of dependency.

In material terms, the needs of individuals, households, communities, and the extralocal systems of which they are a part are numerous, diverse, and interconnected. The procedures put in place to cope with emergency needs, however, are rarely linked to key features of community organization,
although they can determine the longer-term rehabilitative system. This results in very negative impacts on the long-term viability of the community. For example, donor-driven housing forms may endanger the connection that people establish with their built environment, violating cultural norms of space and place, inhibiting both the reformation of social networks and the re-emergence of community identity (Oliver-Smith 1991). The experience of millions of displaced peoples and the failures of public housing clearly show that the built environment can seriously undermine and even prevent community from emerging, instead exaggerating the social tensions and conflict that often plague such uprooted populations. Such plans and structures are more focused on donor efficiency and cost rather than on the needs of the displaced population to reconstitute a community. In the long run the social disarticulation they foster undermines the productivity and self-sufficiency of the group.

Despite the obvious fact that employment after resettlement is essential, joblessness or lack of livelihood is one of the most common failings of resettlement projects (Cernea and McDowell 2000). From both a material and a psychological standpoint, economics drives the process of reconstruction. Employment provides needed income to replace or improve upon those personal and household needs not provided by aid, but it is also a form of action that enables people to return to being actors rather than being acted upon as disaster victims.

Disaster and displacement also causes people to lose their means of production, be it land, tools, or resource access, preventing them from engaging in normal activities. In this context it is important to establish livelihoods on the basis of traditional products, skills, and technology, allowing people to continue with known practices particularly for the initial period of adjustment. Tensions can become acute when the displaced seek to relocate in existing communities and may compete with a dense host population for scarce social and economic resources.

Key to the process of reconstruction and vulnerability reduction is the negotiation of tension due to the availability of jobs locally and in the broader and distant region. Generally, disasters markedly impact labor markets either by limiting the supply of jobs because of economic dislocation or by limiting the supply of labor because of displacement (Button and Oliver-Smith 2008). Disaster-induced displacement alters the distance and time relationships between homes and jobs. Until people resume employment, they remain dependent on external resources, and reconstruction remains incomplete.

**Understanding Displacement and Resettlement**

If we are to understand potential mass displacements from global climate change, and respond effectively to them, we need to identify those pertinent sources of theory and information that can inform appropriate policy formation and practice. The process of resettlement in cases of involuntary uprooting has proven to be particularly challenging, and cases of successful resettlement projects are few (Scudder 2005). The vast majority of these projects, whether from disasters, development, or conflict-driven displacement, leave local people permanently displaced, disempowered, and destitute. For the vast majority of the displaced, the causes of dislocation and the uprooting process itself are nothing less than catastrophic both at the personal and the community level. These forces—natural and technological disasters, political conflict, and large scale development projects—can all be considered “totalizing phenomena” in their capacity to affect virtually every domain of human life (Oliver-Smith 2006).

The social scientific literature on displacement and resettlement is clustered around three themes: disasters, civil and military conflicts, and development projects. The scant literature from disaster-driven displacement suffers from an excessive focus at the individual and organizational levels and a relatively short temporal scale. The research from conflict-driven uprooting focuses largely on temporary camps, repatriation, and individual and family refugee resettlement to foreign countries. The literature on development-forced displacement and resettlement offers an important source of perspectives and models for furthering the understanding of global climate change-driven migration, particularly of the large-scale displacements projected for the not-too-distant future. This research is also being complemented by a growing concern regarding Internally Displaced Persons (IDP) (Deng and Cohen 1999; Koser 2007).

Although there are clear differences between disaster-forced and development-forced resettlement, particularly in terms of the “triggering” event and the question of intentionality, these differences diminish in the aftermath. Following the actual cause, there is a greater degree of commonality in the challenges people face, whether they are victims of development-forced displacement or disaster. In that sense, the victims of Hurricane Katrina or the South Asian Tsunami suffer the same persisting challenges as people displaced by development projects: homelessness, unemployment, marginalization, the loss of neighborhood and community, mental and physical health challenges, and powerlessness (Button in press; Cernea 1996b).

Regardless of the cause, displaced people, disaster victims, and refugees face a complex series of events involving dislocation; homelessness; unemployment; the dismantling of families and communities; adaptive stresses; loss of privacy; political marginalization; a decrease in mental and physical health status; and the daunting challenge of reconstituting one’s livelihood, family, and community (Cernea 1990, 1997; Colson 1971; Scudder 1981, 1991). This array of challenges that displaced people face serves as a basic outline of “family resemblances” (Button in press). The “family resemblances” of disaster- and development-forced displacement and resettlement suggest that the literatures associated with these fields should enrich one another. The gap between the two fields, according to Turton (2006), is purely a social
construct that inhibits a more complete understanding of displacement and resettlement processes (Button in press; Cernea and McDowell 2000).

If, in fact, the uprooted are resettled in some systematic way, the quality of the resettlement project itself may play a major role in the capacity of the community to recover from the trauma of displacement. Such projects are really about reconstructing communities after they have been materially destroyed and socially traumatized. Reconstructing and reconstituting community is an idea that needs to be approached with a certain humility and realism about the limits of current planning capacities. To date, such humility and realism have not always characterized the planners and administrators of projects dealing with uprooted peoples to any major extent. Instead, the goals of such undertakings frequently stress efficiency and cost containment over restoration of community. Such top-down initiatives have a poor record of success because of a lack of regard for local community resources. Planners often perceive the culture of uprooted people as an obstacle to success, rather than as a resource.

Communities do not construct themselves; they evolve. Even intentional communities, self-organized around a common ideology and possessing a high degree of homogeneity, are not long lasting. Reconstructing/reconstituting a community means attempting to replace, through administrative routine, an evolutionary process in which social, cultural, economic, and environmental interactions develop and enable a population to achieve a mutually sustaining social coherence and material sustenance over time. The social systems that develop are not perfect, are often far from egalitarian, and do not conform to some imagined standard of efficiency. The kind of community that sustains individual and group life is not a finely tuned mechanism or a well-balanced organism, but rather a complex, interactive, ongoing process composed of innumerable variables that are subject to the conscious and unconscious motives of its members. The idea that such a process could be the outcome of planning is ambitious, to say the least. One of the best outcomes that might be imagined for resettlement projects is to work out a system in which people can materially sustain themselves while they begin the process of social reconstruction. The least that could be hoped for might be that resettlement projects not impede the process of community reconstitution. However, if the level of impoverishment experienced by most resettled peoples is an indicator, it remains beyond the will and/or the capabilities of most contemporary policy makers and planners to provide even adequate systems of material reproduction. This fact does not bode well for the victims of potential mass displacements from processes associated with global climate change.

Although several models of the nature of voluntary planned settlement processes were developed in the late 1960s (Chambers 1969; Nelson 1973), there were few attempts at theory or model building of involuntary forms of displacement and resettlement until the late 1970s and early 1980s. There are two major theoretical approaches dealing with involuntary resettlement that policy makers and researchers have found helpful in understanding outcomes. The first was Scudder's four-stage framework that modeled first and second generation responses of resettlers (Scudder 1981; Scudder and Colson 1982). The second was Michael Cernea's Impoverishment Risks and Reconstruction model (1990). Two subsequent efforts (de Wet 2006; McDowell 2002) have also advanced our understanding of the displacement and resettlement process. Although these approaches were formulated primarily for cases of development-forced displacement and resettlement, these concepts also have application in contexts of postdisaster and postconflict resettlement (Button in press; Cernea 1996b; Scudder and Colson 1982).

First, Scudder and Colson developed an approach based on the concept of stress to describe and analyze the process of involuntary relocation and resettlement (Scudder 1981; Scudder and Colson 1982). The Four Stage Framework, as Scudder now calls it, emphasizes how most resettlers can be expected to behave during each of the four stages necessary to the completion of a successful resettlement project (Scudder in press). Scudder and Colson posited that three forms of stress resulted from involuntary relocation and resettlement. Physiological stress is seen in increased morbidity and mortality rates. Psychological stress has four manifestations: trauma, guilt, grief, and anxiety. Sociocultural stress, in the form of fragmented social networks, economic deprivation, loss of power, and social dissension, is manifested as a result of the economic, political, and cultural effects of relocation. Affected people experience these three forms of stress, collectively known as multidimensional stress, as they pass through the displacement and resettlement process.

The process itself is represented as occurring in four stages. Recruitment refers to the decisions taken by authorities regarding the population to be relocated, particularly those that influence the length and severity of the stressful transition stage. The transition stage begins when the population to be relocated is first affected. Generally speaking, the transition stage is the longest and when affected people experience the most severe multidimensional stress. The general attitude of people during the transition stage is conservative in order to avoid the possibility of further risk and stress. The stage of potential development begins when people begin to abandon their conservative risk-avoidance strategies and express greater initiative and risk-taking behavior. Scudder and Colson emphasize that this stage is often never realized since many Development-Forced Displacement and Resettlement (DFDR) projects remain trapped in the transition stage by inappropriate policy and inept implementation. Equally difficult to attain is the final stage of handing over or incorporation. Achieving the incorporation stage signifies that the DFDR project has been successful. Scudder and Colson define success as achieving the local management of economic and political affairs and the phasing out of external agencies and personnel from
day-to-day management of the community. The community has become able to assume its place within the larger regional context that includes host communities and other regional systems.

At roughly the same time that Scudder and Colson were developing their model, a complimentary approach emerged in political ecology, linking the ideas of vulnerability and risk. Vulnerability was initially employed in disaster research to understand how different societies experienced vastly divergent losses from similar disaster agents. An alternative perspective on human-environment relations, emphasizing the role of human interventions in generating disaster risk and impact, found that these sets of relations coalesced in the concept of vulnerability (Hewitt 1983). Vulnerability and risk, therefore, refer to the relationships between people, the environment, and the sociopolitical structures that frame the conditions in which people live. The concept of vulnerability thus integrates not only political and economic but also environmental forces in terms of both biophysical and socially constructed risk. This understanding of vulnerability enabled researchers to conceptualize how social systems generate the conditions that place different kinds of people, often differentiated along axes of class, race, ethnic, gender, or age, at different levels of risk.

As these concepts gained currency, Cernea began his writing about the risks of poverty from water projects displacements (1990), from which he developed his now well-known Impoverishment Risks and Reconstruction (IRR) approach to understanding (and mitigating) the major adverse effects of displacement. Herein he outlines eight basic risks to which people are subjected to by displacement (Cernea 1996b; Cernea and McDowell 2000). The model is based on the three basic concepts of risk, impoverishment, and reconstruction. Deriving his understanding of risk from Giddens's (1990) notion of the possibility that a certain course of action may produce negative effects, Cernea models displacement risks by deconstructing the "syncretic, multifaceted process of displacement into its identifiable principle and most widespread components": landlessness, joblessness, homelessness, marginalization, food insecurity, increased morbidity, loss of access to common property resources, and social disarticulation (2000). He further asserts that these risks will further produce serious consequences in badly or unplanned resettlement. Cernea's IRR model is designed to predict, diagnose, and resolve the problems associated with DFDR.

Two years later, Christopher McDowell combined Sustainable Livelihoods research and Cernea's IRR approach to develop a methodological framework for research on postdisaster resettlement (2002). His approach is based on the assertion in Sustainable Livelihoods research that social institutional processes are central to livelihoods in the ways they influence households' access to resources, whether natural or social. One of the principal risks in displacement and resettlement is social disarticulation, including the scattering of kinship groups and informal networks of mutual help (Cernea and McDowell 2000). The disarticulation of spatially and culturally based patterns of self-organization, social interaction, and reciprocity constitutes a loss of essential social ties that affect access to resources and compound the loss of natural and man-made capital. Thus, in displacement and resettlement, peoples' adaptations to social disarticulation produces new dynamics that influence people's access and control over resources and often lead to further impoverishment. Therefore understanding institutional processes in resettlers' adaptive strategies is crucial for identifying the socioculturally specific nature of the risks Cernea identified as inherent in forced displacement and helps explain why displacement and resettlement so often results in greater impoverishment of affected households.

Asking why resettlement so often goes wrong, Chris de Wet has recently sought to incorporate Cernea's important insights and sees two broad approaches to responding to the question. The first approach is what he calls the "inadequate inputs" approach, which argues that resettlement projects fail because of a lack of appropriate inputs: national legal frameworks and policies, political will, funding, predisplacement research, careful implementation, and monitoring. Optimistic in tenor, the inadequate inputs approach posits that the risks and injuries of resettlement can be controlled and mitigated by appropriate policies and practices. On the other hand, De Wet finds himself moving toward what he calls the "inherent complexity" approach, arguing for "the interrelatedness of a range of factors of different orders: cultural, social, environmental, economic, institutional and political—all of which are taking place in the context of imposed space change and of local-level responses and initiatives" (de Wet 2006). These changes take place simultaneously in an interlinked and mutually influencing process of transformation and are influenced by and respond to the imposition from both external sources of power and initiatives of local actors. Therefore, the resettlement process emerges out of the complex interaction of all these factors in ways that are not predictable and that do not seem amenable to a linear-based, rational planning approach. De Wet argues that a more comprehensive and open-ended approach is necessary to understand, adapt to, and take advantage of the opportunities presented by the inherent complexity of the displacement and resettlement process. The fact that authorities are limited in the degree of control they can exercise over a project creates a space for resettlers to take greater control over the process. The challenge thus becomes the development of policy that supports a genuine participatory and open-ended approach to resettlement planning and decision-making (de Wet 2006).

**Conclusion**

The effects of global climate change will increase the number and scale of forced migrations in the relatively near future. For example, other cities that face threats similar to those that devastated New Orleans include Mumbai,
Caracas, Cape Town, Dar es Salaam, Manila, and Darwin. Increasing population and poverty and occupation of hazardous and vulnerable areas increases the probability of forced migrations. Socionatural disasters that trigger technological disasters make environments uninhabitable and force people to migrate. While increasing state and market integration have resulted in more resilient infrastructures in some world regions, they have also undermined traditional adaptations of rural populations to natural hazards. The specific effects of global climate change—including increased risks of flooding, storms, deforestation, desertification, soil erosion, and sea level rise—increase the probability of disasters contributing to internal and international forced migration. The catastrophic losses from Hurricane Katrina demonstrate the urgent need to develop the conceptual, strategic, and material tools to confront the increasing challenges of population displacement and resettlement from natural hazards made even more potent and complex by climate change, increasing population densities, and environmental degradation in the twenty-first century.

Over the past twenty-five years, colleagues from the field of development-induced displacement, refugee studies, and disaster research have learned that the displaced peoples we work with share many similar challenges (Cernea 1996a; Cernea and McDowell 2000; Hansen and Oliver-Smith 1982; Oliver-Smith in press; Turton 2003). Although the places and peoples are geographically and culturally distant and the sociopolitical environments and causes of dislocation often dissimilar, there remain a number of common concerns and processes. All displaced people must cope with multiple stresses and the need to adapt to a new or radically changed environment. All may experience privation, loss of homes, jobs, and the breakup of families and communities. All must mobilize social and cultural resources in their efforts to reestablish viable social groups and communities and to restore adequate levels of material life. These are important similarities that anthropologists must recognize and understand both to minimize displacement and to assist in the material reconstruction and the social reconstitution of communities. Without doubt there are important differences between disaster- and development-forced resettlement projects. However, according to Turton (2006), it is also clear that the differences between the two forms of displacement are “scientifically unsound.” There are sufficient shared characteristics between the two research fields to provide a rich field for productive cross-fertilization and the development of a kind of “systematic, comparative long-term research required for improving a policy relevant theory” (Scudder in press) that is sorely needed in displacement and resettlement studies research, policy, and practice (Button in press).

As discussed earlier, although the issue of environmental refugees has generated significant debate over the last twenty years, appropriate policies pertaining to environmentally displaced peoples or other internally displaced populations have yet to attain legal status. Moreover, according to the International Federation of Red Cross and Red Crescent Societies (IFRC 2004), there are no well-recognized and comprehensive legal instruments which identify internationally agreed rules, principles and standards for the protection and assistance of people affected by natural and technological disasters. As a result, many international disaster response operations are subject to ad hoc rules and systems, which vary dramatically from country to country and impede the provision of fast and effective assistance—putting lives and dignity at risk.” (IFRC 2004, 1).

The category “refugee,” with all its attendant rights, still applies only to a very specifically defined group of people who, in fleeing for their lives, have crossed an international border. Although over the last decade there has been increasing concern regarding internally displaced persons and their rights, and there is increasing recognition that the causes of displacement and resettlement are far wider than wars and civil conflicts, there are still no nationally or internationally binding agreements or treaties that guarantee the rights of people who have been uprooted by other causes such as environmental disruption, disasters, or development projects. The Guiding Principles on Internal Displacement define internally displaced persons as “persons or groups of persons who have been forced or obliged to flee or leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human made disasters, and who have not crossed an internally recognized state border” (http://www.UNHCHR.ch/html/menu2/7/b/principles.htm). Although widely recognized as an international standard, and certainly helpful in guiding NGOs and other aid organizations in assisting IDPs, the guiding principles have not been agreed upon in a binding covenant or treaty and have no legal standing.

The very real potential for global climate change to increasingly generate displacements and migrations across international borders, in combination with the dearth of appropriate policies for internally displaced persons, makes urgent the need for developing adequate legal protections and assistance programs for populations facing potential displacement by forces generated by global climate change. Current estimates for the number of environmentally displaced people around the world are highly debated for reasons discussed earlier, but the Office of the United Nations High Commissioner for Refugees estimated in 2002 that approximately 24 million people around the world had been displaced by floods, famines, and other environmental causes (UNHCR 2002, 12). These numbers could be dwarfed by the potential displacements caused by global climate change. It is both urgent and incumbent upon anthropology and the social sciences in general to contribute to the development of both theory and method that will generate legally binding policies and informed practice to address the massive displacement and resettlement that global climate change is and will increasingly cause.
REFERENCES

NOTES
2. There is, however, a debate between NGOs that favor resettling refugees with coethnics so that they can help each other with language and employment issues and those that believe in dispersing the displaced so that they will assimilate and learn English faster (Hansen 2005).

CLIMATE CHANGE

FROM ENCOUNTERS TO ACTIONS

SUSAN A. CRATE    MARK NUTTALL