CHAPTER 7

Race, Class, Ethnicity, and Disaster Vulnerability

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Hurricane Katrina and the disaster that unfolded in its wake provided a stark example of the pervasiveness and perniciousness of race and class inequalities in the United States. The media images constructed an unambiguous story: tens of thousands of mostly low-income African Americans were left to fend for themselves as the city of New Orleans flooded from breached levees on Lake Pontchartrain. Their only refuge was a large sports arena unequipped to serve as an "evacuee center" and devoid of any resources to support the thousands of people who gathered, many arriving only after wading through the toxic flood waters gathering in the city. In a city with a poverty rate of more than 30%, where one in three persons does not own a car, no significant effort was made by government at any level to assist the most vulnerable people to escape the disaster (Alterman, 2005). While Hurricane Katrina momentarily and unavoidably called attention to issues of race and class vulnerabilities, hazards and disaster research has clearly shown that social inequalities are core conditions that shape both disasters and environmental inequalities on a global scale. My goal in this chapter is to discuss what five decades of hazards and disaster research have revealed about race, class, and ethnic inequalities.

My primary interest is the relationship between social inequalities and hazard vulnerability in disaster processes. In the United States, the imbrication of race and class is significant, a product of a long history of racist and exclusionary practices that have marginalized groups of people deemed inferior by those holding political and economic power. Such practices, both intentional acts of discrimination and more covert, diffuse, and persistent institutionalized racism, have produced deep and lasting social, political, and economic disadvantages for people in targeted racial categories (Winant, 2001). Those disadvantages have historically expressed themselves in class position, primarily through their effects on employment, educational, and residential opportunities denied to those in marked racial categories. Given that racial and ethnic minorities will form the majority of the U.S. population by 2050 (Wilson, 2005), this is an area, as I will argue, that warrants increasing research attention in the hazards community. While people's vulnerability to environmental threats is shaped by a concatenation of sociospatial and biophysical factors, race/ethnicity and class have proven central in understanding social processes during hazard events (e.g., Duffield, 1996; Wisner, Blaikie, Cannon, & Davis, 2004). (Gender, also a significant factor in class processes and hazard vulnerability, is discussed elsewhere in this handbook and is not considered here.)

My goal here is to discuss theoretical and methodological issues in research on race and class in hazard vulnerability and disaster. This is not intended to be a detailed review of the disaster literature, as such reviews are available elsewhere (e.g., Fothergill, Maestas, & Darlington, 1999; Wisner et al., 2004). Nor will I be discussing human acts of collective violence, including war, genocide, or terrorism, as these raise complex and contested political issues beyond the scope of this chapter. (For recent discussions of terrorism from hazards geography and vulnerability perspectives see: Cutter, Richardson, & Wilbanks, 2003; Mustafa, 2005). Lastly, my comments about disaster research are made only in reference to research on race and class factors.

This discussion is divided into four sections. In the first I provide a review of some recent theoretical discussions of four key concepts: vulnerability, race, class, and ethnicity. I use this section to illustrate some of the theoretical issues invoked by the terms and to provide a context for discussing hazard and disaster research on these topics. Next I provide a chronological sketch of U.S. studies that discuss race and class, beginning with disaster research from the 1950s and continuing to the present. The third section reviews studies that utilize what has been referred to as a "vulnerability approach." Because vulnerability research is situated within a political ecological rather than a sociological framework (cf. Quarantelli, 1994; Robbins, 2004), I treat it as a separate body of literature. Notably, it differs from earlier approaches to disaster in that it considers a broad range of political economic, historical, and sociospatial factors in the genesis of disasters. In the concluding section, I briefly consider a body of hazards research that I suggest is a rich source of insight on race, class, and environmental hazards: the environmental justice literature (e.g., Bullard, 1993, 1994; Szasz & Meuser, 1997). My goal in the last section is to review elements of the environmental justice literature to illustrate race and class issues in the allocation of environmental risks, a focus largely missing in U.S. disaster research (e.g., Cutter, 1995b; Wisner et al., 2004).

THEORIZING INEQUALITIES

For my purposes, race, class, and ethnicity are key markers of a person's potential vulnerability to environmental hazards of all types. In the hazards and disaster literature a "vulnerability approach," with its focus on an ensemble of sociospatial and political economic conditions that shape disasters, is a two-decade-old research approach grounded in political ecology (Hewitt, 1997; Wisner & Walker, 2005). Vulnerability analysis, or vulnerability science as it has been recently labeled (Cutter, 2003b), is currently formulated as a broad theoretical approach for investigating hazards, environmental inequalities, and questions of sustainability (Kasperson, Kasperson, & Dow, 2001). Beginning with the publication of Hewitt's foundational volume, *Interpretations of Calamity from the Perspective of Human Ecology,* in 1983, vulnerability analysis has attempted to shift the analysis of disasters away from the physical hazard agent and a temporally limited view of disasters as "unique" events separate from the ongoing social order (Hewitt, 1983a, 1983b). Vulnerability researchers have for some time argued that environmental calamities are shaped by the already existing social, political, environmental, and economic conditions and thus should not be considered as "natural" occurrences (e.g., Cannon, 1994; Maskrey, 1993). Indeed, as Quarantelli notes (1990, p. 18) in this vein, "... there can never be a natural disaster; at most there is a conjuncture of certain physical happenings and certain social happenings."

Wisner et al. (2004, p. 11), in the most systematic statement of hazard vulnerability research to date, define vulnerability as "*... the characteristics of a person or group and*

their situation that influence their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard" (Italics in original). They go on to note that vulnerability is determined by a variety of factors, variable across space and time, that differentially put people and places at risk of loss from environmental hazards. Wisner et al. (2004, p. 11) suggest that among these factors are class, caste, ethnicity, gender, and immigration status. Vulnerabilities are variable by hazard type, contingent on a variety of circumstances, and unevenly distributed across individuals, households, communities, and regions (Bankoff, Frerks, & Hilhorst, 2003; Morrow, 1999). Hazard vulnerability has been consistently linked to people's class locations and the effects of race/ethnicity on the ensemble of social advantages and disadvantages they routinely experience (Wisner et al., 2004). While a very large social science literature has been built around each of these concepts, space allows me to focus only on a few key ideas to suggest their theoretical complexity.

RACE AND ETHNICITY

Omi and Winant (1994) contend that postwar U.S. sociology has attempted to apply a white ethnic immigrant framework to *racialized* minorities, including African Americans, Latinos, American Indians, and Asians. This strategy obscures the complex class and cultural differences among people so labeled, and it directs attention away from the structural ways in which such groups are "racially constructed" in the United States (Omi & Winant, 1994, p. 23). For example, in the United States one can stop being ethnically Irish or Italian in ways that would not allow to stop being labeled black or Asian, however much one is assimilated into dominant cultural forms. Race (and racism) exists at the level of social structure in the sense that one cannot opt out of the effects of racial categories.

The challenge for researchers is to approach race (and ethnicity) as complex and contested social constructs that form the axes of a variety of historical and contemporary social struggles across a range of scales (Smith & Feagin, 1995). In using race to explain observed individual differences in social research, Omi and Winant (1994, p. 54) claim that scholars too often treat "race as an *essence*, as something fixed, concrete, and objective." Against such essentialism, they contend that race should be understood as "an unstable and 'decentered' complex of social meanings constantly being transformed by political struggle . . . : *race is a concept which signifies and symbolizes social conflicts and interests by referring to different types of human bodies*" (Omi & Winant, 1994, p. 55, Italics in original). What types of bodies are included in what racial categories reflect place-specific historical processes that produce distinct patterns of advantage and disadvantage based on such classifications (e.g., Hoelscher, 2003; Pulido, 2000). These accumulated advantages and disadvantage can have distinct relevance for hazard vulnerability. Racialized groups, for example, may be spatially segregated and forced to occupy unsafe and hazard-prone spaces that privileged groups can avoid occupying (Wisner et al., 2004). Such racially marginalized groups can also be denied access to necessary resources to recover from disasters, deepening their vulnerability to future hazard events (Bolin & Stanford, 1999).

The changing categories of races and ethnicities in the U.S. Census are an example of an arbitrary and shifting discursive terrain. In recent decades, Japanese Americans have moved from being considered "nonwhite" to Oriental to Asian, and Hispanics, a term dating to the 1980 census, may be "white" (or another race), and all are ostensibly ethnically different from "non-Hispanic whites" in unspecified ways. And though Hispanics and Asians have different national origins (Korean, Chinese, Cuban, Mexican, etc.) in the census, whites appear

as ethnically monolithic. The unstable and changing census categories and attached cultural representations that "move" people in or out of racial and/or ethnic categories over the decades hints at the ambiguities and fluxes of such identity markers. Regardless, these categorical shifts should not obscure the fact that both Japanese and Latinos have faced intense discrimination and dispossession as racially defined minorities at various times and places in U.S. history (e.g., Smith & Feagin, 1995; Winant, 2001). Hazard and disaster studies that rely solely on census classifications leave unexplored the meaningfulness of the labels for affected people in particular localities and the cultural, class, and gender diversity these terms may obscure. For a deeper understanding of race in disaster, it is necessary to investigate the complex historical, social, and geographic processes in which racial identities are socially constructed and given significance in systems of domination and subordination in specific places.

Omi and Winant (1994) offer two key theoretical formulations useful for understanding the ways that race and racism relate to hazard vulnerability: racial formation and racial project. Racial formation refers to the historical process "by which racial categories are created, inhabited, transformed, and destroyed" (Omi & Winant, 1994, p. 55). Such formations incorporate specific "racial projects" that represent and organize human bodies and social practices across space and time, privileging certain categories of people over others (Pulido, 2000). Thus, racial formations are historically produced, hierarchical, and hegemonic, and are expressed materially, spatially, and in discourse (Hoelscher, 2003; Omi & Winant, 1994). Grounding understanding of systems of racial inequality in specific sociohistorical processes marks a theoretical and methodological advance over treating race and ethnicity as demographic givens that are fixed, measurable, and unproblematic. For hazards research, understanding racialized social processes requires a historically informed understanding of the particularities of racial formations in specific places and times and how those shape the environmental risks to which people are exposed (e.g., Bolin, Grineski, & Collins, 2005; Pellow, 2000). It also avoids the essentialist treatment of race found in quantitative studies, wherein racial/ethnic categories are treated as concrete attributes with ensembles of presumed, but unmeasured, social characteristics.

According to Omi and Winant (1994), ethnicity is frequently either used as a substitute for or conflated with race in sociological literature, although it too is an unstable concept that escapes easy definition. And as with race, relying on shifting census categories elides any consideration of the instability of labels or the political struggles over cultural identities they incorporate. Anthropology, beginning at least with Barth's classical statement on ethnic groups (Barth, 1969), has produced an extensive literature on ethnicity and ethnic groups as *the* key subject of contemporary cultural anthropology. At its (deceptively) simplest, ethnicity implies an ensemble of cultural characteristics and interaction patterns that distinguish one group from another. Ethnicity shapes individual identities and group characteristics while at the same time drawing boundaries with others who ostensibly do not share a set of cultural characteristics. Thus, ethnicity involves both identities and cultural practices by which one set of people can distinguish themselves from another, and are likewise recognizable by "outside groups" (Eriksen, 1991). However, the cultural features and practices that either unify or divide groups are frequently difficult to identify, particularly in complex postcolonial and multicultural social formations (Gupta & Ferguson, 1997). Further, anthropologists are well aware that knowledgeable lay people often disagree with social science descriptions of their cultural or "ethnic" characteristics (Eriksen, 1991).

There are other confounding issues as well. Individual members of ethnic groups are also class situated and certain "cultural features" attributed to ethnicity may be more directly concerned with class position and practices (Williams, 1989). Further, the disadvantages that

accrue to women in a variety of cultural or ethnic contexts can be severe, pointing to the need to always consider gender at its intersection with ethnicity and attached cultural practices. The literature on famine, for example, provides numerous examples of the vulnerability of women as a consequence of their marginal and subordinate status within specific ethnic, tribal, and religious groups (Oliver-Smith, 1996; Watts, 1991).

As illustrated below, the historical and cultural complexities of race and ethnicity are typically not investigated in any real depth in the disaster literature (see Fothergill et al., 1999). Perhaps because of the exigencies of disaster research, there is an tendency to rely on commonsensical treatments of racial and ethnic categories rather using in-depth sociohistorical and ethnographic analyses of local racial and ethnic projects (e.g., Aptekar, 1994; Bolin & Bolton, 1986). Given the typical applied, pragmatic, policy focus of disaster research, it is not surprising that researchers do not engage extended theoretical discussions and qualitative unpacking of their key terms. However, to provide an empirically richer, more contextualized understanding of race and ethnicity requires explicit theorization of key concepts, as some researchers have begun to undertake (e.g., Peacock, Morrow, & Gladwin, 2001). The complex mechanisms by which certain ethnic (and racial, gendered, and classed) categories of people are disadvantaged in relation to hazardous environments will remain invisible as long as researchers are concerned with statistical *differences* between groups rather than the pervasive social *inequalities* that produce measured difference to begin with (Holifield, 2001).

CLASS AND POLITICAL ECONOMIC TRANSFORMATIONS

While an in-depth understanding of ethnicity may be more the domain of social anthropologists than sociologists (Oliver-Smith, 1996), the opposite holds for social class. Indeed, social class cuts across and is imbricated with all other demographic factors, as one is always class situated, whatever other determinants of social positionality may be simultaneously at work. Class theory, particularly in its Marxist and poststructuralist forms, is both complex and at the center of a variety of new theoretical developments (Gibson-Graham, Resnick, & Wolff, 2001). While there are a number of competing Marxist and Weberian approaches to class and economic positionality in capitalist political economies, here I use class as a trope for aspects of an agent's dynamic position in processes of economic and social production and reproduction. In Marxist terms, classes are elements of the social relationships of production, which include not only people's primary productive activities, but also patterns of ownership, the appropriation and distribution of surplus value, and the legal and cultural systems and practices that justify and reinforce existing class inequalities (Harvey, 1996a; Peet, 1998). In this sense, classes are processes that extend beyond the "economic" in any narrow and essentialist reading. As Glassman (2003, p. 685) writes, "... classes are always already constituted as economic, political, cultural, and ideological entities—including being gendered and racialized in specific ways ..."

It is common in the social sciences for people to be assigned class position based on a variety of indicators, including income, their position in the extraction of surplus value, occupation and education, ownership of means of production, and labor market position (Arvidson, 1999, p. 138). However, different meanings of class may produce different conclusions about class processes, pointing to the need to theoretically distinguish different class and nonclass indicators used in the course of research. Class processes are connected to a complex range of issues, from political and economic power and job security to modes of consumption, identity

formation, subjectivities, legal rights, and sociospatial processes (Bourdieu, 1984; Harvey, 1990). The latter include a range of issues from economic segregation to land uses and the distribution of hazards.

As with the other concepts discussed here, class processes and class compositions should be understood as historically constructed, overdetermined, contingent, and dynamic (Glassman, 2003). In the case of class, change can be pronounced as dominant regimes of accumulation shift with political economic crises and as localized class struggles crystallize over specific issues (Merrifield, 2000; Peet, 1998). It bears noting that in the United States class and race are often coupled, a historical effect of racially exclusionary practices in sectoral employment and the formation of industrial working classes in the United States. The exclusion of blacks from early labor unions (other than the International Workers of the World) helped establish a racialized (and gendered) labor hierarchy in which well paying skilled industrial jobs were reserved for whites while low paying service work was the province of blacks and Latinos. The pervasive effects of this segmentation and inequality remain today (McIntyre, 2002).

The structural instability of class position in the context of a crisis-prone capitalist system is perhaps most visible with the economic restructuring in the United States beginning in the 1970s. This restructuring led to the deindustrialization of the Midwest and Northeast beginning with post-Vietnam War economic crises and the subsequent emergence of an ascendant and hegemonic neoliberalism in the 1980s (Soja, 2000). This restructuring produced the "deproletarianization" of significant fractions of the industrial working class as jobs and factories were moved toward nonunion, low-wage sectors of the United States and to the global South (Harvey, 1996a, 1996b; Soja, 1989). Economic restructuring has been simultaneously accompanied by the growth of insecure low-wage, service sector employment, geographic shifts in employment opportunities, weakened trade unions, reshaped industrial and residential landscapes, and reduced real incomes for significant fractions of the working class (Davis, 1992; Harvey, 1990, 2001; Yates, 2005). These changes led to the decline of class-based social movements and the advent of "new social movements" focused on "fragmented group identities that have filled the class void in increasingly polarized urban spaces" (Arvidson, 1999, p. 136). The shift toward flexible accumulation strategies in the United States, coupled with "lean and mean" corporate restructuring, has likewise begun a historically unprecedented job and wage squeeze on the middle and working classes over the last two decades (Soja, 2000). And these pressures are disproportionately impacting people of color, where today in the United States more than 30% of black workers and 39% of Latino workers earn poverty wages or below (Yates, 2005).

With neoliberal economic policy being imposed on indebted Third World countries through the World Bank and the World Trade Organization, social inequalities and processes of marginalization are being intensified in the global South as well (Peet & Watts, 2004). The imposition of "free market discipline" through structural adjustment programs has a variety of impacts including growing income inequalities, increasing production for export rather than domestic consumption, reduced social welfare services, privatization of common property resources, the dispossession of peasants, and increased ecological disruptions (Klein, 2005; Robbins, 2004). It is also argued that these transformations increase vulnerability to hazards through environmental degradation, magnify losses from disasters, and increase recovery difficulties in the post-disaster period (Bankoff et al., 2003; Oliver-Smith, 1996). Class and the larger political economic relationships that shape class processes are a key, if neglected, part of understanding disaster. Class positionality connects closely with the types of resources people can use in crises and the types of social protections granted or denied, and it has a strong spatial dimension linked to occupation of hazardous areas (Arvidson, 1999; Wisner & Walker, 2005).

In sum, race, class, and ethnicity are theoretically complex signifiers of social processes that involve struggles over legal and political rights, access to resources and livelihoods, and the constitution of identities (e.g., Peluso & Watts, 2001). The combined effects of these factors are linked to sociospatial processes in disasters as shown in the research literature (Fothergill et al., 1999; Wisner et al., 2004). In the following sections, I provide an overview of how these concepts have been utilized in disaster and vulnerability research.

DISASTER RESEARCH FOCUSING ON RACE AND CLASS

Disaster research as an academic specialization was first developed in the United States in the aftermath of World War II. Its roots can be traced to the Strategic Bombing Surveys of World War II, conducted to understand the "morale" of civilian populations subjected to sustained military attacks (including the U.S. nuclear attacks on Japan) (Mitchell, 1990). This general interest carried over into the Cold War, during which research, funded by the military, was conducted on civilian disasters. A "sociological perspective" on disaster emerged in a series of studies funded by the Army Chemical Center and conducted by the National Opinion Research Center (NORC) at the University of Chicago (Drabek, 1986; Quarantelli, 1987a). After the NORC studies concluded in 1954, federal funding of disaster research continued through the Office of Civil Defense and ultimately led to the establishment of the Disaster Research Center (DRC) at Ohio State University in 1963 by sociologists Quarantelli and Dynes (Dynes & Drabek, 1994). The DRC (now at the University of Delaware) was the first of several disaster research centers in the United States, establishing the country as an early leader in disaster and hazards studies (Quarantelli, 1991a).

In keeping with dominant approaches in U.S. sociology in this period, disaster research in the 1950s and early 1960s paid minimal attention to victim diversity or social inequalities by race or class. Instead, studies focused on event characteristics and overall effects on a given community (e.g., Drabek, 1986; Form & Nosow, 1958). Although social inequalities were not directly investigated by any major studies in the 1950s, because of opportunistic nature of disaster research, some initial findings found their way into the published literature. An exemplar of this is Moore's *Tornadoes Over Texas* (1958), which includes findings on a limited number of blacks and Mexican Americans who turned up in his sample. Moore, for example, found that blacks had disproportionate losses from a tornado and consequently had greater need for external assistance to recover (as did the elderly in his sample). He also found that blacks had a higher injury rate than whites, a finding echoed in Bates, Fogleman, Parenton, Pittman, and Tracy (1963) that found that mortality was significantly higher among blacks than among whites after Hurricane Audrey. These are among the earliest findings suggesting that being black and poor in the United States was associated with disproportionate environmental risk, although such conclusions were not highlighted in the studies. Moore also observed some differences in the use of public shelters, noting that people at the "lower end of the socio-economic scale" were more likely to use public shelters than white-collar individuals (Mileti, Drabek, & Haas, 1975).

Clifford's (1956) study of two Texas–Mexico border towns evacuated for flooding offered some early observations about "ethnic" differences in evacuation behavior. According to Dynes (1972, pp. 236–237) Clifford's research "found that in the Mexican community, there was a greater dependence on the kin groups as sources of advice and help. There was a greater reluctance to accept 'official' warnings and aid." A study of a 1965 Denver, Colorado flood

(Drabek & Boggs, 1968, p. 447) found that "Spanish-American [sic] families will evacuate to the homes of relatives more frequently than Anglos." In neither case was there any direct consideration of the how social class and related political economic factors might account for these ostensible "ethnic" or cultural differences (cf. Yelvington, 1997). The interest in demographic differences in warning, emergency response, and evacuation behavior was strong in early disaster research (see Drabek, 1986 for a review), as was the impulse to generalize and systematize findings irrespective of their fragmentary nature (e.g., Barton, 1970).

It was not until the 1970s that the first studies on reconstruction and recovery were conducted, driven by new interest in demographic differences in disaster response. The expansion and theoretical elaboration of disaster research were abetted by the publication of the first major assessment of hazards and disaster research in the United States in the early 1970s, a work that brought together much of the sociological and geographical research available to that time (White & Haas, 1975). This work, under the leadership of the hazards geographer Gilbert White, helped establish an agenda for new hazards and disaster research that would appear over the next two decades (Mileti, 1999; White & Haas, 1975).

Part of the new agenda for hazards research of the 1970s included studies focusing on racial, ethnic, and socioeconomic differences in disaster response. However, a recent review notes ". . . existing studies on racial and ethnic differences cover such a wide spectrum of time, disaster event, place and racial group, that it is difficult to identify patterns and draw conclusions" (Fothergill et al., 1999, p. 157). Considerable variation in theoretical sophistication, diverse research methodologies, and study designs, as well as disciplinary differences, contribute to this lack of patterning. Since class, race, and ethnicity are concepts attempting to capture dynamic constantly changing phenomena, it should not be surprising that a variety of studies covering more than 30 years produce findings that are difficult to generalize from. Certainly studies since the 1970s offer a variety of practical insights into racial and ethnic differences in various aspects of disaster processes (e.g., Oliver-Smith & Hoffman, 1999; Peacock, Morrow, & Gladwin, 1997). Far less attention has been given to class and theorizing class-related phenomena in published disaster research. Most quantitative studies in the United States have not gone beyond measuring socioeconomic differences, usually restricted to income, in disaster responses, failing to explore class structures in the context of local political economies and the structuring of urban space (see Peacock et al., 1997 for an important exception).

Disaster recovery studies in the 1970s began to examine race, class, and ethnic differentials, marking a new direction in the research (Haas, Kates, & Bowden, 1977). Some of the first explicit discussions of class issues (concerned mostly with poverty) and race come in discussions of a catastrophic flood in South Dakota as part of the Haas et al. reconstruction study. Class (as socioeconomic status) and racial differences in access to assistance, victim experiences in temporary housing, and general recovery processes were discussed (Haas et al., 1977). A historical analysis of the 1906 San Francisco disaster, as part of the reconstruction research, highlighted the changing pattern of ethnic and racial segregation in the city as it was rebuilt, marking an important early example of historical geographic disaster research concerned with race and ethnicity. Coming out of this reconstruction research was a study comparing household recovery in Nicaragua and the United States that emphasized important class/socioeconomic and cultural/ethnic dimensions in accounting for different household recovery strategies (Bolin & Trainer, 1978).

In the 1980s new studies comparing ethnic/racial groups in disasters were undertaken by Perry and Mushkatel (1986) and by Turner, Nigg, and Paz (1980; see also Perry, 1987). Both studies found various statistical differences among Anglos, blacks, and Mexican Americans

regarding risk perception, disaster preparedness, and warning responses, differences attributed to ethnic characteristics of the subjects investigated. Perry and Mushkatel (1986) found ethnic minorities were less likely to evacuate in the face of warnings than their Anglo comparison group. This quantitative study did introduce statistical controls on income to discern direct or indirect "class" effects on reported ethnic/racial differences in response. Income measures are often the extent of class analysis in disaster studies of this period, leaving class-related factors largely untheorized and uninvestigated as a structuring factor in disaster response.

Another study at this time also explored racial and ethnic differences, focusing on long-term household recovery. Bolin and Bolton (1986) discussed race, ethnic, and class differences at disaster sites in Hawaii, California, and Texas, comparing across different hazard agents and racial and class mixes. Consistent with other more recent studies, they found that blacks were more likely to live in mobile homes provided as temporary housing by the federal government than were whites (in Texas). African Americans were also less likely to obtain adequate aid for their recovery needs from both house insurance and from the federal government (see also Bolin, 1986). Such observations reflect class differences which, in this setting, were tightly coupled with race. Bolin and Bolton also reported that at their California earthquake site, Latinos were less likely to receive adequate recovery assistance than Anglos and more likely to rely on kin groups for aid in coping. The Hawaiian site provided comparisons of Japanese, Filipino, and white victims. However, differences in ethnic groups appeared related to differences in initial damages rather than other factors. The authors did recognize the confounding effects that class inequalities had on assumed ethnic differences, noting the significance of poverty in disaster vulnerability and in inhibiting long-term recovery (Bolin & Bolton, 1986). These findings and others from 1980s studies would receive more in-depth investigation and elaboration in 1990s studies that provided more in-depth analysis of race and class processes in disaster.

It bears noting that many of these 1980s studies were explicitly quantitative and statistical, and included, for the time, relatively sophisticated attempts at statistical modeling. The primary limitation of cross-sectional survey research of this sort is that while race, class, and ethnic differences can be measured and their independent statistical effects can be controlled for, why those differentials exist, how they came about, and how they manifest themselves over time cannot be addressed. As discussed extensively in environmental justice studies, the focus on the relative statistical effects of race versus class obscures any understanding of the concrete ways that race and class are bound together and embodied in human subjects, structuring people's everyday lives, including where and how they live, and their particular ensembles of capacities and vulnerabilities (Downey, 1998; Holifield, 2001; Pulido, 1996; Szasz & Meuser, 1997).

More recent U.S. disaster literature focusing on race and class has been shaped by studies on California earthquakes and Hurricane Andrew in Florida. The 1987 Whittier Narrows earthquake and the 1989 Loma Prieta earthquake each became the focus of research on race/ethnic and class differences in various aspects of response. Bolton, Liebow, and Olson (1993), using detailed ethnographic research, provided an examination of how low-income Latinos, most housed in unstable unreinforced masonry buildings, coped with housing damage and displacement after the Whittier Narrows earthquake (in a suburb of Los Angeles.) That study detailed linguistic barriers Latinos experienced in trying to obtain housing information and in attempting to work through the federal aid system (see also Bolin, 1993a). While lacking the scope of earlier quantitative race studies (e.g., Perry & Mushkatel, 1986), Bolton and colleagues' ethnographic research provides a good example of a study providing numerous insights into how particular people (embodying race, class, age, and gender differences) experience and cope with disasters in specific contexts and settings.

The issue of language and other cultural and class barriers is an important theme in several 1990s disaster studies (e.g., Phillips, 1993). As with Whittier Narrows, the 1989 Loma Prieta earthquake in Northern California provided opportunities for researchers to examine specific race, class, and ethnic issues. Several Loma Prieta studies approached their research ethnographically, providing detailed descriptions of how vulnerable and marginalized groups coped with the aftermath of a destructive earthquake (Bolin & Stanford, 1991; Laird, 1991; Phillips, 1993; Schulte, 1991). Each of these studies investigated processes of political, social, and cultural marginalization that systematically disadvantaged African Americans and Mexican Americans in a variety of ways, from housing assistance to political representation. These studies documented how federal assistance programs consistently failed to meet the needs of the homeless, Latino farm workers, and low-income African Americans.

Several studies also discussed political mobilizations by Latino farm workers challenging the Anglo power structure in Watsonville in the wake of the earthquake (Bolin & Stanford, 1991). Class and race-based mobilizations and the protracted conflict that ensued catalyzed Latinos politically, leading to new class and ethnic coalitions opposing a historic Anglo hegemony in Watsonville, and prompting the development of new earthquake assistance programs (Bolin, 1994; Schulte, 1991). This research highlighted the importance of grass-roots movements working with community-based organizations (CBOs) to address local disaster needs (see Laird, 1991; Phillips, 1993). In reference to the earlier theoretical discussion, these studies illustrated the specific ways that class, race, and ethnicity articulate in specific ways in actual disaster processes, something that conventional quantitative survey studies generally do not.

What I take as a leading example of recent research on race and class, providing both quantitative scope and ethnographic depth, focused on Hurricane Andrew (1992) in the Miami, Florida metro region. This research provided a theoretically informed discussion of race, class, gender, and poverty dynamics, explored in a series of case studies (Peacock et al., 1997). Consistent with vulnerability studies described later, Grenier and Morrow (1997) offered a historical overview of the development of the Miami urban region to show how processes of political and economic marginalization were creating at-risk people and communities, especially between Caribbean immigrant groups and African Americans (see also Peacock et al., 2001). Although not using the explicit language of racial formations and racial projects, the Hurricane Andrew volume stands as one of a few U.S. disaster studies that has examined racial projects in the context of vulnerability and disaster.

Throughout the Hurricane Andrew case studies, the authors highlight how race, ethnicity, and class inequalities shaped people's experiences, from impact related losses to access to assistance, inequities in insurance settlements, the effects of pre- and post-disaster racial segregation, and the calamitous effects of disaster on an already marginalized and impoverished black community (Dash, Morrow, & Peacock, 1997; Girard & Peacock, 1997; Peacock & Girard, 1997; Yelvington, 1997). Each of these studies documents how already existing social conditions in greater Miami shaped the contours of disaster and the ways that marginalized populations variously endured continuing or increased disadvantages in the recovery process (see Dash et al., 1997). However, the research also demonstrates that race or ethnicity by itself is not an adequate explanatory element: What matters is how these factors (and immigration status, gender, and age) intersect in spatially specific ways to shape a person's class locations and his or her access to social and economic resources (e.g., Yelvington, 1997). That is, race, ethnicity, and other "identity" factors are intertwined with class processes and the privileges or disadvantages that flow from these converge to shape a person's vulnerability to hazard events.

Overall, race and ethnicity have received more attention in the U.S. literature than have social class processes in disaster. Apart from the Hurricane Andrew research, there is little

in the U.S. literature that provides a detailed spatially and historically informed analysis of race and class in disaster. This is an area in the disaster literature where there is clearly a need for more place-specific, historically informed case studies. Until the 1990s, quantitative differences among ethnic or racial groups were the primary interest in the literature on race and ethnicity, the not inequalities or the discriminatory practices that produce those inequalities. There is a need in disaster studies to go beyond the too often superficial discussion of race as a mere nominal variable, and to examine it as a pervasive structuring feature linked to a wide variety of sociospatial processes (e.g., Peacock et al., 1997). Class factors also require greater attention and more adequate theoretical work to move beyond reducing them to a relative income measure. The question of poverty has received more attention than other aspects of class in the research, but it appears almost exclusively as an issue of inadequate income, not a condition actively structured by multiscalar political economic processes (see Arvidson, 1999). Historically and spatially informed research such as Peacock and colleagues' (1997) work should serve as a model for studies that combine qualitative and quantitative techniques to examine the ways that class, race, and ethnicity shape vulnerability and disaster.

RACE, CLASS, AND VULNERABILITY

While the work of Peacock et al. (1997) is, by self-description, situated within a "sociology of disaster" framework, it is also one of the few U.S. studies that addresses issues central to vulnerability analysis (see also Kroll-Smith & Couch, 1991). Peacock and his colleagues explicitly situate the disaster in the context of historical, spatial, and political economic processes in urban space, and focus on the particular ways social inequalities develop and shape people's vulnerabilities to disaster. While vulnerability analysis is treated as separate body of research here, I emphasize that the research on Hurricane Andrew marks a potential convergence between prevailing U.S. approaches and those explicated by Hewitt (1983a, 1983b, 1997) and more recently Wisner et al. (2004). Until recently, the majority of vulnerability studies have focused on disasters in the global South (see Blaikie et al., 1994 and Wisner et al., 2004 for reviews). Generally, this research has adopted a critical, sometimes Marxist, analysis of Third World development projects in generating hazard vulnerabilities and environmental degradation. This general approach draws off political ecology (Robbins, 2004) rather than sociology, as many of the U.S. studies cited in the preceding text do.

Vulnerability analysis, dating to its classic statement by Hewitt and others in 1983, distanced itself from the "dominant approach" to disaster and has engaged in an extended critique of conventional disaster research and management (e.g., Hewitt, 1997; Susman, O'Keefe, & Wisner, 1983a; Watts, 1983). That critique and a series of critical exchanges since have produced a lively, if not always productive, debate among disaster researchers of different theoretical and political positions (e.g., Hewitt, 1997; Quarantelli, 1995c; Wisner et al., 2004). Recent vulnerability analysis is discussed in *At Risk* (Wisner et al., 2004), which offers an extensive hazard-specific review of research. In general terms, the research examines political economic and spatial processes of marginalization that not only produce or intensify poverty, but that also, in given instances, constrain certain portions of a given population (often by class, race, caste, or ethnicity) to occupy hazardous areas and hazardous structures. Prime examples can be seen in the proliferation of unsafe, unplanned, and impoverished squatter settlements in many of the world's major urban centers (Davis, 2005).

Wisner et al. (2004) provide a detailed discussion of vulnerabilities across a range of hazards under a variety of specific spatiotemporal conditions. At the core of their analysis is a

process model of vulnerability accumulation and the production of differential environmental risks. Specifically, hazard vulnerability is understood as a process comprising three linked elements: root causes, dynamic pressures, and unsafe conditions. The underlying causes refer to the general historical, political, economic, environmental, and demographic factors that produce unequal distributions of resources among people, by a variety of positional factors, including race and class. These processes produce environmental vulnerability through specific social processes, including, for example, rapid urbanization, environmental degradation, economic crises, political conflict, and poorly planned and executed development programs (Peet & Watts, 2004). These processes generate unequal exposure to environmental risk by creating "unsafe conditions" in which people live and work. Unsafe conditions may involve both spatial location and characteristics of the built environment, but they also include fragile livelihoods, inadequate incomes, legal and political inequities (often by race, ethnicity, and gender), and a lack of social protections offered by the state (Bolin & Stanford, 1999; Cannon, 1994).

The anthropologist Oliver-Smith has been an important contributor to this literature, offering historically and ecologically informed, ethnographical research on Latin American disasters (e.g., Oliver-Smith, 1986; Oliver-Smith & Hoffman, 1999). Recent anthropological research examines vulnerability and disaster in the context of colonialism, underdevelopment, and increasingly severe environmental degradation (Johnston, 1994; Oliver-Smith, 1996, 1999a; Peluso & Watts, 2001). Much of Oliver-Smith's work has involved detailed analysis of a devastating earthquake and mudslides in Peru in 1970, generally considered to be the worst disaster in the Western hemisphere (Oliver-Smith, 1986). In his political ecology of disaster, he considers the Peruvian disaster to be five centuries in the making, a combined effect of colonially imposed building and settlement patterns and economic policies that marginalized Indians and peasants, engendering a chronic rural poverty that survived and expanded into the postcolonial period. Oliver-Smith (1994) shows that it was not simply bad judgment or "bounded rationality" that led people to occupy unsafe ground and pursue marginal livelihoods (cf. Burton, Kates, & White, 1993). Rather, he argues that the cumulative and constraining effects of underdevelopment, chronic poverty, and racial/ethnic marginalization, all part of a legacy of colonialism and antidemocratic development programs, were determining factors in people's vulnerability to earthquakes (Oliver-Smith, 1999b).

The geographer Maskrey's (1994) account of the 1990 Alto Mayo earthquake in Peru provides a second example of vulnerability research that considers class and cultural/ethnic marginalization, set in a broad historical geography of a farming district in the interior. He shows how a moderate earthquake produced a broad-scale disaster, occurring as it did in a region going through protracted political, ecological, and economic crises—products of short-sighted development programs—and an ascendant neoliberal economic policy. Peru's crushing international debt, hyperinflation, and deteriorating infrastructure ensured the failure of its new export agricultural economy, producing in turn a deepening economic crisis in the interior region of Alto Mayo in the 1980s. The pauperization of small-scale farmers as result of failed export programs led them to shift to coca production in order to survive, which in turn accelerated environmental degradation through deforestation (Maskrey, 1994). With growing poverty, increasing marginalization of peasants, and a lack of state support, the region was in the midst of a protracted economic and ecological crisis when a moderate earthquake hit, destroying fragile adobe homes, displacing people, and intensifying the ongoing crises. Maskrey offers a critical assessment of the top-down, technocratic approach to disaster response and reconstruction by the state and international NGOs in the temblor's aftermath. He notes the many failures of programs initiated by NGOs and the state can be attributed

to inadequate incorporation of local knowledge and the lack of democratic participation in recovery. Maskrey's focus on processes of marginalization, particularly of low-income farmers in the region, shows how failed development programs, under the guise of "modernization," produced poverty and increasing hazard vulnerability (see Peet & Watts, 2004; Robbins, 2004).

Historically and geographically informed disaster research of the type just described is relatively rare in U.S. disaster research (cf. Fothergill et al., 1999; Mileti, 1999). At the risk of calling attention to my own research, a colleague and I developed a vulnerability analysis of the 1994 Northridge earthquake. That study was specifically developed from Blaikie, Cannon, Davis, and Wisner's (1994) vulnerability approach (see Bolin with Stanford, 1998; Bolin & Stanford, 1999). In that research, we reviewed century-long processes of sociospatial marginalization by race, ethnicity, and class in the Los Angeles urban region. We adapted a vulnerability approach to conditions encountered in an urbanized and ostensibly wealthy area of the United States. We noted, in contrast to Third World studies, that populations marginalized by class and race in the United States were not necessarily driven to live in areas with the most natural hazards, however much they were otherwise spatially segregated along class and race lines. Rather Bolin and Stanford (1999) argued that vulnerability in the United States related most closely to people's capacities to either avoid or cope with hazard losses, capacities influenced by access to recovery assistance and other social protections linked to class privilege.

The research draws a distinction between availability of and access to assistance, the latter often determined by class, race, legal, and cultural factors. While a broad range of federal resources were made available after Northridge, those most in need of assistance often could not access those resources because of qualification requirements (Bolin & Stanford, 1998a). Federal housing assistance programs were criticized for their class biases. Programs provided far less (or no) assistance to renters, the unemployed, and the homeless while they provided the most generous aid to middle-class employed homeowners (Bolin & Stanford, 1998). These critiques were developed through a series of case studies of impacted communities near Los Angeles, to show in each instance how hazard vulnerability accumulated between certain class fractions and racial groups based on specific historical and sociospatial processes. Those vulnerabilities were often highlighted by inadequate post-earthquake recovery programs that only intensified existing inequalities (Bolin & Stanford, 1999; see also Peacock et al., 2001). The Northridge research also highlighted the importance of political vulnerabilities in the United States, specifically as they related to the question of "illegal" immigrants and their access to post-disaster resources. Our study found that, with the threat of deportation a constant feature of daily life, undocumented low-income Mexicans faced the challenges of recovery without assistance while living under the political risks of discovery and deportation (Bolin & Stanford, 1998). One element in the Northridge work examined the historical and current class, racial, and ethnic conflict involving Mexican American farm workers in Ventura County pitted against an entrenched Anglo power structure. These conflicts were expressed in a series of contestations over whether new affordable housing would be built to accommodate the area's large low-income Latino population (Bolin & Stanford, 1999). It was argued that these class and ethnic conflicts could not be understood without also understanding the history and political ecology of farming and farm workers in the U.S. Southwest (Bolin & Stanford, 1999).

While Latino farm workers were characterized as a chronically vulnerable population, we also noted that situational vulnerability may affect class fractions not "normally" considered vulnerable in the literature (Bolin with Stanford, 1998). An example of this involved small numbers of middle-class homeowners in Los Angeles, recently unemployed as a result of

retrenchment in the aerospace industry. Unemployed middle-class homeowners, with large mortgages on houses that had slipped in resale value, found themselves in an uncharacteristic position of severe economic insecurity following losses incurred in the earthquake. These earthquake victims were unable to qualify for Small Business Administration disaster housing loans because of their unemployment, while simultaneously also needing to pay mortgages on homes with negative equity (Bolin with Stanford, 1998: see also Tierney, 1997). Bankruptcies followed and houses were repossessed. While such cases were few in number in Northridge, it points to caution necessary in making blanket assertions about risk and vulnerability by race and class.

In sum, vulnerability research emphasizes political economic inequalities and processes of racial and ethnic marginalization in relation to risks from environmental hazards. It also stresses the importance of historical political economic factors in the production of inequalities and their links to land use patterns (Oliver-Smith, 1996). It contrasts with mainstream disaster research that has developed a view of disasters as acute events, concentrated in space and time, that engender "unique" social processes different from those found in the pre-disaster setting (Kreps, 1995). The evidence from vulnerability studies is that disasters are produced and shaped by normal operations and material expressions of politics and economics in a place and thus have to be understood in that context. The central focus of the approach on the dynamics of race, ethnicity, and class/economic inequalities has an affinity with approaches used in the environmental justice literature, and I turn to that topic in the conclusion.

RACE, CLASS, AND ENVIRONMENTAL JUSTICE

There is a notable lack of connection between the sociological literature on disasters and burgeoning sociological and geographic research on environmental equity or environmental justice (Fothergill et al., 1999). In this concluding section, I highlight some salient features of the environmental justice literature to suggest ways in which its general approach could be used to strengthen disaster research in the area of race, class, and ethnic inequalities.

The environmental justice literature examines inequalities by race and class in the exposure to technological hazards across a range of spatial and temporal scales. The environmental justice literature, by the very nature of its subject matter, places the subjects of this chapter—race, class, and ethnicity—at the center of its theoretical and empirical concerns (e.g., Boone & Modarres, 1999; Hurley, 1995; Pellow, 2000; Pulido, 1996, 2000). This focus is consonant with political ecological theory and the core of vulnerability analysis, providing important conceptual and research linkages (e.g., Robbins, 2004; Wisner & Walker, 2005). I contend that disaster sociology, in particular, could be broadened and enhanced by more fully engaging environmental justice theoretical and methodological issues. While U.S. disaster sociology clearly can stand alone as a well developed and self-contained specialty, it is not well connected to other realms of socioenvironmental research. The fact that disaster research receives scant mention in recent environmental sociology or political ecology texts can be read as a sign of its lack of recognition or integration in socioenvironmental studies (e.g., Bell, 2004; King & McCarthy, 2005; Robbins, 2004).

While disaster research, almost by definition, has used a temporally bracketed "extreme event" focus (e.g., Quarantelli, 1994), environmental justice research examines the hazards of everyday life at a variety of spatiotemporal scales (e.g., Cutter, 1995b; Tiefenbacher & Hagelman, 1999). At the core of environmental justice is a concern with distributions of hazards and other unwanted land uses, the race and class composition of proximate and distal

populations, and the processes that produce landscapes of differential risk. This contrasts with the problematic of disaster research, which with a few important exceptions, seldom targets race and class inequalities in disaster processes. Environmental justice research has devoted significant attention to the question of environmental racism, a discussion that has provided detailed, historically informed analyses of class and race in the production of urban spaces (see Bullard, 1994; Pellow, Weinberg, & Schnaiberg, 2005).

Research on race, class, and environmental risk dates back to what are now considered canonical studies in environmental justice, Bullard's *Dumping in Dixie* (1990) and the United Church of Christ's (UCC's) 1987 report on race and hazardous waste sites in the United States (UCC, 1987). Both studies put class and racially defined minorities at the center of research on environmental risk inequities, focusing on the disproportionate exposure of people of color and the poor to hazardous waste sites. In revealing race-based environmental discrimination, these studies invoked civil rights and social justice issues, and highlighted the pervasiveness of environmental injustices. The UCC studies have since been followed by a large number of sociospatial studies on technological hazards in relation to demographically diverse populations. These studies have developed both in theoretical and methodological sophistication, now drawing off the latest in Geographic Information Systems (GIS) technologies as well as employing innovative methods to assess risks and spatially determine their distributions in relation to vulnerable populations (Cutter, Hodgson, & Dow, 2001).

While a variety of methodologies are employed in this literature that could be adapted to disaster research to understand pre-disaster vulnerabilities and post-disaster processes, I briefly discuss historical environmental justice research as a case in point. Historical equity studies provide in-depth, spatially attuned studies of how racial and class inequalities in hazard exposure develop as an intrinsic part of processes of urbanization and industrialization (e.g., Boone & Modarres, 1999; Hurley, 1995; Szasz & Meuser, 2000). In these historic geographic studies, race and class are dealt with not simply as demographic categories, but as structuring factors in the production of urban space and land uses. These studies probe the historical sources of environmental discrimination through processes of marginalization linked to political–economic processes and other exclusionary practices (Holifield, 2001). Marginalization takes a variety of sociospatially specific forms documented in the research. These may include a wide range of phenomena such as residential sequestration in dilapidated housing and tenements, living in environmentally degraded and hazardous regions, having limited income earning and educational opportunities, persistent discriminatory land use practices, and the penetration of industrial land uses in residential areas (e.g., Pellow, 2000; Szasz & Meuser, 2000). The consequences of these processes are inequalities in access to opportunities and in exposure to hazards, phenomena also at the core of vulnerability analysis of disasters (Varley, 1994a).

Pulido's discussion of the development of environmental injustice in Los Angeles provides an exemplar of a historical geography of race, class, and the production of an urban hazardscape (Pulido, 2000; Pulido, Sidawi, & Vos, 1996). In explaining how landscapes of environmental injustice developed over the course of a century, Pulido (2000, p. 15) advances the concept of "white privilege." In her usage, white privilege denotes a hegemonic form of racism, deeply embedded in ideologies, institutions, and practices, that produces an ensemble of social, political, and economic advantages for Anglos across time and space. In the Pulido research, it manifests itself in whites' abilities to historically control the locations of hazardous industries and waste sites, while being able to avoid the most hazardous and polluted areas of Los Angeles. A variety of mechanisms have been used over the course of a century to construct

such inequities, from race-based residential segregation to zoning decisions, bank redlining, and disinvestment in low-income minority neighbors (Pulido, 2000; see also Davis, 1992). Conceptually, it calls attention to the persistence of unequal power relationships of different racial groupings in urban space and the ways that "whiteness" has conferred economic and social benefits to those so identified.

Applied to hazards research in general, historical environmental justice studies illustrate the value of tracing the development of urban hazardscapes and comparative analyses of populations facing the greatest risks with those who are able to avoid them through residential, employment, and land-use decisions. It entails a detailed examination of the political economic mechanisms by which specific environmental inequalities develop and change over time (Szasz & Meuser, 2000). Thus, the growth of white suburbia can be understood as a spatial expression of white privilege, one that has inexorably shifted both environmental and economic burdens onto those who remain in decaying central cities (Bolin, Grineski, & Collins, forthcoming; Bullard, Johnson, & Torres, 2000). Historical environmental justice research directly investigates the development of specific racial projects (Omi & Winant, 1994) by examining how racial categories are instantiated in and shape political economies and urban spaces over time.

I have called attention to both vulnerability analysis and environmental justice research in this chapter to highlight areas where I would judge disaster research to be weak. Much of the disaster literature reviewed in the preceding text fails to provide information on the historical development of the places where disasters occur, likely a by-product of a temporally limited event focus. It also tends to neglect theoretical issues of race or class formation or their specific spatial expressions. As a consequence, few available U.S. studies examine the ways that historical inequalities may affect the unfolding of disasters in particular places (see Kroll-Smith & Couch, 1991 and Peacock et al., 2001 for exceptions).

LOOKING FORWARD

To enrich future disaster research, a better grounding in the historical geographic development of class and race relations in particular places is necessary. This should be combined with more attention given to theoretical issues regarding race and class processes and to spatial analysis of patterns of segregation. Environmental justice research and vulnerability studies both provide models for such analyses that could be incorporated into the ensemble of methodologies already deployed by disaster sociologists (e.g., Morrow, 1999). The regional catastrophe that emerged in the aftermath of 2005's Hurricane Katrina provides researchers with a mandate to attend to the complex historical and political ecological factors that have shaped race and class relations and produced the landscapes of risk so clearly and tragically revealed in the disaster.

With disasters growing in number and severity, often combined with long-term environmental degradation, technological failures, anthropogenic climate change, racial and ethnic conflicts, and growing class inequalities, the shared interests of disaster research, vulnerability studies, and environmental justice research appear clear (Oliver-Smith & Hoffman, 1999; Robbins, 2004). The increased use of political–ecological theory, spatial analysis, and studies of racial formation and class inequalities would strengthen disaster research by providing a spatially and historically informed understanding of the conditions that shape the severity and consequences of disaster. It would also help connect disaster research with a larger intellectual community in environmental sociology, environmental justice studies, and political ecology.

Enhanced understandings of race and class in disasters require more attention to social theory and to a research approach that situates disasters in the context of historical geography and political economy of places and regions. In-depth, interdisciplinary case studies spanning disaster sociology, political ecology and environmental justice research would provide the necessary theoretical and methodological tools to investigate the intersections of social inequalities, hazards, and the production of space. Lastly, new research will require a willingness to critically investigate social inequalities and the social and environmental policies that put people and places at risk.