

Social Inequality, Hazards, and Disasters

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Social science research on disasters began in the early twentieth century with the publication of Samuel Henry Prince's sociology doctoral dissertation on the 1917 Halifax explosion (Prince 1920). However, disaster research did not begin to coalesce as a field until pioneering research was carried out by the National Academy of Sciences and the National Opinion Research Center in the early 1950s, as research teams were sent into the field to collect data on individual, group, and organizational responses to disasters (see Fritz and Marks 1954). The Disaster Research Center, established in 1963 at the Ohio State University and now located at the University of Delaware, continued the practice of conducting "quick-response" studies following major disasters, with an emphasis on organizational and community response. Over subsequent decades, other research centers were established both nationally and internationally. The terrorist attacks of September 11, 2001 generated additional interest in disaster research, as questions were raised concerning a range of topics, including behavioral, psychological, and social-psychological responses to terrorism.

Classic sociological research on disasters emphasized the pro-social and adaptive dimensions of disaster-related behavior. Studies consistently documented such patterns as widespread helping behavior among community residents, the emergence of new groups focusing on victim and community needs, increases in social cohesion, the convergence of volunteers and material resources into disaster areas, and the suspension of community conflicts as community residents and public and private-sector organizations put aside their pre-disaster agendas in the interest of overcoming disaster-induced challenges. Disasters were framed in the literature as "consensus" crises and contrasted with "conflict" crises such as riots. Outcomes following disasters include the emergence of "therapeutic communities" that support victims and maintain high community morale. Therapeutic communities help to cushion the negative psychological consequences of disasters, and as a result, negative psycho-social

reactions tend to be short-lived following disasters (see Fritz 1961; Barton 1969; Dynes 1970; Stallings and Quarantelli 1985; Drabek 1986).

Ongoing research on disasters provides additional support for these earlier empirical findings. At the same time, it has become increasingly evident that earlier consensus-oriented perspectives paid insufficient attention to the diverse ways in which individuals, groups, and communities experience disasters. In contrast with classic studies, newer research has emphasized those diverse experiences. Research has also shown how disaster-related experiences are shaped in important ways by the same dimensions of stratification and inequality that influence people's lives during non-disaster times. Disaster scholarship now recognizes that factors such as wealth and poverty, race and ethnicity, gender and age influence vulnerability to hazards, disaster victimization, and disaster recovery outcomes (Blaikie et al. 1994; Peacock, Morrow, and Gladwin 1997; Bolin and Stanford 1998; Fothergill 1998).

As a consequence of these developments, disasters are no longer seen as producing common or typical challenges for at-risk populations. While morale and cohesiveness may undoubtedly be high within some groups within a disaster-stricken community, other groups may be excluded. Post-disaster experiences that are therapeutic for some may be corrosive for others. Some groups may be able to return to their pre-disaster status with relatively difficulty, while others may never fully recover. And to a greater degree than has been recognized before, disasters may become arenas not only for consensus-based social action but also for contentious intergroup interactions. Measures taken to deal with disasters may be welcomed by some groups but denounced by others. Relief programs may benefit some within the population while disadvantaging others.

Research also shows that groups are differentially vulnerable and also differentially resilient in the face of disasters, depending upon their position in the stratification system. The sections that follow discuss recent advances in the study of the social factors that affect disaster vulnerability and that contribute to resilience in the face of disasters. Using examples from both Hurricane Katrina and other U.S. disasters, these discussions illustrate how large-scale social trends, structural forces, and group characteristics influence preparedness for, responses to, and recovery from disasters. A key point made in these discussions is that while Hurricane Katrina revealed the devastating consequences of social inequality more vividly than any recent U.S. disaster, Katrina has a great deal in common with other disasters the nation has experienced. One implication of these findings is that diverse patterns of vulnerability and resilience must be taken into consideration both in programs that provide disaster aid and in overall planning frameworks for disaster loss reduction.

Inequality, Vulnerability, and Resilience

Disasters have long been recognized as arising from the juxtaposition of physical events or disaster agents, vulnerable natural and built environments, and vulnerable populations. This way of conceptualizing disasters was originally articulated by geographer Gilbert White and his collaborators. Their work emphasized the importance of understanding how those three systems—physical, infrastructural, and social—produce the potential for harm and damage within specific geographic and social contexts. It also sought to elucidate factors affecting human “adjustments” to hazards, which consist of protective actions and decisions that are carried out (or, quite often, not carried out) to protect societies and communities from disaster losses. Adjustments include a range of activities, including outright avoidance of hazardous places, land-use measures, protective public works such as levees, hazard-resistant building codes, disaster planning and preparedness, and evacuation under threat conditions (Burton, Kates, and White 1978, 1993). This line of research also recognized that both knowledge about potential adjustments and the ability to carry out such measures are socially structured.

More recently, a new multidisciplinary approach to hazards and disasters, known as vulnerability science, has begun to systematically explore disaster vulnerability as a function of both physical place and social conditions that expose some social groups to the potential for greater harm and that limit their ability to cope when disasters strike. Vulnerability science seeks to explore the various dimensions of physical and social vulnerability as well as the societal, political, and economic forces that expose people and places to potential loss. The vulnerability science perspective is equally concerned with analyzing factors that help make different social units (such as households, businesses, communities) more resilient—that is, able to avoid and withstand disaster impacts and capable of rapidly recovering from whatever events they experience.

The influential book *At Risk: Natural Hazards, People's Vulnerability, and Disasters* (Blaikie et al. 1994), which looked at disasters and their impacts in a global context, laid out a framework for conceptualizing vulnerability as rooted in unsustainable development practices, social conditions and trends that diminish the coping capacity of at-risk populations, and extreme events that act as catalysts, producing casualties, physical damage, and other types of losses. Within this perspective, geologic, atmospheric, and other types of physical events are seen only as “triggers” that must be distinguished from the root causes of disasters, which are social, political, and economic. The key to understanding disaster impacts and outcomes thus lies in the ability to recognize how long-term, macro-level trends and everyday life conditions set the stage for disaster events.

Recent contributions to vulnerability science include the work of geographer Susan Cutter and her collaborators. Using the techniques of spatial social science, database development, and quantitative data analysis, Cutter and others have developed a variety of methods for assessing and modeling social vulnerability and disaster-related losses. Their social vulnerability indices make it possible to compare place-based and group vulnerabilities across U.S. communities and over time. Additionally, new methodologies that integrate population characteristics, hazard vulnerability, and locational data enable both researchers and practitioners to identify factors that contribute most to vulnerability within specific community contexts (Cutter, 2001).

Employing the vulnerability science framework, Cutter (2005) recently linked the Hurricane Katrina catastrophe to several factors. With respect to physical vulnerability, New Orleans was a large urban area, located below sea level and surrounded by water. Faith in the ability of technology to conquer nature led to the development of a complex system of levees and other public works, while an extensive pumping system was also developed to keep the city dry. Both the levees and the pumps failed during Hurricane Katrina.

With respect to social trends, the movement of African Americans from rural areas to the city during the twentieth century was followed by the flight of white and middle class residents from the city to the suburbs. Demographically, New Orleans became a majority black, poor city with few employment and educational opportunities. Both the infrastructure and the housing stock in the city were substandard. The city's population came increasingly to be made up of what social scientists and emergency management professionals refer to as "special populations," including residents who were very poor, elderly, disabled, and otherwise unable to function well on their own. Such groups typically lack the ability to evacuate cities without substantial assistance—assistance they did not receive during Hurricane Katrina, with tragic results. They also require specially tailored forms of support during disasters, such as emergency and temporary shelter arrangements capable of addressing their medical needs. Again, no such provisions were made during Katrina for those types of supportive services. Nor was assistance available for ill and disabled hospitalized and institutionalized disaster victims.

Cutter observes that the roots of social vulnerability and resilience are complex, encompassing (2005) "the basic provision of health care, the livability of places, overall indicators of quality of life, and accessibility to lifelines (goods, services, and emergency response personnel), capital, and political representation." By these standards, large segments of the population of New Orleans were indeed highly vulnerable, both on an everyday basis and with respect to extreme events. The magnitude of the hurricane,

the city's precarious geographical location, and social conditions that rendered many residents incapable of helping themselves, and the unbelievably incompetent governmental response combined to produce the worst natural disaster in U.S. history.¹

Knowing that social inequities are correlated with disaster vulnerability is not the same as being able to explain causal linkages and processes that shape vulnerability. The section that follows will focus on how and why social inequality translates into vulnerability for subpopulations within the U.S., as well as how broader social circumstances either enhance or undermine social resilience. Discussions will incorporate examples from the Katrina disaster, but will also focus on other recent U.S. disasters, again making the point that the same patterns of vulnerability and victimization that have been documented following Katrina were also found in other disaster events. Three dimensions of social inequality—social class, race and ethnicity, and gender—will be discussed separately. However, discussions will also stress that these axes of stratification intersect and interact with one another, and in turn produce a variety of impacts on life-safety, economic well-being, and other disaster-related experiences.

Axes of Inequality and Their Effects on At-Risk Populations

Social class position is perhaps the most obvious contributor to disaster vulnerability and resilience. Just as higher socioeconomic status confers benefits during non-disaster times, dimensions of social class, including education and income, affect the ability to engage in self-protective activities across all phases in the hazard cycle. Educational achievements and literacy competence influence access to information on disaster risks and risk-reduction measures. Social class influences media use, which in turn helps structure what people learn about both the scientific and social dimensions of hazards. Home ownership, which is positively associated with socio-economic status, is also associated with the willingness and ability to undertake actions oriented toward property protection, but the poor cannot afford to own their own homes. In contrast with homeowners, renters are dependent on their landlords to carry out activities that can reduce disaster vulnerability, such as making routine repairs and improvements, complying with building and safety codes, and carrying out specific disaster loss-reduction measures. Since undertaking such actions costs money, landlords will generally not do so voluntarily. For example, many of the units that are available to low-income renters in Los Angeles are located in older unreinforced masonry buildings that present a life-safety hazard in earthquakes. To ensure the passage of legislation to structurally retrofit these highly hazardous buildings, seismic safety advocates had to fight for many years to overcome organized opposition by landlords who

wanted to avoid the costs associated with building retrofits (Alesch and Petak 1986).

After disasters strike, renters are also dependent on the willingness and ability of landlords to rebuild and repair their rental properties. Following the 1994 Northridge earthquake, for example, many apartment complexes became vacant and blighted “ghost towns” because owners lacked the wherewithal to repair their buildings (Stallings 1996). Renters were given temporary rental assistance but were left to fend for themselves when that assistance ran out. Fortunately, vacancy rates in Los Angeles were relatively high in 1994, so rental units were available. That may not be the case when the next disaster strikes another large U.S. city.

Social class factors influence disaster vulnerability in a variety of other ways. The lack of affordable housing in U.S. metropolitan areas forces the poor to live in substandard housing that is often located in physically vulnerable areas and also to live in overcrowded housing conditions. Manufactured housing may be the only viable housing option for people with limited resources, but mobile homes can become death traps during hurricanes and tornadoes. The vulnerability of manufactured housing has become even more evident during the last two hurricane seasons in Florida. At a more general level, the risk of death, injury, and homelessness that low-income Americans face is connected to U.S. housing policies affecting the poor (Comerio 1998).

Many people with disabilities have difficulty carrying out self-protective actions during and following disasters. Rates of disability are higher for the poor than for their better-off counterparts. A study conducted during the 1980s in Los Angeles showed that disabled persons lived disproportionately in older unreinforced housing units (mainly apartment buildings) that lacked earthquake resistance (Tierney, Petak, and Hahn 1986). Many of those who are least able to care for themselves are doubly vulnerable when they live in unsafe structures.

Those who lack disposable income cannot upgrade vulnerable housing and undertake other recommended loss-reduction measures, such as stockpiling food and supplies for use during disasters. Inability to afford the expenses associated with car ownership causes low-income community residents to rely on public transportation. However, community evacuation plans generally assume that residents have access to private automobiles. In New Orleans, for example, it was recognized that approximately 300,000 residents would not be able to evacuate on their own in a timely manner under the threat of a hurricane. Instead, they were dependent upon governmental capacity to bring in vehicles (and drivers) to assist with evacuation—capacity that was nonexistent in Hurricane Katrina.

Disaster evacuation scenarios are also based on other assumptions, such as the idea that in addition to having their own transportation, house-

holds also have the financial resources to leave endangered communities when ordered to do so. This is definitely not the case for the poor. Hourly workers risk losing income if they fail to show up for their jobs, whereas middle- and upper-middle-class employees can typically expect to continue to be paid if they are forced to evacuate. While the public may have an abstract understanding of what it means to earn little money and to live from paycheck to paycheck, there seems to be a lack of awareness of what that means in the context of disasters—for example, that many poor households across the country are not in a position to afford to evacuate under disaster conditions. Striking the Gulf Region on August 29, Hurricane Katrina occurred at a time when many households living from paycheck to paycheck may well have had absolutely no resources that they could expend on bus fares—even if buses had been available—or hotel rooms. Higher-income residents of areas threatened by Katrina could afford enough high-priced gas to travel drive hundreds of miles to escape the storm if necessary, but the poor could not.

Affluence offers other levels of protection from disaster impacts that are not available to the poor. Home ownership makes it possible to purchase hazard insurance and also to access a wider range of disaster assistance programs. Salaried employees are typically able to take time off work to focus on coping with and recovering from disasters without losing their incomes. Social and cultural capital constitute resources that facilitate disaster coping and recovery. Well-off disaster victims typically have skills that the poor lack, such as knowing how to access resources and navigate bureaucratic requirements successfully. Better-off disaster victims are also more likely to have direct access to governmental and disaster assistance programs and more likely to have their concerns addressed. This greater ability to access diverse sources of aid and official program guidance following disasters is merely an extension of the privileges members of the middle and upper-middles classes enjoy during non-disaster times.

Judgments concerning who constitutes a “deserving” disaster victim are also shaped by social class factors. The poor are often characterized in media and official discourses as taking advantage of programs and entitlements following disasters and as responsible for the conditions under which they are forced to live. This victim-blaming pattern was shockingly evident during the Katrina disaster. Both the mass media and public officials characterized the poor and desperate disaster victims who were trapped in New Orleans as taking advantage of the disruption Katrina caused to engage in wanton and indiscriminate looting as well as violent attacks on fellow victims, businesses, shelter sites, and disaster response personnel. Poor and mostly African-American victims were simplistically framed either as looters and dangerous thugs or as “deserving” victims—mainly women and children—who were helpless and unable to care for

themselves in the aftermath of the disaster. Missing from these accounts was any attempt to understand how poor African Americans aided and supported one another during the disaster through extended family arrangements and community-based organizations. Equating poverty and race with violence and dysfunctionality, news reports helped provide justification for the repressive measures that were applied to control disaster victims in New Orleans.

Poverty also causes families to have to "double up" in order to be able to make rent and house payments. Since the housing stock available to the poor tends to be substandard and often located in unsafe areas, the poor are at greater risk of becoming homeless when disasters strike. However, disaster assistance programs tend to be based on a "one housing unit, one household, one head of household" policy. The consequences of this policy were made evident following the 1989 Loma Prieta earthquake, which left many low-income Hispanic residents homeless. Because of economic need, these victims had been living in multi-family households, yet FEMA made disaster assistance funds available only to one household per living unit. The agency was later criticized for its failure to recognize that its policies unfairly discriminated against not only low-income households, but also the homeless and people in transient living situations (U.S. General Accounting Office 1991).

Like social class, *race and ethnicity* are also associated with differential vulnerability to disasters. In many cases this is because in the U.S. race and ethnicity are strongly correlated with social class. However, other factors that are specifically associated with these dimensions of stratification also have an independent influence on hazard-related behavior, disaster experiences, and disaster outcomes. For example, research indicates that members of ethnic subcultures differ from the mainstream white majority, and also from one another, in their perceptions regarding different risks, the extent to which they are embedded in social networks that can serve as a source of information on hazards and disaster assistance programs, where they turn to seek information during normal times and in disasters, and which hazard-related information sources they most trust (Turner, Nigg, and Heller Paz 1986; Perry and Lindell 1992; Flynn, Slovic, and Mertz 1994; Lindell and Perry 2005). African Americans typically lack trust in official information sources—a pattern that has undoubtedly been strengthened in the aftermath of Hurricane Katrina.

Members of racial and ethnic minorities are more likely than whites to live in large households, and often to live in extended family arrangements. These living patterns have implications for evacuation behavior. Decisions regarding evacuation are household decisions, not individual ones, and families prefer to evacuate as units. The larger the household,

the more difficult such decisions become, especially in light of the costs associated with evacuating. There may be concerns about elderly and disabled family members, about whether evacuation will result in lost income, and about living conditions in public evacuation shelters, since often such shelters are the only places poor and minority group members can stay if they decide to leave their homes (Tierney, Lindell, and Perry 2001; Lindell and Perry 2005).

Non-English speaking minorities experience a range of problems with respect to hazards and disasters. Although some improvements have been made in making hazard-related information available in Spanish and some Asian languages, a large proportion of detailed guidance is available only in English. For example, despite being touted as an information source for the entire nation, the Department of Homeland Security's ready.gov website only contains information in English and Spanish. This is particularly ironic with respect to the terrorist threat, since residents of large urban centers, many of whom speak languages other than English and Spanish, are commonly thought to be most vulnerable to attack. Because multi-lingual and minority outreach programs are unavailable in all but a few communities nationwide, immigrants lacking experience with disasters in the U.S. may have very little understanding of the risks they face, what to do when disasters strike, or what types of emergency and longer-term assistance may be available to them. At the same time, officials seem not to recognize that providing information on web sites and in English isolates those who cannot afford computers, are not experienced in their use, and are not literate in English.

Warnings cannot be issued for all types of disasters, but even when they can, non-English speakers are again at a disadvantage with respect to receiving timely warning information. Warnings are issued in English and are disseminated most rapidly and clearly through mainstream English-speaking media. Warnings provided in languages other than English may be delayed or may lack sufficient detail to enable recipients to undertake necessary self-protective actions. For example, in May of 1987, a tornado struck Saragosa, Texas, a town with a population of 400, most of whom were Spanish-speaking. The local Spanish-language cable station that most people in the town watched did not broadcast the warnings that had been disseminated by the National Weather Service. The warnings that did get disseminated in Spanish were translated on the spot and, unlike the English-language warnings, they did not effectively communicate the severity and urgency of the tornado threat. They were also disseminated later than the warnings issued in English. The tornado killed thirty Saragosa residents and injured 120. A National Academy of Sciences report on the Saragosa disaster concluded that "warnings, to be effective, require either a common shared culture or an adaptation of the warning

system to multicultural social contexts. In Saragosa neither requirement was satisfied" (Aguirre 1991).

It would be overly optimistic to think that the situation has improved since the 1980s. In fact the opposite may be the case. Population diversity is continuing to increase, as is the diversity of media sources to which people turn for information. Warning a diverse public is even more challenging in an era of increasingly specialized media use, "narrowcasting," and "pod-casting." While new technologies make communications media ubiquitous for many segments of the U.S. population, the implications of continuous information flows for disaster-related behavior have not been explored. Despite the plethora of new communications devices, vulnerable populations who need accurate and timely information most during crises may be the least likely to get it.

Members of immigrant and minority groups often respond differently to disasters than their white counterparts. Occasionally they also express group-specific grievances during disasters. In earthquakes in California, immigrants from Mexico and Central America, following practices in their native countries, have showed a distinct preference for sheltering outdoors, as opposed to going to indoor public shelters (Tierney 1988). Following the 1989 Loma Prieta earthquake, many Latino victims in Santa Cruz County refused to utilize official shelters. Instead, they set up improvised outdoor living arrangements in a city park. They did so not only out of concerns about sheltering indoors but also as a protest against the government's lack of responsiveness to the needs of the Latino community. They were concerned that their special circumstances would be ignored if they allowed themselves to be dispersed into Red Cross shelters (Simile 1995). There were grounds for those beliefs; official service providers had done little to address the needs of culturally diverse groups and had also failed to include the Latino community in pre-disaster planning (Phillips 1993).

Unlike members of the white majority, minority group members and immigrants must often deal with questions related to their citizenship status, even during disasters. Victims may lose citizenship and immigration documents in a disaster and may fear deportation if they attempt to use official shelters or apply for disaster aid (Phillips, Garza, and Neal 1994; Bolin and Stanford 1998). Again, those fears are not unfounded. A number of Hispanic and Haitian immigrants in South Florida were deported after Hurricane Andrew (Phillips, Garza, and Neal 1994). Eligibility for many disaster services is now predicated on proof of citizenship. Undocumented persons are typically eligible only for immediate emergency assistance (such as shelter services) and not for the full range of programs that are available to citizens.

Immigrants and minority group members also share a general mistrust

of police and the military. Tensions have long existed between African Americans and the police in the U.S. Immigrants may have unpleasant and even traumatic memories of encounters with police, the military, and paramilitary groups in their native countries. Since 9-11, and especially since the creation of the Department of Homeland Security and the U.S. Northern Command (NORTHCOM), homeland security has been conflated with law enforcement and military operations, and under these conditions all immigrants are being subjected to increased scrutiny. The presence of so many uniformed personnel in disaster settings—whether law enforcement, National Guard, or members of the U.S. military—may be reassuring to members of the white majority, but fear-inducing for immigrants and people of color. During Hurricane Katrina, the responses of desperate New Orleans residents were characterized in the media alternately as rioting and as urban guerrilla warfare (Tierney, Bevc, and Kuligowski forthcoming).

Since the hurricane, many officials, including the President, have called for greater military involvement in disaster management functions. Others have argued that disaster management should remain the domain of civil society institutions. If current trends continue, disaster victims will increasingly be seen as "problem populations" requiring strict social control, and immigrants and minority group members will feel even more marginalized and fearful.

Especially in large urban areas in the U.S., poor and minority neighborhoods also suffer from blighted conditions, a lack of community-based services, high crime rates, and high fear of crime. At the same time, as our population ages, more and more people are living alone—and also dying alone. While the implications of these trends for disaster victimization are not immediately apparent, urban blight, crime, fear of crime, and the social isolation that results from living alone actually affect victims' life chances during disasters. Eric Klinenberg (2002) studied the 1995 Chicago heat wave, an extreme event that killed nearly 800 people but that was not defined as a disaster when it occurred. Focusing on two adjacent inner-city neighborhoods, one majority African American and one majority Hispanic, he found significant differences in death rates even though both neighborhoods experienced the same weather conditions. Deaths were higher in the majority black community, in part because of general social disorganization and in part because elderly people living alone tended to stay indoors because of fear of crime. In contrast, the Hispanic neighborhood, which experienced fewer deaths, was a bustling urban community with a high degree of social cohesiveness. The Catholic churches, which provided many services to residents during non-disaster times, became hubs for heat relief services during the heat wave.

Gender is yet another dimension of inequality that affects vulnerability to

disasters, just as it influences many other factors associated with socioeconomic well-being. Gender is linked to power, privilege, social expectations concerning behavior, and everyday social roles. Although gender has not been as well-studied as race and class in the context of disasters, it is clear that gender also strongly influences the behaviors and experiences of men and women at all phases of the hazards cycle (Enarson and Morrow 1998). Large numbers of women in the U.S. and around the world live in poverty, which is in turn related to disaster vulnerability. Conditions are worse in the U.S. for women of color. The fact that most single-parent households are headed by women means that care giving and other demands on women-heads-of-households are great, both on an everyday basis and during disasters. At the same time, these women are most likely to lack financial resources with which to cope (Fothergill 1998).

Women also tend to be more risk-averse than men, particularly with respect to technological hazards such as toxic pollution. They are more willing to believe disaster warnings and more willing to evacuate in the face of impending disasters, but since evacuation decisions are typically made by males in the family, women are often overruled (Drabek 1969). The risk of death and injury in disasters is also associated with gender, although in complex ways. Research suggests that these risks are linked to gender-specific social roles, including the manner in which women are socialized in different societies. Particularly in developing countries, it is clear that mortality and morbidity are also related to the differential value placed on men and women, girls and boys. Men are thought to be more vulnerable to hazards encountered by working outdoors, such as lightning, thunderstorms, and winter storms. In other cases, death and injury rates for women are higher, often because women put themselves at greater risk in order to protect children and elderly household members (Fothergill 1998).

Male-female differences in deaths and injuries are significantly higher in the developing world than in more-developed societies. Such disparities are related to power relations between males and females—relations that often severely constrain women's behavior and decision-making authority. For example, higher rates of female mortality in the December 2004 Indian Ocean tsunami are attributable in part to the heavy garments women were required to wear to maintain modesty, which limited their movements, and to the fact that fewer women than men knew how to swim.

In many earthquake-prone areas of the world, women are confined in their homes and prevented from going out without being accompanied by a man. Their duties are restricted to the domestic sphere: caring for children and elderly family members and doing all the work associated with housekeeping. Since many household dwellings in the developing world

are not constructed to resist earthquake forces, those who are required to routinely remain indoors are at greater risk. At the same time, women's devotion to their children and other family members in the same household may cause women to put others' safety before their own (Glass et al. 1977; Chowdhury et al. 1993).

Although not as starkly evident in the U.S. as in many other societies, the disadvantaged position of women is also evident here. For example, in male-headed households, women typically have less decision-making power with respect to how disaster aid is used. Women's care giving responsibilities and tasks associated with "emotion work" increase during disasters, particularly when schools close and when dependent elderly family members need additional care. Women typically also face the responsibility of comforting partners who have lost jobs, while seeking aid and trying to figure out how the family will survive on the meager resources available through official sources (see, for example, Fothergill 2004 on women and their families following the 1997 Grand Forks flood).

In the U.S., women's greater life expectancy may also be associated with disaster vulnerability. As women age, they are more likely to end up living alone, often on fixed incomes, and often with various disabilities. They may thus be less able to engage in self-protective actions during disasters. If they have become socially isolated, they may be cut off from informal and formal sources of assistance. The same can be said of elderly males, of course, but the point is that women live longer than men and are thus more exposed to vulnerabilities associated with age.

After Disaster: Coping and Resilience

The foregoing discussions have focused primarily on how social class, race and ethnicity, and gender structure vulnerability to disasters. However, these same factors are also associated with varying degrees of resilience. The concept of resilience refers to the capacity to endure disaster impacts, and also to cope with those impacts and recover as rapidly as possible. Following Rose (2004) resilience can be thought of as composed of two components. The first, *inherent resilience*, refers to the ability to withstand disasters without suffering extensive loss and disruption of everyday life activities. The second, *adaptive resilience*, refers to the ability to adapt, improvise, and access resources following disasters. To clarify the distinction, being able to afford to live in a home that was designed and built to resist disaster forces, to stockpile emergency supplies, and to save money for use during emergencies are indicators of inherent resilience for households. The ability to pursue a wide range of options and to access multiple sources of aid following disasters are indicators of adaptive resilience. Both forms of resilience are related to such factors as wealth,

social and cultural capital, and political influence. These factors are associated in turn with social inequality. Thus not only are different groups within society differentially vulnerable to disasters, but they also differ with respect to inherent and adaptive resilience.

Having financial resources enables individuals and households to have access to a variety of protections against hazards. Wealth is associated with access to high-quality housing options, the ability to afford upkeep on a home, and access to good insurance coverage. After disasters, more affluent people typically have a wider range of sheltering and housing options, as noted above. More generally, affluence also translates into the ability to choose how to deal with disaster-related problems, rather than to experience powerlessness in the face of disasters. At the same time, wealth is closely interwoven with race. Research indicates that with respect to financial resources, the gulf in opportunity and achievement that exists between whites and blacks in U.S. society is directly related to longstanding intergroup disparities in wealth (Oliver and Shapiro 1995). Just as they act as a cushion against other crises, greater wealth and the privileges that enable different groups to amass wealth are associated with higher levels of post-disaster resilience.

Hurricane Katrina vividly illustrated patterns of differential vulnerability and also highlighted the vast differences that exist between better-off community residents who have wider options and poor disaster victims who lack such choices. During Katrina differences in the coping options available to affluent and poor, and to majority and minority residents, strongly influenced the risk of surviving or dying once the levees breached and flooded the city.

If a major earthquake were to strike affluent majority communities on the west side of Los Angeles—communities such as Beverly Hills, Santa Monica, Brentwood, Bel Air, Westwood, and Pacific Palisades—and left tens of thousands homeless, it is inconceivable that the experiences of west Los Angeles residents would in any way resemble those of the poor African American residents of New Orleans. Not only would well-off Los Angeles residents have many more choices regarding how to find temporary shelter (such as second or third homes), and how to recover following the earthquake (for instance, by using savings, selling stocks, and drawing on generous insurance policies), but, owing to their political power, government agencies would be more responsive to their needs. In contrast, many victims of Katrina lost everything and had few options available for getting back on their feet. Worse yet, instead of having their needs addressed in a timely manner, those stranded in New Orleans after Katrina were not so much assisted as they were policed. Literally treated like criminals, they were confined to shelters under strict control. Later, they were transported, again under the control of law enforcement agencies

and the military, to over forty states around the country, without even having the opportunity to choose where they would be sent. Family units were broken up and sent in different directions. As of this writing, three months after the hurricane, many of those who were displaced are still searching for loved ones. Traumatized and exhausted disaster victims who had been sent to the Houston Astrodome were referred to as “underprivileged” people who were quite satisfied with their new living arrangements.

As of the end of 2005, essentially nothing is being done to plan for the return of an estimated 350,000 people displaced by Katrina, as debates proceed on whether it is even worthwhile to rebuild New Orleans. The inescapable truth is that assisting poor people of color in recovering from this disaster is simply not a priority. Deprived even of the solidarity and social support that comes from living among neighbors, the scattered victims of Katrina are in a particularly poor position to press their claims.

Resilient responses are limited for many because the assistance that is provided following disasters typically reinforces social inequities, rather than compensating for them. This tendency to reinforce the status quo can be seen in differential patterns of aid provision to white versus minority communities. For example, of the two largest communities that were heavily damaged by Hurricane Andrew in 1992, one community, Homestead, had a white majority and was more affluent, while the other, Florida City, had a black majority and was significantly less well off. Disaster losses were proportionately greater in Florida City, but that community received less aid than Homestead and experienced greater problems recovering from Andrew. Besides having access to fewer resources, like many poor communities, the city lacked an effective administrative structure, further complicating the recovery process (Dash, Peacock, and Morrow 1997).

A study of business losses and recovery in four communities following the 1987 Whittier earthquake—communities with majority white, Hispanic, African-American, and Asian populations—found significant variations in Small Business Administration loan decision making across the four communities. Fifty-two percent of all loan applications from the four communities were accepted, but acceptance rates varied across communities. Businesses in the predominantly African-American community had an acceptance rate of only 23%, while approvals in the majority Hispanic, white, and Asian communities hovered at or above the 50% rate. Businesses in the majority white community were significantly more likely to receive the SBA’s favorable 4% loan repayment rate—which is reserved for applicants who are in great need and who are unlikely to be able to receive loans on the commercial market—even though that community was more affluent than the others (Dahlhamer 1992).

With respect to gender differences in vulnerability and resilience,

Amartya Sen's pioneering work on the gendered nature of famine in the less developed world also provides insights into how gender influences the distribution of resources in the context of disasters. When food is scarce, women and female children typically receive a smaller share of available food than men and boys, and consequently they are more likely to suffer from malnutrition (Sen 1982, 1988). Households headed by women are at an extreme disadvantage following disasters, in part because their status is so precarious during normal times. One researcher who focuses on disasters in poor societies observes that even for intact family units, "the moral economy binding the family together is severely challenged by poverty, powerlessness, and recurrent disaster. Usually by the time a family breaks down, the personal assets of a woman have already been exhausted" (Wiest 1998).

Woman- and minority-owned businesses may find it especially difficult to recover following disasters, in part because of their vulnerability to failure during normal times, but also because they may experience more difficulty accessing needed resources. These types of businesses tend to be undercapitalized and only marginally profitable during non-disaster times, and they tend to be located in highly competitive sectors of the economy, such as retail trade and service businesses. The intersection of race and ethnicity with gender results in further inequities. In the White-race earthquake discussed above, African-American and Hispanic women were the least likely of all the applicants to receive SBA loans. Small businesses tend to experience poorer recovery outcomes than larger ones, and minority- and woman-owned businesses tend to be concentrated in the small business sector. Even within the minority business sector, African-American businesses are more vulnerable to failure during normal times than businesses owned by other minority group members—a pattern that may also carry over into disasters (for more information on business vulnerability to disasters see Tierney, forthcoming).

Other forms of post-disaster assistance also serve to reinforce existing inequalities. Homeowner insurance is a case in point; race and class factors affect both the types of coverage homeowners can obtain and the manner in which insurance applications are handled. Among those who filed claims following Hurricane Andrew, black and Hispanic households had significantly fewer of their losses covered; differences were particularly glaring in South Dade County, where 45% of African Americans indicated that their insurance reimbursements had fallen short of what they required in order to recover. Some of these disparities were associated with the types of companies from which different class and racial groups had purchased insurance, with well-off whites more likely to be covered by leading large companies. Researchers also found evidence of "red-lining," in which those same large and more solvent companies had

avoided writing insurance in majority black neighborhoods (Peacock and Girard 1997).

One caveat warrants emphasis here. Even with the abundant evidence that exists with respect to social inequality and disaster risk, it would be a mistake to characterize the poor, people of color, and women as wholly unable to cope with hazards and disasters. Although socially and politically marginalized both during normal times and during disasters, non-mainstream groups also possess significant inherent and adaptive resilience. While lacking access to the broad range of support services that majority whites take for granted, these at-risk subpopulations have their own internal networks of social support and their own community-based institutions on which they can rely when disasters strike. Following disasters, self-help efforts coalesce rapidly, often out of pre-disaster collective efforts that were originally developed to cope with other community problems. Even in the devastation wrought by Katrina, hurricane-stricken neighborhoods are bonding even more closely in their efforts to help one another, obtain equitable treatment, and actively engage in the recovery process (Davis and Fontenot 2005). After the Loma Prieta earthquake, Latino protests centering on post-disaster needs developed out of networks that had mobilized earlier to demand fair treatment for Latino farm workers in Santa Cruz County (Simile 1995). After Hurricane Andrew, women formed their own organization, "Women Will Rebuild," in response to their exclusion from the well-funded but white male dominated "We Will Rebuild" coalition that had emerged in the aftermath of the disaster (Morrow and Peacock 1997).

Although vulnerable, marginalized communities are also resilient. The policy and programmatic challenge is to engage social networks and the indigenous coping capacity of communities at risk at all stages of the hazards cycle—before, during, and after disasters. Put another way, the nation must provide appropriate forms of support that can transform at-risk groups from potential disaster victims to active agents in the disaster loss reduction process.

One such effort was already underway in Louisiana before Katrina struck. Following the participatory action research model, researchers from universities within and outside Louisiana had been working with the low-income Native American community of Grand Bayou, a subsistence community that made its living primarily from fishing. This university-community collaboration focused on reducing the disaster vulnerability of Grand Bayou, but did so in the context of broader efforts to help the community overcome a long history of political marginalization and to enable the community press for governmental responses to its many non-disaster-related needs. Katrina obliterated the physical place that was Grand Bayou, but the residents and their sense of community survived. Grand

Bayou now struggles with new and even larger challenges, and the participatory action research project continues (Laska 2005).

Conclusions

Systems of social stratification constitute the means through which power, privilege, rights, and access to resources are distributed within societies, often resulting in widely diverse life chances and life experiences. Social class, race and ethnicity, and gender are key components of stratification systems. The effects of these and other axes of stratification are reflected in virtually every aspect of social life in societies around the globe. Findings from classic U.S. studies that emphasized the power of disasters to unify stricken communities and level social distinctions are now complemented by equally compelling findings that stress the manner in which societal inequities are made manifest during disasters. Inequality and its effects are as important for understanding the social dimensions and impacts of disasters as they are for understanding health and illness, crime, the manner in which attitudes, beliefs, and behaviors vary within and across societies, and other social phenomena. Just as they permeate all aspects of social life, the effects of class, race, and gender manifest themselves before, during, and after disasters.

In the U.S., the populations of virtually all large urban centers are already very diverse and are becoming more so. At the same time, many large metropolitan areas are also highly vulnerable to future disasters. Greater Los Angeles and the San Francisco Bay Area will likely experience major earthquakes within the next twenty to thirty years. As more hurricanes develop in the Atlantic and make landfall, Miami is a sitting target for future major hurricanes, for which Andrew was only a precursor. The Gulf Coast may once again be overwhelmed by a massive hurricane; that possibility is only as far away as the next hurricane season. New York City and Long Island could experience catastrophic impacts in even moderate-sized hurricanes. New York, the National Capital Region, and Los Angeles are perhaps the most likely targets in the U.S. for future terrorist attacks.

In Hurricane Katrina, the nation witnessed for the first time what it means to experience a modern catastrophic disaster. Katrina revealed to a national and worldwide audience the reality and consequences of the stark inequities that exist in contemporary U.S. society. No one should be lulled into thinking that Katrina was unique in this respect. Instead, in laying bare the destructive potential not only of nature but also of a viciously inequitable social structure, Katrina foreshadows catastrophes to come.

Katrina has shown that without sustained programs focusing on the transportation needs of the poor, U.S. urban centers cannot be evacuated in a timely manner for any type of extreme event. Katrina has revealed

that intergovernmental institutions are wholly incapable to responding to the needs of diverse publics during disasters. It has also shown that in the eyes of governmental response agencies, poor inner city residents are objects of fear and hostility, "problem populations" to be policed, rather than allies in the struggle to respond and recover. The disaster has also demonstrated in an alarming manner that U.S. governmental institutions are unable to address the relief and recovery challenges associated with massive regional catastrophes.

Finally, if recent polls are any indication, Katrina has further reinforced the gaping racial divide that exists between white and African American populations—differences that are evident not only in contrasting judgments about the handling of this particular disaster, but also in divergent views on government leadership and trustworthiness (Pew Center 2005). Equally worrisome, Katrina has acted as a catalyst for new trends that do not bode well for poor and powerless populations, such as the growing move toward the militarization of disasters.

These lessons from Katrina have very serious implications for how communities and the nation as a whole will manage extreme events in the future, not only disasters but also crises associated with epidemics and willful attacks on our society. How will poor and minority communities respond to public health efforts to contain avian flu, or to governmental responses to future terrorist attacks, particularly if those efforts have a strong law enforcement component? Will they receive warnings and advisories early enough? To whom will they look to for guidance? It is more likely that they will seek information from trusted local community-based institutions, such as churches and the minority media, than from what the administration calls "official sources," whose credibility was damaged, perhaps irreversibly, in Katrina.

In future extreme events, will we witness minority communities robbed of their dignity and "managed" by command-and-control institutions, as they were in Katrina, while members of the white majority are accorded respect and rapid assistance? Will the media once again cast poor males of color as villainous thugs, as it did in Katrina? And after Katrina demonstrated before all the world the pernicious, deadly effects of institutional racism, how many at-risk inner city residents will have faith in the government's willingness to treat them fairly and equitably in future crises? Among the most tragic consequences of Katrina is the damage done by the catastrophe to the nation's social fabric and to trust in its institutions.

Note

1. For more extensive discussions on vulnerability science and its applications,

see Cutter, Mitchell, and Scott (2000), Cutter (2001), and Cutter, Boruff, and Shirley (2003).