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## Landscapes of Security

### Health and the Environment

#### *The Physical Landscape: Health*

Severe acute respiratory syndrome (SARS) was first recognized in Toronto in a woman who returned from Hong Kong on February 23, 2003. Transmission to other persons resulted subsequently in an outbreak among 257 persons in several Greater Toronto Area (GTA) hospitals. (Wallington et al., 2003)

Characterized by pneumonia-like symptoms, severe acute respiratory syndrome (SARS) made a world tour in 2003. First detected in a farming village in China in late 2002, the infectious disease quickly spread to a nearby city from where it launched its journey around the world (Beck, 2004). On April 22, 2003, the World Health Organization (WHO) issued a travel advisory recommending limited travel to Toronto, Canada. In May 2003, WHO officials reported 6,234 cases of SARS in 25 countries (Beck). By the end of 2003, 689 deaths had occurred as a result of SARS, with 43 deaths occurring in Toronto alone.

The spread of this disease has been linked to globalization and the permeability of borders, as well as to communication failures. Attempts to learn more about the outbreak in China were hampered by the Chinese government hiding evidence of the disease and blocking access to outside attempts to access infected areas. Reports that the disease was under control were



**Figure 5.1** SARS and Other Threats

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coupled with doctors revealing that patients had been loaded into ambulances to wait while inspections were eventually conducted at particular hospitals. The disease could have been contained much earlier, but the fact that WHO officials did not receive accurate information undermined their ability to provide details to a global society that depends on cooperation. As Beck (2004) points out, “globalization may be what makes a worldwide epidemic possible; but lack of cooperation between governments is what makes it likely” (p. 65). Global communication systems such as WHO are only as good as the information on which they rely.

The SARS story provides a useful vignette for introducing security as it relates to health. First, there is the intersection of individual health concerns and how those concerns may be undermined by actions at the national and international levels. Second, jurisdictional questions arise with respect to who is held accountable for spillover effects which are the result of decisions (causes) far removed from disease outbreaks (effects). Can threats to health security in a global society really be contained within a particular setting? Third, SARS illustrates the political brakes and accelerators that surround health issues at both the local and global environments. These are influenced

by the respective degrees of power and influence wielded at any particular level.

In the first half of this chapter, we consider the intersections of individual and institutional risk balance regarding health; the jurisdictional issues with respect to accountability and health security; and the relevance of power and influence in determinations of health and sickness. We begin our discussion of health as it relates to security by first considering what it means to be sick. If an individual or group of individuals is determined to be sick, what does that mean for the individual, for the group, and for the rest of society? Recognizing differences in resources helps to reveal how it is that sickness and health may be a matter of perspective. An individual exposed to a rare, untreatable disease will view his or her security differently than will those who see themselves as healthy; also, the ill individual's view will be much different from the views of those in charge of controlling sickness.

### In Sickness and in Health

The living body seems to be now the only thread on which the otherwise scattered and disparate episodes into which life in the fluid world has been sliced can be strung together. The mental and emotional energy once expended on the care for immortality or eternal causes now converges on the body, a solitary rock amidst quicksand. (Bauman, 2002, p. 63)

Under the health promotion banner, the distinction between healthy and unhealthy populations totally dissolves since everyone is "at risk." (Petersen, 1996, p. 49)

The world existing outside the body consists of opportunities and hazards, simultaneously making the body the site of pleasure and of pain. As Bauman's (2002) quote suggests, a great deal of anxiety surrounds the physical body. Because the body is "a solitary rock amidst quicksand" (Bauman, p. 63), efforts are typically taken to secure the body against harms posed by the ever-changing environment. These efforts may become normalized and routine, such as going for yearly medical checkups.

The influence of actuarial thinking in the realm of health has ensured that there is no such thing as "healthy"; rather, there are degrees of healthiness, and, by default, degrees of illness. In what has been referred to as *surveillance medicine* (which is the blurring of the lines between health and illness where everyone becomes a target for potential medical intervention)

Greaves (2000) refers to *partial patients* as those who may not feel unwell, but who have been “informed medically that because of certain personal characteristics, they have or may have a disease or other medical condition or are at risk of acquiring such a disease or medical condition” (p. 23). Partial patients are the result of a process that has taken place over the course of the past century. An epidemiological transition occurred in the early 20th century that was characterized by the decline of infectious disease coupled with the rise of noncommunicable, degenerative disease, such as cancer or heart disease, as the primary causes of mortality. Greaves notes that with “this new epidemiological pattern the traditional uni-factorial model of disease gave way to the multi-factorial model” (p. 25). Rather than looking for one specific causal mechanism, this orientation widens to identify multiple risk factors. Influenced by the availability of statistical models and large data sets, statistical regression analyses paved the way for the identification of multiple factors that seek to predict disease. For example, while we may not know exactly what causes lung cancer, it has been determined that factors such as smoking contribute to the onset of this disease. Smoking may not *cause* lung cancer—some smokers never get cancer—but the probability of getting cancer increases if one smokes. A multitude of factors are therefore related to (correlated with) ill health without necessarily causing sickness: because of the range of factors related to ill health, few individuals are invulnerable, with sickness always a possibility, however remote or likely.

The impact of technology and the development of screening techniques have also meant the discovery of more and more illnesses, increasing the likelihood of finding risk factors for more diseases, but not necessarily finding more disease itself. Furthermore, this statistical modeling capacity allows for the identification of various health risk profiles so that individuals can be scored in terms of probable disease or illness acquisition. Not only the sick are profiled; rather, there is now

the potential for every citizen to become the subject of medical attention, there being a gradient of concern from patients with identifiable diseases, through patients at high risk, medium risk and low risk of developing certain diseases in the future. (Greaves, 2000, p. 25)

The result of this gradient is that health and illness are only relative and never absolute.

The degree or gradient of illness and health has implications for monitoring the individual and his or her characteristics, as well as implications

for intervention. An individual considered by his or her risk factor score to be high risk might become increasingly subject to monitoring because of that score. Such risk scores are probability scores and do not reflect the acquisition of the disease or condition under consideration. A risk profile, however, may take precedence over the more subjective component of health. Medical tests or test scores that suggest some probability of ill health has been identified may undermine individual claims to good health. Of course, in the realm of health and other realms such as crime, risk profiles often take on a life unto themselves, and scores reflecting probability may be misinterpreted as reflecting a present condition—or an identity—itself.

### **Jurisdiction and Spillover Effects**

The highly publicized emergence of new diseases and the re-emergence of others, combined with the increased speed and volume of international travel, have made countries aware of their vulnerability. (Heymann, 2002, p. 179)

The danger of infectious diseases such as acquired immunodeficiency syndrome (AIDS), smallpox, SARS, and bovine spongiform encephalopathy (BSE; also called “mad cow disease”; see Food and Drug Administration [FDA], 2004b) have garnered a great deal of publicity and have raised concerns that public health is not simply an individual or national issue, but rather is a global issue. Of particular note, a common feature of headline-grabbing diseases such as these is that they are contagious. As observed earlier with respect to Greaves’s (2000) analysis of partial patients, it had been assumed for some time that contagious, plaguelike diseases were a thing of the past. However, as Heymann (2002) notes, the “resurgence of infectious diseases have been viewed as a factor that can undermine national and international security” (p. 179). In the new security era, noncommunicative, chronic, and degenerative diseases, despite the fact that these are potentially more deadly, are often given short shrift over contagious diseases. It seems fair to characterize chronic as the realm of the everyday, whereby those who deal with chronic pain, for example, must come to terms with their pain on a daily basis—it becomes something one has to live with—routine, in fact. Contagion is outside the everyday, however, found more often in the realm of the spectacular. While contagion may also be relatively mundane, as in the case of colds, coughs, and some forms of the flu, the types of contagion now appearing on the health-threat radar often emanate from far more

exotic sources (i.e., China in the case of SARS, England in the case of mad cow disease) than the common cold. Contagion has gone global.

Contagion, a form of impurity, threatens by making boundaries vulnerable and permeable. Not only are individual bodies vulnerable, but so too is the body of the larger community. Perceptions of the body go hand in hand with perceptions of community—whether local or global. Douglas and Calvez (1990) identify four different attitudes with respect to contagion: First, the body is porous, open to invasion and unprotected. Second, the body is strong because it is able to cope with infection and is self-restoring. Third, the body is strong because of two protective layers, one consisting of the physical skin of the body that allows as well as denies access, and the other consisting of the community, which also allows and denies access by codifying acceptable behavior. Fourth, the body is a machine covered with a protective envelope, but one that requires undertaking appropriate precautionary behavior. The attitudes that one holds of the body will be influenced by one's membership in particular communities or cultural enclaves and the perceptions associated with those communities. Contagion then becomes a matter of perspective, and what to do with those who are contagious is dependent on the social and cultural understanding of victims of contagion and of the disease itself. At various times and in various settings, contagion has been dealt with through means such as quarantine, separation, or even elimination.

In his discussion of AIDS, Brandt (1987) notes that Western society has not had a great deal of experience in dealing with spectacular or contagious health issues:

The fact that as a society we have been fortunate not to have had to address any major infectious disease on an epidemic level since polio accounts for our relative lack of social and political experience in dealing with such problems. (p. 200)

Although Brandt wrote this nearly 20 years ago, his observation applies to the 21st century. This inexperience in dealing with contagious disease has two implications:

1. A lack of experience in dealing with contagion is manifest in the application of actuarial or categorical thinking to those who have been deemed at risk of infection, or those who are at risk of infecting others. While a particular individual may not have a disease, that individual's

membership in a group deemed as risky will result in treatment as though he or she actually has the disease, rather than as simply characterized by a particular probability of acquiring the disease. Williams (2001) refers to this as epidemic stigmatization characterized by suspicion and fear of those who are thought to belong to the carrier group. Young (1996) raises a similar issue with respect to those who have AIDS, and suggests that the infection itself becomes conflated with a particular identity. In the case of AIDS, the stereotype is that AIDS is the disease of homosexuality, making AIDS the marker of a homosexual identity. While other contagious diseases may not be associated with an identity as specific as that associated with AIDS, contamination may be associated with individuals who have chosen particular lifestyles and have presumably willingly exposed themselves to harm. If exposure to harm is by choice, it is a short step to unfairly blaming those who acquire particular contagious diseases.

2. The second implication of little experience with contagion has to do with the advice given to those who feel themselves to be (or those who are) vulnerable to a particular contagious threat. Often, the questions surrounding protection are left unanswered and are derailed by efforts to establish blame. As Hamre (2002) notes with respect to the anthrax scare of 2002, "Everybody in Washington was preoccupied with the question, 'who did this?' What the public really wants to know is, 'What can I do to protect myself?'" (p. 14). Clearly, the orientations of government may differ substantially from the orientations of individuals with respect to perceived health threats. Related to this is the fact that public health capabilities around the globe are uneven, with vulnerabilities and responses to these similarly unevenly distributed (Kahn, 2003/2004, p. 57).

### **Brakes and Accelerators in the Local and Global Health Environments**

It is difficult to escape societal pressures to lead a healthy lifestyle. In the media, at work, and at school, we are bombarded with messages to stay fit, exercise, quit smoking, stop drinking, eat healthy, drink plenty of water, and get enough sleep. Advice about healthy living is often couched in terms that are readily understood: prevention today will be rewarded tomorrow. In some ways, health prevention is trading futures—what we give up now (that extra dessert or glass of beer, for example) will reap benefits for us in the future (a healthy heart and trim waistline).

Frohlich, Corin, and Potvin (2001) explain that, despite some definitions of lifestyle incorporating elements of both individual choice and structural determinants, researchers in health promotion and public health tend to use the term *lifestyle* primarily with reference to “individual behavioral patterns that affect disease status” (p. 783). They note that when lifestyle is conceived of as a cluster of behavioral choices, such as choosing to smoke or drink, it can be pathologized and reduced to a variety of risk factors. Lifestyle then becomes a conglomeration of risk factors that are disengaged from the social and environmental contexts in which these choices are made. Altering pathological lifestyles is therefore the obligation of individuals who are expected to practice self-regulation, regardless of the contexts in which they operate.

The promotion of healthy lifestyles through self-regulation goes hand in hand with individual responsibility. Petersen (1996, p. 45) describes the emphasis on preventative techniques involving “self-management of risk and self care” as a “subtle and sophisticated form of individualism that involves everyone in the task of tracking down and controlling or eliminating sources of risk from their own lives.” As we noted in Chapter 2, this volume, self-governance—taking care of and governing one’s own affairs and oneself—amounts to self-surveillance. We keep watch over ourselves in order to maintain control. The entrepreneurial self creates the self, reflexively, with relatively little direct help from the state, although with much indirect coercion. Furthermore, individuals are assumed to be rational, exercising choice in establishing their health biographies. Those who become ill may therefore be seen not only to have failed to protect themselves, but also to have failed society by posing a threat to others.

The strict utilitarian calculus underlying health prevention fails to adequately address the contexts in which individual choices are made. It is assumed that information, education, and communication will ensure that informed actors make rational choices. What is not taken into account, however, is the context to which information and education strategies are targeted. Chan and Reidpath (2003) explain how, in the case of individuals having been identified as contagious, these strategies often involve self-imposed restrictions, such as when individuals reduce their exposure to others whom they might infect. But not all actors can equally exercise agency, because not all are equally free to act. Agency differs not only in terms of who is identified as contagious, but also with respect to health prevention advice more generally. The burdens of these self-imposed restrictions are not equally borne, and traditional public health assumptions often fail to recognize these differences (Chan & Reidpath). Clearly, risk position affects the types of restrictions one might be able to impose on oneself: removing oneself from harm’s way often





Figure 5.2 Typhoid Mary

requires resources that are not equally available. These authors highlight the case of Mary Mallon, or Typhoid Mary. Mallon was an asymptomatic carrier of typhoid bacilli in New York, in the first decade of the 20th century. Mallon was employed as a cook in a household whose members subsequently contracted typhoid. When suspicion fell on Mallon as the carrier, she was detained in hospital for a period of three years. She was released on the condition that she would not work with food. Although she made a living for a short period washing clothes, the insufficient income forced her to return to the food industry under an assumed name. During her short time under the assumed name, Mallon infected a number of fellow staff members, two of whom died. When Mallon was subsequently identified, she was returned to quarantine, where she spent the last 23 years of her life.

Mallon's case highlights the disparities in agency and life opportunities that might befall those who are considered contagious and the social response to such individuals. Mallon had only two choices after losing her first job: live in poverty or return to the only profession she knew to provide a survival income under a false name (Chan & Reidpath, 2003). Chan and Reidpath note, "Social responsibility and economic insecurity are not easily reconciled" (p. 42). An extreme measure of surveillance—incarceration—was

followed by an even more extreme measure: life imprisonment. Mallon's imprisonment was a form of punishment not only for contagion, but also for the possibility of contagion.

We see parallels here to health prevention and the promotion of healthy lifestyles more generally. While individuals are encouraged to take precautionary health measures and to pioneer themselves into good health, individual liberties may be at stake. At the same time that individuals are responsible for fashioning healthy selves, certain preventive health measures may invade personal liberty. Measures such as vaccination, quarantine, and mandatory reporting of disease may interfere with personal liberty, but may also be justified under the rhetoric of personal responsibility, as well as of economic efficiency. The individual is obligated to keep him- or herself in good health so as not to pose a danger to self or others—despite the impingement on individual liberties—and is expected to contribute to society, or earn one's keep. Petersen (1996) observes, "the disciplinary self-improvement demonstrated in the pursuit of health and fitness has become a key means by which the individual can express their agency and constitute themselves in conformity with the demands of a competitive world" (p. 53).

If we consider the measures through which surveillance is brought to bear on the general public, front-line health professionals frame the meaning given to any particular health issue in certain ways. Just as the street constable may simply be following orders dictated by the police administration, the degree to which front-line health professionals accommodate the medical institution also has implications for surveillance. For example, recent threats with regard to bioterrorism have left some front-line health professionals questioning the utility of preparedness for low-likelihood events that demand their personal exposure to hazards. In December 2002, President Bush announced that the bioterror threat of smallpox would be initially dealt with by the vaccination of about 1 million workers—health-care professionals and military personnel. The lack of cooperation by health professions was obviously unanticipated, and "hundreds of hospitals and thousands of health professionals have refused to participate in pre-event vaccination until liability and compensation issues have been resolved" (May, Aulisio, & Silverman, 2003, p. 26). Questions remain with respect to the safety of the vaccination, with tests on young people finding that up to one-third missed work or school as a result of the vaccination. More serious, however, is that vaccinated professionals may expose vulnerable patients to infection, and therefore compromise the health of a large proportion of patients. The government has since devised a compensation plan to reimburse workers who might have negative reactions to the vaccine—a

vaccination that can result in death for some—but questions remain as to what types of negative reactions are eligible for compensation. The potentially deleterious effects of the vaccine, effects that are well known to the medical profession, have resulted in a failed initiative, with few health-care professionals cooperating with the vaccination plan.

May and colleagues (2003) explain that health-care professionals' refusals to be vaccinated against smallpox presents a classic conflict between individual versus public goods: "how much risk should an individual health care professional be required to assume in order to attain a public good" (p. 28)? The authors argue that, in fact, health-care professionals do not have a professional obligation to put themselves at risk because of the hypothetical and small risk of a bioterrorist attack involving smallpox. Essentially, their argument rests on the notion of emergency circumstances and how that condition is subverted in the case of legislation requiring vaccination of health-care professionals for bioterrorist threats. Health-care professionals are typically professionally obligated to subvert their own interests (in this case, their own health) only in the event of emergency circumstances. The vaccination legislation amounted to asking health-care professionals to subvert their own interests for a hypothetical circumstance, not an emergency circumstance. Therefore, "pre-event vaccination of health care professionals clearly does not meet the conditions of emergency circumstances precisely because there is no such immediate threat" (May et al., p. 28). While the vaccination of health-care professionals may be argued on the basis of national security interests, May and his colleagues suggest that such an argument requires that health-care professionals assume a responsibility to the state over and above that of the average citizen (p. 31). These authors argue that, while members of the military have agreed to subvert their own interests for that of national security, health-care professionals have not made a similar agreement, having instead agreed to treat the sick as their obligation to their profession.

There is more to the refusal of health-care professionals to be immunized against smallpox than the conflict between the individual and public good. The refusal to participate in this vaccination program also highlights the flimsiness of expert models, and the often-problematic integration of politics with the determination of health and health policy. The front-line health professionals see the possibility of bioterror attack as small and have chosen not to expose themselves because of the small risk of attack and the potentially onerous (if not dangerous) consequences of such inoculation. This suggests that experts disagree—health matters are not as clearly based on scientific evidence as we may have assumed. Politics figure prominently,

not surprisingly, in the determination of threat. Furthermore, the refusal of these professionals to acquire the vaccination is a clear sign that the state and the medical profession view differently the bioterror threat; in other words, institutional perspectives may define differently the same hazard.

A similar argument may be made for the obligation of citizens to protect themselves against threats to ill health, as well as against threats more generally. To whom is the duty to protect oneself owed? In the context of current societal norms, the duty to protect oneself is owed to the self, first, and only secondarily to the state. In the context of emergency situations such as that posed by terrorist situations, one might argue that the first duty is owed to the state. However, protecting the self in the context of non-emergency situations may be the purview of individual choice. Individual choice, though, is subject to surveillance. The rise of surveillance medicine may actually coerce individuals into making particular choices for the collective good.

Armstrong (1995) suggests that surveillance medicine is characterized by the problematization of the normal. This refers to the widening of potential targets of medicine to include entire populations. The inclusion of entire populations is facilitated by attempts to determine what “normal” consists of. Armstrong suggests that problematizing the normal was first directed toward children, and is evidenced in technologies such as growth charts tracking height and weight. He notes that, while individuals may be plotted along the chart in order to track individual growth, the standard of comparison is the general population with the goal to determine how the individual child fits into the larger population. Individuals can only be more or less normal against a broader standard based on averages. Similarly, distinctions between health and illness began to be replaced by gradations of health. Health by degree meant that, rather than the medical profession simply focusing on the body of the patient, medical surveillance expanded the medical profession outward, beyond the confines of the hospital into the realm of lifestyle (Armstrong, p. 398).

The notion of lifestyle breathes new life into the former distinctions between sign, symptom, investigation, and illness. A headache, for example, may be a sign of high blood pressure, but high blood pressure may be a sign of some other affliction, such as impending stroke (Armstrong, 1995, p. 400). Signs, symptoms, and disease may all be used to calculate probabilities of other illnesses and disease. Armstrong explains that the notion of lifestyle is used to represent the precursors of future illness: “Symptoms, signs, illnesses and health behaviors simply become indicators for yet other symptoms, signs, illnesses and health behaviors . . . each illness is simply a

nodal point in a network of health status monitoring” (Armstrong, p. 401). The more information there is at hand, the greater the possibility of uncovering degrees of sickness.

### **Terrorist Events as Health Events**

It is increasingly recognized that, with few exceptions, all terrorist events become health events of differing scale. There are inevitably casualties that need to be treated. Hospitals and other medical facilities are tested for their quickness of response during these situations. Sometimes, these facilities may be overwhelmed with the surge of demand, both from those directly affected by the attack and others who may have suffered secondary effects. The 9/11 World Trade Center attack tested the medical response of New York City in terms of dealing with initial victims. Prior to 9/11, Congress instituted a program known as TOPOFF (Top Officials), which sought to improve the capacity of those in positions of authority to respond to terrorist and other attacks and threats. Results of these tests, which began in 1998, continue to reveal substantial difficulties: ineffective communication, deficient coordination among leadership, flawed command structures, and flawed decision making, as well as “a lack of antidote availability to treat even basic toxic emergencies at healthcare facilities” (Dudley & McFee, 2005, p. 420). Hurricane Katrina, discussed in detail later in this chapter, provides further evidence of these specific problems.

Health officials recognize that their scope is moving beyond the obvious efforts at fighting disease to being pushed increasingly into a public health mode, which demands that they prepare for unforeseen disastrous events. Increasingly, governments have acknowledged the importance of this response through efforts to grant suprapowers to health officials in times of emergency, powers that would previously have been the purview of law enforcement or emergency management officials. In 2003, President Bush announced Project Bioshield, which provides resources for medical countermeasures to protect against terrorist attack involving biological and chemical weapons, or “other dangerous pathogens” (White House, 2003). According to the White House Web site, resources will be available through Project Bioshield to pay for improved vaccines and their development, especially for smallpox, anthrax and botulinum toxin, as well as countermeasures for “other dangerous pathogens, such as Ebola and Plague, as soon as scientists verify the safety and effectiveness of these products” (White House). Furthermore, the Food and Drug Administration would be provided with the authority to make new and various treatments available

quickly in the event of a crisis. Initial estimates were that the program would cost \$6 billion over a 10-year period (Food and Drug Administration, 2004a).

Signed into law in July 2004, Project Bioshield faces what may be insurmountable difficulties. Although funding is available for the development of vaccines, drug companies are, in general, hesitant to put resources and time into their development. As Dudley and McFee (2005) note, the barriers to vaccine development include the reality of corporate liability, and lack of sufficient funds to protect against liability, as well as constraints related to human safety. Unlike clinical trials among those who might already have a disease or illness, testing vaccines against biological weapons poses unique challenges: it is ethically unacceptable to expose individuals to the types of harms that these sorts of trials might involve. While product liability issues remain a deterrent to developing vaccines against possible biological terrorism, the reality of the cost effectiveness of these projects also impinges on the willingness of companies to pursue their development. Effectiveness aside, drug companies want to be able to sell their products—vaccinations that will be purchased only in the event of a crisis situation of unknown proportions and (potentially) low probability may not bolster the bottom line.

An example of the difficulties associated with Project Bioshield is evidenced in the tale of VaxGen Inc. The federal government contracted with this company to provide a vaccine for anthrax by the end of 2006. Due to contract changes between the federal government and the company, as well as delays resulting from questions regarding the drug's safety, the expectation is that the drug will not be available until late 2008, with final delivery in 2009. As reported in the *Washington Post* (Gillis, 2006), problems associated with VaxGen have been

a political embarrassment for the Bush administration, which awarded VaxGen some \$1 billion in contracts to produce what was supposed to be a modern vaccine that could protect as many as 25 million people from exposure to deadly anthrax spores in the event of a terrorist attack.

The *Post* cites sources indicating that the company is expected to seek compensation for changes to their initial contract. In a case such as this, the ability of health officials to respond to particular health threats is compromised by the realities of the safety and political factors that influence how vaccines develop.

There are some who argue that Project Bioshield has had positive spin-off effects for other realms of public health beyond those that deal exclusively with biological terrorism. Dudley and McFee (2005), for example,



**Figure 5.3**      Bioshield Projects

argue that the clear emphasis within Project Bioshield on collaborative efforts between government, public health professionals, and private agencies will benefit all parties. These authors argue that the use of funds to protect against biological terrorism will “enhance attention to other public health issues, such as influenza, human immunodeficiency virus, tuberculosis and food- and water-borne illnesses” and that attention to “weaponized biological agents will also aid against naturally occurring global illnesses” (Dudley & McFee, p. 422). Attention to one particular aspect of the health realm does not leave other realms unattended: it is not a zero-sum game. Others, however, beg to differ and maintain that infectious diseases more broadly must be specifically addressed within Project Bioshield.

In April 2006, the Infectious Diseases Society of America (IDSA) presented a statement on the reauthorization of the Project Bioshield Act (Blaser, 2006). In this statement, the IDSA argued that the reauthorization

of the Bioshield Act must specifically include and extend the statute's scope beyond the development and acquisition of vaccinations and treatments specific to "bioterrorism-related pathogens and apply current incentives to products to be used against naturally occurring infectious diseases, including anti-microbial resistant infections" (IDSA, 2006, p. 1). In effect, the IDSA points to disease itself, regardless of the source, as the target toward which weapons of defense must be aimed. The IDSA points out that policymakers should be concerned:

While concern about bioterrorism is appropriate, it is important to keep things in perspective. Not one American has died from bioterrorism since President Bush first announced Project Bioshield in February of 2003, but drug-resistant bacterial and other infections have killed hundreds of thousands of Americans in hospitals and communities across the United States and millions of people across the world during that same short period of time. (p. 2)

The statement also supports the argument that incentives for research and development in the realm of antibiotics is difficult to sustain and is diminishing in favor of more profitable drugs such as those that treat "chronic, life-long conditions and lifestyle issues" (IDSA, 2006, p. 4). The IDSA argues that national security is undermined by inattention to infectious diseases, and that the burden to promote industry attention to anti-infective research and development lies with the federal government.

The arguments of the IDSA are persuasive and speak to the issues of communication and information. As the IDSA points out above, safeguarding against bioterrorist threats makes sense. What makes less sense, however, is failing to address the health threats that have not disappeared in the wake of these more recent concerns. Given the remote probabilities associated with bioterrorism, in contrast to the known record of destruction associated with infection, to ignore an established threat that has gone out of vogue, is to potentially undermine security, more broadly conceived. Terrorism, as we have pointed out in earlier chapters, is but one threat that the state, institutions, and individuals must deal with; other threats to security are often more prevalent and far less abstract.

Furthermore, the funding behind Project Bioshield may mask in simplicity what is in reality a complicated set of factors. The public may perceive that federal dollars flow to that which the state defines as most threatening. In the case of health, because of the exorbitant amounts available for research and development against bioterrorism, the message is that the greatest threat to health is bioterrorism. As the IDSA points out, this is clearly



not the case. The federal funding behind what is perceived by many as an obscure threat undermines the concerns that are, in fact, local and are far more real in their everyday consequences. Any individual in the United States may be much more likely, in terms of probabilities derived from past incidences, to die from the flu or from AIDS than to die of bioterrorism. As Glass and Schoch-Spana (2002) note, this high-level agenda setting in the health realm distances the public even more from the state and from the medical profession. These authors note that the effort behind bioterrorism responses “has not, to date, defined a role for the public in disease surveillance, even though the general public historically has been an accurate source of reports of infectious disease outbreaks” (Glass & Schoch-Spana, p. 220). On the one hand, infection is something the public can understand because it is within the realm, for many, of everyday experience. Citizens already possess some form of common knowledge of this threat, having learned about germs from a very early age. On the other hand, bioterrorism resides well within the realm of the unfamiliar, and citizens are once again asked to hold hands with health professionals and other experts through the thicket of unimaginable health threats, at the same time that they are dealing with the realities of health threats that actually are easily imaginable and recognizable in their everyday occurrences.

Information regarding these obscure health threats may well have little resonance. Glass and Schoch-Spana (2002) indicate that the delivery of information about health threats is as important as the delivery of medicine and vaccinations (p. 220). The public may become even more distanced: the arguments for protection against bioterrorism are seen as usurping what the public may feel are the more credible and familiar threats to health. The ability of authorities to engage the public in protection efforts against bioterrorism will require familiarizing the public with such threats and making these threats as real as those they face more often from less spectacular sources of disease and injury in the realm of the everyday.

### Summary

AIDS. Anthrax. Smallpox. SARS. Mad cow disease. Reading like a failing report card on health, it would be difficult to deny that there is indeed a pressing need for health security measures at the individual, institutional, state, and even global levels. What becomes increasingly evident, however, is the degree to which individual health no longer remains a personal issue. Given the contact that increasingly occurs on a regular basis between individuals, as well as among citizens worldwide, individual

health has potentially complex and far-reaching consequences. Further decisions made at the institutional and state levels affect the health choices and resources available to individuals at any given time.

While our tendency has been to consider health a personal issue, many of the factors that influence health and illness lie outside the realm of individual control. We note the role that politics play in the determination of health threats, and the impact that various political choices have both for public health and for motivation for research and development in less lucrative domains of health research. While political factors outside individual control may be consequential for individual health, individuals are increasingly being asked to assume responsibility for their own health. In and of itself, personal responsibility for health makes sense, but only in situations where the choices are not haltered by structural constraints. Very early on, disease was linked to losses in productivity that motivated public health initiatives. While it is evident that disease and ill-health are linked to losses in productivity, therefore making a healthy population a desirable standard, public health initiatives are motivated by much more than a healthy economy, and are increasingly linked to security in a global world. Again, we note the importance of risk position and risk balance: certain factors may exacerbate vulnerabilities, while other factors serve to bolster immunities to various forms of health hazards. As with our discussion of terrorism, states and governments also inhabit various risk positions. Protection against SARS, for example, is very much a global issue, with vulnerabilities affected by respective degrees of power and insularity at the international level.

At various points in this volume, we have referred to the landscape of security, and how it is that certain issues come to the fore while others recede, depending on the perspective one assumes. Undoubtedly, physical bodies play a role in that landscape, with the health of physical bodies an issue at each level of analysis—individual, institutional, and state. The geographic landscape also plays a role in how it is that security is perceived, with risk balance playing out differently depending on the physical environment with which one is dealing. Most obviously, those who reside in Kansas and Nebraska, for example, spend less time worrying about tsunamis than they do about tornados. Likewise, urban dwellers on the East Coast may perceive the likelihood of terrorist attack much differently than do farmers in the Midwest.

Our consideration of the physical landscape of security continues in the next section. We begin with a quote from a relatively well-known radical environmentalist and continue our examination by reflecting on various approaches to, and definitions of, environmental security. We consider definitions of disasters, and then move to a more deliberate and measured

examination of Hurricane Katrina and how this event clearly illustrates risk imbalance, in this particular case, and the impact that this imbalance has had for the security of various stakeholders.

### ***The Physical Landscape: The Environment***

In my lifetime I have witnessed an onslaught against the inhabitants of this world lead by the greed of industrialized nations. It is my belief that the oppression of people is rooted in the oppression and exploitation of nature. A fundamental disrespect for life that began with the conquest of Mother Nature and has led to the conquest of humankind.

I struck back. In an act of resistance designated to raise awareness and draw attention to a problem that affects every human being, every animal, every plant, and every form of life on this planet. I am speaking of global warming, air, soil and water pollution. We are in the midst of a global environmental crisis.

On June 16, 2000 I ignited a fire that would forever change my life. I torched 3 SUV's. I took extra care and used specific fuels to ensure no one would be injured. (Luers, 2007)

Jeffrey "Free" Luers, among others, views the natural environment as a victim in need of protection. The crimes Luers committed in defense of the Earth were meant to draw attention to the fact that the Earth's security and integrity is threatened by the very sources that others would define as evidence of progress. Environmental security, according to this perspective, can only be achieved by minimizing the anthropogenic threats that the Earth now faces. The pursuit of wealth from this view has undermined the foundations of the planet, with little apparent political will to reset the course of destruction on which we now find ourselves. In the absence of political will, radical environmentalists such as Luers argue that individuals must take up the environment's cause independent of state or corporate support and do whatever is necessary to stop this so-called progress.

Concerns with environmental protection, however, cannot be viewed as simply the hobbyhorse of a limited number of radical environmentalists. While few may feel that torching SUVs (sport-utility vehicles), widely criticized for their high fuel consumption, is an appropriate means by which to stop the oppression and exploitation of nature, protection of the environment has increasingly found itself on the radar of individuals, corporations, and states. Recycling facilities exist throughout urban centers and residents in many locales are encouraged to "reduce, reuse, and recycle," in order to limit the amount of waste produced (in some cases, through threat of fine



**Figure 5.4** Environmental Damage

for too much trash). At the corporate level, for example, the New Source Review program in the United States is an effort to reduce emission levels associated with manufacturing, notwithstanding the loopholes that allow many corporations to avoid installing environmentally sound, yet costly, technologies. At the international level, the Kyoto Protocol (formerly the Kyoto Protocol to the United Nations Framework Convention on Climate Change) was structured to ensure that its signatories guaranteed limiting greenhouse gas emissions to a predetermined formulaic level, among other guarantees, in order to limit ozone depletion.

While recycling and various acts with respect to limiting harmful emissions may constitute environmental protection, what exactly is meant by environmental security? Does the protection of the environment ensure

security? Furthermore, what or who is the referent object when referring to environmental security? Is the protection of the Earth itself, for itself, at issue, or is it simply one aspect of national security? In the discussion that follows, we begin to explore these questions. Security and the environment consist of a varied range of images, from specific harms such as dealing with contaminated soil in particular geographies due to oil and gas extraction, to rainforest clear-cutting in South America and its global impact.

### **Defining Environmental Security**

Concern with environmental security has focused on the distinctions between natural and man-made disasters. While such distinctions might have once been clearer, it is difficult to label, for example, flooding in dammed areas as being either natural or man made. Equally, the distinction between the private and public realms begins to disintegrate in the context of environmental security. A corporation's choice to dump contaminated water into local streams, for example, is a decision that cannot be considered private any more than individuals dumping paint thinner into sewers could be considered as such. Finally, disasters have different effects on the rich and on the poor. Hurricane Katrina provides an example of how this works. Perhaps in contrast to Beck's (1992) assumption that risk has a democratic effect on the poor and the rich, other observers suggest that environmental issues disproportionately affect the poor or minorities. Those with access to resources are far better able to protect themselves against hazards associated with the environment than are those without.

There are two primary perspectives on environmental security. First, environmental security is viewed as a branch of, and matter for, national security. This definition focuses on the ways that environmental degradation and scarce resources play into and intensify the potential for conflict. This view has more recently been challenged by a second view that sees environmental security as distinct from national security having to do, instead, with environmental degradation and its related causes as by-products. In this view, environmental degradation may include national security interests, but the focus remains on the ecological component—the environment itself. Broadly speaking, global change, including issues such as deforestation, depletion of the ozone layer, and loss of biodiversity, to name a few, is the focus of this approach. These two approaches to environmental security clearly have different referent objects: in the first case, the nation

is the referent object, and in the second case, the environment itself is the referent object.

Concerns with environmental issues as a national security matter (the conflict approach) emerges from the observation that “ecological stress can lead through several social mechanisms to armed conflict and/or to political instability” (Dimitrov, 2002, p. 681). Population growth, for example, coupled with unequal access to resources and environmental change, contributes to both national and international conflicts. Conflict concerning the physical environment is central to this perspective on environmental security. Dimitrov cites the example of water scarcity: Egypt and Ethiopia have had disputes over the Nile River, whereas Jordan and Israel have fought over the Jordan River. Further examples include securing food supplies where agricultural demands outstrip production and refugees fleeing their home countries because of ravaged environments or environments insufficient to support the people dependent on it. Because water use and land use issues may involve conflict, this perspective tends primarily to involve military establishments as the key institutions by which these concerns can be addressed.

The second major approach to environmental security derives from an ecological perspective. Although issues such as food or water scarcity may come to the fore, “the primary entity to be protected is no longer the state but the ecological environment” (Dimitrov, 2002, p. 684), or, as Eddy (2004) notes, “environmental degradation of the global commons” (p. 23). In contrast to the view maintaining that environmental factors can be the source of conflict and stress, this approach upholds the notion of universal harm and the idea that human health is inextricably linked to the ecosystem. As Soroos (1995) points out, rather than environmental security involving various nations attempting to position themselves in advantageous positions relative to each other, the ecological approach downplays competitive endeavors and instead focuses on cooperation in order to address the cumulative effects of the threats now facing the environment. Rather than simply seen as a surface on which various interests and conflicts are played out, the environment is seen as being one with its inhabitants, both human and nonhuman.

Given that these two perspectives define the referent object of environmental security in such different ways, the identification of and responses to environmental issues will also differ. In the conflict approach, for example, rather than protecting the environment per se, the goal is to maintain some degree of balance between fractious parties, or some degree of balance with respect to human use and the environment so as to avoid conflict. For example, rather than protecting the environment, the conflict approach would suggest that the answers to particular issues lie in restructuring or reformulating an equilibrium, say between users of particular waterways,

or between food production and population growth (Dimitrov, 2002, p. 683). In these sorts of measures, human needs are prioritized and environmental protection refers to the protection of the environment for human needs. The approach would be similar to treating the signs and symptoms of environmental stress, such as land-use issues, rather than treating the illness itself.

On the other hand, the ecological approach to environmental security maintains a more holistic approach, giving more regard to securing the environment itself: "Because environmental stress itself is a threat to security, regardless of whether it eventually leads to violent conflict, allowing critical decline of hydrological systems would already be a *de facto* security failure" (Dimitrov, 2002, p. 684). Whereas the military might be called on to respond to environmental security issues in the conflict approach, in the ecological approach, nongovernmental organizations, other institutional actors, and individuals would be called on to establish security. This approach to environmental security encourages a bottom-up approach and is more likely to involve local, as opposed to national, organizations. The manner in which environmental security is addressed therefore depends on what is believed to be threatened, which in turn has implications for whether unilateral or collective security strategies are undertaken.

The conflict approach to environmental security has tended to favor unilateral responses to threats. As Eddy (2004) explains, in the post-Cold War period, the fallibility of borders to nonmilitary threats was recognized. At the same time, these threats "provided rationales for military and other interventions in other nation states as a 'defensive action'" (Eddy, p. 24). Threats that are environmentally based, such as changes in water basins that might lead displaced peoples to cross borders, are increasingly seen as threats that require defensive, unilateral, action. The ecological approach to environmental security, on the other hand, views unilateral efforts as damaging and insufficient to protect the global commons. Rather than promoting and acting on self-interest, the ecological orientation maintains that environmental security can be better sought through multilateral cooperation. "Protection of the global commons would necessarily involve extra-national cooperation of some kind between nation states" (Eddy, p. 24).

### **Power and Knowledge**

Whether one takes a conflict or ecological approach may be influenced in different ways by one's respective access to resources (power). This brings us to consider risk balance in terms of the ways in which individuals are able to reduce the negative effects of environmental disasters and dangers

on their health and well-being. Those with greater access to resources may wish to maintain the status quo and undertake unilateral action that might preserve that position of power; alternatively, they may consider themselves to be duty-bound to lead by example in the realm of environmental protection and participate in multilateral action. The litigation process or the threat of litigation may also serve as a means through which to persuade those of varying degrees of power and knowledge to undertake specific types of actions to prevent disaster. Litigation processes determine the knowledge base at the time of the disaster (that is, what various parties knew in advance of litigation claims being heard); they also determine the resources that were available to avoid being found responsible for damages. Establishing what is known in advance of disasters involving large-scale environmental damage is a particularly thorny question when it comes to establishing cause and effect. Environmental damage (the effect) may be removed in time and space from the source of such damage (the cause). Furthermore, what is maintained as being safe at one time may be identified as harmful only much later, at a point far removed from when the damage was done.

One of the most infamous cases of environmental harm of the past century was the case of Love Canal, New York. It illustrates the convergence of a number of the key factors central to establishing security—power, knowledge, control, and vision. Lois Marie Gibbs, known as “housewife and mother turned activist,” describes the situation at Love Canal:

The Love Canal crisis began in the spring of 1978 when residents discovered that a dumpsite containing 20,000 tons of chemical wastes was leaking into their neighborhood. The local newspaper ran an extensive article, explaining that the dumpsite was once a canal that connected to the Niagara River five miles upstream of Niagara Falls. This canal, 60 feet wide and 3,000 feet long, was built by William T. Love in the 1800s in an attempt to connect the upper and lower Niagara River. Mr. Love ran out of money before completing the project, and the abandoned canal was sold at public auction, after which it was used as a municipal and chemical dumpsite from 1920 until 1953. Hooker Chemical Corporation, a subsidiary of Occidental Petroleum, was the principal disposer of chemical wastes at the site. Over 200 different chemicals were deposited, including pesticides such as lindane and DDT (both since banned from use in the U.S.), multiple solvents, PCBs, dioxin, and heavy metals.

In 1953, after filling the canal and covering it with dirt, Hooker sold the land to the Niagara Falls Board of Education for one dollar. Included in the deed was a “warning” about the chemical wastes buried on the property and a disclaimer absolving Hooker of any future liability.



The board of education, perhaps not understanding the potential risks associated with Hooker's chemical wastes, built an elementary school near the perimeter of the canal in 1954. Home building around the canal also began in the 1950s, and by 1978, there were approximately 800 single-family homes and 240 low-income apartments, with about 400 children attending the 99th Street School next to the dump. (Gibbs, 1998, p. 1)

After her kindergarten-aged son was constantly ill, and finding inexplicable maladies among her neighbors, Gibbs (1998) petitioned residents to shut down the local school. Her efforts prompted two eventual emergency evacuations of the area, as well as a government-sponsored permanent relocation of all families who wished to leave the area. The government recovered its \$60 million in costs through a lawsuit eventually paid by Occidental Chemical. Gibbs writes that part of the initial hesitation to evacuate the area was the expense incurred by the evacuation and relocation costs. Initially the government refused to evacuate the area, not wanting to set an evacuation precedent because of the many other sites across the United States facing the same difficulty, and not wanting to evacuate due to the supposed lack of scientific evidence to support the indications of illness and the incidence of miscarriage resulting from exposure to chemicals.

Love Canal illustrates some of the difficulties in establishing responsibility, the impact of power and knowledge, and the establishment of cause and effect. It seems clear that Hooker Chemical was aware of the possible issues associated with Love Canal. Selling this land for \$1 with the warning regarding the buried chemicals suggests that Hooker was aware of (had knowledge of) the possibility of serious complications associated with this waste. While the disclaimer was meant to absolve Hooker of future liability, the specifics of the dangers associated with the area had not yet been spelled out. In other words, although a specific link between cause and effect had not been established at that time between chemical exposure and health difficulties, Hooker had enough knowledge to try to protect itself from whatever the future held, although their efforts ultimately failed. Lack of specific knowledge, Hooker had anticipated, would not equate with responsibility for future damages. Part of the argument against having to compensate residents (or, technically, compensate the government) was that the connection between cause and effect was tenuous. The government, which eventually did pay for the costs of evacuation and moving, was loathe to point a finger and betray corporate interests. While Hooker's bid to protect itself against future financial liability may have failed, it seems apparent that the big losers at Love Canal were the residents, whom Gibbs (1998) described as "a blue-collar community" in a "David and Goliath struggle" (p. 1).

### **The Blurry Boundaries Between Natural, Man-Made, and Other Disasters**

Norris (2001) found that technological disasters are more stressful than natural disasters to victims. At least part of the reason for this has to do with the moral character of man-made or technological disasters, and the perceived intentionality or negligence associated with the evolution of these types of disasters. In their article on corrosive communities, Picou, Marshall, and Gill (2004) explain that the litigation process that follows particular man-made disasters can exacerbate the stress associated with the disaster. Rather than being able to recover on their own terms, victims of such disasters often endure an extended period of negative effects associated with the litigation process. Ironically, the process that is meant to recover losses and provide some degree of relief for victims is also the process that exacerbates the stress that it is designed to alleviate.

The litigation process associated with disasters and other events is a formalized method of laying blame and responsibility on particular parties and determining methods of redressing or compensating economic, psychosocial, and environmental damages. As noted in the previous chapter, being relieved of responsibility and laying blame elsewhere can potentially reduce anxiety, at least in some instances, and to a certain degree. Part of the litigation process, however, is establishing the type of event that best characterizes a particular disaster. Disasters are, essentially, nonroutine events. However, Picou and colleagues (2004) suggest that there are certain types of disasters that can be labeled as consensus-type events or consensus crises, with emergency personnel working in a coordinated effort to quickly and effectively relieve victims' suffering. All involved parties are working toward victims' timely recovery. Disasters that are not acts of God and would instead be viewed as man-made are often viewed differently, with a resulting lack of coordination. Some stakeholders, such as corporations, potentially do not act in the best interests of the harmed parties but rather act according to self-interest. The litigation process often highlights the disparities among parties and the ways in which various types of disasters are viewed.

The litigation process involves establishing responsibility for disaster. However, there is often a combination of pressures that make distinguishing man-made from natural difficult. As Picou and colleagues (2004) explain, "the severity and duration of disaster impacts may be ascribed to anthropogenic factors, even though a disaster itself may be perceived as an 'act of nature' or 'God'" (p. 1498). The inability of dams, for example, to hold water loads is an example of this difficulty. When a dam fails due



**Figure 5.5** Controlling Environmental Damage After Hurricane Rita

to heavy rainfall, should it be considered a natural or a man-made disaster? Depending on the perceived source of the disaster, determinations are then made regarding who is to be held responsible and for how much. In the 2005 spring flooding in Calgary, Canada, city residents blamed the city for allowing houses to be built too close to the river's flood plain. While no dam failed in this case, urban planning itself was perceived as the problem, evident in waterlogged basements. In addition, while there are a combination of factors that may underlie particular disasters, an oft-held view is that because so many "elements of the environment are befouled by the spoils of human endeavors, [then] all disaster events may be perceived as rooted in anthropogenic forces" (Picou et al., p. 1498), or rooted in forces that are the result of human influence on the environment. The question then becomes, "Is the environment really natural any longer?"

Adding a further barrier to the supposed simplicity of defining disasters as either natural or man made is the phenomenon of terrorism and the resulting disasters associated with such acts. The terrorist attacks on the United States in 2001 were immediately characterized by a consensus-type approach, with caring for victims and reducing harm to victims as the first priority in the hours immediately surrounding the attacks. Despite the reported lack of coordinated effort between the police and fire departments, the goal of emergency services was to save lives and address injuries. In the early days after 9/11, and since that time, however, consensus evaporated. Instead, the same factors that tend to be associated with technological disasters came to the fore: responsibility, blame, and compensation. Questions came into focus such as why the government was not able to avert this disaster, why the targeted buildings were not better designed to withstand these sorts of forces, and why communication systems failed began to surface, along with big-picture questions having to do with the errors made in international relationships by the government. Litigation, according to Picou and his colleagues (2004; see also Marshall, Picou, & Gill, 2003), has come to be a defining feature of the response to September 11, establishing a connection between terrorism and technological disasters of other descriptions.

In contrast to the view that the environment can be owned is the view that the environment essentially owns us: that our relationship with the environment is a force over which we may have little choice and control. In her book on risk, Lupton (1999) recounts the story of a couple who were warned by experts that their home was lying in a particularly dangerous location, given the probability of future landslides. The couple's reaction was to say that they understood the risks, but they were willing to forfeit some security in the face of a threat that had yet to be realized and might not be realized in the immediate future. Their attachment to their home and surrounding environment overruled any impetus to move from the area. Similarly, since 1906, the year of the San Francisco earthquake that killed 700 people and set off a number of large fires, urban development along the San Andreas Fault has continued to grow. Despite the prediction by experts that another major earthquake is likely to occur, businesses and residents appear unwilling to respond to this threat by moving out of the area, although more recent acknowledgment of the likelihood of disaster is evidenced in the use of certain building materials that might better withstand shocks.

These examples assume that choices are being made. While some individuals who have the means to live elsewhere choose not to do so, others clearly do not have a choice and live in certain areas because of circumstances

that are not of their own choosing. The nature of environmental threat as it relates to security and relative positions of power and influence (risk position) has most recently been stunningly evident in the coastal U.S. states of Mississippi and Louisiana. As we discussed earlier, in August 2005, Hurricane Katrina whipped the residents of these southern states with anywhere from Category Three to Category Five hurricane conditions.<sup>1</sup> Residents of New Orleans appeared to have expected the big one to happen one day, as local newspapers and other reports had detailed the likely damage in the event of such a hurricane years earlier, while hurricane experts predicted that it was only a matter of time. Ill-prepared for the magnitude of water accompanying Katrina, many of the levees were unable to withstand the hurricane-induced pressures, leaving many parts of the city all but completely submerged.

### ***The Evolution of Disaster***

Disasters occur when natural, technical and human-induced phenomena impact on vulnerable socio-economic systems. Vulnerability to disasters is a function of objective hazards and human activity in a constructed environment. Human behavior patterns can be influenced; therefore, vulnerability can be reduced. This makes disaster reduction not a random choice but a moral imperative. If communities need not suffer, they should not suffer. In addition, there are important socio-economic benefits of disaster reduction. Insufficient investment in disaster reduction leads to much higher costs for humanitarian assistance and reconstruction following natural disasters, and to a widening development gap between rich and poor communities. The cost-effectiveness of disaster reduction thus makes it a strategic imperative as well. (United Nations [UN], 1999, ¶ III. 14)

The United Nations declared the 1990s as the International Decade for Natural Disaster Reduction (IDNDR). The mandate of the IDNDR program was to focus on “disaster reduction through the scientific understanding of natural disasters, the assessment of their damage potential, and the mitigation and reduction of damage through technical assistance and technology transfer, education and training”(UN, 1999, ¶ I. 1). Following a review in 1994, the IDNDR redefined their focus and

placed greater emphasis on social sciences and economics; focussed on the development of public policy, including legislation and national policies for disaster reduction; intensified regional and sub-regional approaches, and shifted from emergency preparedness to the reduction of vulnerability and risk. (UN, ¶ I. 3)

The refocused mandate was formal recognition that, while science and technology may help to identify natural hazards, social policy would allow for the circumvention of the evolution of hazards into disasters.

The IDNDR report lists a number of factors that account for the substantial increase in economic costs and losses associated with natural disasters over the past decades. Some of these factors include

- population concentration in high-risk areas, without adequate efforts to reduce risk and vulnerability;
- global disregard in the realms of “socio-economic planning, risk assessment and monitoring, early warning and disaster preparedness” (UN, 1999, ¶ II. 7[b]);
- vulnerabilities created in modern industrialized societies due to overdependence on complex infrastructure systems;
- degradation of the natural environment, “leading to negative synergies between the occurrence of natural phenomena and increased risks for communities exposed to natural hazards” (UN, 1999, ¶ II. 7[d]);
- indications of global climate change, including aggravation of climate disparities ability;
- increasing episodes of compound disasters, such as natural-technological disasters; and
- the impact of large-scale poverty and potential for economic collapse, especially for developing countries and countries in transition, thereby increasing vulnerabilities to disasters.

This list of factors includes factors that precede disasters, as well as factors that make a difference during and after a disaster event.

How can a risk-balance approach be used to understand disasters? It is important to note that hazards are not disasters, but rather, hazards can become disasters. For example, living along the San Andreas Fault is hazardous. The San Andreas Fault is so named because tectonic plates (the North American and Pacific Plates) meet well below the Earth’s surface at this particular location. When these plates shift, earthquakes occur. Some of the hazards associated with earthquakes include ground motion, ground rupture, aftershocks, fire, landslides, flooding, and, in some cases, tsunamis (Nelson, 2004). In order to compensate for the probability that tectonic plates will shift, various procedures can be taken to minimize the probability of earthquakes turning into full-blown disasters. Strict building codes, for example, specify standards for enabling buildings to withstand ground motion.<sup>2</sup> Individual homeowners may prepare their homes for earthquakes

by strapping their water heater tanks, securing large appliances, anchoring bookcases and cabinets, removing hazardous cleaning fluids, and securing objects such as pictures, plants, and so on. Individuals may also circumvent disaster by taking up various emergency preparedness measures, such as practicing drills, developing evacuation plans, securing important documents, and preparing emergency supplies. Government, either at the state or local levels, may facilitate preparedness, for example, by providing appropriate and timely information and by developing emergency plans that involve producing written disaster plan documents and ensuring that these documented plans work.

The motivation to circumvent disaster, however, is often not straightforward, with various factors impinging on the ability and willingness of individuals and organizations to prepare for disaster. In his overview of major findings from social scientific disaster research, Quarantelli (2003) observes that individuals tend to have little interest in disaster preparedness in advance of disasters. Often, the low probability of particular hazards or disasters means that individuals tend to focus their attention on more immediate, everyday concerns. Second, individuals tend to take seriously explicit warnings of impending hazards and will respond rationally. It has been found that one of the greatest impediments to evacuation, however, is that individuals fail to leave if the location and safety of their loved ones are in doubt or are unknown (Quarantelli). Third, individuals tend to help each other should disasters occur: prosocial behavior tends to predominate, especially in terms of initial search and rescue efforts.

At the community or local level, research findings indicate that local areas tend to give low priority to community-level mitigation plans (Quarantelli, 2003). Quarantelli notes, however, that the level of preparedness has improved over the past few years, primarily due to the mass media and the reporting of disasters to the larger world community. Second, preparedness at the community level is often uneven and problematic. Often there are stresses among local agencies, such as between the police and fire departments, preventing the cooperation required among various agencies to prepare effectively. Disaster preparedness, it seems, is often snagged by pre-existing political cleavages between various public, as well as private, agencies. Partnership for Public Warning indicates that “perhaps the single most important recommendation [with respect to advisory systems] is the need for cooperation and partnership” (2004, p. 14). Third, the coordination of various agencies is problematic: some organizations are well established, such as the police and fire departments, whereas other organizations may emerge out of the disaster itself, including organizations set up

in the wake of emergencies to handle disaster functions, such as search and rescue efforts and triage. Different groups with different functions create major coordination issues. Finally, Quarantelli observes that community issues emerge in the aftermath of disasters, with remaining problems, such as poverty, often re-emerging and made worse. Other issues are, for instance, whether—and how—to rebuild.

At the organizational and government levels, the research findings that Quarantelli (2003) examines indicate that disaster mitigation is rarely on the agenda of organizations. With the exception of the banking, chemical, and nuclear industries, disaster is often unplanned for and measures are rarely instituted to respond to disaster. Although this has begun to change in the post-9/11 period, especially with the recognition that lack of preparedness constitutes a liability, disaster mitigation tends not to be a high priority. Quarantelli further observes, “to the extent that non-emergency organizations undertake preparedness planning—and until recently few did—they often plan incorrectly” (p. 6). It appears that written disaster plans do little in the way of actually mitigating disaster. Disaster preparedness requires actionable processes, such as public education campaigns; establishing links between groups; assessing and monitoring information; holding rehearsals, simulations, and drills; training campaigns; engaging citizens; creating non-emergency agencies; as well as changing laws and updating resources (Quarantelli). During the crisis period of disasters, Quarantelli notes that the question, “Who is in charge?” is often asked, but is also meaningless since a command and control model of reckoning with disaster is impossible. Associated with crisis management are three major issues (Quarantelli, p. 6): information flow between organizations and between citizens and organizations; decision-making problems resulting from either the loss of higher-level authorities (due to a variety of factors), or due to conflict regarding disaster tasks and jurisdictional control; and issues related to differing perceptions as to what constitutes coordination. As Quarantelli observes, at one plane crash in the United States, 439 groups appeared on the scene to offer their services (p. 4).

There are four stages of disaster-related behavior (Quarantelli, 2003). The first is the mitigation stage, which includes various measures taken well in advance of potential disasters including, for example, building codes, training and educational campaigns. This would be the stage where hazards and threats are recognized. The second is the preparedness stage, which involves behaviors that relate to an immediately pending hazard. Measures taken at this stage would include evacuations and warnings. The response stage involves actions that are taken during and immediately after the realization of the hazard or threat. Examples at this stage include search and



rescue efforts and emergency medical services. The final stage is recovery, and includes responses taken after the crisis period is over, such as the restoration of power and the rebuilding of homes and infrastructure. Each of these stages prepares for the following stage, with the recovery period after one disaster preparing for the mitigation stage of the next potential disaster.

### **The Evolution of Hurricane Katrina**

That things have gone so badly so quickly after the storm in New Orleans has produced, beyond sympathy, feelings in Europe of disappointment, distress and even fear that a major city in the world's superpower could have fallen into something that looks, from this side of the Atlantic, like anarchy. ("View from abroad," 2005)

The stages of disaster-related behavior suggest that that there may be opportunities for averting disaster as the mitigation stage emphasizes. Importantly, however, the mitigation stage of one disaster may be the crisis stage in terms of other disasters. As we note below, the crisis stage of Hurricane Katrina for Floridians occurred at the same time as the mitigation stage for Louisiana and Mississippi residents.

### **The Mitigation Stage**

On Tuesday, August 23, 2005, the National Hurricane Center registers Tropical Depression 12: the 12th depression of 2005, and the predecessor of what would become a hurricane of major proportions. The tropical depression was situated over the Bahamas, and the region issues a tropical storm warning with indications that the depression would be steadily intensifying. Forecasts suggest that the storm will hit Florida by Friday of that week. In anticipation of fuel shortages, oil and gas futures jump with the expectation that oil production in the Gulf Coast will be disrupted.

On Wednesday, Tropical Depression 12 surpasses wind speeds of 34 knots and becomes Tropical Storm Katrina. Katrina is the 11th named storm in 2005, doubling the number of tropical storms experienced in the region by this time in 2004. Hurricane warnings are posted in major southern centers of Florida including Miami, Fort Lauderdale, and West Palm Beach, as well as the southern tip of Florida and the Florida Keys. Forecasts predict very heavy rains along with 120 km/h winds. Predictions also suggest that after passing over Florida, the storm is likely to intensify as it crosses the Gulf of Mexico.

Later in the afternoon of Thursday, August 25, Katrina is upgraded to a Category One hurricane, after having flooded parts of the Bahamas. It is

headed straight for Florida. Authorities in Florida recommend that residents leave the Florida barrier islands, while some southern schools close early. At 6:30 p.m., Katrina hits Florida—8 hours earlier than forecasted. It leaves 11 people dead from falling trees and weather-related traffic incidents, and more than 1 million people without electricity; Governor Jeb Bush declares a state of emergency in Florida. Meanwhile, the National Hurricane Center forecasts that Katrina is destined to hit the northeastern Gulf of Mexico in three days—Sunday.

After being briefly downgraded to a tropical storm on leaving Florida, Katrina recharges and becomes a Category Two hurricane on Friday, August 26. Drilling rigs and petroleum-producing platforms are evacuated in the Gulf Coast, yet gas and oil production remain unaffected. The governors of Louisiana and Mississippi issue states of emergency in anticipation of Katrina, which also makes the implementation of emergency procedures, such as evacuation, easier to implement. New Orleans Mayor Ray Nagin is quoted as saying, “this storm really scares me” (MSNBC, 2005). He is alarmed at how little time there is to prepare for what has become the inevitable arrival of Hurricane Katrina.

### The Preparedness Stage

The director of the National Hurricane Center, Max Mayfield, indicates that Katrina is a “perfect” storm (“Bracing for Katrina,” 2005). Katrina has become a Category Three hurricane. Saturday, August 27, residents of New Orleans begin to board up their homes, and in some parishes (districts), voluntary evacuations are called. In other coastal areas of Mississippi and Louisiana, mandatory evacuations are ordered. The evacuation calls prompt long line-ups at New Orleans gas stations and highways where, in some cases, both lanes are directed out of town. The Superdome (a large, covered sports arena in New Orleans) is opened as a shelter of last resort with residents encouraged, in the first instance, to leave town. In a city of 485,000, approximately 100,000 residents have no transportation to leave the city.

Katrina becomes a Category Five hurricane as it blows over the Gulf Coast on Sunday, August 28. The National Hurricane Center suggests that the hurricane will affect a large area and that “preparations should be rushed to completion” (Appleborne, Drew, Longman, & Revkin, 2005). With 300 km/h winds and expected 10-meter storm surges, the Superdome takes in its first 10,000 people of the estimated 100,000 who remain in the city: Mayor Nagin warns that it is not expected to be comfortable in the Superdome as power may be out for days. High-rise hotels choose only to house tourists,

although they have offered shelter to local residents in the past. Mayor Nagin issues mandatory evacuation and an emergency order that allows state and local authorities to commandeer buildings and vehicles as they see fit. A Pentagon spokesman indicates that the Gulf States have adequate National Guard units to handle the impending storm.

### **The Response Stage**

On Monday, August 29, Katrina hits land as a Category Four hurricane, with the eye of the hurricane missing New Orleans by approximately 30 kilometers. Although sparing New Orleans from the very worst of the rainfall and high winds, the windows of high-rise office buildings are shattered and a particularly poor district of New Orleans is flooded by up to 7 meters of water, while in another area 40,000 homes are swamped. The power fails at the Superdome at 5 A.M. Later that morning, the wind tears at the roof of the Superdome, leaving two gaping holes. Although search and rescue teams initially wait for the worst of the storm to pass before beginning their efforts, it is estimated that 80% of New Orleans residents had been evacuated.

A further estimated 80% of New Orleans is flooded following the break of two levees on Tuesday, August 30. The flooding brings even more people to the Superdome, where an estimated 25,000 are housed with no running water and no electricity. Rescue efforts are concentrated on survivors stranded on rooftops and in attics. The airport is opened for relief flights, and the Pentagon announces that it will send five ships. Reports of looting begin to surface. Some thefts involve necessities, but there are also reports of looting of guns, electronics, and other valuables. Some looting is said to occur in full view of the police.

### **The Recovery Stage**

Reports of looting escalate on Wednesday, August 31, with thieves reportedly using a forklift to break through the walls of a pharmacy (MSNBC, 2005). Fourteen hundred police officers are ordered to discontinue rescue operations and restore order in the city and control the widespread looting. The mayor calls for a complete evacuation of the city, saying it may be months before residents can return, while emergency medical teams begin to set up triage support in trailer trucks and tents. Military planes remove the seriously sick and injured out of the city, while other people wander along Interstate 10, their belongings carried in bags or laundry baskets, or pushed in shopping carts.



**Figure 5.6** Flood Damage in the Wake of Hurricane Katrina

On Thursday, September 1, Louisiana Governor Kathleen Blanco instructs members of the National Guard and other authorities to restore order and to shoot to kill. Efforts to remove people from the Superdome to Houston's Astrodome are disrupted due to gunfire ("Ex-FEMA Chief tells of frustration and chaos," 2005). Estimates are that it may take 8 or more days to drain the city. A \$10 billion federal emergency aid package is prepared, and more than 20 countries offer to help the United States cope with the aftermath of the hurricane.

The Superdome continues to be emptied of people on Friday, September 2: emergency shelters in Houston are quickly opened because the Astrodome is filled to capacity. Helicopters drop massive sandbags on the broken levees and the first major supply of food, water, and medicine is trucked into the city. A major influx of National Guard troops arrive in the area, bringing the total to 20,000 troops stationed in Louisiana and Mississippi. A chemical storage facility explodes, sending acrid smoke into the sky. By Saturday, September 3, evacuations are nearly completed and few remain at the Superdome.

### **The Complications of Hurricane Katrina**

The losses associated with Hurricane Katrina are many and wide ranging: from those who died due to the direct impact of the hurricane; to those

who lost property, homes, and community; to the infrastructure damage that brought this region of the country to its knees; to the political football of blame lobbed between citizens and government, as well as between levels of government. As we noted in Chapter 2, this volume, our heightened sensitivity to insecurity, coupled with the increasing demands for self-sufficiency in the face of harm, makes the issues that arose with respect to Katrina all the more critical to understanding how it is that disasters unfold and how their effects might be minimized. The aftermath of Katrina is the precursor stage to subsequent hazards. The way in which damages are addressed—whether economic, structural, or social—will pave the way for responses to subsequent similar situations.

Our analysis of this event reveals three major themes, each of which emerges and recedes throughout the entire event, much like the water levels that engulfed New Orleans' Fifth Precinct. These three themes include vulnerable risk positions, communication breakdowns, and failed leadership.

### **Vulnerable Risk Positions**

As we determined in Chapter 2, this volume, vulnerabilities to harm and danger are not equally distributed. Individuals are not equally vulnerable: certain characteristics of individuals may increase vulnerability—such as advanced age and reduced mobility—while other characteristics mitigate vulnerability—such as access to resources, including money and transportation. Hurricane Katrina, not unlike other hurricanes, was not an equal opportunity disaster.

New Orleans is located in Louisiana, the second-poorest state in the United States. Only Mississippi is poorer, and that state, too, was particularly hard hit by Hurricane Katrina. While Louisiana is comparably poorer than other states, in New Orleans income varies substantially. The 2000 census indicated that fully 23% of New Orleans' residents lived below the poverty line. Furthermore, African Americans' incomes were, on average, 40% lower than Whites' incomes. In the areas most affected by Hurricane Katrina, 67% were African Americans. Nearly 8% of residents in the hardest hit regions of New Orleans did not have access to transportation (Center for American Progress, 2005).

The implications of differential risk positions become evident in an event like Katrina. Those with fewer resources are affected differently than those with more resources. Certain residents were more likely to suffer the consequences of the hurricane, specifically those who were limited by a lack of resources to living in particularly vulnerable and undesirable areas, and were similarly unable to leave these areas in the face of danger due to

limited assets and no transportation. Early directives to leave the city apparently failed to recognize that not all residents had the ability to remove themselves from harm's way. These directives not only exacerbated the distinction between the haves and the have-nots, but also reiterate how important it is for communications to be meaningful for particular audiences. Clearly, because of varying risk positions, not all residents received the message in the same way, if they received any communication at all. While some had the means to either shelter or remove themselves from harm, others clearly did not. Similarly, in terms of recovery, some will have the means to replace their lost property, while others will not.

### Communication Breakdowns

Communication requires careful consideration of the audiences to which messages are directed and the nature of the messages transmitted. In the case of communication regarding disasters, the manner in which communications are received and interpreted are further influenced by the proximity of a particular disaster to those both transmitting and receiving messages. Well in advance of the development of Hurricane Katrina, reports such as that from the IDNDR constituted one of any number of forewarnings issued and ignored with respect to the likely failure of the levees. In a widely cited article in *Scientific American*, Mark Fischetti (2000) laid out in graphic detail the ways in which the levees would fail as the result of a Category Five hurricane. In 2000, however, despite the regularity of hurricane season, a hurricane of this magnitude was perceived as altogether too abstract, and existing only in the realm of possibility. While this and other articles might have served as advance warning, priorities obviously laid elsewhere.

In the last days of August 2005, the likelihood of disaster became far more tangible as Katrina became increasingly a reality and decreasingly a mere possibility. Communications between various levels of government, and between levels of government and citizens, were fraught with a sense of urgency that impending harm often provokes. In the specific case of Hurricane Katrina, there was much criticism with respect to the content of the messages between authorities and the public. The most salient issues with regard to communication between authorities and citizens included whether authorities were providing citizens with accurate information about the seriousness of the impending hurricane, and whether the authorities communicated what they knew about the disaster with appropriate timeliness. In terms of accurate information, there was criticism that the authorities did not anticipate and recognize the gravity of the situation that

Hurricane Katrina represented, and furthermore, that even if the gravity of the situation had been fully realized, that there was no effective plan in place to deal with the looming hazard or its consequences. With respect to timeliness of communications, criticism was leveled at the authorities that by the time directives to leave the city had become mandatory, it was simply too late—especially too late for those who had little access to transportation or funds to remove themselves from danger. Those who had remained had no means by which to leave.

Communication between various levels of authorities was also at issue. As Alberts (2005) points out, myriad concerns evolved, including that “officials with the Federal Emergency Management Agency, part of the Department of Homeland Security, failed both to grasp the scope of the disaster and to mobilize aid to rescue victims.” Not only did it appear that no one was in charge, but the directives issued often seemed contrary to what might be expected in the face of this type of disaster. Mayor Nagin, for example, at one point in the early days of the crisis told the New Orleans Police Force to quit search and rescue efforts and to return to the streets to stop the looting. The deployment of police officers and media communications that turned attention to looting over rescuing suggests a communication failure, at least in terms of those waiting to be rescued and whose lives were imperiled. (We consider communications between levels of authority in the next section.)

The media played a significant role during the various stages of Hurricane Katrina, not unlike the role the media has played in other disasters. In disaster situations, the media facilitate communications among those directly involved in the disaster and communicate the event to the rest of the world. Although the role of the media varies during the stages of disaster, the media tend primarily to serve as a management tool in the preparedness and preparation stages, as well as to provide information about recovery in the postevent stage. As Perez-Lugo (2004) indicates, the media also play a role during the impact stage of the event. In her study of responses to Hurricane Georges in Puerto Rico in 1998, Perez-Lugo found that the media also served as emotional support and companionship, especially during the event itself. While many of the victims of Hurricane Katrina did not have access to television sets and newspapers, they did have access to reporters in the very early stages of the event. A number of dramatic stories were the outcome of reporters interviewing victims who felt that authorities were not listening to them. In one particular case, a female reporter, Christie Blatchford (2005), and her cameraman arrived from Canada a day before the National Guard arrived. They were met with tears of frustration and evidence of sickness and

death. While many reporters were not able to provide the physical help that victims required, reporters were able to listen and provide emotional support to despairing victims.

The media use of technology meant that the pictures and stories associated with the flood were transmitted around the globe nearly instantaneously. International onlookers observed that the country that many perceive to be omnipotent failed to provide basic services to its own citizens. In a most unfortunate media moment for the government of the United States, it was reported that those in charge had no idea of the extent of the damage that had been caused along the Gulf Coast until they had seen the media images on the news.

The use of technology and the speed at which stories are created and distributed also plays into the reality that media stories of disasters are often incomplete and may focus on particular sensational aspects over aspects that are perhaps more important. For example, Quarantelli (2003) notes that the media tend to focus on the formal search and rescue groups, ignoring the fact that 90% of search and rescue is undertaken by citizens. Due to the immediacy of broadcasts, the media may play a greater role in defining the issues than is productive. For example, a splash of stories during the flooding event focused on the looting and criminal activity that was going on in the early stages of the disaster. These stories were accompanied by various captions suggesting that crime was an even greater threat than the floodwater itself. Later reports, well into the aftermath of the disaster, suggested that these early reports had been overstated and that looting may have been relatively rare.

### **Failed Leadership**

Criticisms of the response to Hurricane Katrina focused primarily on failed leadership. The Federal Emergency Management Agency (FEMA) was held particularly accountable for the way in which the emergency response was handled, with perhaps the foremost criticism that of incompetence at the helm. The role of FEMA is to coordinate disaster relief, which includes the four areas focused on above: mitigation, preparedness, response, and recovery. The coordinator is also responsible for making things happen: bringing the right people to the table to ensure tasks are done, and done effectively, and ensuring a presence so that others are aware of the role of FEMA and what it is supposed to be doing. The logistics of evacuating people was a central issue that was inadequately prepared for. With regard to incompetence at the helm, Michael Brown, director of FEMA, was the target of much



criticism. Regardless of President Bush's observation, "Brownie, you're doing a heck of a job" (White House, 2005), many critics suggested that losses could have been greatly reduced, had a leader been in place who was familiar with emergency preparedness and response. Ten days after the president's praise, Mr. Brown resigned, to be replaced by interim director, now Director David Paulison.<sup>3</sup> Although FEMA bore the brunt of criticism for the failed response to Hurricane Katrina, state and municipal governments were also criticized. Mayor Nagin, for example, issued a voluntary evacuation in advance of a mandatory regulation that, for many, was too late. State senators appeared to have a difficult time convincing FEMA officials that the hurricane was indeed as bad as it was. Because the levees did not fail straight-away, the urgency of the situation may have been assumed by some to have diminished with the passing storm. Yet in the aftermath of Katrina, most fingers pointed directly toward FEMA.

### *Summary*

The lessons to be learned from Katrina are many. First, nature does not exact its toll evenly on the population: risk position matters. Those who are able to afford protection or who have the means to avoid hazards are obviously far less harmed by the challenges of natural hazards and disasters than are those who have no means to protect themselves. As has been observed in other natural disaster situations, from earthquakes to tsunamis, it is the poor who suffer the most. Second, risk position plays a crucial role with respect to the salience of messages communicated and the means by which individuals in various positions are able to respond. In New Orleans, calls to evacuate not only came very late to certain areas, but also assumed that particular residents had the wherewithal to evacuate. Given that public transportation had shut down, poor and elderly residents were physically unable to remove themselves from harm's way—they had no cars, no money, and no way of getting out of their homes. Communication is critical: As we have emphasized, information is a key component of security, as is the need for information to align with the contexts to which it is provided. Communication breakdown appeared part and parcel of the failed leadership evident throughout this disaster.

In its report, IDNDR presented a number of recommendations that speak to the notion of risk balance. More recently, the Department of Homeland Security has begun to recognize that a multidisciplinary approach is better suited to enhancing security in a variety of realms. Specifically, the

IDNDR suggests a “broader orientation on intersectoral approaches”; “a growing understanding of the human dimension in the occurrence of natural disasters, and of the relationships between socio-economic factors, risk factors and disaster vulnerability” (UN, 1999, ¶ II. 8[a], 8[b]); improvement in telecommunications systems and global monitoring systems; as well as increased study of global environmental change.

The observation that certain segments of the population may be at greater risk of exposure to environmental (and other) hazards is not new. For many years, criminologists have reported that certain populations are more vulnerable to crime than others: the young, minorities, males, and those with lower incomes and lower education. Not only do these characteristics describe those most vulnerable to criminal victimization, they describe those most likely to criminally offend. In the environmental security literature, there is a similar tendency regarding victims: those most vulnerable to environmental hazards are also young, minorities, with lower incomes and lower education. Unlike crime, however, where the perpetrators tend to have the same characteristics as victims, those who create the conditions of environmental degradation tend to be much different from those who are its victims. Those with far greater access to resources (owners) tend to be those who create and ignore the conditions of environmental degradation that most affect those with characteristics much different from their own.

In another parallel to the criminology literature, various elements of the environmental literature have focused on the notion of environmental justice, much like the notion of restorative or distributive justice in criminology. The idea behind environmental justice is that environmental hazards are disproportionately borne by particular segments of society, which requires fundamental redress. Pollution and environmental degradation disproportionately affect the poor compared to the wealthy. Dawson (2000) writes, “environmental justice movements build upon perceptions of prejudice and use the environment to graphically demonstrate their broader claims of injustice and discrimination” (p. 23). Whereas earlier grassroots organizations associated themselves with particular locales and concerns with specific sites that required solutions (such as the Love Canal, described above), Dawson observes that local concerns have more recently been replaced by a focus on identity and how it is that these identities become attached to the environment and its degradation.

The association of various subgroups with environmental injustice issues may be considered either positively or negatively, depending on whether

environmental security is viewed from a conflict or an ecological approach. On the positive side, the alignment of particular subpopulations with environmental issues often provides subgroups with exposure to and knowledge about environmental issues at hand. In the short term, as Dawson (2000) notes, drawing groups in on this basis “may provide an excellent tool for awakening a sub-group to injustices and recruiting people into the social justice crusade” (p. 24). While the initial stages of this process of drawing people in represents a boon to those who prefer a multilateral approach, the later stages are often characterized by power that is derived from an us versus them orientation. The later stages can become more characteristic of the unilateral approach, with gains registered in terms of the security of individual groups versus the security of the environment itself. As well, the links between subgroups and the environment may well be instrumental with little concern for advancing the others’ platform.

### *Conclusion*

Security with respect to health and the environment is clearly important for individuals, institutions, and governments. The corporeality and tangibility of bodies and environments—the centrality of space, in effect—creates greater immediacy for health and environmental security over concerns about crime and terrorism security.

As we have suggested throughout this book, these differences in perspective manifest themselves in terms of the balance that individuals, institutions, and states bring to bear on managing health and environmental issues. Risk positions vary among individuals, as well—healthy individuals view public health care, for example, much differently from how sick individuals who may rely on publicly provided health care view it. Furthermore, institutional risk positions, especially with respect to financial capacity, play a role in the determination of research and development applications for new drugs, for example. The importance of these developments obviously varies substantially between those individuals needing certain drug therapies, and the corporations that are able (but perhaps not willing) to provide these medications. Public health-care institutions, on the other hand, may acknowledge the importance of these drugs, but may be without sufficient funding to provide particular drugs to their clients, nor have enough resources to be able to convince government of the importance of motivating these developments through certain incentives.

### ***Notes to Chapter 5***

1. Hurricanes are classified on a scale of one to five. Category Five is the strongest and potentially the most damaging.
2. It is important to note, however, that the enforcement of these standards may not be especially strong and it is particularly difficult to enforce the retrofitting of various buildings to comply with new standards. Concrete construction is most susceptible to damage, while wood and steel structures are better able to flex and therefore withstand earth-shaking motion.
3. After an extended search to fill the position of director, President Bush nominated David Paulison as director of FEMA effective April 2006. Paulison is well known as an advocate of home emergency preparedness kits. He first came to national attention as the central advocate of the use of duct tape and plastic sheeting for protection in the event of a biochemical terrorist attack.