The announcement by the World Health Organization (WHO) in November 2008 that an estimated 6,072 people in Zimbabwe had been infected with cholera, and that 294 people had already died, received international attention and nearly unanimous condemnation. What was particularly notable was the insistence by members of the global health community that the Zimbabwean government was responsible for the outbreak. Specifically, health experts attributed the epidemic to the poorly maintained sanitation services and lack of clean water in urban centers that allowed the disease to spread. Efforts to lay blame on the government dovetailed with long-standing pressure to remove President Robert Mugabe from power. As the number of infected people continued to increase in December, the government cut water supplies to Harare because it had run out of the chemicals necessary for treatment. A public protest by doctors and nurses in Harare a day later was disrupted by Zimbabwean riot police, and an emergency response to the outbreak was announced by the United Nations Children’s Fund (UNICEF), the European Commission, and the International Red Cross.

With an estimated 12,000 infected and more than 560 dead in December, David Parirenyatwa, the Zimbabwean health minister, declared
the cholera outbreak a national emergency and requested outside assistance. British Prime Minister Gordon Brown responded by calling the cholera crisis an “international emergency” and urged the global community to take action. The responses by other international leaders were not restricted to the cholera outbreak. One day later, Kenyan Prime Minister Raila Odinga called for troops to “dislodge” President Mugabe. Other world leaders, including U.S. President George W. Bush and French President Nicolas Sarkozy, used the crisis to signal that Mugabe needed to be removed from power. While the WHO announced that up to 60,000 people could be infected if the epidemic worsened, Zimbabwe’s information minister, Sikhanyiso Ndlovu, called the situation “under control” and declared that the West caused the crisis in order to facilitate a military intervention.\(^3\) Ndlovu specifically described the outbreak as a “genocidal onslaught on the people of Zimbabwe by the British” and “a calculated, racist, terrorist attack on Zimbabwe” intended to overthrow the Mugabe regime.\(^4\) The outbreak of cholera continued to intensify, and by July 2009 at least 4,288 people had died, out of an estimated 98,592 cases of infection. When the government of Zimbabwe then declared the epidemic to be over, Peter Salama of UNICEF responded by stating that another outbreak was “almost inevitable.”\(^5\)

This incident helps demonstrate that human health is generated by social systems that contribute to shaping transmission patterns and the ability of health-care agencies to respond effectively. A striking feature of the cholera outbreak was its labeling by health-care practitioners as being socially produced. In fact, the spread of this preventable disease led Dr. Douglas Gwatidzo, head of the Zimbabwean Association of Doctors for Human Rights, to state that the epidemic was “man-made.”\(^6\) The framing of the outbreak as a social construction was supported by the infrastructure conditions, such as sanitation and provision of drinking water, that had deteriorated during the economic recession of the Mugabe regime. These factors contributed to an institutional and technical landscape in which vulnerabilities to disease were generated. Additionally, the cholera outbreak demonstrates that human health is understood and contested by various social actors, with decided implications for the resulting political responses. In the Zimbabwe case, this involved the positioning of cholera within broader geopolitical considerations, including the effort to remove
Mugabe from office. As this situation reveals, disease discourses unfold upon a contested terrain because these representations are simultaneously political. If a disease is seen as being produced by poor sanitation, then economic development is understood as a logical response. It is widely understood that cholera results from exposure to the bacterium *Vibrio cholerae*, which occurs in certain settings through deficits in infrastructure and sanitation systems. Yet, at a different scale of analysis, if that same disease is presented as the product of direct exposure to an infectious agent or microorganism, then removal of contact is the recommended course of action. Both of these perspectives might be presented simultaneously to benefit certain agendas. And while these responses involve human populations and the modification of social landscapes, their trajectories are distinct and can serve competing interests.

It is important to emphasize that these representations are powerful because they generate responses from institutions that make targeted decisions about how scarce resources are to be allocated for disease testing, surveillance, monitoring, treatment, and future planning. Like other infectious or communicable diseases such as West Nile virus or HIV, cholera is framed in distinct ways that can underemphasize the underlying structural conditions that make people differentially vulnerable. Disease discourses are not monolithic or uniform; rather, they can vary between social actors, depending on individual understandings, perceptions, biases, educational training, and socioeconomic class. The ways in which a particular epidemic is perceived and negotiated between social groups results in a contested terrain that reveals underlying structural processes at work in a given time and place. These disease landscapes are embedded in social systems that produce differential vulnerabilities and trigger distinct state responses and management regimes. The social context, therefore, creates the conditions through which these events unfold and contribute to shaping disease discourses. The resulting responses can therefore be technical, and depoliticized, in design. As a result, they can be ineffective in ameliorating the underlying conditions or in preventing future outbreaks from occurring. This was reflected in Peter Salama’s assertion that another outbreak was forthcoming, which proved correct when new cases of cholera appeared in May 2012 in the rural village of Chiredzi.
There remains a tendency in some of the scholarship on human health to downplay the role of structural sociopolitical factors. Instead, infectious disease tends to be treated as a natural event that occurs because of ecological conditions or behavioral decision making that produces vulnerability. This is despite the fact that social dynamics can be determinative in shaping how disease spreads and which actors are able to access health care. These interactions take a variety of forms, depending on the site of analysis, but can include the built environment, spatial histories, state practices, understandings of disease and well-being, and ability to access and utilize health-care information and centers. All of these must be considered if we are to understand the possibilities for human health. Conversely, research on the social determinants of health can overlook ecological conditions by emphasizing social factors in the spread of an infectious disease or in producing vulnerabilities in human populations. While social conditions were blamed for the cholera outbreak in Zimbabwe, *Vibrio cholerae* survives in specific environments. Ecological factors contribute to the underlying spatial conditions through which the domain of human health either expands or contracts over time, thereby revealing differential disease vulnerabilities and unequal opportunities for health and well-being. It is the *social ecology of cholera* that produced Zimbabwe’s particular outbreak and that contributes to the possibility of future occurrences.

**BODIES OF DISEASE AND ILLNESS IN ISOLATION**

To begin, it is necessary to engage with some of the dominant features of how human health is understood. I should highlight that these features are not monolithic within disciplines, as there are subfields that present competing views; however, for the purpose of clarifying the social ecology of health framework, I will outline three themes. First, it is necessary to examine how disease is traditionally understood within Western biomedicine. The biomedical model forms the centerpiece of the clinical medical tradition that has been in practice since the nineteenth century. It is derived from a transition in modern medical history whereby germ theory supplanted miasmatic theory, which posited that a disease like cholera or
malaria was caused by pollution or a harmful form of air. Proponents of miasmatic theory asserted that diseases were produced by specific landscape features, such as marshes and swamps that coincided with their incidence. An outbreak of cholera in the Soho area of London in 1854 proved consequential in generating new understandings of the incidence and underlying causes of disease. Nearly five hundred cases of cholera occurred over a ten-day period in a concentrated area between Cambridge Street and Broad Street. British physician John Snow, who was an early proponent of germ theory, conducted interviews of families that had been affected by the outbreak and created a map showing the spatial patterns of disease incidence. Also on his map were the locations of hand water pumps that, when taken in combination with the spatial distribution of cholera, allowed him to identify a particular pump on Broad Street as the source of the outbreak. In his detailed notes about the investigation, Snow wrote:

On proceeding to the spot, I found that nearly all the deaths had taken place within a short distance of the [Broad Street] pump. There were only ten deaths in houses situated decidedly nearer to another street pump. In five of these cases the families of the deceased persons informed me that they always sent to the pump in Broad Street, as they preferred the water to that of the pumps which were nearer. In three other cases, the deceased were children who went to school near the pump in Broad Street.

The removal of the Broad Street pump coincided with the recession of cholera cases, which made Snow a national celebrity and an early leader in the emerging field of epidemiology. Snow also demonstrated the power of coupling disease-incidence mapping with qualitative interviewing to uncover seemingly invisible layers of human decision making and social interactions. This showed that cholera vulnerability was not simply the product of geographic location, but was shaped by how social actors engaged with their environments in dynamic ways. By locating individual cases within a broader spatial context, Snow revealed the hidden landscape of cholera that supported an effective public health response.

Snow’s interventions were thus noteworthy and foreshadowed shifts in conventional wisdom about the causes of disease incidence. As noted by Kenneth Mayer and H. F. Pizer, “Humankind has been perpetually aware of
the presence of invisible agents that could devastate communities with great rapidity. Advances in microbiology enabled nineteenth-century investigators to identify etiological agents of communicable disease outbreaks and to develop more rational approaches to disease prevention and treatment." This approach guides the field of epidemiology in studying the causes, patterns, and determinants of disease in human populations. The focus on distinct disease patterns is well established; it is based on standard approaches in epidemiology and germ theory that help outline the features of the biomedical model. The biomedical model focuses on the pathology, biochemistry, and physiology of a particular disease. Disease pathology studies the physical locations where disease exists, centering on the organs, bodily tissues, fluids, and entire bodily structure. Biochemistry examines the human body as an organism, focusing on the structure and function of cells and biomolecules. Physiology studies the mechanical, physical, and biochemical functions of living organisms. Taken together, these three elements serve as the foundation for the Western biomedical tradition that currently guides interventions into disease management and public health.

The biomedical model tends to center on the human body as the site of disease. The consequence of this perspective is that acquired immunodeficiency syndrome (AIDS) is understood as developing from infection by HIV, which is transmitted through sexual activity, intravenous drug use, blood transfusions, or other activities that facilitate the transfer of bodily fluids. The cholera outbreak in Zimbabwe resulted from exposure to *Vibrio cholerae* through infected water supplies. Malaria, which causes morbidity or mortality in millions of people each year, is understood as being transmitted from *Anopheles* mosquitoes that carry the protozoan parasites in blood. These diseases are thus seen as the result of exposure to the virus, bacterium, or parasite, thereby centering attention and intervention on the human body.

A central issue with these particular disease framings is that they can narrow the scope, putting broader determinants of health outside the frame. For example, one of the lessons of Snow's study on the cholera outbreak was that where an individual is located matters, *but location is not spatially fixed*. Residents in the neighborhood were active agents and came into contact with the Broad Street pump through their daily movements and individual preferences. The distillation of a disease pattern to
a static spatial dynamic fails to attend to the underlying social and ecological factors that contribute to both disease vulnerability and the possibilities for healthy decision making. Because of this, the biomedical model has been challenged for downplaying the role of social factors in disease transmission. Wade and Halligan have argued that the biomedical model fails to explain many forms of illness because it assumes that “illness has a single underlying cause, disease (pathology) is always the single cause, and removal or attenuation of the disease will result in a return to health.” This means that the multiple, interrelated, and holistic dimensions of human health are underemphasized. This is not meant to suggest that epidemiology and other fields are unaware of these dynamics, but simply to assert that the conceptual framework of biomedicine can restrict the application of such a perspective.

Second, a direct consequence of the biomedical model is that an individual’s vulnerability to disease is not fully understood. As subsequent chapters will demonstrate, social and spatial processes intersect in producing the conditions that make certain populations vulnerable to disease while also enabling and constraining healthy decision making. These vulnerabilities vary over time and have been historically created through the spatial production of health landscapes. In her work on infectious disease in Tanzania, Meredeth Turshen directly challenged the biomedical model for failing to provide a holistic analysis of the interaction of people with their economic, political, and social settings. Turshen suggested that this stemmed from clinical medicine’s focus on the individual rather than the collective, which failed to attend to the position of an individual in relation to their larger environment. In a later study of disease in Tanzania under colonial and postcolonial states, she asserted that understanding health in Tanzania necessitated attention to colonial relationships and spatial patterns that were linked to political economic arrangements that advanced the power of particular social actors. She thereby provided a strong challenge to the biomedical model, explaining that the “Cartesian paradigm takes individual physiology (as contrasted with broader social conditions) as the norm for pathology and locates sickness in the individual’s body (as opposed to the body politic).”

One consequence of the biomedical framing is that diseases are seen in particular ways and at specific sites: the infectious agent and the individual
body. Emphasizing the advancements of modern medicine derived from the biomedical tradition, Paul Farmer noted that “the narrow or uncritical use of these tools is one reason for physicians’ blindness to the large-scale forces that generate sickness.” The narrowing of focus to particular diseases underemphasizes not only the underlying social and structural conditions that produce vulnerabilities, but also the opportunities and decision-making power of social actors to live healthy lives. While we certainly know something about the health of an individual diagnosed with malaria, we do not know the full gamut of lived experiences that make that individual differentially vulnerable. This is a dangerous absence, because it can assign much of the responsibility to that person while suggesting that behavioral change is the most effective way to prevent the occurrence of disease.

Focusing on a particular disease agent or individual body tends to isolate one disease rather than address the multitude of factors and their relationships in producing the domain of human health. Syndemics is the study of the compound effects of more than one disease on the health of an individual or group, recognizing that diseases interact synergistically in producing vulnerabilities. These patterns tend to emerge within socially marginalized groups, with the implication that effective public health responses require attention to how their underlying causes reflect structures of inequality. Research on syndemics has shown how diseases interact in intensifying health vulnerabilities for populations, while also assessing disease within its biocultural environment. Syndemic interactions can range from the coincidence of HIV and tuberculosis, or of kidney disease and heart disease, and demonstrate how health vulnerabilities are constituted by interacting threats. For example, Eileen Stillwaggon detailed how HIV/AIDS is intensified by the exposure to parasitic and infectious diseases that weaken the immune system. Additionally, malnutrition undermines the immune system and makes individuals more susceptible to infectious diseases, including HIV. Analyzing more than one disease or health threat can help identify linkages between them that could otherwise go unnoticed. While malaria and HIV are distinct viruses with specific etiologies, there are similarities in the social and ecological conditions that make certain individuals and populations more vulnerable to exposure.
Third, the particular disease framings resulting from the biomedical tradition generate specific health interventions. While Western biomedicine is generally effective at isolating diseases to the level of the germ and the site of the human body, this translates into particular forms of intervention for treatment and management. In other words, this focus is not without consequences. The resulting pattern has been demonstrated for decades within the fields of governance and international development, often drawing from Michel Foucault’s theorization of “governmentality.” In a richly detailed account, James Ferguson engaged with the ways in which development ideas gain traction through ideology and practice. Central to his analysis was that the machinery of global development benefits from making poverty a technical challenge that can be simply addressed through the correct mix of knowledge and policy. Ferguson argued, however, that these interventions often fail because they are depoliticized, thereby missing the sociopolitical dynamics that create underdevelopment. Also notable is Timothy Mitchell’s historical account of how the modern Egyptian state managed populations and landscapes through technocentric strategies that marginalized competing perspectives. Similarly, Michael Goldman has chronicled the role of the World Bank in championing certain development projects, particularly large hydroelectric dams, through a discursive rationality that privileges technoscientific and economic knowledges.

The narrow framing of human health becomes evident in the form of technical and apolitical interventions for its improvement. The identification of a problem is a starting point for contestations between those with competing worldviews, disciplinary trainings, and agendas. The identification of the problem produces particular framings for how it is understood. Human and nonhuman landscapes are reimagined by external entities through depoliticized narratives that justify the transformation of those landscapes, even asserting that it is in their best interest. These moments of encounter between development agent and development subject need not be seen as sinister. Tania Murray Li has convincingly shown that many agencies operate with the “will to improve” the lives of those touched by the project of international development. But improving and being improved upon are two distinct positions of power. In the field of global health, one of the dominant strategies is the invocation of economic development for the improvement of human health.
Epidemiological Transitions
And Biomedical Development

One way in which human health can be narrowly construed is through its unproblematic and apolitical linking with economic development. The global development project following World War II was marked by a philosophy called “modernization theory,” which categorized countries into a structured and linear development pathway. An architect of this strategy was President Kennedy’s advisor Walt Rostow, who wrote in *The Stages of Economic Growth* that with the proper combination of political, economic, and cultural reforms, supposed “traditional societies” would adopt the characteristics of wealthier countries to reach a stage of high mass consumption. These development stages were an idealized path, involving a linear trajectory that would be realized through increased manufacturing and industrial organization, investments in infrastructure, and the emergence of social elites. Nation-states were presented organically, as biological entities that needed to mature from an undeveloped to a developed stage through a process of evolution. Modernization theory asserted that with the proper guidance, these traditional societies would mature into fully developed countries. The concept of development, therefore, adopted a connotation of growth, change, or maturation that was facilitated by the labeling of certain countries as “developed” and others as “developing.”

Joel Wainwright asserted that the concepts of development and nature are linked by their tendency to indicate a process whereby an entity advances from one stage to another. In this sense, development is seen as the unfolding of something essential, as in “plant development” or “child development.” Wainwright’s focus is on disentangling capitalism from development, since their conjunction implies that capital is natural. His argument can be extended further to consider the deeply ingrained understandings of development itself. As with modernization theory in the 1950s and ’60s, the term *development* became associated with growth, advancement, and maturation. Much like ideas of early childhood development, nation-states were placed on a spectrum from less to more advanced. With the proper education and management, the development process would enable these societies to develop into mature entities, ideally equipped to successfully compete in the global economy. In likening...
this process to adulthood, development is then inscribed as an organic and natural process that cannot be challenged. To question development would be akin to questioning natural law.

I emphasize the organic and naturalistic elements of development because global health and development institutions have increasingly identified human disease as a disruption to social and economic development. HIV is a virus not just to the individual body but also to the body politic. Disease destabilizes demographic systems, social networks, agricultural production, and resource-extraction industries that enable the machinery of global development. A feature of much of the scholarly writing on HIV/AIDS is the representation of the disease as a shock to households or livelihood systems, based on the tradition of identifying shocks to economic systems.\(^{31}\) Drawing upon his rural livelihoods framework, Frank Ellis suggested that diseases, along with drought, floods, pests, and civil war, are shocks that can modify access to capital assets through social relationships, institutions, and organizations.\(^{32}\) Unlike stresses, which are smaller, predictable, and more regular, shocks are understood to be large, unpredictable, and irregular disturbances that can destroy assets. As Ellis explained, “Loss of access rights to land, accident, sudden illness, death, and abandonment are all shocks with immediate effects on the livelihood viability of the individuals and households to whom they occur.”\(^{33}\) Vulnerability frameworks have emerged in recent years to consider the ways in which individuals and larger populations are exposed to hazards and the degree of resiliency within the system to withstand these shocks.

Research is also demonstrating the poverty–epidemic cycle in which poverty increases the spread of infectious disease that, in turn, contributes to producing socioeconomic poverty. The global development community has recognized the coupled relationships between economic development and environmental health. As evidence of this, the United Nations Millennium Development Goals emphasize health and environment challenges for the global population. Target 6 is designed to combat HIV/AIDS, malaria, and other diseases, identifying the need to expand access to treatment for HIV/AIDS while also altering the conditions that facilitate the spread of malaria. Target 7 indicates the importance of environmental sustainability for human health. In addition to addressing biodiversity loss and sustainable policy making, the target emphasizes reducing the proportion of the population
living without sustainable access to safe drinking water and sanitation. The urban population residing in informal and slum conditions was also identified as a key environmental health factor. According to the United Nations, 863 million people were estimated to be living in slums in 2012, compared to 650 million in 1990 and 760 million in 2000. The share of urban slum residents in the developing world declined from 39 percent in 2000 to 33 percent in 2012. More than 200 million of these people were able to gain access to improved water sources, sanitation facilities, or durable or less crowded housing, thereby exceeding the Millennium Development target.

The tendency is to equate economic development with health, or in other words *prescribe development to the patient*. Much like poverty, economic development is presented as the solution to human disease by providing income, access to social services, education, medical care, and improved sanitation that seemingly reduce the spread of disease. As Meredeth Turshen stated, "More fundamental still than issues of management, increased resources, and the transfer of medical science and technology is the question of improved health as a natural result of economic development. Classical liberal economics places hope for better health in economic growth." In some cases the potential for economic investments in the Global South to destabilize existing social systems (e.g., agrarian production practices), and to increase dependencies on imported products, is noted in the field of global health. What goes unaddressed by the health-as-development narrative are the ways that economic modernization increases vulnerability to infectious disease and exposure to noninfectious disease.

The confidence in the inherent benefits of global development for human well-being is shared by the epidemiological transition model. Popularized in the 1970s, this model asserted that the primary health threats for poor countries were caused by infectious and communicable diseases. By comparison, wealthier countries were more likely to contend with noncommunicable diseases (NCDs), such as heart disease and cancer. The epidemiological transition model posited that as poor countries experienced economic development, they would generate resources to invest in health-care facilities and infrastructure, thereby reducing their burden from infectious disease. Paul Farmer and colleagues emphasize that the
epidemiological transition model has several problems, including the fact that many NCDs have infectious etiologies. Additionally, while it continues to circulate widely, they suggest that the model needs to reevaluate the double burden of disease in low- and middle-income countries where populations are contending with both noncommunicable and communicable diseases. They conclude that NCDs cause more deaths globally than infectious diseases and are responsible for 60 percent of global mortality, 80 percent of which occurs in developing countries.\textsuperscript{38} Lastly, they note that dominant framings of NCDs focus on particular lifestyle risk factors, such as excessive alcohol consumption and diet, and particular diseases, such as health diseases, lung diseases, cancer, and diabetes. Importantly, this obscures the burden of other noncommunicable diseases among the global poor, including the impacts from mental health disorders.\textsuperscript{39}

There are parallels between modernization theory and the epidemiological model, particularly in the minimization of societal forces, universality, and embrace of a simple cause-and-effect explanation. In \textit{The Stages of Economic Growth}, Rostow asserted that the proper combination of systemic reforms would enable traditional societies to adopt the characteristics of wealthier countries to reach a stage of high mass consumption. Yet for all its grand ideology, modernization theory was distressingly vague about its sociocultural prescriptions. In linking “development” to Western cultural conceptions, it minimized local context and avoided the messy politics that intrude upon socioeconomic decision making. Both modernization theory and the epidemiological model are universal blueprints that can be applied to countries, irrespective of their unique dynamics. In attending to a disease like HIV/AIDS, the epidemiological model concentrates on reducing HIV transmission patterns through educational programs and access to contraception, which are behavioral public-health campaigns supported through a well-funded health infrastructure. Similarly, health-as-development justifies economic modernization as a way of transforming cultural practices and increasing access to infrastructure and social services.

Or consider the demographic transition model, which is typically presented as an alternative to neo-Malthusian depictions of human population growth that circulated in the 1960s and ’70s. The demographic transition model identified four stages: preindustrial, urbanizing/industrializing,
mature industrial, and postindustrial. In the preindustrial stage, crude birth rates and crude death rates remain close to each other, keeping the population relatively level. During the urbanizing/industrializing stage, however, improvements in health-care delivery and medicines, coupled with investments in sanitation and infrastructure, bring a sharp drop in crude death rates. Crude birth rates remain roughly the same during this stage, prompting an increase in the population rate. During the mature industrial stage, crude death rates continue to decline, and it is theorized that socioeconomic development in the society brings the crude birth rates down slightly; however, the overall population continues to climb in an exponential j-curve. The contribution of the demographic transition model is its response to the alarms raised by neo-Malthusians such as Paul Ehrlich; specifically, the model suggests that the postindustrial stage results in the crude birth rates and crude death rates closely narrowing, thus bringing the population increase to a plateau. The fact that population growth rates in certain, although not all, industrialized capitalist economies have tended to follow this pattern has given the model greater validity. The central point is that the demographic transition model reifies the health-as-development narrative in uncritically accepting the benefits of economic modernization for human health. While it is assumed that access to improved drinking water and social services will reduce societal death rates, there is no mention of the negative consequences of industrialization for social and environmental systems.

A paradox of health-as-development is that economic modernization disrupts societies and ecosystems in ways that increase vulnerability to disease. The construction of hydroelectric dams in parts of Africa disrupts biophysical conditions and has made individuals and communities vulnerable to infectious disease, including schistosomiasis. The expansion of chemical fertilizer and pesticide use around the world has increased the vulnerability of agrarian populations and ecosystems. Clearly, improvements in medical technology and investments in safe drinking water reduce death rates, yet what should we make of long-term diseases produced by economic modernization, such as type 2 diabetes? Diabetes has been on the rise in the United States and other wealthier countries and is associated with particular diets and a sedentary lifestyle that are seen as the accouterments of “development.” As the workforce moves from primarily agrarian employ-
ment activities into more fixed work such as information technologies or service industries, there are reductions in physical labor and caloric expenditures that contribute to obesity. Diets heavy on meats, processed foods, and high-fructose corn syrup increase the likelihood of long-term health complications. And what should be said about how economic modernization increases exposure to air and water pollutants and carcinogens that are seen as the unfortunate byproducts of economic development? The chemical factories, landfills, sanitation facilities, and other hidden links in the commodity chain of late-stage capitalism must exist somewhere—and, as the U.S. environmental justice movement has demonstrated, these are regularly sited next to poor and minority communities. These “sacrifice zones” exist because “low-income and minority populations, living adjacent to heavy industry and military bases, are required to make disproportionate health and economic sacrifices that more affluent people can avoid.” The simplistic linking of economic development with progress, and the assumed benefits for human health, need to be reconsidered in evaluating the possibilities for human well-being in the twenty-first century.

Development as the prescription for health faces inherent and unstable contradictions because of the increased vulnerability that comes from economic modernization. As William Adams has explained, development is “a two-edged sword, promising to hack away at the choking creepers of poverty, but at the same time bringing with it unrecognized, unregulated and often deeply hazardous change. Furthermore, the risks development creates are not distributed uniformly, but are concentrated in space and time.” These inherent contradictions merit our attention, as does the tendency of the international community to focus on particular diseases at the expense of others. As evidence of this, Farmer and colleagues detailed the “neglected” tropical diseases that do not command the same attention as the Big Three: AIDS, tuberculosis, and malaria. While these diseases, such as schistosomiasis, hookworm infection, and ascariasis affect millions, funding for new treatments is limited because of market disincentives. They noted that relying on the marketplace to invest in new drug discoveries is dangerous because “drug development is demand-based, not need-based.” The consequence is that the biomedical model and the promotion of the health-as-development narrative limit how diseases are understood, experienced, and managed.
HEALTH JUSTICE

The health-as-development narrative is directly challenged when the outputs of economic modernization are shown to produce noninfectious disease in minority communities in the United States and other settings. In essence, while economic development is identified as a cure for many illnesses, it can simultaneously increase vulnerabilities to new diseases and exposure to toxins and carcinogens. The U.S. environmental justice movement generally credits its origins to a series of cases in the late 1970s and early ’80s that demonstrated how certain facilities, such as power plants, landfills, incinerators, and chemical facilities, are often situated in specific communities and regions. Environmental justice in the United States has concentrated on spatial patterns of pollution and disproportionate health effects to show that differences exist by race, ethnicity, socioeconomic class, and location, whether in a rural or urban setting. Yet it was not until a series of cases brought national attention to differential exposure to environmental pollutants that a national movement emerged.

One such case that received widespread media attention was Love Canal. Located in a middle-class, largely white community in upstate New York, the leakage from an industrial landfill resulted in a nightmare for residents. The Love Canal community was built upon 21,000 tons of toxic waste that had been dumped by Occidental Petroleum Corporation, which was previously Hooker Chemical Company. The company had managed the landfill for three decades, which it then covered with soil and sold to the city for one dollar. The landfill became public knowledge when record rainfall caused the improperly stored containers to leach “their contents into the backyards and basements of 100 homes and a public school built on the banks of the canal.” This was the cause of immediate concern because the landfill was believed to contain eighty-two different compounds, eleven of which were suspected carcinogens at the time, including benzene. Upon learning that her son’s elementary school had been built on top of the site, one resident, Lois Gibbs, became a community leader in pressuring the state and federal government for support. This was made all the more necessary because the first response was to relocate only those residents in immediate proximity to the landfill. A 1980 U.S. Environmental Protection Agency (EPA) study, which was
leaked to the media, asserted that younger residents and schoolchildren evidenced an unusually high number of chromosomal breakages and higher risk of cancer and birth defects. This provided enough pressure for the national government to purchase the remaining properties and allow residents to relocate. The Love Canal Homeowners Association helped evacuate hundreds of families while the cleanup was undertaken. This case generated widespread attention to the horrors of carcinogenic exposure and led to the creation of the EPA's Superfund legislation, which prioritizes toxic waste sites for remediation.

The story of Love Canal continued in the years following the initial relocation of community residents. Thirty years after the discovery of the exposure, a follow-up study from the New York State Department of Health reported that residents, particularly children who had lived in the area, remained at higher risk for kidney, bladder, and lung cancers. In 1988, the area was identified as restored, to the extent that new residents were able to buy homes below market price. Protests followed the announcement that the area was secure, and activists warned of a future health crisis. In 2011, a city crew repairing a sewer line found toxic waste less than half a mile from the remediated landfill site. State and local agencies asserted that this was residual material from the original cleanup; however, the find sparked widespread concern in the community, which resulted in more than a dozen lawsuits from families living near the site and also from previous residents seeking monetary damages for their exposure to these chemicals.

While Love Canal remains a touchstone in the emerging awareness of the relationships between health, environment, and justice, a series of waste-facility sitings in minority communities provided the catalyst for the larger movement. In 1978, it was announced that a landfill to store polychlorinated biphenyls (PCBs) was to be placed in the Afton community in Warren County, North Carolina. The PCBs were the result of an illegal dumping incident between June and August 1978 by Robert J. Burns in collaboration with Robert Ward of the Ward PCB Transformer Company. Burns was later jailed for dumping the PCB-contaminated oil along the road in fourteen counties in North Carolina. The decision to place the landfill near the Afton community was controversial from the start because the site was in an area with high socioeconomic poverty and a predominantly African American population. Community members fought
Governor James B. Hunt’s decision through litigation alleging that the site was not feasible because of soil permeability properties and groundwater levels. When the state began transporting more than six thousand truck-loads of the PCB-contaminated soil to the landfill in September 1982, it provoked widespread community resistance, including collective nonviolent direct action. During the six-week trucking opposition, Warren County citizens mounted a campaign of civil disobedience that received national attention and included more than 550 arrests. Ultimately, the organizers were unable to stop the opening of the landfill, though they continued to pressure Governor Hunt to honor his pledge that once technology became available, the state would detoxify the landfill. This was finally completed more than twenty years later. As a result of these efforts, the Warren County landfill is widely recognized as catalyzing the national environmental justice movement, and as “the watershed event that led to the environmental equity movement of the 1980s.”

A similar decision to site a landfill in a predominantly African American neighborhood in Houston, Texas, expanded national attention to the dynamics between spatial segregation and political processes about where to locate landfills, incinerators, and industrial factories. The siting of Whispering Pines Landfill in a middle-class section of the city was particularly notable because of a lawsuit brought forward using civil rights legislation. Bean v. Southwestern Management Corp. was the first lawsuit in the United States that argued environmental discrimination in waste-facility siting under the Civil Rights Act. The suit, which was initiated by Robert Bullard and his colleagues at the University of Houston, employed empirical data to demonstrate how different socioeconomic and racial groups faced disproportionate exposure to environmental pollution. As noted in a history of the lawsuit, in 1950 two-thirds of Houston’s African American population was concentrated in three major, segregated neighborhoods. By 1980, Houston’s African American population had become further decentralized and occupied the northeast, northwest, southeast, and southwest corridors. While African Americans made up 25 percent of the city’s population at that time, all five city-owned landfills and six of the eight city-owned incinerators were in African American neighborhoods. From 1920 to 1978, eleven of the thirteen city-owned landfills and incinerators were built in the same neighborhoods. After facing temporary
injunctions, the legal case went to trial in 1984 and was ultimately unsuccessful. However, following the trial, the Texas Department of Health updated its permit requirements to include more detailed land-use information, including demographic detail, in hopes that this would make future siting decisions more equitable.\textsuperscript{54}

The manipulation of space and political ordinances enabled the city to identify this neighborhood as the ideal location for the Whispering Pines landfill. Calling this a product not of classism but of “slam-dunk, in-your-face environmental racism,” Bullard emphasized the absence of zoning as playing a central role in the placement of the facility.\textsuperscript{55} Specifically, the city relied on deed restrictions that regulated lot sizes; square footage of structures; the distance that structures must be set back from property lines, street lines, or lot lines; the type and number of structures that may be built on a lot; and whether single-family or multifamily housing may be built there. The consequence of these restrictions is that the population composition of a neighborhood can be shaped in particular ways, which has consequences for the ability of people to mobilize to protest should a facility be sited in their neighborhood. Bullard has written about the ways in which racism and racial preferences are not necessarily explicit and intentional but can be structural and institutionalized. In subsequent chapters, I will detail the ways in which the South African state formalized social and spatial configurations in overt ways to benefit the white minority. These actions were accompanied by entitlement systems that became entrenched over time. Bullard emphasized that this has occurred in the United States in a similar fashion, noting that

Environmental racism buttressed the exploitation of land, people and the natural environment. It operates as an intra-nation power arrangement—especially where ethnic or racial groups form a political and/or numerical minority. For example, blacks in the United States form both a political and numerical racial minority. On the other hand, blacks in South Africa, under apartheid, constituted a political minority and numerical majority. American and South African apartheid had devastating environmental impacts on blacks.\textsuperscript{56}

Justice movements have shown how human health is constructed out of spatial dynamics that unfold over time through places and landscapes.
Three examples of how spatial processes shape the political environmental context for urban and rural landscapes are redlining, food deserts, and urban green space. In 1935, the Federal Home Loan Bank Board tasked the Home Owners’ Loan Corporation (HOLC) with evaluating 239 cities in an effort to generate “residential security maps” to prioritize areas for future real-estate investment. HOLC was established during the Great Depression and was originally designed to reduce residential foreclosures, and between 1933 and 1936 it provided more than a million loans to those at risk of default. Figure 1 is a representation of HOLC’s 1936 map of Philadelphia.

The areas designated as having either the “best” or “still desirable” housing stock (in green and blue, respectively, on the original map) were seen as warranting future development. “Hazardous” areas (red in the original) were targeted for reduced investment. These maps are credited with the origins of the term redlining, which is the steering of economic resources into certain regions and not others, primarily because of the racial and ethnic composition of the resident population. While there have been challenges to the assertion that these maps caused specific instances of redlining, Hillier reviewed them using various techniques and confirmed that the racial composition of these neighborhoods was a determining factor in the poor grades. These maps, and the political and economic processes they generated, provided a spatial foundation for future investment in ways that contributed to political and economic inequities in urban landscapes in the United States.

The concept of a “food desert” is widely utilized in academic and public health communities to refer to geographic territories that lack access to high-quality and healthful foods. In certain urban neighborhoods, it is not possible to find a full-service grocery store that offers fresh fruits and vegetables for sale. Rather, convenience stores predominate. Similarly, in rural areas, there can be a shortage of grocery stores that offer specific types of commodities, including many of those recommended for good health. For populations that lack transportation, this can result in limited or no access to these types of items. In cases where transportation is available, it can mean that purchases that take minutes for some can take hours out of the week for others. In a review of some of the existing literature on food deserts in the United States, Renee Walker and colleagues
found four dominant themes. First, access to supermarkets varies widely. In Philadelphia, one study showed that the city had the second-lowest number of supermarkets per capita compared to other major U.S. cities in the 1990s. Second, the studies showed that racial and ethnic factors play a role in the availability of grocery stores. Third, socioeconomic poverty influences the size of grocery stores and the services they offer. And fourth, there are differences in the prevalence of chain and

Figure 1. Representation of the Home Owners’ Loan Corporation map of Philadelphia (1936).
The predominance of smaller grocery stores and fewer supermarkets has the potential to drive up prices, making it more difficult for economically-insecure families to maintain food security. Larger supermarkets have the capacity to sell both brand-name and generic items in a variety of package sizes, which can offset higher prices and support the purchasing power of people living at or below the poverty line.\(^6^1\)

The food desert concept has limitations. In many assessments of urban areas and food access, there is an overreliance on full-service grocery stores as the ideal entity for providing healthful food. Even in the absence of these stores, in some settings neighborhood residents have access to vegetables and fruits through small shops, food pantries, or community gardens that are overlooked by a narrow framing of what constitutes a food desert. Additionally, research has shown that locating larger stores in certain neighborhoods does not invariably change resident preferences.\(^6^2\)

Regardless of these challenges, the concept of a food desert has been effective in coupling differential access to certain types of services with the spatial dynamics that produce urban and rural landscapes. These landscapes involve gendered, generational, cultural, and political dynamics that challenge location and proximity as the sole metrics shaping community health and well-being. They also reveal that decision making around consumption is constrained by spatial patterns that shape the political environmental context for food access and security.

While at its origins the environmental justice movement in the United States tended to concentrate on pollution and proximity to facilities such as landfills and toxic factories, the justice concept has broadened to consider differential access and proximity to factors that contribute positively to human health and well-being. Environmental justice is the idea that all people should have equitable access to environmental benefits and protection from environmental harms, regardless of race, gender, income, or other characteristics. In urban areas, minorities and economically disadvantaged populations are often disproportionately exposed to environmental burdens such as pollution and are less likely to have access to environmental benefits, such as parks, trees, and green space.\(^6^3\) Soils contaminated with lead present a high health risk to children, and African American children between the ages of one and five are more likely to experience lead poisoning than white children in the same age bracket.\(^6^4\)
While proximity to environmental hazards is unequally experienced, so is access to green space that provides opportunities for recreation, exercise, and contemplation. These variations are similarly produced by spatial processes that generate disparities for populations, with direct consequences for the places and landscapes of health.

**Places and Landscapes of Health**

Geographic research on human disease has been concentrated within the subfield of medical geography, which has focused on the spatial and ecological dimensions of human disease and health-care delivery. The field of disease ecology has been foundational in demonstrating the complex relationships between humans and the natural environment in producing disease. As Jonathan Mayer has explained, disease ecology examines “how humanity, including culture, society and behavior; the physical world, including topography, vegetation and climate; and biology, including vector and pathogen ecology, interact together in an evolving and interactive system, to produce foci of disease.”

In a review of the field, Wilbert Gesler suggested that medical geography has expanded into several new areas since the 1980s, including studies on the distribution of health services, health inequalities, and the relationships between gender and disease. This assessment dovetailed with the emergence of health geography, which to some scholars represents a distinct field from medical geography “indicative of a distancing from concerns with disease and the interests of the medical world in favour of an increased interest in well-being and broader social models of health and health care.” This “decentering” of the medical draws upon insights from social and cultural geography to engage with new epistemologies of health while attending to overlooked subject matter such as disability or sexuality. The result has been a broadening of the concept of health beyond the absence of disease to consider the relationship of people to their environments in addition to their physical and emotional well-being.

The expansion of health geography has resulted in exciting engagements with the places and landscapes of human health. Robin Kearns and Graham Moon explained that what defined this “new health geography”
was the use of place for understanding health, the application of social
theory, and critical perspectives on the geographies of health. Additionally,
landscape served as “a metaphor for the complex layerings of history,
social structure and built environment that converge in particular
places.” The concept of a “therapeutic landscape” has also received inter-
rest within health geography, and Fiona Smyth has argued that therapeutic
networks between social actors, many of which exist outside of the bio-
medical model, necessitate attention. Place has been described as “one of
the most multi-layered and multi-purpose words in our language.” It is
understood not as a location or portion of geographical space, but as being
constructed and reconstructed out of a particular set of social relations,
experiences, and understandings. In addition, place is generally under-
stood as a dynamic process that is constantly shaping social realms, while
also being reordered by the individuals in those spheres. For example,
Donald Moore analyzed conflicts among a differentiated peasantry and
state in Zimbabwe to show how the landscape was a materially and sym-
bolically contested terrain. Moore was particularly interested in place-
based politics, explaining:

While the meanings of place are politically contentious, so too are the prac-
tices that carve out those meanings, rework them, and enunciate their form
through historical struggle. Where these practices unfold, how they are
mapped in social memories, and their influence on popular understandings
of the relationship between identity and locality, all constitute a politics of
place.

The political environmental context contributes to the lived experiences of
individuals, families, social groups, and populations as they navigate
through places and landscapes that have been constructed over time. As
Antony Cheng and colleagues stated: “By taking a place perspective, one
recognizes that human connections with natural resources and the land-
scrapes in which they occur are multifaceted, complex, and saturated with
meaning.” In South Africa, the landscapes of colonialism and apartheid
were produced over centuries through the aggressive management of
human populations and spatial economies. This history has contributed
to the infrastructure and health-care facilities that are available for local
populations to access testing and life-saving drugs. The possibilities for
human health are shaped by the availability of these services at sites that operate as a central point of contact between the state and its citizens.

If human health is shaped by the availability of services provided in part by the state, then, even in a narrow sense, health is inherently political. The field of political ecology is helpful for understanding the politics of place, landscape, and human health. Political ecology generally concentrates on the interactions between political economy and environmental resource use through the application of a scalar approach that draws links between various actors to analyze the contextual realities of decision making. Paul Robbins has argued that political ecology is a “text” that is constituted around five key theses. First, the thesis of degradation and marginalization examines the ways in which forms of economic production and natural resource extraction become concentrated and unsustainable with greater integration within regional and global markets. Traditional property arrangements are destabilized by state and market forces that can have repercussions for local livelihood systems in ways that make them less equitable. Second, the thesis of conservation and control has emphasized the ways in which colonial and postcolonial governments utilized discourses of biodiversity protection to reframe territories through enclosures and dispossession. Third, political ecology scholarship has attended to the environmental conflicts engendered between social groups by access to and control over natural resources. This resonates with the fourth thesis, in which competition and control over natural resources produce environmental subjects and identities that are constructed through relationships with state, development, and corporate entities. Robbins suggests that new forms of environmental actions and institutional systems produce new kinds of people that perform as environmental subjects. And fifth, political ecology considers nonhuman nature as political objects and actors that shape the world around them, including human societies. This provides an avenue for addressing ecological systems and entities as agents that influence social systems in meaningful ways.

Political ecology scholarship on human disease and health has unfolded in two fairly discrete waves. The first phase was primarily based in medical anthropology and medical geography and tended to concentrate on disease ecologies and the places of health. Central to this first phase was the work of Jonathan Mayer, an epidemiologist situated in the medical
social ecology of health

geography and disease ecology traditions. In a widely cited paper, Mayer advocated for a “political ecology of disease approach” to demonstrate “how large-scale social, economic and political influences help to shape the structures and events of local areas.” This generated a wave of scholarship that concentrated on disease patterns and health vulnerabilities as opposed to more holistic perspectives on human health. The second phase of political ecology scholarship tends to approach health in broader terms, addressing it less as the absence of disease and more in terms of long-term well-being and individual agency. One defining feature of this work is the commitment to examining conceptions of health and environment, and how they are connected with socioeconomic class, race, gender, and ethnicity. This scholarship has also engaged with a diverse array of subjects, such as embodiment, epigenetics, and socio-ecological production to interrogate disease vulnerabilities and the lived experiences of those attending to disease and managing their health.

Human health exists at the nexus of social and ecological systems and is produced through spatial patterns that are multifaceted and dynamic. A continuing challenge to effectively addressing human health, and the underlying conditions shaping it, is that these conditions can be vast and varied. Research on the social determinants of health draws upon a number of disciplines and demonstrates the role of culture, gender, political economy, land-use patterns, religion, and other social factors in making human populations vulnerable to disease and proximate to conditions that generate poor health. For example, the HIV/AIDS epidemic intersects with social systems and is produced by them, in numerous ways. Employment patterns in industrial sectors, including mining, have been documented to contribute to the transmission of HIV. Drawing upon work from a gold mine in South Africa, Catherine Campbell detailed how vulnerability to HIV transmission is interlinked with masculinity and with the daily threats to survival from their occupation. Miners interviewed in the study attested to the difficult work conditions and few opportunities for intimacy as contributing to risky decision making about
sexual activity and condom use. Additionally, social inequalities in income and employment status tend to be associated with greater exposure to sexual activity, diminished access to health information, and delayed diagnosis or treatment. Emphasizing a “political economy of risk,” Farmer argued that “structural violence means that some women are, from the outset, at high risk of HIV infection, while other women are shielded from risk.” He also noted that “women have been rendered vulnerable to AIDS through social processes—that is, through the economic, political, and cultural forces that can be shown to shape the dynamics of HIV transmission.” Farmer is insistent that socioeconomic poverty, race, class, and gender intersect in making certain social actors vulnerable to disease while others are protected from exposure.

The field of ecology examines the relationships among biological organisms and with their physical environment. Shifts in temperature or rainfall, for example, can change transmission patterns to make some populations more vulnerable to infectious disease. One such disease is West Nile virus, which has been on the increase in the southern United States as a result of changes in temperature gradients that support the presence of disease-carrying mosquitoes. As I will detail in chapter 5, ecological processes disrupted by climate change are challenging human health through the spread of infectious diseases into new areas. That chapter also demonstrates how increasing water in the Okavango Delta of northern Botswana is triggering livelihood adjustments that create possibilities for improved human health. Social systems influence the health domain and can be quite dynamic. Much like temperature increases, or changing levels of flooding, the construction of infrastructure or new forms of agricultural production can rework disease vectors, in some cases reducing transmission patterns in populations, as seen in the eradication of malaria in certain regions of the world. Housing foreclosures that leave lots vacant increase the amount of standing water that provides breeding habitat for mosquitoes that may carry West Nile virus.

The social ecology of health framework asserts that the domain of human health is the result of spatial processes that are shaped by the coupled and dynamic intersections between social and ecological systems. Some of these conditions affect human health in dramatic ways, while in other settings they can be less determinative. The impacts also vary by
particular diseases or the ways in which built environments contribute to making people vulnerable to poor health, such as the absence of green space for recreational purposes. Human health therefore exists as the domain, represented by fluid lines in the center of figure 2, that includes social and ecological systems and their interactions. The health domain is fluid because it varies depending on the particular frame of study—whether it is at the level of the individual or the population, in countries or across entire regions. Additionally, the domain of human health can expand or contract over time, depending on the current state of social and ecological systems and whether they are experiencing change. This approach to conceptualizing human health accepts that change is inevitable but that things can also improve. This can occur through state intervention or prevention programs and can be disrupted by development projects or ecological disturbances that modify vulnerabilities. While the states of disease are often presented as the product of a natural event that disrupts water and sanitation systems, the ways in which social systems are organized has proved
critical in mitigating the severity of an outbreak. Human health also changes over time within social systems destabilized by climate change, including agricultural production and systems that provide water or other resources that contribute to increasing health vulnerabilities.

THE POLITICAL ENVIRONMENTAL CONTEXT

While I am concerned with human health in the fullest sense, my focus here is on the production of space and the particular elements that emerge at the interface between social and ecological systems. I refer to this throughout the book as the "political environmental context," which is located in the center of figure 2. The political environmental context shapes human health by producing vulnerabilities to disease and the conditions that produce poor health. This context mediates the ways in which particular diseases are understood and managed while also enabling and constraining health decision making. Because the political environmental context changes over time, it can be unequal in terms of who is exposed to health threats and the conditions that undermine well-being. It produces inequities in determining which social actors are healthy or able to more effectively manage an existing illness through differential access to the best facilities, technologies, and medical practitioners. Simply put, the political environmental context creates the states of disease for individuals, families, and communities.

This focus on how the political environmental context produces human health makes three contributions. First, it attends to how historical spatial formations contribute to shaping contemporary vulnerabilities to disease or differential exposure to the factors that produce poor health. These patterns are rooted in political economic systems that unfold over time and space in often subtle ways. In some cases these benefits, whether the acquisition of material resources or the exercise of decision making and power, might be at the expense of other social actors. The political environmental context results in differential exposure to carcinogens and pollutants that generate chronic disease conditions for people who are often socially and economically disadvantaged or who are members of certain racial and
ethnic populations. This has been an object of interest within some fields that attend to human health; however, the role of space in enabling and constraining these outcomes has been underemphasized. Space has been used as a mechanism for social control, whether in the apartheid policies of South Africa or the differential exposure to carcinogens in minority communities in the United States. While scholarship in the social sciences has been insistent on the structural conditions that produce poor health, it has not fully attended to how spatial processes produce structural constraints and inequitable opportunities for health and well-being.

Second, I consider health as a material but also a discursive formation. This means that while human health is tangible, it is also situational, relational, contingent, and dynamic. The consequence is that these factors result in multiple health outcomes within the same setting. As such, it is not just the places in which people are located that result in equal health outcomes; rather, the confluence of social and ecological circumstances produces the states of disease. Whether it is HIV/AIDS, malaria, or exposure to carcinogens, health challenges are distinct and particular to their context. However, they share a number of elements that require a comparative examination to properly understand human health. Addressing human health as a discursive formation means embracing often competing understandings of disease and well-being, because these varied perceptions are critical in exposing the factors that produce human health and inequities within societies. While a number of disciplinary domains recognize the role of these variables in human health, they are rarely integrated in an interdisciplinary and holistic manner.

Third, the political environmental context integrates ecological processes to consider how the natural environment is meaningful in the production of human health and well-being. Within the social sciences, it is more common to talk of “coproduction” between humans and nonhuman species, to give greater primacy to the mosquito or other vectors in spreading disease. Recent work has been intent on destabilizing the unidirectional axiom that nature is something transformed by humans, to consider the ways in which nature simultaneously transforms humans. The concept of “environmental health” refers to the surrounding environment that is produced by human beings but that should also be seen as some-
thing that produces humans. The WHO argues that environmental health addresses the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviours. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments. This definition excludes behaviour not related to environment, as well as behaviour related to the social and cultural environment, and genetics.\textsuperscript{90}

Expanding upon this conceptualization of environmental health, the political environmental context gives agency to the natural environment so that it is understood as playing a direct role in shaping human health. Human health is therefore coproduced through the interactions between social and ecological systems.

I recognize that this theoretical engagement does not lend itself to a simple explanation for the presence and persistence of specific health challenges. Nor does it make for an easy fundraising campaign to eradicate a preventable disease. But that is not my intention. Rather, I seek to explain the underlying reasons that certain people are more vulnerable to disease while others are more likely to lead healthy lives. The social ecology of health framework obligates a more expansive and holistic perspective on the social and ecological determinants of human health and well-being. Additionally, it helps demonstrate how a particular disease, such as HIV, is differentially experienced. It helps explain why the same virus results in a distinct epidemic.

The points of connection between human populations and their surrounding environments in producing differential health outcomes are made clear when considering the HIV/AIDS epidemic in South Africa. The dramatic spread of HIV in the late 1990s and early 2000s exposed underlying structural conditions that made certain groups and regions more vulnerable to the disease and more challenged in managing it. The government’s initial halting response, including resisting the rollout of ARVs, meant that vulnerabilities were socially produced in particular ways, as compared with other countries on the continent. The lived
experiences of those infected and affected by HIV have been shaped by the political environmental context that involves not only social dynamics in the country, but also historical spatial patterns that have been produced to benefit segments of the population. While the epidemic has shifted course in recent years, largely as a result of more aggressive responses by the government and increased access to ARVs, the states of disease have significant implications for social and ecological systems and for the possibility of healthy lifeways in the era of managed HIV.