Social issues and the environment

The natural and physical environment is something that geologists, meteorologists, oceanographers, and other scientists should be studying, not sociologists. Yet we are just discussing how the environment is affected by population growth, and that certainly sounds like a sociological discussion. In fact, the environment is very much a sociological topic for several reasons. First, our worst environmental problems are the result of human activity, and this activity, like many human behaviors, is a proper topic for sociological study. Second, environmental problems have a significant impact on people, as do the many other social problems that sociologists study. We see the clearest evidence of this impact when a major hurricane, an earthquake, or another natural disaster strikes. In January 2010, for example, a devastating earthquake struck Haiti and killed more than 250,000 people, or about 2.5 percent of that nation's population. The effects of these natural disasters on the economy and society of Haiti will certainly also be felt for many years to come. Slower changes in the environment can also have a large social impact. As noted earlier, industrialization and population growth have increased the pollution of our air, water, and ground. Climate change, a larger environmental problem, has also been relatively slow in arriving but threatens the whole planet in ways that climate change researchers have documented and will no doubt be examining for the rest of our lifetimes and beyond. A third reason the environment is a sociological topic is a bit more complex: Solutions to our environmental problems require changes in economic and environmental policies, and the potential implementation and impact of these changes depends heavily on social and political factors. A fourth reason is that many environmental problems reflect and illustrate social inequality based on social class and on race and ethnicity: As with many problems in our society, the poor and people of color often fare worse when it comes to the environment. Fifth, efforts to improve the environment, often called the *environmental movement*, constitute a social movement and, as such, are again worthy of sociological study. Sociologists and other social scientists have conducted many studies of why people join the environmental movement and of the impact of this movement.

Environmental Sociology

All these reasons suggest that the environment is quite fittingly a sociological topic, and one on which sociologists should have important insights. In fact, so many sociologists study the environment that their collective study makes up a subfield in sociology called environmental sociology, which refers simply to the sociological study of the environment. More specifically, environmental sociology is the study of the interaction between human behavior and the natural and physical environment. According to a report by the American Sociological Association, environmental sociology "has provided important insights" (Nagel, Dietz, & Broadbent, 2010, p. 13) into such areas as public opinion about the environment, the influence of values on people's environmental behavior, and inequality in the impact of environmental problems on communities and individuals. Environmental sociology assumes "that humans are part of the environment and that the environment and society can only be fully understood in relation to each other" (McCarthy & King, 2009, p. 1). Because humans

are responsible for the world's environmental problems, humans have both the ability and the responsibility to address these problems. As sociologists Leslie King and Deborah McCarthy (2009, p. ix) assert, "We both strongly believe that humans have come to a turning point in terms of our destruction of ecological resources and endangerment of human health. A daily look at the major news papers points, without fail, to worsening environmental problems… Humans created these problems and we have the power to resolve them. Naturally, the longer we wait, the more devastating the problems will become; and the more we ignore the sociological dimensions of environmental decline the more our proposed solutions will fail." Environmental sociologists emphasize two important dimensions of the relationship between society and the environment:

(a) the impact of human activity and decision making and

(b) the existence and consequences of environmental inequality and environmental racism. We now turn to these two dimensions.

Human Activity and Decision Making

Perhaps more than anything else, environmental sociologists emphasize that *environmental problems are the result of human decisions and activities that harm the environment*. Masses of individuals acting independently of each other make decisions and engage in activities that harm the environment, as when we leave lights on, keep our homes too warm in the winter or too cool in the summer, and drive motor vehicles that get low gas mileage. Corporations, government agencies, and other organizations also make decisions and engage in practices that greatly harm the environment. Sometimes individuals and organizations know full well that their activities are harming the environment, and sometimes they just act carelessly without much thought about the possible environmental harm of their actions. Still, the environment is harmed whether or not individuals, corporations, and governments intend to harm it. A major example of the environmental harm caused by human activity was the British Petroleum (BP) oil spill that began in April 2010 when an oil rig leased by BP exploded in the Gulf of Mexico and eventually released almost 5 million barrels of oil (about 200 million gallons) into the ocean. Congressional investigators later concluded that BP had made a series of decisions that "increased the danger of a catastrophic well," including a decision to save money by using an inferior casing for the well that made an explosion more likely. A news report paraphrased the investigators as concluding that "some of the decisions appeared to violate industry guidelines and were made despite warnings from BP's own employees and outside contractors". Sociologists McCarthy and King (2009) cite several other environmental accidents that stemmed from reckless decision making and natural disasters in which human decisions accelerated the harm that occurred. One accident occurred in Bhopal, India, in 1984, when a Union Carbide pesticide plant leaked forty tons of deadly gas. Between 3,000 and 16,000 people died immediately and another half million suffered permanent illnesses or injuries. A contributing factor for the leak was Union Carbide's decision to save money by violating safety standards in the construction and management of the plant.

A second preventable accident was the 1989 *Exxon Valdez* oil tanker disaster, in which the tanker hit ground off the coast of Alaska and released 11 million gallons of oil into Prince William Sound. Among other consequences, the spill killed hundreds of thousands of birds and marine animals and almost destroyed the local fishing and seafood industries. The immediate cause of the accident was that the ship's captain was an alcoholic and left the bridge in the hands of an unlicensed third mate after drinking five double vodkas in the hours before the crash occurred. Exxon officials knew of his alcoholism but let him command the ship anyway. Also, if the ship had had a double hull (one hull inside the other), it might not have cracked on impact or at least would have released less oil, but Exxon and the rest of the oil industry had successfully lobbied Congress not to require stronger hulls.

Hurricane Katrina was a more recent environmental disaster in which human decision making resulted in a great deal of *preventable* damage. After Katrina hit the Gulf Coast and especially New Orleans in August 2005, the resulting wind and flooding killed more than 1,800 people and left more than 700,000 homeless. McCarthy and King (2009, p. 4) attribute much of this damage to human decision making: "While hurricanes are typically considered 'natural disasters,' Katrina's extreme consequences must be considered the result of social and political failures." Long before Katrina hit, it was well known that a major flood could easily breach New Orleans levees and have a devastating impact. Despite this knowledge, US, state, and local officials did nothing over the years to strengthen or rebuild the levees. In addition, coastal land that would have protected New Orleans had been lost over time to commercial and residential development. In short, the flooding after Katrina was a human disaster, not a natural disaster.

Environmental Inequality and Environmental Racism

A second emphasis of environmental sociology is *environmental inequality* and the related concept of *environmental racism*. Environmental inequality (also called *environmental injustice*) refers to the fact that low-income people are disproportionately likely to experience various environmental problems, while environmental racism refers just to the greater likelihood of people of color to experience these problems (Walker, 2012). The term environmental justice refers to scholarship on environmental inequality and racism and to public policy efforts and activism aimed at reducing these forms of inequality and racism. According to the American Sociological Association report mentioned earlier, the emphasis of environmental sociology on environmental inequality reflects the emphasis that the larger discipline of sociology places on social inequality: "A central finding of sociology is that unequal power dynamics shape patterns of social mobility and access to social, political, and economic resources" (Nagel et al., 2010, p. 17). The report adds that global climate change will have its greatest effects on the poorest nations: "Many of the countries least responsible for the rise in greenhouse gases will be most likely to feel its impacts in changes in weather, sea levels, health care costs, and economic hardships" (Nagel et al., 2010, p. 17). Examples of environmental racism and inequality abound. When factories dump dangerous chemicals into rivers and lakes, the people living nearby are very likely to be low-income. Around the world, the people most affected by climate change and other environmental problems are those in

poor nations and, even within those nations, those who are poorer rather than those who are wealthier. Some evidence shows that although low-income people are especially likely to be exposed to environmental problems. As a review of this evidence concluded, "It would be fair to summarize this body of work as showing that the poor bear a disproportionate burden of exposure to suboptimal, unhealthy environmental conditions. Moreover, the more researchers scrutinize environmental exposure and health data for racial and income inequalities, the stronger the evidence becomes that grave and widespread environmental injustices have occurred throughout" (Evans & Kantrowitz, 2002, p. 323).

As should be apparent from the discussion in this section, the existence of environmental inequality and environmental racism shows that social inequality in the larger society exposes some people much more than others to environmental dangers. This insight is one of the most important contributions of environmental sociology.

Environmental Problems

To say that the world is in peril environmentally might sound extreme, but the world is in fact in peril. An overview of environmental problems will indicate the extent and seriousness of this problem.

Air Pollution

Estimates of the annual number of US deaths from *air pollution* range from a low of 10,000 to a high of 60,000 (Reiman & Leighton, 2010). The worldwide toll is much greater, and the World Health Organization (2011) estimates that 1.3 million people across the globe die every year from air pollution. These deaths stem from the health conditions that air pollution causes, including heart disease, lung cancer, and respiratory disease such as asthma. Most air pollution stems from the burning of fossil fuels such as oil, gas, and coal. This problem occurs not only in the wealthy industrial nations but also in the nations of the developing world; countries such as China and India have some of the worst air pollution. In developing nations, mortality rates of people in cities with high levels of particulate matter (carbon, nitrates, sulfates, and other particles) are 15–50 percent higher than the mortality rates of those in cleaner cities. In European countries, air pollution is estimated to reduce average life expectancy by 8.6 months. The World Health Organization (2011) does not exaggerate when it declares that air pollution "is a major environmental health problem affecting everyone in developed and developing countries alike."

Global Climate Change

The burning of fossil fuels also contributes to *global climate change*, often called *global warming*, thanks to the oft-discussed *greenhouse effect* caused by the trapping of gases in the atmosphere that is turning the earth warmer, with a rise of almost 1°C during the past century. In addition to affecting the ecology of the earth's polar regions and ocean levels throughout the planet, climate change threatens to produce a host of other problems,

including increased disease transmitted via food and water, malnutrition resulting from decreased agricultural production and drought, a higher incidence of hurricanes and other weather disasters, and extinction of several species (Gillis & Foster, 2012; Zimmer, 2011). All these problems have been producing, and will continue to produce, higher mortality rates across the planet. The World Health Organization (2010) estimates that climate change causes more than 140,000 excess deaths worldwide annually. Another problem caused by climate change may be interpersonal violence and armed conflict (Agnew, 2012; Fisman & Miguel, 2010; Kristof, 2008), already discussed as a consequence of population growth. Historically, when unusual weather events have caused drought, flooding, or other problems, violence and armed conflict have resulted. As crops fail from global warming and reduced rainfall in the years ahead, African populations may plunge into civil war: According to an Oxford University economist, having a drought increases by 50 percent the chance that an African nation will have a civil war a year later (Kristof, 2008). As we consider climate change, it is important to keep in mind certain inequalities mentioned earlier (McNall, 2011). First, the world's richest nations contribute more than their fair share to climate change. The United States, Canada, France, Germany, and the United Kingdom compose 15 percent of the world's population but are responsible for half of the planet's carbon dioxide emissions. Second, the effects of climate change are more severe for poor nations than for rich nations. Africans, for example, are much less able than Americans to deal with the effects of drought, weather disasters, and the other problems caused by climate change.

Water Pollution and Inadequate Sanitation

Water quality is also a serious problem. Drinking water is often unsafe because of poor sanitation procedures for human waste in poor nations and because of industrial discharge into lakes, rivers, and streams in wealthy nations. Inadequate sanitation and unsafe drinking water cause parasitic infections and diseases such as diarrhoea, malaria, cholera, intestinal worms, typhoid, and hepatitis A. The World Health Organization estimates that unsafe drinking water and inadequate sanitation cause the following number of annual deaths worldwide: (a) 2.5 million deaths from diarrhoea, including 1.4 million child deaths from diarrhoea; (b) 500,000 deaths from malaria; and (c) 860,000 child deaths from malnutrition. At least 200 million more people annually suffer at least one of these serious diseases due to inadequate sanitation and unsafe drinking water (Cameron, Hunter, Jagals, & Pond, 2011; Prüss-Üstün, Bos, Gore, & Bartram, 2008).

Nuclear Power

Nuclear power has been an environmental controversy at least since the 1970s. Proponents of nuclear power say it is a cleaner energy than fossil fuels such as oil and coal and does not contribute to global warming. Opponents of nuclear power counter that nuclear waste is highly dangerous no matter how it is disposed, and they fear meltdowns that can result if nuclear power plant cores overheat and release large amounts of radioactive gases into the atmosphere.

The most serious nuclear plant disaster involved the Chernobyl plant in Ukraine in 1986. Chernobyl's core exploded and released radioactive gases into the atmosphere that eventually spread throughout Europe. The amount of radiation released was four hundred times greater than the amount released by the atomic bomb that devastated Hiroshima at the end of World War II. About five-dozen people (Chernobyl workers or nearby residents) soon died because of the disaster. Because radiation can cause cancer and other health problems that take years to develop, scientists have studied the health effects of the Chernobyl disaster for the last quarter-century. According to the United Nations Scientific Committee of the Effects of Atomic Radiation (UNSCEAR), an estimated 27,000 additional cancer deaths worldwide will eventually result from the Chernobyl disaster (Gronlund, 2011). Seven years earlier in March 1979, a nuclear disaster almost occurred in the United States at the Three Mile Island plant in central Pennsylvania. A series of technological and human failures allowed the plant's core to overheat to almost disastrous levels. The nation held its breath for several days while officials sought to bring the problem under control. During this time, some 140,000 people living within twenty miles of the plant were evacuated. The near disaster severely weakened enthusiasm for nuclear power in the United States, and the number of new nuclear plants dropped sharply in the ensuing two decades (Fischer, 1997).

Japan was the site of the worst nuclear disaster since Chernobyl in March 2011, when an earthquake and tsunami seriously damaged a nuclear plant in the Fukushima region, 155 miles north of Tokyo. More than 80,000 residents had to be evacuated because of the massive release of radioactive gases and water, and they remained far from their homes a year later as high levels of radiation continued to be found in the evacuated area. A news report on the anniversary of the disaster described the desolation that remained: "What's most striking about Japan's nuclear exclusion zone is what you don't see. There are no people, few cars, no sign of life, aside from the occasional livestock wandering empty roads. Areas once home to 80,000 people are now ghost towns, frozen in time. Homes ravaged from the powerful earthquake that shook this region nearly a year ago remain virtually untouched. Collapsed roofs still block narrow streets. Cracked roads make for a bumpy ride" (Fujita, 2012). It will take at least thirty years to fully decommission the damaged reactors at Fukushima. The news report said, "This nuclear wasteland may not be liveable for decades" (Fujita, 2012).

Ground Pollution and Hazardous Waste

Pollution of the air and water is an environmental danger, as we saw earlier, but so is pollution of the ground from hazardous waste. *Hazardous wastes* are unwanted materials or by-products that are potentially toxic. If discarded improperly, they enter the ground and/or bodies of water and eventually make their way into the bodies of humans and other animals and/or harm natural vegetation. Two major sources of hazardous waste exist:

(1) commercial products such as pesticides, cleaning fluids, and certain paints, batteries, and electronics and

(2) by-products of industrial operations such as solvents and wastewater. Hazardous waste enters the environment through the careless actions of homeowners and other consumers, and also through the careless actions of major manufacturing corporations. It can cause birth defects, various chronic illnesses and conditions, and eventual death.

Oceans

The world's oceans are at peril for several reasons, with "potentially dire impacts for hundreds of millions of people across the planet," according to a news report (ScienceDaily, 2010). A major reason is that overfishing of fish and mammals has dramatically reduced the supply of certain ocean animals. This reduction certainly makes it difficult for people to eat certain fishes at restaurants or buy them at supermarkets, but a far more important problem concerns the ocean food chain (Weise, 2011). As the supply of various ocean animals has dwindled, the food supply for the larger ocean animals that eat these smaller animals has declined, putting the larger animals at risk. And as the number of these larger animals has declined, other animals that prey on these larger animals have had to turn to other food sources or not have enough to eat. This chain reaction in the ocean food chain has serious consequences for the ocean's ecosystem.

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