CHAPTER 17

SOCIOLOGY AND THE ENVIRONMENT

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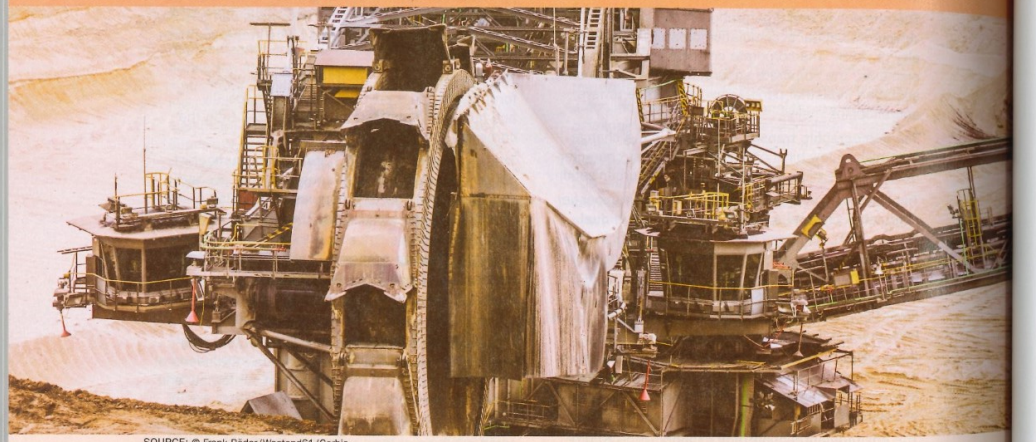

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AFTER READING THIS CHAPTER, YOU WILL BE ABLE TO:

- Understand how environmental problems are not just biophysical issues but social issues as well.
- Analyze the complex relationship among industry, government, the media, science, and citizens in raising awareness of environmental issues and responding to environmental problems.
- Describe how environmental concerns and the environmental movement have developed over time.
- Explain how strategies to manage and govern the environment are based on regulatory approaches shaped by differences in the power and influence of social groups.
- Explain how environmental health risks come to be unevenly distributed in society, with a disproportionate share falling on the socially and economically marginalized people.

INTRODUCTION

THE EARTH IN DANGER

Sometimes small, seemingly trivial changes make huge differences. For instance, very small changes in the temperature of our planet—just a few degrees—may suddenly trigger an avalanche of large-scale environmental changes with enormous consequences for life on Earth. This example highlights our vulnerability to "tipping points." A **tipping point** is a critical threshold (Gladwell, 2002). When a slow and gradual process reaches a tipping point, it will, with little or no warning, rapidly accelerate, causing dramatic change. Current scientific evidence indicates that the world's ecological systems are coming dangerously close to just such a tipping point. When that tipping point is reached, Earth's environmental system will change dramatically. Our planet will no longer be able to provide all of the natural resources we depend on.

Global climate change is one example of how environmental problems may develop incrementally and almost imperceptibly until a tipping point is reached. Scientists have found that intensified industrial activity over the last century has added huge amounts of carbon dioxide and other greenhouse gases to the atmosphere. These gases trap heat, gradually warming the Earth. However, once we reach a critical temperature increase, global warming will occur far more rapidly. Accelerated warming will, in turn, lead to the rapid onset of many environmental changes that have serious consequences, including greater frequency of hurricanes and storms, record flooding, reduced biodiversity, extensive droughts, shrinking river flows, extensive bush fires, the diffusion of bacteria and viruses to new areas, the scarcity of many natural resources, and the creation of large numbers of environmental refugees and large weather-related insurance losses that can destabilize global financial markets.

Greater understanding of the role tipping points play in environmental problems has led to the realization that we need to act fast to prevent catastrophe. Sociologists can contribute to these efforts because many environmental problems originate in the relationship between nature and society. For example, the industrial and consumer activities that contribute to climate change are based on collective decisions about how we should structure social institutions and policies. We have the capacity to change them if we want.

In this chapter, I begin by examining how environmental issues and problems are linked to the way societies are organized. I then address some of the chief questions environmental sociologists investigate. First, how do members of society think, feel, and act in relation to environmental issues? Which social factors influence their thoughts, feelings, and actions? Second, how do different social groups affect various strategies for addressing environmental problems? Third, why are environmental risks unevenly distributed in society? What are the implications of the uneven distribution of risk for our health and well-being?

INCORPORATING THE ENVIRONMENT INTO SOCIOLOGICAL ANALYSIS

Biology and geography were used in the nineteenth century to "explain" and thereby justify the superiority of certain classes, races, and civilizations. Sociology developed partly as a critique of conventional wisdom and an attempt to demonstrate the superiority of *social* explanations of such inequalities. Accordingly, sociologists were reluctant to consider the biophysical environment in their analyses until recently. The emergence of urgent environmental problems in the 1970s led them to reevaluate their bias. They came to appreciate that environmental problems have social *and* biophysical bases. Much of environmental sociology focuses on the relationships among industry, the state, and the environmental movement, including the role the mass media play in these relationships. To help understand these matters, it is useful to introduce a sociological perspective known as the "the tragedy of the commons" (Hardin, 1968).

The Tragedy of the Commons

The environmental commons consists of the natural resources that we share and depend on, such as the air, water, and soil. Tragedy arises when people try to maximize their personal economic gain by exploiting the commons. For example, industrial pollutants may enter the air and contaminate it. Currently, the cost of cleaning up the air falls not to the private company that caused the pollution but to the party responsible for taking care of the commons, namely the state (and, by extension, taxpayers and society at large). In this sense, the private company enjoys a "free ride." It profits from increased production but does not have to pay the costs associated with air pollution because all members of society share them.

We refer to the pollution as an **externality** because its cost is externalized from the private company to the state and society. The tragedy of the commons grows when many companies engage in detrimental environmental pursuits. Motivated by profit, they all look for a free ride. If this practice is sufficiently widespread and enduring, the commons will be destroyed. Everyone will breathe foul air and pay the environmental and health consequences. Today, threats to the global commons are widespread.

TIME FOR REVIEW

1. How do environmental problems originate in the relationship between nature and society?
2. What is the tragedy of the commons? How can global climate change be understood as a tragedy of the commons?

THE DEVELOPMENT OF ENVIRONMENTAL AWARENESS AND CONCERN

Although environmental issues have always existed, they did not become prominent until the 1970s. Until then, analysts emphasized protecting natural resources. They did not question the industrial processes that threatened them. Their outlook began to change when Rachel Carson published *Silent Spring* (1962). Carson documented how chemicals in the environment could transform a world full of life and the sounds of the wilderness into a world shrouded in silence. She focused in particular on the effects of the pesticide DDT on the food chain. DDT was used indiscriminately after World War II. Its pervasiveness, combined with strong evidence of its dangers, made the silent spring scenario feasible and frightening. A movement sprang up to protect the environment from chemical contamination and demand more government regulation of industrial activity. In response, the chemical industry mobilized resources to counter the movement's claims. The confrontation became a dispute that politicians could not ignore. (See the Critical Sociology: Protest and Policy box).

In 1968, the environmental movement gained impetus when a group of European industrialists, business advisers, and civil servants known as the Club of Rome became convinced that governments' environmental policies were short-sighted and dangerous. They commissioned researchers to develop computer models to extrapolate the effects of continued industrialization, technological development, natural resource depletion, pollution, food production, and population growth to 2010 based on existing trends. Published in 1972, the Club of Rome report painted a picture of total societal collapse because of inadequate food, too much pollution, and insufficient natural resources (Meadows et al., 1972). These findings reinforced the idea that industrial growth had to be curbed to prevent catastrophe.

In 1973, war broke out between Israel and its neighbouring Arab states. Because the West supported Israel, the Arab states stopped the flow of oil to the West, causing a crisis that drove home the environmental movement's message: Many natural resources are in short supply. In the following years, governments in Canada and abroad established new environmental laws and agencies in response to this message.

During the 1980s, governments and societies grappled with two environmental problems of global proportions: ozone depletion and climate change. A decade earlier, scientists had predicted that chlorofluorocarbons (CFCs), a class of chemicals used as a refrigerant and a solvent for cleaning metals, could rapidly destroy Earth's ozone layer. The ozone layer filters out ultraviolet radiation from sunlight and thereby protects us from such ailments as skin cancer, immune system disorders, snow blindness, retinal damage, and cataracts. In 1985, scientists verified the earlier prediction. They found an enormous hole in the ozone layer over the Antarctic. Action was swift. Coordinated international efforts led to the banning of CFCs in 1987.

During the same period, some people raised concern about other chemicals arising from industrial activity, namely carbon dioxide and methane, and the ensuing problem of global climate change.

In light of the magnitude of environmental problems, the United Nations World Commission on Environment and Development published *Our Common Future* in 1987. It introduced the idea of **sustainable development.** As an industrial strategy, sustainable development recognizes the dual needs of protecting the environment and allowing economic growth. The idea was to adopt industrial strategies that meet the needs of the present generation without compromising the ability of future generations to meet their own needs. Many of the policies and actions that are needed to move sustainable development forward can happen only if there is buy-in from the public. For this reason, it is important to determine the degree to which environmental attitudes and behaviours are changing in the direction of environmental sustainability.

CRITICAL SOCIOLOGY: PROTEST AND POLICY — **ENVIRONMENTAL GOVERNANCE**

Environmental governance refers to attempts by those in power to regulate and alleviate environmental problems (Davidson and Frickel, 2004). Students of environmental governance explore how environmental policies are developed and implemented, and how government interacts with industry, social movements, and consumers in addressing environmental issues.

The capacity of a state to regulate activities that have environmental consequences depends partly on its sovereign power—its ability to rule without external interference. However, many environmental threats are not confined to a particular locality or jurisdiction; they are international in scope. Cooperation among states is required to address them. For instance, the need to regulate the emission of greenhouse gases on the part of each country led to heated disputes about sovereignty rights at the United Nations Framework Convention on Climate Change in Kyoto, and the 2011–15 follow-up conferences in Copenhagen, Lima, and Paris. Some countries, including the United States, Canada, and Saudi Arabia, strongly oppose the imposition of regulations that would limit the extent to which their domestic industries are able emit greenhouse gases.

Another example of this type of dispute occurred in 2008 when the Canadian government lobbied against proposed American legislation that would ban the United States from buying oil from the Alberta tar sands because extracting and refining it releases more pollutants than conventional petroleum production does. The Canadian lobby wanted to ensure a market for the oil despite its harsh environmental consequences (Nikiforuk, 2010).

Opposing such market-driven lobbying efforts is the environmental movement. Although originally concerned with preserving the natural beauty of wilderness areas at the turn of the twentieth century, the first wave of the modern environmental movement was born with the publication of *Silent Spring* in 1962. It took a somewhat anti-industrial perspective. By the mid-1980s, a second wave of environmentalism was unfolding. It was less apocalyptic and more pragmatic and professional in tone, more willing to work with business and government in dealing with issues such as acid rain. In Canada, business–government–environmentalist round tables were established. The shift from an adversarial to a cooperative stance may have reflected broader changes in society, including aging members in the first wave of environmentalists, who now had families to raise and mortgages to pay; a growing number of second-wave members who had graduated from university programs in environmental studies; and recognition by business and government that environmentalism was not just a passing fad (Paehlke, 2009).

By the early twenty-first century, global climate change was at the top of the political agenda, signalling the rise of a third wave of environmentalism. Addressing climate change requires large-scale alterations in the way society is organized. For this reason, the issue subsumes other types of environmental issues, such as increasing energy efficiency in manufacturing, building design, and transportation; switching to renewable energy sources; significantly increasing the recycling and reuse of materials; and adopting more effective forest and other resource management strategies. This third wave of environmentalism was also characterized by the emergence of the federal Green Party. In every election since 2004, the Greens have been able to run a candidate in all federal ridings. So far, they have elected just one MP, but their presence on the national stage has forced the other political parties to give greater prominence to environmental issues—if only to prevent supporters from being attracted to the Green Party (Paehlke, 2009).

Critical Thinking Questions

1. Do you think environmental issues will become more prominent in the near future? Why, or why not?
2. Do you think environmental concerns will vary according to age, gender, and race/ethnicity? How so, and why?

ENVIRONMENTAL CONCERN

Environmental Attitudes

According to sociologist Ulrich Beck's (1992) **risk society thesis**, in the optimistic decades immediately preceding World War II, the developing welfare states of the Western world were preoccupied with issues related to the production and distribution of social goods, including wealth, educational opportunities, consumer goods, income, and property. In contrast, over the last few decades, we have become preoccupied with issues related to the distribution of social "bads," chief among them the environmental risks and externalities produced by industry. For Beck, this

switch has prompted individuals and institutions to start questioning the industrial basis of people's relationship to the environment. Previously, the environment was not widely perceived as an issue because any risks that were produced were simply dismissed as the "price of progress" and ignored. In the risk society, we ignore such issues as global warming and ozone depletion at our peril.

Environmental concern has been on the upswing in Canada in recent decades. Canadians now regard it as the third most important issue facing the country (see Figure 17.1) Environmental concern appears to follow an **economic contingency** logic (Buttel, 1975). That is, a larger proportion of the population considers environmental issues important during good economic times, while a smaller proportion considers environmental issues important during times of economic hardship. Still, many Canadians regard environmental problems as important even in the worst of economic times: In one poll taken during the height of the 2008-09 recession, 74 percent of Canadians agreed that the current focus on the environment in our society is not going far enough (Harris/Decima, 2009). The realization persists that we need to confront environmental issues no matter what.

Environmental Behaviour

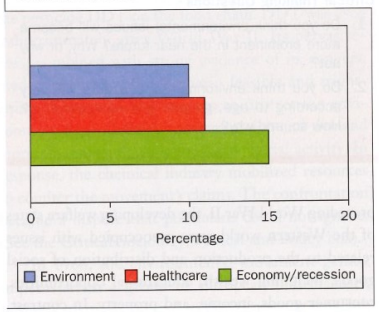
Although surveys show that many people are sympathetic to environmental issues, they do not necessarily modify their behaviour accordingly. What accounts for inconsistency between environmental attitudes and behaviour? Sociologists have proposed several explanations.

Anthony Giddens (2009) argues that environmental issues are back-of-the-mind because many environmental dangers, no matter how frightening they may appear, are not tangible, immediate, or visible in day-to-day life. Environmental issues are also kept on the back burner because of a psychological tendency known as **future discounting**. People find it difficult to give the same amount of consideration and thought to the future as they do to the present. Present reality hits home more than future possibilities do. The future is therefore discounted. As such, a small reward offered now will normally be taken in preference to a much larger one offered at an undetermined later point. Future discounting has big implications for how people act in response to environmental problems. It means that many people are not inclined to change environmentally destructive practices because of the current benefits they receive from it.

The inconsistency between environmental attitudes and behaviour is further complicated by the influence of **Jevon's paradox**—as we become more efficient in the use of a natural resource, the cost of using it falls and we then use more of it (Cato, 2011: 153). Environmental savings are thus soon lost. For instance, people may switch to low-energy light bulbs but they may soon realize that using them saves money, so they leave their lights on longer. The same may happen with the introduction of more fuel-efficient cars. People save money on gas by purchasing such vehicles, so they feel justified in going on more frequent or longer trips. Consequently, the rate of gas consumption remains high.

The **framing** of an environmental problem also influences the relationship between attitudes and behaviour. Framing refers to the way people interpret and give meaning to events and things in their social settings. When people enter a social setting, they frame it by asking themselves, in effect, "What's going on here?" (Goffman, 1974:8). Framing changes what would otherwise be meaningless into something that we take into account when interacting. How something is framed therefore influences how people act. If people regard an environmental problem as significant, they may act on it. Otherwise they may not. For social constructionists, such considerations form the basis for analyzing environmental issues.

FIGURE 17.1 THREE TOP CONCERNS OF CANADIANS, 2014



SOURCE: Adapted from Indra Das, "Survey Suggests Canadians Displeased with Government's Balancing of Economy and Environment," *DeSmog Canada* (2014). http://www.desmog.ca/2014/01/09/survey-suggests-canadians-displeased-government-s-balancing-economy-and-environment (retrieved Jan. 2, 2015).

TIME FOR REVIEW

1. What are the main historical events that contributed to heightened environmental awareness and concern?
2. What are some of the social and environmental advantages and disadvantages of adopting the strategy of sustainable development? What are some of the reasons that strategy has not been adopted?
3. What accounts for the discrepancy between being concerned about the environment and not being willing to do anything to protect it?

THE SOCIAL CONSTRUCTION OF ENVIRONMENTAL ISSUES

How is a problem transformed from a nonissue to an issue that attracts public attention and political interest? The social constructionist perspective focuses on the three-stage social process through which this happens (Hannigan, 2014).

In the first stage, people assemble a claim or complaint about an environmental problem. Scientists typically assemble claims based on their technical research but a scientific claim can be influenced by political decisions relating to the funding of particular lines of research. For example, a Canadian archeologist who discovered evidence of contact between Indigenous and Norse explorers on Baffin Island a thousand years ago had her government funding cut (CBC, "Silence of the Labs"). She claimed that this happened because her research did not support the finding the British had first contact with Indigenous people in the Arctic, thereby weakening Canada's claim to sovereignty rights.

Second, the claim must be presented, that is, brought to people's attention. Typically, the mass media serve as the platform for publicizing claims. Not all claims-makers have equal access to the media. Similar to the first stage, the presentation of claims may also be influenced by political processes. For instance, some state-employed scientists have complained that speaking directly to the media has become difficult because of the recent introduction of bureaucratic hurdles (CBC, "Silence of the Labs"). They contend that they encounter media access problems if their research runs counter to government policies on matters related to environmental protection, tar sands development, and climate change.

Popularizers, such as David Suzuki, and celebrities, such as Leonardo DiCaprio, often play an important role in publicizing environmental claims because their fame allows them to grab the media spotlight. Environmental activists may also try to lure the mass media by drawing on dramatic visual images—for example, the widespread ruin of the countryside caused by the development of the Alberta tar sands. Coverage of high-profile events, such as the awarding of the 2007 Nobel Peace Prize to the Intergovernmental Panel on Climate Change and former U.S. vice-president Al Gore, serve the same purpose.

In the third stage of the social construction of environmental issues, claims are contested as claims-makers' positions clash in the public spotlight.

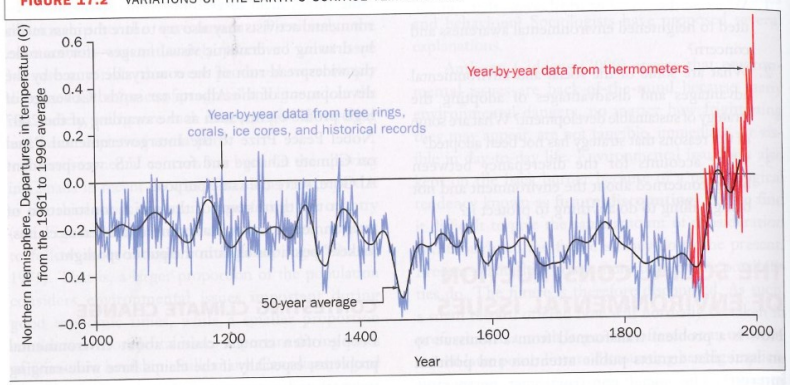
CONTESTING CLIMATE CHANGE

People often contest claims about environmental problems, especially if the claims have wide-ranging political and economic implications. Consider climate change. Reducing the emission of greenhouse gases requires massive change in the way industry and government operate, as well as the lifestyles we will be able to pursue. Conflict has been fierce between those calling for action on climate change and those denying its existence. Many of the latter have backing from powerful corporations.

Evidence for climate change has been accumulating for some time. The Intergovernmental Panel on Climate Change (IPCC) was established by the United Nations and the World Meteorological Organization to collect and summarize relevant evidence. The IPCC consists of thousands of scientists who interpret tens of thousands of climate studies. Based on levels of carbon dioxide accumulating in tree rings, coral reefs, and ice core columns from the Arctic, the IPCC concluded that scientific evidence clearly indicates a dramatic rise in greenhouse gas since the time of industrialization. This in turn is linked to increased surface temperature (see Figure 17.2).

Much is at stake if actions are taken to curb climate change by reducing fossil fuel use. Because fossil-fuel-intensive industry represents the largest contributor to climate change, it has a particularly strong responsibility to curb fossil fuel extraction and use. However, fossil-fuel-intensive industries have organized to discredit scientific research on climate change, sow doubt among the public by claiming that the research is erroneous or a hoax, and influence politicians to avoid passing meaningful environmental legislation. Oil industry interests in particular have organized themselves through front operations, such as the Global

FIGURE 17.2 VARIATIONS OF THE EARTH'S SURFACE TEMPERATURE



SOURCE: Fred Pearce (2010). Copyright Guardian News & Media Ltd. 2010.

Climate Coalition and the World Climate Council (McCright and Dunlap, 2010).

The competing claims of those acknowledging climate change and the skeptics highlight the difference between popular and scientific truth (Derber, 2010). Popular truth refers to knowledge that most people in a society believe to be true. Scientific truth refers to knowledge established by scientific methods and on which the great majority of scientists agree. It is clear that the phenomenon of climate change, as confirmed by the IPCC, is an established scientific truth. Yet powerful corporate interests, by deliberately creating doubt, seek to influence popular truth, often through the mass media.

Media, Culture, and the Environment

Popular culture plays an important role in influencing people's environmental attitudes and behaviours. In the decades following the energy crisis of the mid-1970s, depictions of a dark environmental future proliferated in Western popular culture. Such films as *Blade Runner*, *Total Recall*, and *The Day After Tomorrow* painted a picture of a time when Earth's environment is ruined. Misery, poverty, oppression, violence, disease, scarcity, and pollution are everywhere. The popularity of such films raised environmental consciousness among the public (Buell, 2004). More recently, *Avatar*, the highest-grossing film ever, had a strong environmental theme. Set in 2154, the film tells the story of a powerful corporation mining a faraway planet for a valuable mineral. In the process, the corporation seeks to eradicate the Indigenous people and the natural environment. Events now taking place in northern Alberta's tar sands region apparently inspired the movie.

The news media also play a significant role in framing environmental issues. They often cover environmental problems and issues precisely because the controversy associated with them is filled with dramatic moments. Environmental movements sometimes deliberately employ sensationalistic techniques to draw media attention (Hannigan, 2014). For instance, they may stage "morality plays" in which environmental group members present themselves as the idealistic and morally good protectors of the environment, challenging whalers, loggers, and nuclear operators who are depicted as villains in a David-versus-Goliath confrontation. For their part, journalists may themselves be involved in the framing process by covering environmental issues in ways they know will resonate with a larger audience. Thus, the coverage of an environmental issue might, for example, be framed in terms of health and safety, bureaucratic bungling, or good citizenship.

TIME FOR REVIEW

1. What are the three stages in the social construction of environmental issues?
2. What role do popular culture and the news media play in the social construction of environmental issues?

NATURAL RESOURCES

NONRENEWABLE RESOURCES

We can classify natural resources according to their quantity and their ability to regenerate. Nonrenewable resources are finite in quantity and therefore exhaustible since they can only be used once. Oil is an example. The finite quantity of nonrenewable resources has significant economic implications because resource scarcity results in high prices for the commodity in question. For instance, oil extraction has become problematic because sources that are more difficult and expensive to exploit must now be tapped. Some analysts believe that, if we factor in externalities paid by taxpayers, the cost of extraction will soon be higher than the price we pay for oil from the Alberta tar sands. The technical difficulties involved in extracting oil from the tar sands means that tar sands oil generates three times the greenhouse gas emissions of normal oil extraction while consuming huge amounts of water and energy (Nikiforuk, 2010: 3).

Oil extraction from other sources will also prove challenging in the future if we are forced to explore increasingly remote, inaccessible, and inhospitable environments such as the deep sea and the Arctic (Davidson, Andrews, and Pauly, 2014). Such prospects have the potential to be environmentally destructive, as illustrated, for instance, by the Mobile Oil Ocean Ranger disaster off the coast of Newfoundland in 1982, and the BP Deepwater Horizon oil spill disaster in the Gulf of Mexico in 2010.

The Great Canadian Pipeline Debate

One of the great challenges that Canada has always faced is how to transport natural resources to market over the wide expanse of our country. Today, it is recognized that transportation infrastructure has tremendous environmental implications.

To transport oil extracted from the Alberta oil sands, various proposals have been put forth to build or expand pipelines. They include the TransCanada Keystone XL Canada–U.S. pipeline leading to the huge oil refineries of Louisiana and the open waters of the Gulf of Mexico; the Enbridge Northern Gateway Alberta–BC pipeline leading to the coast of British Columbia; and the "Energy East" pipeline from Alberta to the large oil refinery on New Brunswick's Bay of Fundy, which opens onto the Atlantic Ocean.

Like the climate change issue, the pipelines have mobilized numerous claims-makers who have tried to animate or bury the issue. Each group vies for better visibility of their respective position. In particular, the oil and pipeline industries and some politicians argue that the pipelines are needed to grow the economy, while environmentalists and other politicians argue that the process of extracting oil from the oil sands has negative environmental consequences, including an increased reliance on a nonrenewable resource, increased greenhouse gas emissions, forest clear-cuts, water and land contamination, and the displacement and endangerment of First Nations peoples. Popularizers, such as Leonardo DiCaprio, Neil Young, and a group of 10 Nobel Peace Prize laureates, have brought attention to the debates by publically expressing their opposition to the pipelines. Furthermore, since the construction of pipeline infrastructure is so extensive, politicians and claims-makers from various jurisdictions have entered the debate, including U.S. President Barrack Obama, Prime Minister Stephen Harper, the provincial premiers, and international environmental groups.

RENEWABLE NATURAL RESOURCES

In contrast to fossil fuels, forests are renewable if we take care to ensure that new trees replace those that are harvested. In practice, renewal may not occur as quickly as needed. Some types of trees, such as those in the old-growth forests of British Columbia, take centuries to grow. Similarly, overfishing may not allow fish stocks to replenish, as was the case with the cod fishery in Newfoundland in the early 1990s.

Greenpeace activists confronting whaling ships.
SOURCE: Photo by Rex Weyler.

The government had to impose a moratorium on cod fishing in 1992 to give the cod an opportunity to replenish, and only recently has hope been expressed that commercial fishing may soon resume. Some renewable natural resources—sunlight, gravity, wind power, and tidal wave power—are inexhaustible for all practical purposes. Such inexhaustible resources are widely considered to be critically important for sustainable development.

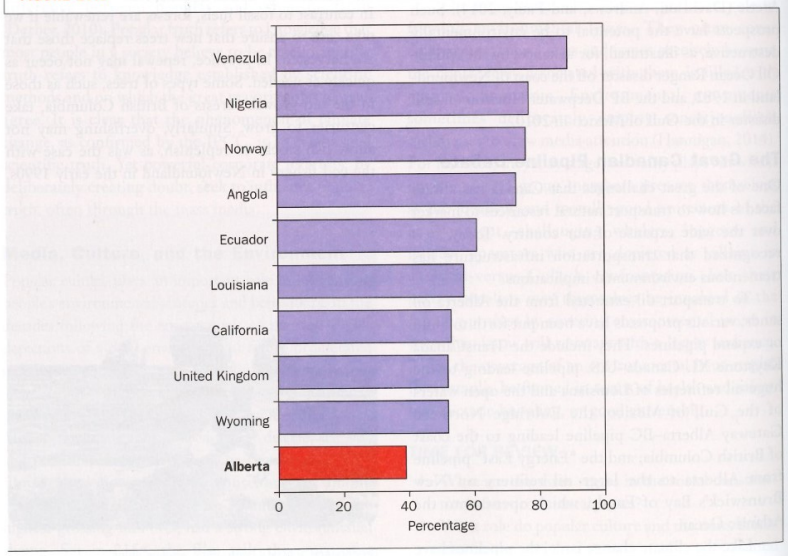
Canada is a country of vast natural resources but abundance may not translate into wealth for all. Why not? To answer this question, we must understand how profits generated from resource extraction are unequally distributed across society and why this is allowed to occur.

THE RESOURCE CURSE

In Canada, natural resources are owned by provincial governments. Governments issue a licence for a private corporation to extract natural resources and are paid royalties for this right. Usually, the royalty is a percentage of the revenue obtained through its use. In absolute terms, royalty rates for certain natural resources are very low. For example, at 39 percent of gross revenue, Alberta has one of the lowest royalty rates for oil extraction in the world (see Figure 17.3). Nevertheless, the amount of revenue generated from oil royalties enables Alberta to forgo imposing a provincial sales tax on its citizens and to collect income tax at a comparatively low rate. In fact, the province collects more revenue from oil than it does from taxpayers. This situation has significant social and political consequences.

One consequence is that the public is less likely to scrutinize how the government spends public funds than would be the case if they were taxed at a higher rate. Taxation strengthens democracy but the government of Alberta is less inclined to feel that it has to answer to the public because relatively little of its revenue comes from taxes. This is seen, for instance, in the Alberta government's failure to measure oil production data and report oil royalties accurately

FIGURE 17.3 GOVERNMENT SHARE OF INDUSTRY OIL REVENUES COLLECTED THROUGH ROYALTIES



SOURCE: United States Government Accountability Office. Based on data supplied to the Alaska State Legislature, 2006. (GAO-07-676R).

(Alberta Royalty Review Panel, 2007). At the same time, heavy dependence on resource royalties obliges the government to please the petroleum industry. For example, not wanting to bite the hand that feeds it, the government is disinclined to strictly regulate the environmental impact of the petroleum sector (Nikiforuk, 2010).

Such situations as those just described have led sociologists to conclude that ownership and licensing arrangements used to govern natural resources in resource-rich countries amount to a **resource curse** that hampers democracy, increases corruption, and creates injustice (Friedman, 2006). In extreme cases, including those in Saudi Arabia and the other oil-rich Gulf states, autocratic government becomes firmly entrenched.

TIME FOR REVIEW

1. What are the differences between renewable and nonrenewable resources? Why are renewable resources better for the environment?
2. What is meant by the "resource curse?" How is Canada affected by the resource curse?

INDUSTRY, ECONOMY, AND THE ENVIRONMENT

From an environmental point of view, the material basis of our economy is organized in a linear fashion. This means that raw natural resources are first extracted from the earth, processed and refined into purer form, and used to manufacture commodities. The commodities are then transported to retailers, where consumers buy them. Once they no longer satisfy consumer needs, the commodities are discarded. Waste products end up in landfills.

Each stage of this linear economy—resource extraction, processing, commodity transport, wholesale and retail sale, consumption, and postconsumption—has its own environmental impacts. For example, with resource extraction, such materials as fossil fuels and iron ore are taken from the environment but farmland or forested areas may be destroyed in the process. During other stages, environmental impacts usually take the form of solid, liquid, and gas emissions. Governments direct much regulatory attention to controlling or limiting these emissions. Clearly, the environment and the economy are intimately linked.

The regulatory approach of fining or taxing industrial organizations for exceeding specified environmental impacts is based on the **polluter-pays principle**. According to this principle, the party producing an environmental pollutant should not be able to get a free ride by externalizing associated costs. Instead, the polluter must pay the costs. The idea is that a fine or a tax serves as a disincentive, causing the industry to reduce or eliminate the environmental impact of its activities. However, critics argue that this approach is too coercive. They say that industry complies only reluctantly with regulations to avoid legal liability, taxation, or insurance claims. More recently, other approaches have been suggested, one of which proposes creating a market for buying and selling "pollution permits." This approach serves as the foundation for the Kyoto Protocol, aimed at curbing greenhouse gas emissions (see the Critical Sociology: Globalization box).

CRITICAL SOCIOLOGY: GLOBALIZATION GLOBAL CLIMATE CHANGE AND THE KYOTO PROTOCOL

Generally speaking, industry and nation states have tended to oppose **command-and-control approaches** to regulating their activities for the purpose of environmental protection. Such approaches are based on the government issuing commands to industry to adopt environmentally protective practices and to control environmentally harmful emissions by adhering to certain regulations. One of the objections to this approach is that it fails to give industry any room to adopt environmentally better practices on their own terms. That is, if industry is to implement changes to their practices, they want to do so according to their own schedule and capacity. In theory, marketable pollution permit schemes—also called "cap-and-trade"—allow such flexibility.

Here is how cap-and-trade works in principle: National or international governmental bodies set an absolute limit on the total amount of a certain pollutant that can be emitted. This limit (or cap) is to be reached by a certain date. For example, the target of the Kyoto Protocol was to reduce overall

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global emissions of greenhouse gases by at least 5.2 percent below 1990 levels by 2012 (Giddens, 2009: 186). To reach such a cap, each country would have had to cut emissions by a certain amount. Each country would be allowed to pollute, but at a level significantly lower than before. Under cap-and-trade, the right to pollute would have to be purchased in the form of a permit from the national or international agency running the newly created market. In the case of the 1997 Kyoto Protocol, this body would be an agency of the United Nations. The total number of pollution permits issued would be fixed to ensure that the pollution cap is not exceeded.

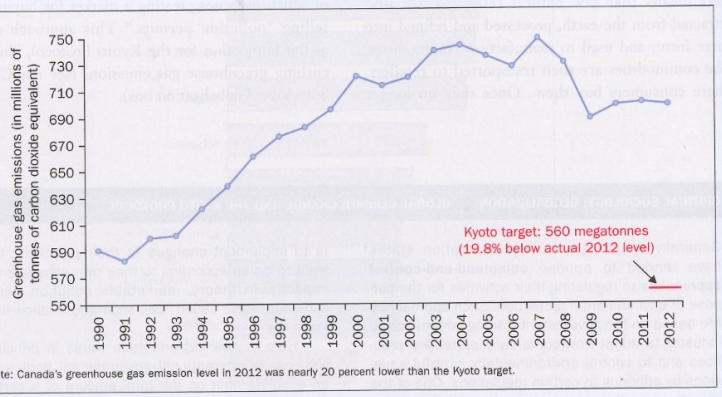
Some countries may find it difficult for their domestic industries to change their ways and emit less. Consequently, these countries would be forced to buy more pollution permits from countries that are successful in reducing their emissions. Since these other countries would have reduced their emissions, they would no longer need all of their pollution permits. In this way, pollution permits would be bought and sold in a market. Since the buying and selling would occur within the overall pollution cap limit, some analysts think it would eventually lead to the desired overall reduction in emissions.

There are many problems with cap-and-trade schemes. One is well illustrated by the attempt to implement the Kyoto Protocol. It is related once again to the issue of sovereignty—trying to make independent nation states conform to international agreements. There is no worldwide sovereign to impose sanctions if individual countries violate regulations or do not agree to participate in the scheme. Thus, in 2001, United States President Bush withdrew his country from the Kyoto Protocol (CBC, "Kyoto and Beyond"). Differences within a nation state may also make it difficult to ratify the protocol. For example, in Canada, politicians from oil-rich Alberta strongly opposed it, while Quebec was a strong supporter since that province draws mainly on hydroelectric power. Manitoba supported it because of the potential devastation that global climate change may wreak on agriculture in that province (Mitchell, 2010: 4). In the end, Canada did not commit to the agreement (see Figure 17.4)

Critical Thinking Questions

1. Why do industry and the environmental movement disagree on the use of market-based schemes to control climate change?
2. Compare and contrast the positions of the countries of the Global North and the Global South on the Kyoto Protocol. Why is there such great disagreement?

FIGURE 17.4 GREENHOUSE GAS EMISSIONS, CANADA, 1990–2012



Note: Canada's greenhouse gas emission level in 2012 was nearly 20 percent lower than the Kyoto target.

SOURCE: Environment Canada (2014a). © Her Majesty The Queen in Right of Canada, Environment Canada, 2014. Reproduced with the permission of the Minister of Public Works and Government Services Canada.

CORPORATE SOCIAL RESPONSIBILITY AND ECO-STANDARDS

Increasing public concern about the environment has forced industry to make concessions. Today, for instance, some companies say they exercise corporate social responsibility by ensuring that their practices are ethically and environmentally sound and in the public interest. The problem is that such measures are voluntary, so they may not be effective. In some cases, companies even claim they are engaged in environmentally protective practices when they are not. They promote a "green" image merely as a public relations ploy to attract more business—a practice sometimes called "corporate greenwashing."

People would be able to identify instances of corporate greenwashing more easily if the environmental practices of companies were made transparent to the public. One attempt to do this is with eco-standards and eco-labels (Bostrom and Klintman, 2011). A company that conforms to established environmental standards for production and manufacturing would be able to apply for certification stating that its product or practice is environmentally friendly. The environmental standards themselves would be developed by another agency or sometimes by the government. An external auditor would ensure that the company complies with the standards and procedures, and issue a certificate on the basis of the assessment. The agency and auditor would therefore operate as watchdogs for the public, vouching for the company and ensuring it is not making false claims. The issued certificate could take different forms, such as the company or product being included in official green shopping guides or green mutual fund portfolios or through the issuing of environmental stewardship certificates that can be displayed publicly in the storefront or factory. In addition, eco-labels could be displayed on products so consumers could see they conform to a standard before deciding whether to buy them.

The eco-standards approach has been used for a variety of products and processes, including organic food labelling, labelling of genetically modified food, energy efficiency certification, and marine certification and seafood labelling (to certify that only sustainable yields are being caught). But can these eco-labels be trusted? Toilet paper produced by J. D. Irving Limited of New Brunswick carries the Sustainable Forestry Initiative (SFI) eco-label, yet investigation by CBC journalists found that forestry practices involved in manufacturing it violates important principles that the general population associates with sustainable forestry, including clear-cutting, herbicide use, lack of recycled material in the manufacturing process, and the replanting of just one tree species, which threatens the long-term survivability of the replanted forest (CBC, "Toilet Paper Chase"). To address such false environmental claims, such groups as Greenpeace and CorpWatch have established websites and blogs to investigate and then inform the public of specific cases of greenwashing. This is just one sort of activity with which environmental movement groups are involved.

TIME FOR REVIEW

1. How do marketable pollution permit schemes work? How effective are such strategies in protecting the environment?
2. What are two ways businesses incorporate social and environmental concerns into their practices? What are the limitations of such strategies?

THE ENVIRONMENT AND FOOD

The quantity and quality of food available to us is dependent on the state of the natural environment. Food issues are therefore an important research area for environmental sociologists. One issue they research is food insecurity: the inability or uncertainty that one will be able to acquire an adequate level of nutrition in socially acceptable ways (Koc, Sumner, Winson, 2012). The rise of food insecurity may be accounted for in several ways (see also Chapter 20, Globalization). The first involves the competing functions of the environment. That is, the environment must serve three functions for society: as a supply depot for our natural resources (including food), the provision of space for living (including housing, infrastructure, and transportation), and as a waste repository to accept pollution, sewage and garbage (Dunlap and Catton, 2002). If, for example, a given area is dedicated to the growth of biofuel for cars, or for housing developments, roads and pipelines, it cannot be used for growing food.

Second, it has been argued that the availability of food is the not the problem, rather it is access to food (Sen, 1981). Through the postwar Green Revolution based on the transfer of Western agricultural techniques, knowledge, and equipment, it

was thought that food yields would rise dramatically, thereby putting an end to world hunger. Although food production increased, it did so mainly for export crops. The food did not always go toward the feeding of people in the area where it was grown. It should not be thought that food insecurity is only a problem for the developing world, however. Accessibility to nutritious food is also an issue for Canadians.

FOOD DESERTS

Food deserts are residential areas where people have little or no access to affordable and healthy food. Supermarkets tend to carry fresh produce and healthier foods in comparison to variety stores, which tend to mainly have packaged foods high in sodium, sugar, and trans fat. Supermarkets also have lower food prices. Yet, in some inner-city neighbourhoods, supermarkets are not within reasonable walking distance, forcing residents to obtain their food from variety stores and rendering their areas food deserts. Larsen and Gilliland (2009) noted that food deserts exist in Canadian neighbourhoods that have many renters, single parents, Indigenous Canadians, seniors with mobility issues, low-income families, and people dependent on public transportation (which limits the amount of groceries that can be carried). Such neighbourhoods also tend to have a higher proportion of fast-food outlets.

Food deserts are associated with a high incidence of obesity, anemia, diabetes, heart disease, hypertension, and depression, as well as the stress associated with the daily struggle to feed, clothe, and care for a family (Health Canada, 2007). Food insecurity issues such as these are especially prevalent in the First Nations communities of Canada's far north, where transportation of food products is difficult and costly: 32 percent of Nunavut residents (56 percent of children) live in food-insecure households (Statistics Canada, 2006), as do 12 percent of adults in the Northwest Territories and Yukon (Howard and Edge, 2013). By comparison, only 6 percent of Albertans are food insecure.

ORGANIC FOODS

Organic agriculture refers to farming practices that cause relatively little harm to the environment. Since the 1990s, there has been a noticeable increase in the popularity of organic food in Canada (Wallace and Brklacich, 2010). Part of the impetus has come from farmers themselves, who are increasingly worried about the environmental impact of industrialized monoculture (the growing of single crops rather than a diversity of foodstuffs) and the ethical issues around factory farming. *Industrialized monoculture* refers to the large-scale cultivation of one crop based on the extensive input of pesticides and herbicides. *Factory farming* refers to intensified livestock operations where large numbers of animals are kept in close and confined conditions (Ali, 2004). Such livestock often become stressed and ill. To counter illness, they are given large quantities of antibiotics and hormones to promote quick growth. These chemicals pose a threat to human health and the environment when they enter the food chain. In addition to concerns about antibiotics, consumers have raised concerns about other harmful aspects of conventional agriculture, including pesticide residues on fruits and vegetables, the decreased nutritional value of processed foods, and ethical concerns regarding the treatment of animals.

Organic agriculture addresses these concerns by abandoning chemical inputs, refusing to use genetically modified organisms, avoiding animal confinement, and adopting natural biological processes in growing food. However, the organic farming sector faces challenges. One of the main issues is the high cost of locally grown organic foods. The price is driven up by not having the economy of scale enjoyed by large-scale conventional agricultural operations. As a result, organic farmers face higher labour costs, government policies that favour conventional agriculture, and higher rates for crop insurance, all of which increase organic food prices (Wallace and Brklacich, 2010).

TIME FOR REVIEW

1. What is food insecurity and what causes it?
2. What are food deserts and how are they related to food insecurity?

THE ENVIRONMENT AND HEALTH

You are what you eat—and what you touch and breathe. If the air, water, food, and physical surroundings in which we carry on our daily activities are contaminated, we too become contaminated. Environmental and health issues are thus intimately connected. All human beings alive today have some level of **body burden**—the sum of dangerous chemicals

that accumulate in the human body over a given period. Human decision making and the resulting organization of society shape the way chemicals enter the human body.

For example, in the mid-1960s, the Ontario Department of Lands and Forests (now the Ministry of Natural Resources) and private timber companies collaborated to spray the chemical Agent Orange on northern Ontario forests (Zlomislic, 2011). Agent Orange killed shrubs and birch, maple, and poplar tress so that profitable spruce trees would be free to grow without competition. We now know that Agent Orange causes cancer, but in the mid-1960s, workers involved in the spraying program, many of them university students, were unaware of the risks. They mixed chemicals with little protection and stood in fields holding red, helium-filled balloons on fishing lines while low-flying planes flew over them and sprayed the chemical. Decades later, these workers are experiencing serious health effects.

The Agent Orange case is one of acute exposure, that is, high-dose exposure in a short period. Other examples of acute exposure include explosions at chemical factories and industrial accidents. However, many environmental health risks are chronic, involving low-dose exposure over an extended period. One example involves bisphenol A, which is found in many clear, hard plastic products, such as CDs and DVDs, water and baby bottles, eyeglass lenses, and hockey helmet visors. It is also used in epoxy resins and the lining of tin cans containing food. It is one of the most common chemicals in the world (Smith and Lourie, 2009). Consequently, most people are in contact with bisphenol A every day for most of their lives.

With bisphenol A (and other chemicals that disrupt the body's hormonal system), low doses lead to potent health effects. Hence, low levels of such chemicals in the environment are of particular concern. Low levels of bisphenol A have been associated with a range of illnesses, including prostate and breast cancer, uro-genital abnormalities in male babies, declining sperm quality in men, early onset of puberty in girls, insulin-resistant diabetes, obesity, and attention deficit hyperactivity disorder (Smith and Lourie, 2009). Because of such concerns, in 2008, Canada became the first country to ban bisphenol A from baby bottles. There are, however, many other harmful chemicals that pervade the environment. How are these regulated? To address these questions we need to understand the process of risk management.

In 2008, Canada became the first country to ban bisphenol A from baby bottles.
SOURCE: Maxine Hicks/The New York Times/Redux.

RISK MANAGEMENT

Body burden is influenced by how a country regulates chemicals in the environment. The state does this through **risk management**—the process by which a regulatory agency establishes the levels of chemicals that are allowed to enter the environment. Risk management uses information from animal experiments to help determine safe levels of exposure. This technical information is combined with environmental information to come up with a specific regulation (Ali, 2008). However, the terms of the regulation are subject to political pressure. It may be that the strict regulation of a chemical emission will be costly to industry. Industry will therefore lobby for a laxer and less costly regulation. The environmental lobby, in contrast, may call for stricter regulation. As such, risk management is hardly a politically neutral, technical exercise.

In North America, risk management works on the principle that a chemical is assumed to be harmless until it is proven dangerous. Until then, the chemical will still be produced and allowed to enter the environment. This pro-industry orientation has been challenged by environmentalists calling for the adoption of the precautionary principle.

THE PRECAUTIONARY PRINCIPLE

The essence of the scientific method and the experimental approach is to establish the existence of cause–effect relationships. With respect to environmental health issues, this involves showing that exposure to a certain amount of a chemical in the environment (the cause) leads to a particular illness (the effect). In practice, causality is difficult

to prove because environmental exposures take place while many compounding factors impinge on a given dose-response interaction. Laboratory experiments remove these confounding factors by manipulating the physical setting (see Chapter 2, Research Methods). However, researchers cannot remove compounding factors in the real world, where the cause of a disease may be due to many factors. Cancer, for instance, may result from several causes acting at different points in life, such as exposure to factory smoke during childhood, cigarette smoke during youth, and radon gas during adulthood. Ambiguity exists about what causes cancer; it may be one thing, or it may be several. The tobacco industry argued for decades that cigarette smoking might not be a cause of cancer because cigarette smokers tend to be overweight, have poor diets, live in polluted neighbourhoods, and so on—and all these factors are causes of cancer. (Only in recent decades did researchers show how exposure to tobacco smoke turns cells carcinogenic, thus silencing this particular line of defence.)

Similarly, defenders of polluting industries have argued that just because a disease is found in laboratory animals exposed to a particular contaminant, this does not necessarily mean that it will lead to the disease in humans. In the end, polluting industries often argue that insufficient evidence proves conclusively the existence of a cause–effect relationship between a pollutant and a disease, so regulating or banning a pollutant is not justified. Chemicals are innocent until proven guilty beyond doubt in Canada and the United States.

In Western Europe, regulatory agencies take a different approach. They do not allow the introduction of a new chemical if statistical evidence shows a correlation between its use and a dangerous health effect. Underlying this approach is the precautionary principle—the view that, under conditions of uncertainty, it is better to err on the side of safety. Some researchers argue that the logic of the precautionary principle should be applied not just to the regulation of chemicals but also to other regulatory issues, including the use of genetically modified food, genetic engineering, nanotechnologies, global warming, and activities that lead to the loss of biodiversity (Raffensperger and Tickner, 1999).

Because of the inadequacies of risk management, environmental health risks persist. However, sociologists have found that these risks do not affect everyone in society equally. Some individuals and groups are disproportionately affected by these risks, depending on their race/ethnicity, social class, and place of residence. In other words, inequality exists in the distribution of risk. Certain organizations in the environmental movement have mobilized to address issues related to the unequal distribution of risk (see the Critical Sociology: Social Inequality box). Other organizations emphasize that certain groups are situated so as to be especially sensitive to environmental risk, as we shall now see.

TIME FOR REVIEW

1. How does the organization of society influence the amount and type of chemicals that enter our body?
2. What is the precautionary principle and how can it lead to improved risk management?
3. How is social inequality related to exposure to environmental risk?

GENDER AND THE ENVIRONMENT

The fundamental insight of ecofeminism is that patriarchy has environmental implications. Ecofeminism explores the linkages between the domination of women and the domination of the environment. Several streams of ecofeminism exist (Bell, 1998).

Essentialist ecofeminists argue that women are inherently more in tune with nature because of their intimate connection to life, including giving birth and nurturing the young. Accordingly, women are supposedly in a better position than men are to protect the natural environment. In contrast, men are more closely associated with the domination of nature and technologies that led to the environmental crisis in the first place. It follows that, to deal with the environmental crisis, attributes associated with women must be given greater prominence while those associated with men should be given less prominence.

Essentialist ecofeminists perpetuate traditional, biologically based stereotypes of men and women (see Chapter 5, Gender and Sexualities). In response, *cultural ecofeminists* argue that women have a particular affinity with the natural world because, like the natural world, they are exploited by men. From this point of view, social norms that define masculinity influence men to think and act in ways that encourage both the domination of women and environmental degradation. Cultural ecofeminists argue that the appropriate response to the ecological crisis is therefore a change in norms and behaviour related to gender.

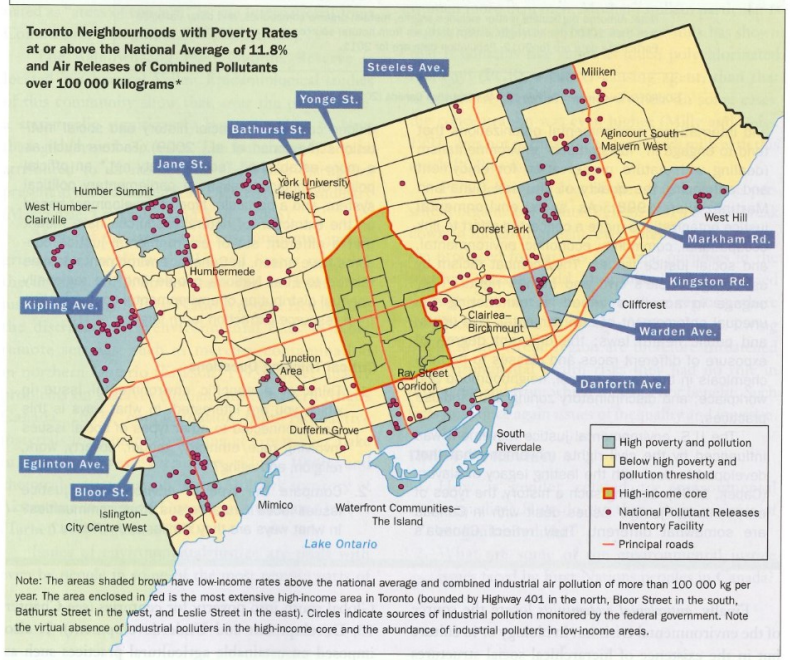
CRITICAL SOCIOLOGY: SOCIAL INEQUALITY | **INEQUALITY AND ENVIRONMENTAL JUSTICE**

Environmental inequality focuses on the relationship between social inequality and environmental quality. That is, how do patterns of social inequality based on income, race/ethnicity, gender, and age influence the type of environment in which people find themselves?

Generally, people in subordinate positions are more exposed to environmental risk than are people in superordinate or dominant positions. Recognition of this fact spurred the **environmental justice movement**. The initial impetus for the movement was the work of sociologist Robert Bullard (1993). Based on quantitative evidence and mapping, his research showed that toxic waste sites were located disproportionately in African American and Hispanic neighbourhoods in the United States. For example, he discovered that about 60 percent of African Americans live near toxic waste sites. Similarly, in Canada, a strong correlation exists between race and class, on the one hand, and exposure to environmental hazards, on the other. Thus, in Toronto, the poorest neighbourhoods tend to be those with the most air pollution while the richest neighbourhoods tend to have the cleanest air (see Figure 17.5). In Canada as a whole, the Indigenous population seems to be particularly highly exposed to environmental dangers (see Figure 17.6).

Today, many workers, members of racial minority groups, and women have been drawn into environmental justice organizations. They tend to engage in local campaigns focusing on the survival needs of the poor, in contrast to some national

FIGURE 17.5 LOW INCOME AND HIGH INDUSTRIAL POLLUTION IN TORONTO



Note: The areas shaded brown have low-income rates above the national average and combined industrial air pollution of more than 100 000 kg per year. The area enclosed in red is the most extensive high-income area in Toronto (bounded by Highway 401 in the north, Bloor Street in the south, Bathurst Street in the west, and Leslie Street in the east). Circles indicate sources of industrial pollution monitored by the federal government. Note the virtual absence of industrial polluters in the high-income core and the abundance of industrial polluters in low-income areas.

SOURCE: Adapted from Canadian Environmental Law Association, *Pollution Watch Fact Sheet* (November 2008), p. 13, http://www1.toronto.ca/city_of_toronto/social_development_finance__administration/files/pdf/pollutionwatch_toronto_fact_sheet.pdf (accessed July 9, 2015).

(continued)

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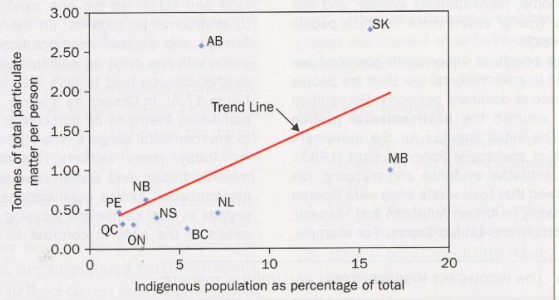
FIGURE 17.6 AIRBORNE PARTICLES AND INDIGENOUS POPULATION, BY PROVINCE, CANADA



Note: Airborne particulate matter includes smoke, metals, organic compounds, and other particles less than 1/100 mm in length, except particles from natural sources such as forest fires. Particulate data are for 2012. Population data are for 2011.

SOURCES: Environment Canada (2014b); Statistics Canada (2013, 2014).

and international environmental organizations that tend to engage in "full-stomach" environmentalism (dealing with nature preservation for enjoyment and enhancing the quality of life; see Guha and Martinez-Alier, 1998). As such, environmental justice organizations make a concerted effort to link occupational, community, economic, environmental, and social justice issues. They combat racism by asserting people's civil and human rights. They engage in activities aimed at eliminating the unequal enforcement of environmental, civil rights, and public health laws; the different degree of exposure of different races and classes to harmful chemicals in the home, school, neighbourhood and workplace; and discriminatory zoning and land-use practices.

The U.S. environmental justice movement was influenced by the civil rights movement that that developed to deal with the lasting legacy of slavery (Capek, 1993). Lacking such a history, the types of environmental justice issues dealt with in Canada are somewhat different. They reflect Canada's unique colonial and racial history and social institutions (Agyeman et al., 2009). Factors such as a more established "social safety net," an official policy of multiculturalism, a parliamentary political system, and a particular type of development based on the extraction of natural resources have meant that a different set of environmental justice concerns have arisen. In Canada, environmental issues related to First Nations people and the regionally unequal distribution of environmental contamination from resource extraction loom large.

Critical Thinking Questions

1. Think of a specific environmental issue in which you are interested. In what ways is this issue connected to other types of social issues involving race/ethnicity, gender, poverty, work, religion, and aging?
2. Compare the type of environmental justice issues faced in rural versus urban communities? In what ways are they similar and different?

Finally, *anticolonial ecofeminists* locate the source of the environmental crisis not in biology or in culture but in the existence of hierarchical social structures based on nation, race, and gender. Proponents of this viewpoint hold that colonization, largely by white men from rich, northern countries, locked most of the Global south into poverty for centuries (see Chapter 10, Development and Underdevelopment). It also imposed unsustainable agricultural practices such as monoculture on the Global south, practices that are ecologically destructive and reinforce the domination of colonized people, especially women (Shiva, 1993).

ENVIRONMENTAL JUSTICE AND CANADA'S FIRST NATIONS

First Nations peoples in Canada face the environmental consequences of colonization and inequality (Agyeman et al., 2009). For example, the rural area in the Sarnia–Windsor–London triangle of southern Ontario is home to eight First Nations territories (Mascarenhas, 2009). It also hosts many harmful industries, including a regional landfill, numerous smaller landfills, a sewage treatment plant processing 15 million litres a day, and the country's largest concentration of heavy industry, much of it related to petrochemicals. From 1974 to 1986, this area experienced 32 major chemical spills and 300 smaller ones that poured about 9 metric tonnes of pollutants into the St. Clair River, which runs through the area (Walpole Island First Nation, n.d.). The waterways in the region are so polluted that they have been designated as "areas of concern" by the International Joint Commission (Environment Canada, 2010).

The Aamjiwnaang First Nations Reserve is located in Chemical Valley. Epidemiological studies of this community show that, over the past decade, a statistically significantly lower number of boys than girls have been born. The imbalance has been attributed to environmental endocrine disruptors present in the toxic chemicals emitted by area industry (Mackenzie, Lockridge, and Keith, 2005).

Many of the issues that environmental justice groups deal with in the United States relate to the urban setting. In contrast, the environmental justice issues many First Nations people face involve the distribution of environmental risks in more remote settings, such as mercury contamination in northern Ontario (Erikson, 1995), water quality problems on reserves (Indian and Northern Affairs Canada, 2003), contamination from radioactive materials from uranium mining at Great Bear Lake in the Northwest Territories (Blow, 1999), and chemical contamination in the Mohawk territory of Akwesasne in eastern Ontario and western Quebec (Tarbell and Arquette, 2000).

Issues of environmental justice are dealt with even by people in some of the most remote parts of the country, such as Inuit in Nunavik. Since some dangerous chemicals found in the environment are fat-soluble, they contribute to the body burden of women more than men. Mother's milk in particular is high in fat. Analysis of Inuit mothers' milk has shown that it contains five times as much polychlorinated biphenyl (PCB), a cancer-causing agent, than that of southern Canadian white women. In some cases, the concentration was even higher (Milly and Leiss, 1997). It is not permissible to feed cow's milk with this much PCB to infants.

A sign warning of toxic substances in Talfourd Creek on the Aamjiwnaang First Nation reserve near Sarnia, Ontario.
SOURCE: © AP Photo-Carlos Osorio/The Canadian Press.

PCB belongs to a set of chemicals known as persistent organic pollutants (POPs). POPs do not break down in the environment, even after centuries. They are produced for various industrial purposes in the southern areas of world. Over time, POPs are carried through wind currents to the northern regions, where they bioaccumulate in the fat of living things. Living things in the Arctic region are therefore threatened by environmental health risks they had no role in producing and from which they did not benefit. Such facts raise once again issues of inequality and injustice.

TIME FOR REVIEW

1. How is gender related to environmental inequality? How do the three main variants of ecofeminism differ?
2. What are some of the environmental justice issues faced by First Nations peoples in Canada?

SUMMARY

1. **What is the tragedy of the commons?**
   The *commons* refers to the environment we hold collectively, including the air, water, and soil that we all rely on to survive. As such, all environmental problems have a biophysical or material basis. But they also have a social basis insofar as the commons is used by people who decide how to manage and regulate the environment. Until recently, Western industrial societies encouraged the overexploitation of nature in a way that benefited the privileged few while externalizing the costs of environmentally destructive actions to everyone else. This is the tragedy of the commons. Today, society has to confront the tragedy of the commons by implementing policies based on the polluter-pays principle, the precautionary principle, and sustainable development.
2. **What are the key events that have contributed to increased environmental awareness and concern since the 1960s?**
   Public awareness of environmental issues increased from the 1960s onward, starting with the publication of *Silent Spring* and the *Limits to Growth Report*, the establishment of the environmental movement, and the oil crisis of 1973. In the 1980s, the discovery of two global environmental problems further reinforced the public's environmental concern: ozone depletion and global climate change. During that period, the influential notion of sustainable development was proposed by the international community as a way to manage environmental impacts without derailing economic growth. Since the 1990s, several high-profile international conferences have sought to coordinate efforts to combat global environmental problems.
3. **How are environmental issues socially constructed?**
   The social construction of environmental issues involves three stages: assembling, presenting, and contesting different claims or positions on an environmental issue. Claims-makers typically include scientists, celebrities, members of industry, politicians, social movement members, and journalists. Assembling evidence for the existence of an environmental problem usually relies on the work of scientists. The claim that the problem exists is then taken up by those involved in publicizing the issue. Different claims about the particularities and/or seriousness of the issue are then debated.
4. **What are the implications for the economy and society of using renewable versus nonrenewable natural resources?**
   To reduce environmental impacts, the use of renewable resources should be emphasized. Yet, because of the way our society has evolved since the industrial era, we appear to be locked into a way of life that depends on using environmentally destructive, nonrenewable resources. Thus, in Canada, the government receives revenue from the extraction of natural resources in the form of royalties from industry. Governments often argue that this is good for the economy. Yet this practice may not necessarily be good for society and the environment. The government may offer industry concessions in terms of environmental regulations so government can secure financial benefits. Such circumstances may enhance the opportunity for increased corruption, less democracy, and greater injustice. This situation is referred to as the "resource curse."
5. **What is the relationship between health and the environment? How is that relationship regulated by the state?**
   A polluted and contaminated environment in which we live, work, and play has negative impacts on human health—an unhealthy physical surrounding means an unhealthy person. Exposure to substances that cause us harm is subject to regulatory control based on risk management. Risk management is the process through which state agencies analyze data from animal experiments and epidemiological studies to come up with environmental regulations. These regulations set a legal limit to the amount of toxic chemicals that a company may emit. Industry often lobbies for less stringent regulation to save costs, while environmentalists call for stricter regulations to protect people. Thus, risk management is not just a technical exercise but is also a political debate.
6. **How is the environment relevant to issues of inequality and injustice?**
   People who are economically and socially disadvantaged are more likely to work and live in areas that are polluted or are otherwise hazardous to their health. Inequality is therefore linked to the unequal distribution of environmental risks, with relatively low status groups tending to shoulder a disproportionately large share of them. This pattern of unequal distribution is the result of political and economic decisions of dominant groups in society. Environmental justice groups have been created to raise awareness of such injustice and demand a fair response.

QUESTIONS TO CONSIDER

1. Sociologist Ulrich Beck (1995: 140) wrote that "the environmental problem is by no means a problem [only] of our surroundings. It is a crisis of industrial society itself, reaching deeply into the foundations of institutions; risks are produced industrially, externalized economically, legitimized scientifically, and minimized politically." Take an example of any environmental problem and construct an argument that supports or challenges the above statement.
2. Select an environmental issue and explain how it is socially constructed. Consider the different claims made by government officials, environmental movement actors, scientists, and industry officials. How did media coverage of the environmental issue you selected represent the various claims expressed? Was equal coverage given to all involved?
3. Search the Web to analyze the controversies that arose at the United Nations Climate Change Conference held in Lima, Peru, in 2014. What sort of issues arose and how can they be understood sociologically in terms of such concepts as the tragedy of the commons, sovereignty rights, environmental inequality and injustice, power relations, economic contingency, and framing?

GLOSSARY

Body burden (p. 414) refers to the sum of all foreign chemicals that accumulate in the human body over a given period.

Command-and-control approaches (p. 411) to environmental management are top–down government strategies that involve issuing regulations to control the environmental impact of industry.

The **economic contingency** (p. 406) thesis holds that public environmental concern depends on the state of the economy. In good economic times, more attention is given to environmental issues, while in bad times, environmental concerns lessen.

The **environmental justice movement** (p. 417) is a social movement that seeks to address issues associated with the unequal distribution of environmental risks caused by discrimination.

An **externality** (p. 404) is an environmental impact that is produced by one party (such as an industry) that does not take responsibility for the consequences of the environmental impact. Rather, the consequences are addressed by the state or the general public, which bears the cost of the environmental impact.

Food deserts (p. 414) refer to socially and economically distressed neighbourhoods that have sharply restricted access to healthy and nutritious foods.

Framing (p. 406) refers to the process of how events and issues are interpreted based on how they are presented.

Future discounting (p. 406) refers to the psychological tendency to forgo future benefits in favour of immediate benefits.

Jevon's paradox (p. 406) refers to a situation in which gains in the efficiency of natural resource use lead to greater overall consumer use of that resource. The paradox implies that increased efficiency yields no net benefit for the environment.

The **polluter-pays principle** (p. 411) addresses the externality problem by charging fines or taxes to force a corporation or country that causes pollution to pay the cost of environmental cleanup and protection.

A **resource curse** (p. 411) arises in regions where valuable natural resources are especially abundant. Such abundance discourages democracy because privately owned natural resource industries provide government with most of its revenue, allowing industry to exert excessive political influence and rendering government insufficiently politically accountable to taxpayers.

Risk management (p. 415) is the process of establishing regulations for protecting the environment and health. Risk management is not a narrow, technical field as much as a political process.

The **risk society thesis** (p. 405) states that contemporary societies have become preoccupied with issues related to the distribution of social "bads," chief among them the environmental risks and externalities produced by industry.

Sustainable development (p. 404) is an industrialization strategy that attempts to address economic, social, and environmental concerns in a balanced way by meeting the needs of the present generation without jeopardizing the ability of future generations to meet their needs.

A **tipping point** (p. 403) is a threshold beyond which a system unexpectedly, rapidly, and dramatically changes.