



CHAPTER ONE

Portrait of a Slow Revolution Toward Environmental Sustainability

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Deep-rooted respect and reverence toward the natural environment is evident in many religions and ancient cultural traditions worldwide (see Dudley, Higgins-Zogib, & Mansourian, 2005). As early as the 13th century, landscapes such as Mongolia's Bogd Khan Uul Strictly Protected Area, which is perhaps the world's oldest national park, have been revered as holy and protected from the influence of human activity. Yet concerns about the relationship between industrial activity and environmental degradation are fairly recent. Such concerns began to draw attention from scholars and philosophers during the age of enlightenment, and grew more salient as the Industrial Revolution changed where and how people lived. As large cities became established, political economists began arguing over the question of how much population growth could be supported through increasing economic development. By the time the world's human population reached one billion people in approximately 1820, Thomas Walter Malthus had written several persuasive and widely read essays questioning the widely held assumption that Earth's resources were sufficient to support continuing population growth. As early as the 1850s, the destruction of California's virgin forests led philosopher and poet James Russell Longfellow to call for a society dedicated to

protecting trees. Also during this era, Henry David Thoreau experimented with living in near isolation in rural surroundings near Walden Pond and wrote passionately about the dehumanizing influence of industrialization and the spiritual value of living close to nature.

By the end of the 19th century, far-sighted politicians began taking actions to safeguard pristine landscapes. In 1864, the U.S. federal government granted the State of California permission to create a small park as a means of protecting old-growth trees in the Yosemite Valley. A few years later, in 1872, President Ulysses S. Grant signed the Yellowstone Act, creating America's first national park. Since then, more than eighty million acres of natural landscapes and historic sites in the United States have been partially protected from commercial development.

Despite the success of early efforts at environmental preservation and conservation, however, the environmental rights and responsibilities of the governmental institutions and business organizations continue to be disputed. At the heart of such disputes are disagreements over issues such as how to balance the costs and benefits of industrial development, the value of preserving biodiversity, and beliefs about the best means of managing wilderness areas.

Throughout the 20th century, public concern over environmental issues waxed and waned, as other economic and political issues with more obvious and immediate consequences vied successfully for the public's attention. Two world wars and the Great Depression commanded public attention for the first half of the 20th century. Then, shortly after World War II ended, environmental disasters around the world reawakened concerns about the effects of industrialization on our environment. Each of these disasters made people more aware of harmful pollutants that befouled the air they were breathing and the water they were drinking.

Problems of Pollution

Air Pollution

Donora, Pennsylvania, is a small town near Pittsburgh. In 1948, an unusual air inversion trapped polluted air from nearby steel

mills and held it over the town for five days. Among the pollutants emitted during the steel production process were poisonous gases, including sulfuric acid, nitrogen dioxide, and fluorine. In this small town of fourteen thousand people, six thousand became ill, and twenty deaths were attributed to the smog that blanketed the town.

A few years later, in 1952, London was submerged in lethal smog that darkened the city for five days. An unusual weather pattern caused high concentrations of coal dust and tar particles from home and industrial energy use to become trapped in the city's air. In one week, an estimated three to four thousand people died from respiratory infections and asphyxiation caused by inhaling the pollutants. As a result of London's tragedy, Parliament enacted Britain's Clean Air Act in 1956. The United States moved more slowly. In 1963, Congress passed legislation to study air pollution. In 1970, they passed the Clean Air Act that governs industrial pollution today and established the Environmental Protection Agency (EPA) to administer that law.

Water Pollution

By the 1970s, other environmental disasters had heightened awareness of other health problems caused by environmental degradation. Among the most prominent disasters was the Love Canal tragedy. Love Canal was a neighborhood in Niagara Falls, New York, that was named after William Love, who had dug a canal there early in the 20th century. When the canal project failed economically, the canal ditch became the dumping site for a chemical company's industrial waste. Eventually, the chemical company closed its factory, covered over the waste site, and sold the property to the city for \$1. Soon, a developer acquired the site and built a new community of about one hundred homes and a school. The former dumping ground became home to dozens of families. But eventually an unusually heavy downpour of rain dislodged the waste, and the evidence of industrial pollution became visible to everyone. Corroded barrels surfaced around the neighborhood and pools of residue formed in people's yards. Toxins seeped into the community water supply and leached into the ground soil. When the community health records were

examined, they revealed unusually high numbers of miscarriages and birth defects. Children who grew up and attended schools in the neighborhood suffered maladies such as chromosome damage, seizures, eye irritation, and skin rashes (National Research Council, 1991).

The Love Canal tragedy focused public attention on the health hazards of industrial pollution, which had been largely unregulated during a century of rapid industrialization. On April 22, 1970, the American public's growing concern became evident when an estimated twenty million people participated in the first Earth Day. The brainchild of U.S. Senator Gaylord Nelson of Wisconsin, Earth Day was designed as a teach-in and modeled after the anti-Vietnam War demonstrations that had been taking place around the country. The first Earth Day is sometimes given credit as being the event that spearheaded the modern environmental movement due in part to the fact that the U.S. Clean Water Act of 1970 was passed by Congress, which also established the Environmental Protection Agency that same year (Roach, 2010). Within two years, Congress also passed the Clean Water Act of 1972, which provides financial resources to assist in the construction of municipal waste treatment facilities and seeks to protect all of the nation's surface water from harmful pollutants.

Perhaps because pollution of our air and water is relatively evident and its consequences are difficult to ignore, the American public supported regulations such as the Clean Air Act of 1970 and the Clean Water Act of 1972—laws that are generally acknowledged to be examples of successful government interventions. They provide clear rules about what constitutes unacceptable industrial action, and they account for significant, measureable improvement in the quality of our air and water.

Nuclear Accidents

Several nuclear plant disasters also have served to remind people of the need to be vigilant about environmental protection. Nuclear disasters, and fear of such disasters, have heightened public awareness of the potentially harmful consequences of modern industrial technologies.

The most serious nuclear incident in the United States to date occurred in 1979 at Three Mile Island, a nuclear power plant near Middletown, Pennsylvania. Since then, far more serious accidents have occurred in the Ukraine at the Chernobyl nuclear power plants and Japan at the Fukushima Daiichi power plant.

Three Mile Island Incident

The incident at Three Mile Island in 1979 occurred as a consequence of multiple design problems, mechanical failures, and human errors. Their combined effect resulted in significant damage to one of the plant's nuclear reactor cores, causing small amounts of radioactivity to be released into the surrounding area. The Three Mile Island incident unfolded over a period of several days, during there was widespread fear and uncertainty. Two days after the problems began, Pennsylvania's governor ordered the evacuation of preschool children and pregnant women within a five-mile radius of the plant. People living within a ten-mile radius were advised to stay inside and shut their windows. The incident was resolved within a week, and most evacuees had returned to their homes at that time.

There were no deaths or serious injuries as a result of the incident at Three Mile Island. Plant workers and members of nearby communities remained safe, and subsequent studies indicated that their exposure to radiation was very small. Nevertheless, it was clear that changes were needed to ensure that nuclear power plants would operate safely in the future. The lessons learned led to major changes in emergency response planning, training, human factors engineering, and radiation safety protection, among other aspects of nuclear power plant operations, and the U.S. Nuclear Regulatory Commission, which is responsible for ensuring the public is protected from exposure to unsafe nuclear radiation, stepped up its oversight activities (U.S. Nuclear Regulatory Commission, 2002).

Chernobyl Disaster

In 1986, an explosion and fire at the Chernobyl nuclear power plant released radioactive material into the atmosphere, resulting

in widespread contamination across the USSR and Europe. An estimated five million people lived in the contaminated area, and of those about 10 percent were eventually evacuated. During the accident, approximately one thousand workers were exposed to high levels of radiation, resulting in twenty-eight deaths from acute radiation poisoning and an unknown number of deaths and illnesses from exposure to lower doses of radiation during subsequent years. Plant and animal populations within thirty kilometers of the explosion—an area now referred to as the Exclusion Zone—suffered from increased deaths and decreased reproduction.

The long-term environmental effects of the Chernobyl explosion have been substantial. The urban areas near the reactor were heavily contaminated and rapidly evacuated. Food sources were contaminated with radioactive iodine for several months after the accident, exposing the population to a major source of cancer. Concern over contamination from longer-lived radioactive materials—which have been detected in Scandinavia's reindeer and remain concentrated in some lakes—will continue to be a source of concern throughout the region for several decades.

Even after twenty-five years, estimates of Chernobyl's health effects on humans vary greatly, with estimates of deaths due to radiation exposure ranging from four to nine hundred thousand (Chernobyl Forum, 2006; Taylor, 2011). At least six thousand people have developed thyroid cancer attributable to the accident. Among the surviving recovery workers, elevated incidents of leukemia and cataracts have been observed. High levels of nervous system diseases, cardiovascular disease, and gastrointestinal diseases have all been observed in those exposed to radiation released from Chernobyl (United Nations Scientific Committee on the Effects of Atomic Radiation, 2008).

Fukushima Daiichi

As of this writing, the most recent nuclear accident had taken place in Japan caused by a tsunami that damaged six nuclear reactors at the Fukushima Daiichi site in 2011. For weeks, the world watched as Japan struggled to prevent the discharge of massive

amounts of radiation. Months later, reports that radiation contaminated beef was appearing in food markets reminded us that it will be many years before we understand the full extent of damage caused by the Fukushima nuclear disaster.

Currently, the United States gets 20 percent of its energy from 104 nuclear power plants. In many developing economies, reliance on nuclear power is expected to grow considerably in the future because it offers a clean alternative to fossil fuel. Meanwhile, many developed countries oppose nuclear power, and some are making plans to close existing reactors, deeming them too dangerous. As the Chernobyl and Fukushima disasters remind us, the potential benefits of nuclear power must be weighed against the considerable risks associated with such technology. Employers, employees, and customers are all affected by decisions concerning which sources of energy to rely on and how to manage the risks associated with each energy source.

Climate Change (a.k.a. Global Warming)

Today, the environmental issue attracting the most attention is climate change, which is also referred to as “global warming.” Climate is a general term that refers to temperatures, precipitation, and wind. Among the scientific community, there is widespread agreement that the earth’s climate changed substantially during the past 150 years, and continues to do so at an accelerating rate. In particular, the earth’s atmosphere is getting hotter as so-called greenhouse gases become more concentrated and trap heat that previously escaped Earth’s gravitational pull. Greenhouse gases such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) are associated with human activities such as the burning of fossil fuels, farming, and industrial production activities. Global warming, in turn, results in weather-related consequences such as more frequent and severe storms, droughts, and floods, as well as the rapid melting of glaciers and rising sea levels.

Given the nature of global climate change, success in addressing the problem will require that the world’s largest producers of greenhouse gases take action to reduce their own output, that is, their carbon footprints. In response to the accumulating scientific

evidence concerning climate change (see Huber & Gullede, 2011), governments around the world have enacted policies intended to address climate change and curb the environmental damage from industrial activities that contribute to it. In the United States, policymakers have reached no consensus about the causes and likely consequences of climate change, and there have been no significant government interventions aimed at addressing this issue. Nevertheless, the globalization of business activities means that most large organizations have operations outside the United States that subject them to tightening environmental regulations.

United Nations

Many international efforts to address environmental concerns are rooted in the United Nations' Environment Programme (UNEP), which was established in 1992 following recommendations that arose during that year's Conference on the Human Environment held in Rio de Janeiro. Perhaps the most familiar UNEP-sponsored activity is sponsorship of the United Nations Conferences on Environment and Development. Now commonly referred to as the "Earth Summits," the goal of these international meetings has been to persuade governments to recognize and exercise their responsibility for preserving and enhancing the human environment.

Kyoto Protocol

The most significant Earth Summit to date took place in 1997, when the so-called Kyoto Protocol was adopted. As of 2011, 193 countries had ratified the Kyoto Protocol, thereby committing to reducing several greenhouse gases that contribute to global warming and climate change against targets set for 2012, when the Kyoto Protocol was scheduled to expire.

Notably, the United States was not a signatory of the Kyoto Protocol. However, several state governments acted independently of the U.S. Congress to begin addressing with the causes of climate change at the local level. For example, the Regional Greenhouse Gas Initiative (RGGI) is a collaborative effort of nine Northeast and Mid-Atlantic American states. RIGGI is the first regional, market-based "cap-and-trade"-style agreement adopted to reduce

the greenhouse gases that contribute to climate change. The participating states capped their CO₂ emissions and pledged to achieve a 10 percent reduction in CO₂ emissions from the power sector by 2018. The program is designed to increase energy efficiency and speed the transition away from fossil fuels toward greater reliance on renewable, clean energy.

Several large U.S. corporations also have voluntarily taken steps to improve their environmental performance. Stricter international regulations are one reason American corporations—many with global operations—take such “voluntary” actions. Increasingly, investors also are pressuring companies to improve their environmental performance as part of a broader desire to encourage businesses to balance their drive for profitability with a concern for social responsibility and sustainable development. These external pressures for companies to become environmentally sustainable are described next.

Business Accountability for Environmental Impact

Companies that seek to establish themselves as environmentally sustainable can do so by documenting their environmental management processes and providing environmental performance data. Wall Street analysts, management consulting companies, and business media are all becoming involved in the rating and ranking of companies based on their environmental performance. Thus, it appears that a consensus is beginning to form around the need to protect the natural environment from the harmful effects of some industrial activities. Recent surveys of executives worldwide show that environmental issues such as climate change, energy efficiency, biodiversity, and pollution are recognized as important business issues that can present both threats and opportunities (see McKinsey & Company, 2010, 2011).

Assessing the environmental impact of industrial activities is not easy. The natural environment is a complex biological system comprised of many interconnected elements and dynamic forces, in which small changes can have surprising large consequences. The release of seemingly small quantities of chemical pollutants into the air has resulted in global climate change. The release of seemingly small quantities of chemical pollutants into rivers and streams changed the acidity levels of the oceans. Small increases

in the average temperature during a growing season can have significant effects on agricultural productivity and food supplies. Small increases in the acidity of seawater can result in the collapse of fish populations, which are a major source of protein for human populations around the world. On the positive side, the global ecosystem also has a regenerative capacity, so small corrective actions taken at the right time may result in significant and improvement in the health of the entire system.

During the past decade, several standardized methods for reporting such data have become widely accepted. These include the ISO 14000 series of certifications, EMAS certification, the Global Reporting Initiative (GRI) Index, and the SAM Corporate Sustainability Index.

ISO 14001

Following the 1992 Earth Summit in Rio, the International Organization for Standardization (ISO) created a study group to determine how the environmental standards that were discussed at the meeting could be assessed. Subsequently, they developed the 14000 series of certifications for environmental management, anchored by ISO 14001. The certification criteria provide guidelines for developing and implementing environmental management systems, for securing third-party auditors to review and verify a company's environmental management practices, setting performance targets, monitoring the Environmental Management System, and addressing life cycle issues. As is true of all ISO certifications, companies seek ISO 14000 certifications voluntarily. However, as environmental concerns have grown, an increasing number of companies have begun to require ISO 14000 certification for their suppliers. Two major advantages of ISO 14000 certifications are that they make it possible to meaningfully compare companies on a set of fixed standards and that they require third-party verification.

Eco-Management and Audit Scheme (EMAS)

In 1995, the European Commission established the Eco-Management and Audit Scheme as a way to help companies

voluntarily manage their environmental performance. To achieve EMAS certification, a company must establish that it has developed a written policy stating its commitment to the environment, has conducted an environmental impact review and conducts regular environmental audits, has specified programmatic actions that are to be taken, has put a management system in place to implement the environment program, produces a report summarizing its environmental performance, and uses a third party to verify that its report is accurate. In 2011, approximately eight thousand companies throughout Europe were EMAS certified.

Global Reporting Initiative (GRI) Index

The Global Reporting Initiative is a non-profit, network-based organization headquartered in Amsterdam and dedicated to the “mainstreaming of disclosure on environmental, social, and governance performance” (Global Reporting Initiative, 2011). The criteria used for the GRI Index were developed in a collaborative effort that involved a variety of stakeholders. Participants included representatives from business and government, labor groups, and academic institutions’ professional associations. Among other things, the data requested include descriptions of how a company manages environmental issues and its objective performance on a variety of metrics.

Participation in the GRI reporting process is voluntary; nevertheless, during the past decade, the proportion of large firms participating has increased steadily. Today, almost all Global 500 firms and most S&P 500 firms assess their environmental performance using portions of the GRI Index, and many companies disclose this information to the public on their company websites. Currently, the consulting firm PricewaterhouseCoopers uses the GRI Index to produce a suite of reports that compare companies in various regions and sectors (PricewaterhouseCoopers, 2009, 2010, 2011).

SAM Corporate Sustainability Index

The SAM Corporate Sustainability Index is similar to the GRI Index in content, but it is a product of the Sustainable Asset

Management (SAM) group, which is an independent company that provides investment advice to private and institutional clients. Each year, the world's 2,500 largest companies are invited to provide data for use as input into the SAM Corporate Sustainability Index. SAM analyzes the results and uses them in a variety of ways. Participating companies can use SAM reports as a source of benchmarking data to judge how well the company is doing compared to competitors. Investors can use the results to evaluate whether a company meets their expectations for corporate responsibility. The extensive set of Dow Jones Sustainability Indexes, which identify environmentally responsible companies in a variety of regions and industry sectors, uses the SAM reports as one of its primary criteria.

FTSE4GOOD Index

The FTSE4Good Index is another similar effort. Firms provide data to FTSE using a standard framework, and those data are used to produce a series of FTSE4Good reports and indexes for investors who want to invest selectively in companies on the London Stock Exchange that have been screened for acceptable environmental performance.

Apparently, many top executives and their boards of directors consider environmental issues to be too important to ignore. Indeed, many of them realize there are significant business opportunities associated with the changing attitudes of investors, consumers, and other stakeholders. Rather than simply comply with environmental regulations as necessary, organizations are taking steps to ensure that their efforts to improve the financial bottom line are environmentally responsible. And a few organizations realize that financially attractive new business opportunities await those companies that choose to be leaders as the world moves toward environmental sustainability.

Sustainable Development and Corporate Social Responsibility

With the exception of the ISO 14000 standards, each of the sustainability indicators just described includes environmental

sustainability as one element in a broader framework for assessing sustainability and/or corporate social responsibility (CSR). All of these frameworks are grounded in a philosophical view of corporations as entities that are accountable not only to investors but also to other stakeholders, including employees and the broader community. This perspective is sometimes referred to as the “triple bottom line” or “people, planet, and profits.”

The expectation that corporations should operate with a view toward the consequences of their actions for future generations—that is, being “sustainable”—is another layer of complexity. Corporate critics have bemoaned the short-term, financial focus of company executives for many decades, but it was not until 1987 that an alternative approach was clearly articulated and given a memorable label—namely, “sustainable development.” In 1987, a committee of the United Nations produced a report titled, “Our Common Future,” in which they defined sustainable development as follows (see Chapter 2, available at www.un-documents.net/ocf-02.htm):

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- * the concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given; and
- * the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs.

“. . . In essence, sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development; and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.”
(Brundtland, 1987)

The UN report that defined sustainable development is often referred to as the “Brundtland Report,” after Gro Harlem Brundtland, who was the committee’s chairwoman. This committee’s

report provided an extensive set of principles for achieving sustainable development, and these principles serve as the foundation for many approaches to measuring sustainability. The principle of most relevance to the topic of this volume is the principle of Merging Environment and Economics in Decision Making. This principle asserts that sustainable development and economic development and growth must be addressed together in an integrated manner; they cannot be dealt with separately. Further, the committee argued, economic growth and environmental protection could be pursued in concert; they were not necessarily in opposition. Thus, for example, increasing efficiency in the use of energy and raw materials serves both to reduce costs and to preserve ecological resources.

While the focus of this volume is on environmental sustainability, readers will discover that many of the companies we highlight pursue environmental objectives in the context of sustainability broadly defined. Indeed, the growing popularity of initiatives to address the broader concerns about sustainable development and corporate social responsibility may be partly responsible for the recent greening of human resource management scholarship and practice.

The Role of Human Resource Management in Achieving Environmental Sustainability

The authors of the chapters in this volume discuss and illustrate the many human resource management implications associated with this growing recognition that environmental sustainability should be included among a firm's several longer-term business objectives. They provide examples of how firms in a variety of industries and several different countries are addressing environmental threats and the business opportunities they sometimes create. Depending on an organization's specific objectives, a variety of human resource management practices may be relevant, including adding "green" jobs and adding "green" duties to existing jobs, recruitment and selection, training and development, performance management, compensation, employee communications, monitoring employee attitudes, and so on (see SHRM, 2011). After reading this volume, you will have a better

understanding of the reasoning that has led some firms to take a proactive stance in addressing environmental issues. Briefly, the volume proceeds as follows:

Chapters in Part One describe the larger context that creates the imperative for organizations to invest in activities to achieve environmental sustainability, providing a foundation for human resource (HR) and organization development (OD) professionals who are expected to assist in achieving their organizations' environmental goals. Topics covered include some of the key historical events that stimulated government regulation as well as the current business trends stimulating business to begin measuring and improving their environmental performance.

Part Two seeks to inform readers of the most recent empirical research relevant to understanding environmentally friendly behavior in work settings. Here readers will learn about several measurement tools that are available for use in assessing environmental behaviors and related attitudes, and they also will find reviews of the small but growing body of evidence concerning practices that can influence employees' environmental attitudes and behaviors.

Part Three describes some of the challenges and successes experienced by HR and OD professionals in organizations that are actively pursuing environmental sustainability. Case studies of companies such as Procter & Gamble, 3M, Daimler, Sherwin-Williams, McDonald's UK, and many others offer valuable insights about managing environmental initiatives at various stages of maturity.

Part Four concludes the volume by describing several implications for practicing HR and OD professionals as well as scholars who are interested in pursuing new research on the important topic of managing human resources for environmental sustainability. These chapters will be of interest to readers who might be wondering about the potential personal and professional implications of environmental sustainability in the workplace.

Conclusion

During the past two centuries, an Industrial Revolution profoundly changed the patterns of resource extraction, use, and

waste by humans. At the same time, the human population has grown at exponential rates. The interdependency between the health of the planet and the health and prosperity of our human population has slowly become evident, so now the calls for attending to this fragile relationship are growing louder. Even as governments and individual members of society disagree about the urgency of environmental issues, many companies have concluded that they must take actions to satisfy customers, investors, and employees who expect businesses to embrace their environmental responsibilities for the common good of people and the planet. Regardless of the reasons behind an organization's environmental initiatives—whether to satisfy customers, comply with regulations, reduce costs, and/or promote corporate social responsibility—professionals and scholars in the fields of human resource management and organization development are being handed duties related to the design, implementation, monitoring, and evaluation of workforce interventions to support those environmental initiatives.

In preparing this volume, the editors sought to create a resource for HR and OD professionals and scholars seeking to deepen their own knowledge about the slow but transformative environmental revolution and motivate them to learn from the pioneering efforts underway at leading-edge organizations. Through greater awareness and more widespread sharing of knowledge within the profession, the contribution of our field to the success of this slow revolution is sure to be enhanced.

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