CHAPTER 11

Ethical Concerns: Multinationals and Sustainability

"You're living all over me."
—J. Mascis

CHAPTER OBJECTIVES

This chapter will:

- Review the major environmental concerns affecting the global community and the implications they have for multinational corporations at home and abroad
- Identify new challenges and opportunities that MNCs face as a result of growing environmental concerns

EMERGING ENVIRONMENTAL CONCERNS

National and international concerns about the environment have increased dramatically over the past decade. Although damage to the earth's environment has been an issue in development and industrial policies in many countries for the past several years, it has not been in the forefront of international attention; other issues, such as economic growth, industrialization, population growth, and poverty, have occupied center stage.

Concern for the environment has grown for several reasons. First, damage to the environment is becoming increasingly visible. A number of environmental and ecological

disasters, including several involving large MNCs, have attracted worldwide attention. Second, environmental action groups have become more powerful. The ability of these groups to influence public policy has increased substantially following sustained support, both political and financial, from different sections of society that are more concerned with the environment than ever before. Third, a number of international bodies, such as the United Nations and the World Bank, and national governments have demonstrated their responsiveness to the issue by establishing environmental guidelines and, in the case of governments, by passing laws aimed at protecting the environment.

Concerns for the environment have wide-ranging implications for MNCs in both their home and host countries because not only are MNCs affected by general environmental guidelines but they are viewed as one of the prime sources of danger to the world's environment. This view is valid to a significant extent, given the fact that MNCs influence about 25 percent of the world's assets by their actions and affect, in one way or another, about 70 percent of internationally traded products and 80 percent of the world's land devoted to the cultivation of export-oriented crops. In many developing countries, MNCs are the prime source of industrial activity. Even where their share in total industrial activity is not large, they are the most visible and therefore the first focus of attention for environmentalist and similar groups.

These developments present both challenges and opportunities for MNCs. The challenges arise in the form of new considerations that MNCs must bear in mind while making investment and operating decisions and the additional costs they must incur to ensure that their operations are environmentally safe and comply with host-country regulations. In some instances, MNCs may be required to close or completely modify the production of certain plants for environmental reasons. Along with these challenges are new opportunities. Concern for the preservation of the environment calls for new types of products and new lines of business and, consequently, creates new markets. A final feature of environmentalism is sustainability. Sustainability concerns maintaining a level of production or harvesting that provides a reasonable supply for current consumption, but not so much today that tomorrow's supply will be in question.

Social Responsibility of Business

Economists have long debated what constitutes the social responsibility of business. Some believe that the primary purpose of any business is the maximization of corporate profits. Others believe that a business has an inherent responsibility to, for example, maintain an acceptable work environment for its employees, provide a living wage, provide adequate health benefits to its employees, and reduce the amount of pollutants that stem from the manufacturing of its products. Countries experiencing rapid industrialization, such as India and China, often experience deterioration in water- and air-quality levels as a by-product of the increase in the burning of fossil fuels such as coal, petroleum, and natural gas.

There are countless examples of corporations' ill effects on the environment, and there are almost as many responses to such problems. Some countries, such as those in the

European Union, believe in taking unilateral action to reduce their levels of pollution, while other countries, such as the United States and Australia, have expressed the desire to include the rapidly industrializing countries in any agreement regarding pollution control. While economists still debate whether a business has the moral responsibility to protect the environment, it seems that many nations of the world have already assigned this task to manufacturers the world over. Supranational organizations such as the WTO and NGOs such as Greenpeace have also entered the fray regarding environmental addendums to trade agreements and support of environmentally friendly causes.

Major Environmental Issues

Greenhouse Gases

Greenhouse gases contribute to global warming by trapping heat in the earth's atmosphere. It is predicted that if such gases continue to accumulate at the present rate, they will lead to an increase in global temperatures by 2°C to 3°C relative to preindustrial times. A 3° increase would melt the ice caps of Greenland, which would have a disastrous impact on the world's ecological systems, raising sea levels by as much as 20 feet (6 meters) and flooding low-lying coastal areas, many of which are industrial and urban centers with a high population concentration. To put things in historical perspective, the average global temperature in 1800 was 13.52°C (56.24°F), while today it is 14.48°C (58.06°F). Other worst-case scenarios predict temperature rises by 2°C by 2035, when the ice caps would start to melt. Some experts forecast a rise in average global temperatures to 16.5°C (61.7°F) by 2050 or even a rise to 18.6°C (65.5°F) by 2100.

The gases that contribute most to global warming and the **greenhouse effect** include carbon dioxide, methane, and nitrous oxide, with the first two accounting for about 75 percent of the warming effects. Presently, we are experiencing the highest level of carbon dioxide in the atmosphere in the last 800,000 years. A major source of carbon dioxide accumulation in the atmosphere is industrial combustion of fossil fuels. MNCs are major users of fossil fuels in a number of ways. They extract, refine, and transport much of the world's supply of fossil fuel and are significant consumers of such fuels, both as an intermediate and final source of energy. Table 11.1 illustrates the main economic activities that contribute to global warming. The production of greenhouse gases as a direct or indirect result of transnational corporations' operations is shown in Table 11.2.

Depletion of the Ozone Layer

The earth's environment is protected by a layer of ozone gas in the stratosphere that shields the earth's surface from potentially deadly ultraviolet radiation. In recent years the ozone layer has been seriously damaged by human-made chemicals, especially chlorofluorocarbons (CFCs). CFCs are used to lower temperatures in refrigerators and air conditioners and are utilized in making aerosol and foam propellants. Some CFCs also contribute to

Table 11.1 **Economic Activities and Global Warming**

Activity	Contribution to global warming (in percent)
Energy use and production of which	57
Industrial	22
Transportation	20
Residential/commercial	15
Use of chlorofluorocarbons	17
Agricultural practices	14
Deforestation and other modifications	9
Other industrial	3
Total	**100**

Source: US Environmental Protection Agency.

Table 11.2 **Greenhouse Gas Production**

Gas	Amount of gas generated by transnational corporations (approximate percentage of total amount generated)	Significant sources of greenhouse gases
CO_2	50	Emissions from automobiles 75 percent of oil and gas and 50 percent of coal use in OECD countries 50 percent of fossil fuel use in developing countries
Methane	10–20	50 percent from oil and gas production and use 50 percent from coal mine emissions
Chlorofluorocarbons	66	Use of aerosol sprays, car air conditioners, solvents, and refrigerators in OECD countries
Other (such as nitrogen oxides and ozone)	50	Emissions from automobiles 75 percent of oil and gas use in OECD countries 50 percent of coal use in OECD countries 50 percent of fossil fuel use in developing countries

Source: United Nations Economic and Social Council, Commission of Transnational Corporations.

Note: A designation of transnational corporation involvement is not meant to exclude involvement by others in the emissions of greenhouse gases, for instance, in their use of cars or other consumer goods. The estimates are designed to indicate an order of magnitude of emissions, which could be affected by measures taken by transnational corporations, whether self-initiated or government mandated.

global warming, and these and similar chemicals are projected to account for 10 to 15 percent of global warming between now and the middle of the twenty-first century. The depletion of stratospheric ozone leads to the accumulation of tropospheric ozone, which is a contributor to global warming through the greenhouse effect.

MNCs have been found responsible for a large proportion of this damage, because they were the main producers of products using and producing CFCs and other chemicals

that damage the ozone layer. In fact, all major manufacturers of CFCs were multinational corporations, and the focus of world attention has been quite sharp on this aspect of their activity. In 1987, the Montreal Protocol banned the future production of CFCs. Much of the effect has already been experienced, however. Thus, the level of CFCs already released into the atmosphere will account for one-ninth of global warming over the next 100 years.

Deforestation

The disappearance of the world's forests has had and is likely to continue to have extremely dangerous ecological consequences. The scale of the problem has already assumed alarming proportions. According to one source, every year 129,000 square kilometers (50,000 square miles) of forest is destroyed, while only 56,000 square kilometers (22,000 square meters) is replenished. This results in a net loss of between 73,000 square kilometers (28,000 square miles) and 84,000 square kilometers (32,000 square miles) each year, depending on the source of the estimates. The higher of these two net loss figures, 84,000 square kilometers (32,000 square miles), equates to an area approximately the size of Ireland.

Deforestation has a number of adverse global environmental effects. The loss of forest cover on mountains and hillsides decreases the soil retention capacity, which leads to rainwater washing valuable topsoil into rivers, reducing their depth and making them prone to flooding. The lack of forest cover reduces an area's potential rainfall and limits the supply of oxygen, which means that carbon dioxide increases proportionately and adds to global warming.

MNCs have been viewed as responsible for deforestation in many countries for a variety of reasons. Many MNCs are large producers and transporters of timber and timber products. Others have been associated with large industrial and civil construction projects that have been established on former forestlands. If deforestation ended entirely, man-made emissions of carbon dioxide would fall by seventy gigatons by 2050.

Fishing Stocks

An additional environmental issue concerns the sustainability of the world supply of fishing stocks. In recent decades, the world's supply of various fishing stocks has deteriorated rapidly. Some species, such as the blue fin tuna, have seen stocks drop by 70 percent over the last fifty years. Reasons for overfishing are numerous, with blame spread among various governments, private fishermen, multinational corporations, and stock regulation agencies. Additionally, with the health benefits of fish consumption well-known, and with the rise in popularity of tuna and sashimi consumption, typical market mechanisms such as increased prices have not stemmed the rise in demand. Consumers appear willing to pay sometimes exorbitant prices in order to maintain current consumption levels of fish. Quotas set by international fish regulation agencies have continually been breached by

Table 11.3 **Industries Producing Hazardous Wastes**

Key manufacturing industries for industrializing nations	Hazardous wastes produced
Metal finishing, electroplating, etc.	Heavy metals, fluorides, cyanides, acid and alkaline cleaners, abrasives, plating salts, oils, phenols
Leather tanning	Heavy metals, organic solvents
Textiles	Heavy metals, toxic organic dyes, organic chlorine compounds, salts, acids, caustics
Pesticides	Organic chlorine compounds, organic phosphate compounds, heavy metals
Pharmaceuticals	Organic solvents and residues, heavy metals (especially mercury)
Plastics	Organic solvents and residues, organic pigments, heavy metals (especially lead and zinc)

Source: Leonard, "Hazardous Waste: The Crisis Spreads," 44.

illegal, unreported, or underreported fishing activities. The inability to achieve scientifically based quotas for fishing specific types of fish threatens the availability of these species for consumption in the future.

Hazardous Waste

The production, handling, transport, and disposal of hazardous industrial waste have become of serious concern in many countries, given the risks they carry both for the quality of the local environment and for general public health. According to the US Environmental Protection Agency, "Uncontrolled hazardous [waste] sites may present some of the most serious environmental and human health problems the nation has ever faced."[1] Concerns about hazardous industrial waste are now worldwide, the problem being equally serious in many less-developed countries, where regulations relating to the disposal and treatment of hazardous waste are not as well established. Hazardous wastes are generated by a wide variety of industries, in both developed and developing countries. Table 11.3 illustrates some of the key industries in industrializing nations that produce hazardous wastes.

Several ecological accidents and disasters involving hazardous industrial wastes have shown how serious this threat is becoming. For example, thirteen children died in 1981 from mercury poisoning in Indonesia after eating fish caught in a tributary of Jakarta Bay. Mercury levels in the water, polluted by chemical and heavy-metal wastes from nearby factories, were found to be more than sixty times those deemed safe by international standards. Similarly, a company in Mexico was forced to close after it was discovered to have been pumping highly toxic chromium wastes directly into the aquifer in the Mexico Valley area, threatening the water supply of nearly 20 million people. A critical issue in hazardous waste disposal is the transport of the waste. Companies in countries with heavily regulated hazardous waste disposal methods attempt to circumvent the regulations by transporting the wastes to other developing countries with little or no regulations.

Table 11.4 **Carbon Dioxide Emissions** (millions of tons annually)

1	China	6,099.1
2	United States	5,748.1
3	Russia	1,563.5
4	India	1,509.3
5	Japan	1,292.5
6	Germany	804.5
7	United Kingdom	568.1
8	Canada	544.3
9	South Korea	474.9
10	Italy	473.8

Source: Economist, Pocket World in Figures, 2011.

MNCs have been accused of not paying enough attention to the problems of hazardous waste in host countries that do not have well-developed environmental control regulatory frameworks. This issue has been brought into the spotlight by several ecological problems and disasters in developing countries that have occurred because of MNC laxity in observing environmentally safe procedures for the disposal and treatment of hazardous wastes generated by their overseas plants. Perhaps the most tragic environmental disaster was the leak of lethal methyl isocyanate gas from Union Carbide's pesticide plant in Bhopal, India, in 1984, which caused more than 2,500 deaths and serious impairment to several thousand more people.

Pollution

The problems of industrial pollution became increasingly serious in the late 1980s as industrialization expanded and intensified. Air pollution is caused primarily by emissions from factory chimneys, while water pollution is caused primarily by the discharge of industrial effluents into local bodies of water. In many countries the air has been so polluted at industrial centers that the local residents have increased incidence of respiratory and other diseases. In other countries, water pollution has ended the use of local rivers, lakes, and bays. Table 11.4 provides an estimate of the countries that emit the highest levels of carbon dioxide each year.

Kyoto Protocol

In an attempt to curb the collective emissions of greenhouse gases in order to achieve cleaner air worldwide, a multination agreement called the **Kyoto Protocol** was adopted in the third session of the Conference of Parties to the United Nations Framework Convention on Climate Change, in Kyoto, Japan, in 1997. The agreement required that fifty-five countries, which must represent at least 55 percent of the industrial world's greenhouse-gas emissions in 1990, must ratify the agreement for it to take effect. The goal of the Kyoto Protocol is to reduce the collective emissions of greenhouse gases by 5.2 percent from 1990 levels, while the European Union has agreed to reduce its carbon dioxide emissions

by 20 percent relative to 1990 levels and to raise renewable energy to 20 percent of total energy consumption by 2020.

The European Union has been a strong proponent of the Kyoto Protocol, and the agreement has also been ratified by Japan and Canada, among other nations. The United States has not ratified the agreement, and India and China are not subject to reduced emission targets. Canada withdrew from the Kyoto Protocol in 2011, while Japan and Russia could not promise participation in further reduction targets.

Some experts have said that the Kyoto Protocol is doomed to failure, as non-Kyoto countries account for 70 percent of global carbon dioxide emissions. Some observers have also identified a **green paradox**: announced green policies by governments tend to increase global warming as more fossil fuels are brought to market before any intended sustainable alternatives materialize. The majority of government environmental policies focus on reducing demand, while the supply is left alone. Thus, reduced consumption of fossil fuels in Kyoto-participating nations is replaced with increased consumption elsewhere. A new Kyoto Agreement is planned by 2015, but if these major omissions are not corrected, future success is not assured.

MNC Responses

Multinational corporations, for valid reasons, have been held responsible for their contribution to the increased environmental problems the world faces today and are called on to adjust virtually every aspect of their activities.

Establishing In-House Environmental Ethics

MNCs' approach to battling environmental pollution and ecological degradation is dependent to a large degree on the corporation's ethical code. The corporation's response to these problems depends on what it perceives to be its responsibility. MNCs have tremendous political leverage, particularly in small LDCs, which need their technology, industrialization, and economic growth. Environmental laws are less developed in LDCs, while public awareness of environmental issues there is limited, and there are few channels for the effective and voluble expression of public opinion. The ruling powers in LDCs generally tend to have almost universal authority, and their decisions are difficult to challenge, which allows MNCs to establish environmentally unsound projects, should they decide to do so, as long as they have the confidence of the local authorities. Many prior studies have shown that MNCs tend to locate their more polluting plants in developing countries to escape the strict environmental standards and regulations imposed by developed countries. The inclusion of environmental initiatives in trade agreements could help to reduce the imbalance of enforcement of environmental improvement between the developed and developing worlds. Some developing countries have argued that developed countries have more historical and current culpability for environmental contamination then do the less-developed countries.

It is extremely important for MNCs to take a responsible approach to environmental issues. Many corporations have adopted such an approach, voluntarily restricting their environmentally unsound operations and even stopping production of environmentally unsafe products. Many others have not.

Relocation of Production

In the past, MNCs' location decisions were principally dependent on technical and economic criteria: raw material supply, infrastructural facilities, availability of a trained workforce, proximity to markets, availability of transportation, and so on. Now decisions to establish plants must evaluate potential effects on the environment. Not only must the economic consequences (such as feasibility and rate of return) be forecast, but plans must be made to protect the local environment. Thus, while permission from a government was sufficient in the past to establish a factory in a host country, MNCs are now likely to be required to discuss their site plans with local representatives and allay their concerns about a plant's actual and potential impact on the local environment and ecological balance.

Modification of Technology

Traditionally, the main motivator of technological change was a search for more advanced and economically efficient technologies that would generate new and better products at lower costs. Recently, however, technology development has also focused on environmental safety. Technologies in development must be monitored in regard to their environmental consequences. So-called green technology applies to generating energy, creating nontoxic cleaning products, fostering sustainable development, and so on.

Use of Raw Materials

Raw material use is an important focus of technological modification. The raw materials currently in use may not be available in the future, principally for two reasons: they may be nonrenewable, as are fossil fuels, and their use may result in consequences that are harmful to the earth's environment. According to the **Hotelling rule**, the price of an extracted resource rises at a rate equal to the capital market interest rate. Thus, the smaller the remaining underground stock, the higher are the unit extraction costs. Unfortunately, if the expected profit is higher than the unit extraction cost, continued extraction is likely, in the absence of supply-based controls. As concerns with the environment grow, MNCs are called on to consider not only the monetary price of raw materials but their ecological consequences as well. Limitations imposed by these considerations exert pressure on MNCs to use technologies that reduce industrial waste, maximize consumption efficiency of raw materials, promote recycling of waste and used products, and concentrate on more durable and lasting products.

Use of Energy

Energy use is another important area of concern in the general technological modifications that MNCs will have to continue to undertake as part of their response to environmental imperatives. Typical approaches in this area include gradual phasing out of energy-inefficient technologies and introduction of technologies based on clean, renewable, and environmentally safe sources of energy (e.g., solar power and hydrogen), as opposed to those based on polluting, nonrenewable sources, generally limited to fossil fuels. The problem has been complicated by nuclear accidents at Three Mile Island in the United States and Chernobyl in Ukraine, which have placed a major question mark over the future of nuclear energy as an alternative to conventional fossil fuels. The small nation of Iceland has been successful in the use of hydrogen power. Approximately 70 percent of Iceland's energy needs are met by geothermal and hydroelectric power. Iceland has a vast pool of geothermal energy beneath its surface, which allowed for the successful experimentation over the years with alternative sources of energy. All of Iceland's homes are heated via these clean energy sources, and only its transportation industry still requires oil and gas. In 2003, Shell opened a hydrogen station in the country, and buses that run on hydrogen power were also introduced. This early market entry was followed by demonstration hydrogen stations throughout the world in recent years.

Energy sources are likely to grow more expensive and scarce, while patterns of energy use are likely to be under increasing scrutiny from different quarters, including environmental groups and the media. MNCs must ensure that they use energy sources in an environmentally sound manner, which will require substantial investments in new or modified equipment, such as energy-efficient industrial furnaces, boilers, and exhausts, and new equipment to control atmospheric emissions, such as air filters and gas treatment chambers. Energy use will have to be modified not only in production, but also in all other facets of activity, including transportation.

Environmental Restoration

The response to the environmental challenge cannot be limited to in-company modifications in production, technologies, energy, product mix, or location decisions. It must extend beyond the corporation, because the environmental impact of the operations of industrial concerns affects the local community and, in an aggregate sense, its home or host country. Company responses must be designed to compensate for aspects of environmental regeneration that are most directly and visibly linked to the areas of the corporation activities. For example, companies that use substantial quantities of wood would be called on to support local and national reforestation and social forestry programs. Companies that have had a role in adding to atmospheric pollution would have to support programs that attempt to remedy the consequences of such pollution, such as the cleanup of lakes and other freshwater bodies damaged by acid rain, or international agreements such as the Kyoto Protocol. As discussed earlier, firms responsible for overfishing should have the responsibility of

adhering to scientifically based quota limitations. More generally, it is becoming a growing responsibility of corporations to foster environmentally responsible behavior both among their employees and in the communities in which they are located.

Pollution Disclosure

Environmental disclosure will be an important responsibility of MNCs in the future. MNCs will have to remain aware of and appropriately informed about the environmental impact of their activities through an efficient internal information system. These data would have to be shared with the outside world, both voluntarily and through mandatory reporting requirements and environmental audits. A touchy issue will be environmental compliance by an MNC's joint-venture partners or partly owned subsidiaries in host countries. While an MNC may prescribe a certain environmental standard for itself and wish to have it replicated by its joint-venture partners or overseas subsidiaries, that wish may not be reciprocal. Similarly, overseas partners may impose more stringent environmental constraints that an MNC may not wish to be bound by. The issue of environmental safety has become important in many negotiations for international joint ventures, and environmental responsibilities are often incorporated as fundamental provisions in the terms of agreement. MNCs have become particularly sensitive to this issue because of the dangers of environmentally unsound acts that their joint-venture partners might commit, for which they might have to take the blame in both their home and host countries, and which could damage their reputation for environmental responsibility in other countries.

It is extremely important that MNCs disseminate information on their own about the consequences, both favorable and unfavorable, of their operations on the environment. Proper disclosure of such information will be extremely important in maintaining the environmental image of a corporation and facilitating a feeling of confidence among different groups—local governments, creditors, consumers, suppliers, investors—in the firm's environmental soundness. Proper disclosure of the environmental status of a firm's activities also has an important damage-control role, inasmuch as it informs the public about possible dangers. Any harmful consequences for the environment emanating from MNC activity would be much more damaging to a firm if it became known that the MNC had chosen to suppress prior information it had about such a possibility.

In-House Environmental Training

As a part of overall corporate planning, the environmental consequences of all future company activities should be assessed well in advance. A serious commitment to this type of oversight will enhance the corporate image.

One way of demonstrating this commitment is to include the corporation's environmental approach in its mission statement and corporate objectives. Any business plan intended for external audiences should include company-defined environmental goals, as well as specific plans for implementation. Planning for environmental safety must be

comprehensive, covering future investments in plants and other physical facilities, use of natural resources, treatment of industrial wastes, prevention of environmental damage, protection of water resources, and prevention of accidents.

No plan can be successfully implemented if the operating-level staff is not actively educated. This is all the more true of plans for environmental soundness and safety because operating-level staff are likely to view the plans as peripheral to their central functions, not because of their antipathy to the environment, but simply because of their perception of its relative importance in the context of their work. MNCs must therefore engender a sense of commitment to environmental safety and responsibility among management and staff to elicit optimal cooperation in the achievement of the company's environmental objectives.

Personnel must also be informed about the nature of the environmental problems that confront the world, in general, and the environmental consequences of their activities as company workers, in particular. One way to give meaning to this exercise is to spell out ways in which employees could contribute to overall environmental safety in their own tasks. To ensure that these guidelines are taken seriously, firms must establish an incentive structure that encourages employees to monitor environmental standards and provide practical suggestions on how the company's environmental performance could be improved. A reward structure could also be established for groups or units, whereby the group could be rewarded on the basis of the environmental safety or standards it is able to maintain over a given period of time. It is essential to involve employees, at both management and staff levels, if any environmental safety program is to be successful.

MNC Opportunities

While the environmental challenges facing MNCs are daunting, a number of opportunities have also arisen. Many MNCs have been quick to anticipate the trends in the world's regulatory, economic, political, and social environments and have been positioned to derive the maximum advantage from them.

New Consumer Products

As the world grows more environmentally conscious, there is an increasing need for environmentally safe products. This demand points to the opening of new markets, first in developed and later in developing countries. Environmentally safe products have already made their appearance in many countries and embrace a wide range, from personal goods to consumer durables. Whole Foods Market is an upper-end grocery store that specializes in selling natural and organically grown food products. The company, which started in Austin, Texas, in 1980, now has more than 300 store locations throughout the United States, Canada, and the United Kingdom, and it proudly displays on its website that it has been ranked in the Fortune 100 Best Companies to Work For since 1998. Besides selling products free of preservatives, additives, and colorings, Whole Foods Market has also gone to great lengths to reduce the amount of energy consumption in its store

locations, to promote recycling of paper, glass, and plastic, and to collect reusable items, such as batteries, light bulbs, and computer equipment, for recycling. As mentioned on the company's website, numerous store locations have utilized solar power for almost one-quarter of the store's energy needs.

New Technologies

Firms specializing in technology development are already receiving large orders for new, environmentally safe technologies in a wide range of industries. Environmental-control technologies are in particular demand. Cleaner and more efficient furnaces and technologies that treat toxic emissions and effluents are all in greater demand. Since 2000, automobile manufacturers have been selling hybrid automobiles, which run on a combination of gasoline and a rechargeable battery, a trend likely to continue given these vehicles' fuel efficiency. Lest we forget the green paradox, announced governmental policies promoting alternative sources of energy (often via new technologies) lead to increased consumption of current sources (and technologies) in the present.

New Industrial Products

Today's plants require a large number of mechanical modifications to meet environmental standards. Water-treatment plants, emission-control filters, waste-management systems, and the like represent new markets and opportunities that are going to expand across the world.

Substitute Products

A number of products that are in wide use but considered dangerous to the environment are likely to be phased out and replaced. Certain types of plastic products that were found to be resistant to biodegradation, for example, have been replaced with other polyurethane foam products, which either are biodegradable or can be recycled. In the words of comedian George Carlin, the plastic that mankind has created may be our true purpose on this planet, as without man there would be no plastics deposited in the ground.

New Energy Sources

A number of companies are intensively researching the development of new sources of energy for the future as well as new devices and products that run on such sources of energy. One of the most important of these new energy sources is solar power, which is clean, environmentally safe, and virtually unlimited. Working models of solar-powered automobiles have been developed and other solar-powered products have been in use for several years. As mentioned above, environmentally conscious companies such as Whole Foods Market use solar power in their stores in an attempt to save money while utilizing a clean source of energy. Additionally, oil giant Shell has embraced the concept of the hydrogen fuel cell enough to open a hydrogen station in Iceland.

Environmental Consulting

Corporations specializing in environmental technology, design, and management and similar areas are already flooded with contracts and offers to develop environmental safety programs in several different countries. This area is likely to grow rapidly as industrial concerns, local and national governments, and communities attempt to upgrade the environmental quality of industries, neighborhoods, and other aspects of everyday activities. The growing support from the developed countries for such concerns has enabled the collection of substantial funds from various charitable and other foundations to be used to finance such services across a broad spectrum of countries.

The Environment at Center Stage

The environmental issue has clearly moved from the periphery of MNC concerns to center stage. The environment now has to be factored into almost every decision, and top management can no longer simply delegate the responsibilities in this area. It is an issue for the headquarters of every MNC to consider when planning global and local strategies, whatever the internal organization structure of the business. MNCs that take an enlightened approach to this issue are quick to capitalize on opportunities while managing risks effectively and are likely to end up the winners. Unlike other forms of corporate activity, however, it is not enough if one corporation wins and another loses. Everyone must win if Earth's fragile and currently endangered environment is to be nurtured and sustained.

Summary

Environmental concerns over greenhouse gases, depletion of the ozone layer, deforestation, overfishing, hazardous wastes, and industrial air pollution have moved to the forefront of international concern and attention. Because of the significant control and influence that MNCs have over world resources, they are being challenged to operate in more environmentally responsible ways. These challenges include conducting business ethically, conducting environmental impact studies before making plant location decisions, implementing technological modifications to reduce waste and increase environmental safety, developing environmentally safe energy sources, accepting social responsibilities for environmental regeneration, diversifying manufacturing, planning, educating, sharing information, and increasing investment in R&D. Environmental issues concern multinationals, national governments, NGOs, and supranational organizations. These varying interests often oppose each other, delaying improvement and increasing the tension concerning environmental matters.

New opportunities, however, are being created as new products and markets designed to meet environmental concerns become available.

Discussion Questions

1. Why should MNCs be concerned with global environmental issues?
2. What are greenhouse gases?
3. What has been causing the depletion of the ozone layer? What role have MNCs played in this process?
4. What are hazardous wastes? Find some recent examples (from the *Wall Street Journal* or other periodicals) in which MNCs have been involved in either producing or cleaning up hazardous wastes.
5. What should be done to curtail overfishing in the future?
6. How can MNCs be more responsible for the global environment? Explain your answer.
7. What new opportunities will MNCs enjoy as a result of increased attention to environmental problems?

Note

1. US Environmental Protection Agency, "Policy Options for Stabilizing Global Climates."

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Case Study 11.1

Milford Processes Inc.

Kenneth Briggs, general manager of the technical division of Milford Processes, has just finished reading a long, well-prepared brief written by a task force he had put together to report on the severe quality-control problems of the wholly owned subsidiary's plant in Matumba, East Africa. Reports of problems with the chemical-producing plant had been coming in for the last six months, becoming more serious in the last two months. Concerned with the future of the plant, Briggs had put together a small task force of head office and subsidiary technicians to investigate the problems and recommend solutions.

Their report is extremely direct. Quality at the plant is dropping and productivity has fallen. The defective rate of chemical batches has risen from 12 per thousand to 98 per thousand over the past six months. Productivity decreased by 16 percent in the past quarter.

These statistics trouble Briggs. The plant in Matumba had gone online only a year ago and was equipped with the latest equipment and machinery and the most advanced processing technology. The entire technical side of the operation was run by Milford's engineers, who had several years of experience. The first six months, in fact, had been a great success, and Matumba's productivity had matched Milford's worldwide standards in nearly every way.

After the first two quarters, however, things began to go wrong. One of the most difficult problems was electricity. When the plant was set up, the Matumba government had guaranteed an uninterrupted electricity supply to the plant as a part of the package of incentives it had offered to attract Milford into setting up an advanced-technology facility in the country. However, much of Matumba's electricity-generating capacity was based on hydroelectric projects, and these were dependent on the degree of rainfall that the country's catchment areas received during the rainy season, during the first four months of the year. This year the rains had failed to come, and water levels in the hydroelectric project reservoirs fell below operating levels. There was nothing the government or anyone else could do to generate power in adequate amounts to meet the country's needs. Bound by its promise and eager to maintain a hospitable environment for overseas investment, Matumba authorities had given high priority to the Milford plant's power needs. Despite their best efforts, however, the plant had no power for one day a week in the past four months, and in the past six weeks, production had to be shut down for two days a week. To keep up production volume and minimize production losses

because of the plant shutdown, the production managers had reduced the number of quality-control checks both at the point of raw-material feeding and at final-production testing. The electricity shortage also resulted in the malfunctioning of the plant's temperature control systems at two stages of the production process, which was also affecting quality.

The task force had come up with two options, both of which assume that the electricity situation in Matumba is not likely to improve soon and that over the long term it could fluctuate considerably, depending on the pattern of annual rainfall. Moreover, if Matumba's drive to attract other overseas companies to the country meets with even moderate success, the demand for industrial consumption would go up sharply, and Milford would lose its most-favored status in this regard. The government is already under criticism from some quarters of the political opposition for bending over backward to please Milford. The opposition is actively calling for retracting Milford's privileged access to the country's generating capacity in times of scarcity.

The first option recommends that the company set up a captive power station, which, in effect, means the building of a complete power-generating facility to supply electricity exclusively to Milford's plant. The plant would cost an estimated $16 million to build and could be completed in about a year and a half. The facility would ensure that the chemicals factory would receive an uninterrupted supply of electricity, which would lead to consistent production performance and progressively higher productivity standards.

The other option is to modify the subsidiary's technological processes to be less dependent on electricity and to meet its energy needs from other sources, especially natural gas, which is readily available in Matumba at relatively inexpensive rates. Although using natural gas would be relatively cheaper, even after taking into account the costs involved in modifying some of the plant's technological processes and equipment, the option does pose some difficulties. The processes using natural gas are not as advanced as those using electricity, and there could be a marginal decline in product quality, even though the production volume could be maintained at the same level. Another issue is safety. Although Milford's safety standards are quite strict and well developed, it is possible that they could be compromised at the subsidiary level. The main problem is the safety orientation of local employees. Most had little experience in working in such a plant. A comprehensive safety training program and continued emphasis on safety consciousness could reduce the risks significantly but not eliminate them.

Briggs looks again at the report, which concisely puts together the main pros and cons of each option and closes with a clear, strong emphasis on the need for

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Case Study 11.1 *(continued)*

early action. "We'll have to decide within the next few weeks," he thinks. "Before the Germans and Italians come in and set up their operations, we have to dig in and dominate; it will be impossible to do it later." The next morning the members of the technical operations committee receive a notice of a policy meeting to be held Thursday in the main conference room to discuss the problems at the Matumba plant. Attached to the notice is a copy of the report with a request for each member to read it before the meeting.

Discussion Questions

1. Assume that you are a member of the Milford technical operations committee. What questions would you raise at the meeting? Which of the options would you suggest? In your opinion, could Milford take other approaches to resolve these issues?
2. What environmental constraints are present with each of the possible options?

Case Study 11.2

Alapco Chemicals Ltd.

Wilbur Stevens looks in dismay at the mound of toxic waste piled high in a closed-off area near his factory as he drives past the dumping ground on his way to another busy day at his office in the Los Helios factory of Alapco Chemicals, where he is general manager. Los Helios is a major industrial location in the southern part of Valdina, a small country in Central America that has close ties with the United States and is heavily dependent on US aid for its continued survival. Alapco Chemicals had established its factory in Los Helios in 1934 and has since expanded its operations considerably. The main products of the Los Helios factory are pesticides and insecticides that are in great demand by Valdina farmers, whose crops are in danger from grave damage by weeds and pests that flourish in the hot and humid climate. Alapco is the only important producer of these products in the country and enjoys a monopoly over the market.

Although the company has shown consistent growth in both sales and profitability over the past decade, recently its environmental record has begun to be questioned by environmental groups, especially those based in the United States. The environmental problems of Valdina are undeniable. The air pollution in the country, especially in the area near Los Helios, is among the worst in the world. The country's forests have been almost completely decimated by indiscriminate logging both for revenue and for clearing land for new communities and industry in the small country. The nine main beaches of the country are so polluted by industrial and municipal waste that they have been declared unfit for swimming. One beach has been totally closed to the general public for the past five years.

A group of environmental activists has focused the blame on the government of Valdina and on local and foreign industry. Until two years ago there was no systematic legislation or even regulation of the environmental aspects of industrial and other forms of economic and development activities. The only regulation was in the form of some weak and often outdated factory codes, which were rarely enforced. Further, the government did not have a separate agency for environmental control; any issues raised were handled by the ministry concerned with a particular industry.

Growing international attention and the increasingly visible effects of the environmental deterioration in Valdina had ultimately goaded the government into action. In 2010, environmental legislation was passed that contained guidelines to be observed by both industry and agriculture. Globe-Watch, an active environmental action group in Washington, DC, had helped the government draft the legislation, which in its final form turned out to be fairly streamlined and quite stringent.

Enforcement of the legislation, however, was another matter. The government of Valdina, strapped for cash and deep in debt, did not have the resources to establish a system of periodic inspections and follow-ups to ensure that the guidelines were actually being followed. Moreover, being dependent on industry, especially the multinationals, to raise revenues, the government hardly had the political will to take stern measures to enforce its decree. As a result, much of the legislation remained merely on paper and any implementation was done voluntarily. Voluntary action was also limited because following the safeguards meant substantial capital outlay to purchase and install pollution-control equipment in factories or modify a plant or processes to ensure that they caused less environmental damage.

Alapco was one of the main polluters, partly because of the sheer size of its operation (it had the largest single plant in Valdina), partly because of the nature of the chemical-manufacturing process, and partly because some of its processes were quite old and had not been modified to control their effect on the environment. Again, because Alapco was the only producer of some of the chemicals needed by

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Case Study 11.2 *(continued)*

Valdina's farmers and because the company's top executives had extremely close connections with the government, no action was taken to enforce the new regulations, and things remained pretty much as they were for the next year, until Wilbur Stevens arrived in Los Helios as the new general manager of the plant.

Stevens was a brilliant engineer who held a master's degree in chemical engineering from Carnegie-Mellon University and an MBA from the Massachusetts Institute of Technology. He had worked with a tire company in Great Britain and with a chemical firm in Germany before returning to the United States as operations manager for Alapco's plant in Peoria, Illinois. In Peoria, Stevens had made an excellent impression on the senior management and workers. His management style and unique abilities had been major factors in turning around the plant's performance within three years from subpar productivity to one of the best among Alapco's fifteen plants. As a result, Stevens had been identified by top management as a potential candidate for the highest levels of the company hierarchy. As a part of the plan to groom him for senior management positions by giving him greater responsibilities and exposing him to an international situation, Stevens was appointed general manager and chief executive officer of the company's plant at Los Helios in Valdina.

On reaching Los Helios, Stevens was struck by the dominance Alapco enjoyed in the country. He was regularly invited to receptions given by senior government officials, and nearly every request he made on behalf of the company was quickly processed with a positive response. The plant was also operating with a reasonable degree of efficiency, considering its rather outmoded technology. Alapco's senior management had, as a matter of policy, continued to use this technology, taking the view that it was adequate to meet the current needs of the market in Valdina and that the introduction of new technology would result in high costs that the company would not be able to recover under the present conditions and market structure in Valdina.

Stevens soon began to feel quite comfortable in his new position. Valdina had an excellent school for the children of the many American expatriates, and his family had adjusted to the new conditions quite well. After a few months, however, he received a group of visitors from Washington who left him feeling uneasy. They were members of a delegation from Globe-Watch, and they informed Stevens that their group had helped the government of Valdina formulate the environmental policy and that they were, on their own, following up on that legislation. At first Stevens was annoyed and stated that this was a matter between his company and the government of Valdina and that if his plant was violating any of the regulations, it was for the

government of Valdina to say so and not any third party. Further, he added, not a single letter or any other communication had been received from the government of Valdina on this issue, and he therefore believed that his plant was complying with all government requirements. The environmentalists were very direct. They showed Stevens a list of environmental violations that Alapco's plant in Los Helios was actually committing every day and compared the Los Helios operations to the operations of Alapco's plants in other areas, especially in the developed world. The presentation made clear that Alapco was following two different environmental standards: one in developed countries and one in developing countries. As far as Valdina was concerned, the reason for the double standard was the absence of the government's ability or willingness to enforce the legislation.

Stevens saw the point. He had been aware of this problem but he had not seen it in the same light as the environmental group; that is, as an ethical and moral responsibility of his company to their host country. Yes, there were toxic waste dumps just outside the plant and barely three miles from a densely populated residential area. A tropical storm could blow off the waste and cause serious damage. The emissions from the Alapco factory chimneys in Valdina were far higher in pollutants than those at any of the other Alapco plants. The Valdina plant had no effluent-treatment facility and all the chemical waste was routinely dumped into the sea. The problem was that, in Valdina, all this seemed natural. Everyone was doing it and no one complained. Nevertheless, Stevens realized that this casual neglect of environmental safeguards was fundamentally wrong and that the company should do something about it.

He called the company's headquarters in Lansing, Michigan, and suggested that Alapco should take unilateral action to improve the environmental standards of its Valdina plant and bring them into line with the company's other factories. He also submitted a cost estimate and pointed out that while there would be a slight erosion in the profits of the company, the benefits to the host country would be great. The head office, however, did not appear very enthusiastic. Although the members of the senior management team did not say so directly, the message seemed to be, "If we don't have to do it, why should we?"

Stevens was quite disappointed by this reaction. Maybe there is another way out of this mess, he thinks as he drives past the waste dump outside the factory.

Discussion Question

1. What would you do in this situation if you were:
   A. Wilbur Stevens?
   B. Director of Globe-Watch?
   C. Minister for industries of the government of Valdina?