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How Can We Solve the World's Environmental Problem?

We have a big environmental problem. We have been polluting our planet's air, water, and land; depleting its resources; and accumulating a lot of waste for which we need to find places to store. Why have we been doing these things? There are four major reasons. One major reason was discussed in to Chapter 12: we have 6.8 billion people on Earth today (Population Reference Bureau, 2009) and all of these people need food, water, clothing, and shelter. In addition to these minimal needs to survive, millions of people in developed nations have cars, large homes, air conditioning, heated houses, washers, dryers, heated water for bathing, refrigerators, stoves, and so on. Hence, having nearly 7 billion people on Earth, compared to 5.2 billion people just 20 years ago (Population Reference Bureau, 1990), and having many people with a high standard of living, means that we humans will pollute a lot, deplete a lot, and build up huge amounts of waste that need to be stored.

A second major reason why we have a big problem of polluting, depleting, and storing of waste is that during the past 200 years, we have gone from an agricultural way of life to an industrial way of life. Instead of “living off the land,” growing grain to eat, and tending to farm animals, we built factories and machines and created a new status called the *factory worker* to produce all kinds of products to consume—as a stroll through a typical shopping mall will show. To create these products, we have used a lot of resources and polluted the air and rivers.

The key to this industrializing, and hence polluting and depleting, has been the creation and development of modern capitalism. Simply stated, capitalism produces products to make profit. Thus, to make more profit, owners of capital—that is, factory and business owners—need to produce and sell more products. It is therefore in the vested interests of those who own factories and businesses to produce and sell as much as they can so as to make as much profit as they can. The very nature of this process has resulted in substantial depletion and pollution.

As of this point in human history, although capitalism has helped to create the highest material standard of living that the world has ever seen, it has at the same time increased the rate at which we pollute, deplete, and have waste storage problems (recall our discussion of latent dysfunction in Chapter 1). As former Vice President Al Gore concluded in his book *Earth in the Balance*, “Human civilization is now the dominant cause of change in the global environment.”¹

A third major factor that has caused our environmental problems is that we have created an ideology within capitalistic developed nations—one that is spreading more and more to developing nations due to television, computers, e-mail, and the Internet—that people in both developed and developing nations want an ever-higher material standard of living (Eitzen & Zinn, 2000, pp. 91–94; Ritzer, 2005). A higher material standard of living means producing more material goods—cars, houses, washers, dryers, refrigerators, stoves, water heaters, heating and air conditioning systems for homes and offices, and so on. All of this means that we need to use more resources to produce more products, resulting in the further depletion of many resources. As we produce and consume these products, we pollute more and have more waste left over.

People in developed nations have become accustomed to ever-higher standards of living. For example, we in the United States make up 4.5% of the world’s population, but we consume 25% of all the oil, coal, and natural gas (Eitzen & Leedham, 2001, p. 208) that is consumed in the world so that we can enjoy driving cars and heating and cooling our homes and places of work. So, our country alone uses up a lot of the world’s resources in order to have and maintain a high material standard of living. To have such a high material lifestyle, our country also does a disproportionate amount of polluting. Again, we are only 4.5% of the world’s population, yet we add 20% of the carbon dioxide produced by humans to the world’s air, producing what has become known as the “greenhouse effect,” which scientific evidence indicates is warming up the Earth and starting to produce climate change. Consequently, although we in the United States have a high standard of living, we also deplete and pollute huge amounts to enjoy our high standard of living. This raises an important question: Should we, as

Americans, be more responsible for solving the problems of depletion and pollution given that we are consuming more and polluting more?

The fourth major cause of our environmental problem is that, increasingly, people in developing nations are noticing how well people in developed nations are living and want to have some or many of the same amenities as do people in developed nations. They too want washers and dryers, air conditioning, televisions, cars, computers, cell phones, and so on. The result has been increased depletion of resources, increased pollution, and increased accumulation of waste in these countries as well.² We are currently creating a new worldwide ideology through which people in increasing numbers want and expect higher material lifestyles. So, it appears that the increasing pressure to produce more goods and services to create a higher material standard of living for the 5.6 billion people living in less developed countries (Population Reference Bureau, 2009) will mean that our world will continue to face environmental problems now and in the foreseeable future.

Consequences

One of the most dangerous consequences of our polluting the environment is that we add huge amounts of carbon dioxide to the atmosphere as the result of burning fossil fuels, such as oil and gas, by industries and automobiles. The result is the warming of our planet and the possible change of Earth's climate, which could wreak havoc for the growing seasons, the amount of rainfall needed for crops, the rising level of the oceans,³ with the endangerment of many coastal cities throughout the world, and other problems.⁴ Data, for example, indicate that "the 12 warmest years in the 140-year record have all occurred since 1983" (Gore, 2000, pp. xiii–xiv). Because we, as humans, have caused this problem (recall our theory of conflict and social change in Chapter One and how we socially construct the social conditions in which we live), we need to find a way to get ourselves out of the potentially life-threatening situation of drastic changes in the climate negatively affecting our ability to grow the food we need in order to survive.

Climate change will cause certain areas of the world that had produced sufficient food to produce less food, leading to malnutrition and starvation. For example, scientific evidence now suggests that the spewing of sulfur dioxide in the air by industries from the United States, Canada, Europe, and Asia caused the decrease in rainfall in Africa, creating malnutrition, starvation, and famine (Verrengia, 2002, p. A2). This condition will create the incentive for people to move to find places to grow enough food. Hence, as we see more global warming, it is probable that we will not only see more

starvation and malnutrition in certain areas of the world but will also see more people from these areas migrating in search of a way to feed themselves (Gore, 2000, p. 73; Intergovernmental Panel on Climate Change, 2001). Moreover, with the rise of global temperatures because of more carbon dioxide in the air, the ocean levels will rise. One third of the world's population lives near coastlines (Gore, 2000, p. 74; see also Hunter, 2001). The cities these people live in will be in danger of being flooded. The result will be that many people will have to migrate inland from the coastlines. Consequently, such migration will cause the stretching of resources wherever these people go. People will need housing, land, and access to drinking water. To tie this migration process to the rapid rise in the world's population is to make us ponder how we, as global citizens, will respond.

Also, a tie between our world's population problem (see Chapter 12) and the world's environmental problem is that as there are more people on Earth, there will be more carbon dioxide that is exhaled (Gore, 2000, p. 93). Instead of a few million people exhaling carbon dioxide (as was the case more than 100,000 years ago) or even 1 billion people exhaling carbon dioxide (as was the case 100 years ago), we have many more people exhaling carbon dioxide today. So, the increase in Earth's population is another factor that could cause a major change in Earth's climate—a change we do not want to occur.

We have also polluted a lot of the fresh water on Earth, with the result that more than 1.7 billion people do not have safe drinking water (Gore, 2000, p. 110; see also Pimentel et al., 1998). That is nearly one third of all the people on Earth! Moreover, one half of the world's population is in danger of using contaminated water because human waste is not properly treated before it is dumped into rivers. One consequence may be the rise in diseases such as cholera and typhoid (Gore, 2000, pp. 109–110). Industry has also caused water pollution because many industries have deposited their wastes in rivers. In a number of instances now and in the past, factory owners wanting to make profit did not take responsibility for the waste they produced while making their products. More profit was made at the expense of the environment in general and at the expense of fresh water in particular. As more developing countries industrialize, they too will probably have problems of having not enough fresh water if their industries don't take responsibility for the pollution they produce.

Another environmental issue is the continual destroying of the rainforests of the world. The rising populations of developing countries have created a need for more agricultural land to grow crops to sustain the population, and governments of debt-ridden developing countries try to pay off their debts or just pay the interest on their loans by cutting down the trees from their

rainforests to sell as lumber (Brown, 2009, p. 198). Yet the rainforests produce oxygen and fresh water and consume some of the carbon dioxide that humans create by burning fossil fuels and simply by exhaling (Brown, 2009, p. 199).

Another potentially dangerous consequence of our cutting down the rainforests of the world is the loss of thousands—even millions—of species of plants, animals, and insects. As yet, we do not know all of the consequences on the environment of the loss of these species. Ehrlich, Daily, Daily, Myers, and Salzman (1997) made a good point when they stated, “Until science can say which species are essential in the long term, we exterminate any at our peril” (p. 101).

In the capitalistic industrial world that we live in, and with nearly 7 billion people who want a higher material standard of living and have been socialized by advertisements to want a high standard of living, we have come to the point where we have created and are increasingly creating a lot of waste and do not know what to do with it all (Gore, 2000, p. 151). Landfills are piling up. States are trying to send their waste to other states. Along with this consequence of a huge buildup of waste is that it is usually stored on the cheapest land, typically near where poorer people and minorities live (p. 149). Hence, poorer people and minorities are the ones who, more often than not, have ended up living nearest the waste sites.

What Can We Do?

Before I get into specific actions we can take to solve the environmental problem, I say some general things about how we need to view the problem.

General Points to Make

Our society, and our world, have largely emphasized short-term gains, especially in a capitalistic economy in which we emphasize profit and keeping costs to a minimum (and hence not wanting to include the costs of pollution and waste storage) rather than considering long-term costs such as climate change and ozone depletion. In considering the environmental problem, we need to think in long-term ways rather than short-term ways (Marchetti, 1986, p. 1). If we think only in the short term, we are more likely to think of our own vested interests—our profit, our convenience, and our standard of living. If we think only about ourselves and our vested interests, we will not think about the good of our world now and in the future.⁵ By thinking short term, we will be less likely to think about what is good for the community (local, national, or global). By thinking more long term, we will

more likely think about what is for the good of our community—be it local, national, or global. Consequently, we will be much more likely to think about our environmental problems, how they currently affect us, and how they will affect us more and more if we do not address them. By also thinking long term, we will consider future generations and their time on Earth in addition to our own generation (Gore, 2000, pp. 191, 195, 269, 333; Jan, 1995; Brown, 2009).

More and more people are coming to the realization that we must consider the long term, what is good for the global community, and what is good for future generations if we want to survive as a species. This will require us to think, plan, sacrifice, and change our ways of living. As our theory of conflict and social change points out (see Chapter 1), we, as humans, socially construct this social world, and it is up to us to socially reconstruct what we do if we want to survive by solving our environmental problem.

One step we will need to take is to become more educated about this problem (Gore, 2000, p. 223). Many people in our country, and throughout the world, do not realize the seriousness of our environmental problem. Hence, part of the solution is to make Americans more aware of the problem and to educate them about the problem (recall our theory in Chapter 1 of conflict and social change, the accompanying causal model, and the important part that awareness plays).

Along with those individuals who do not know about the problem and need to be educated are those who do know but want to deny the existence of the problem or the seriousness of its effects (Gore, 2000, p. 223). Many times, they will have vested interests at stake of profit, short-term gain, and/or their jobs. These are the people who will many times put up roadblocks when the rest of us create more education about the environmental problem and create social policy to address the problem. We must find ways to give these Americans incentives so that they want to address the environmental problem or at least accept the notion that we must address this problem, regardless of their vested interests. The environmental problem will not go away by denying its existence or by denying that it is becoming a bigger and bigger problem.

The oceans and the air are common property that we all share. If air and water pollution stayed only in the country that produced it, the nation producing this pollution could take the initiative and responsibility to clean up the pollution it produced. But air and water pollution does not stop at state boundaries; rather it spreads throughout the world. We as citizens of this world, not just citizens of a nation, will need to work together to clean up our oceans and air. As Murshed (1993) stated, “We could view the environment—the oceans, the atmosphere—as global common property (public good), and

then the problem would be to prevent excessive use or misuse of the global common, which would once again require international cooperation" (p. 43).

Probably, we will eventually need to agree on some worldwide goals for the planet. We have been moving in this direction by attempting to decrease carbon dioxide and chlorofluorocarbon emissions. We will probably need to make saving our environment one of the main goals of our world community. Within this goal, we will need to agree on more specific goals such as decreasing carbon dioxide, sulfur dioxide, and chlorofluorocarbons; increasing the amount of rainforest; finding new, better, and safer ways of storing hazardous waste; and producing more energy without polluting more, depleting more, and creating more waste.

In addition to agreeing on goals, we will need to negotiate agreements among nations as to what we want to do and how we want to accomplish our goals. This will not be easy. As you might predict, national vested interests will collide with international environmental policy. For example, President George W. Bush backed out of the Kyoto Protocol, an agreement among nations to decrease carbon dioxide emissions ("Out of Denial," 2002, p. A6). Because the United States produces 20% of all the carbon dioxide and is the wealthiest and most powerful nation in the world, when it backs out of an agreement, the original agreement can be hurt considerably. So, for international agreements to work, rich and powerful nations will need to be part of these agreements.⁶

Creating common environmental goals and reaching international agreements will be helped along greatly as more leaders of various countries begin to take our worldwide environmental problems seriously. This will not be easy for many leaders of nations; to remain popular and get reelected, these leaders will focus more on their nations' immediate problems, such as their nations' economies. Problems of internal political unrest will greatly distract leaders from focusing on the environment. Also, wars and conflicts with other countries will deter leaders from focusing on the environment. Moreover, it will not be easy to get leaders of nations to focus on something that seems to be distant and therefore does not seem so urgent. But the mounting evidence of environmental degradation will increasingly present national leaders with the harsh reality that something must be done.

At this point, serious goal making and agreement making are good places to start.⁷ One factor that may speed up this process a bit is if some national leaders, especially from the more powerful countries, promote the environment as part of the overall national and international policy.

In thinking about what we can do, key factors to keep in mind in all of the social problems that we face is that we will need to (a) plan ahead, (b) consider the consequences, (c) experiment with new social policy, and

(d) carry out social policy that is effective.⁸ If we, as humans, do not do these things, we invite chaos by not taking charge and allowing things to happen at will. For example, recall the utter chaos that occurred after Hurricane Katrina hit New Orleans, Louisiana, and the surrounding area in August 2005.⁹

Each day, each month, and each year, the problem with the environment gets worse. Because the environment is a problem that is less visible than other social problems, we are less likely to realize its effect (for example, more carbon dioxide in the air causing more global warming or more chlorofluorocarbons in the air causing a larger hole in the ozone layer and allowing more cancer-producing ultraviolet rays to bombard Earth). Hence, we are less likely to feel a sense of urgency about this problem than with other problems we see more visibly, for example, people's dire poverty.

Also, as the environmental problem grows, there could be a point where the environment has gotten so bad that we are not able to take enough action to reverse the problem in time for humans to survive. Consequently, the sooner we take action on this problem, the more likely we can control it and solve it. The one thing that we cannot afford is to put off facing the environmental problem; this problem and its consequences can only get worse, with the worst scenario being that we can no longer control it.

In thinking about our environment and what we, as humans, need to do to survive on Earth and enjoy our time here, we need to address and solve three problems: pollution, depletion, and storing the wastes we cannot recycle. By "we," I mean two groups of people. First, we as citizens of the world need to address these problems. Second, we as citizens of the United States need to address these problems. The reason why I distinguish between these two groups is that we in the United States, along with people in other developed countries, have a special obligation to address these problems because we contribute to them disproportionately (recall the earlier cited statistics that Americans make up only 4.5% percent of the world's population but consume 25% of the fossil fuels of the world, such as oil and coal, and produce 20% of all the carbon dioxide).

The implication of these statistics is that we in developed nations especially need to contribute to solving these environmental problems because we contribute more to them relative to our national populations. Also, those of us in developed nations, given our greater wealth, have a greater capacity to do something about the environment.

As one partial solution to our environmental problems, we could stabilize the population of the world (Boeker & Van Grondelle, 2000, p. 82; Brown, 2009, pp. 181–185). Given the current set of social conditions, as we have more people on Earth, we will have more pollution, depletion, and buildup

of wastes. This is a good example of where one social problem (increasing population) contributes to another social problem (increasing environmental problem). Consequently, if we can solve one problem (increasing population), we can, at the same time, also help solve another problem (increasing environmental problem).

Specific Actions We Can Take

Depletion: What We Can Do

As we create a higher material standard of living, we use up oil, coal, wood, metals, land, and other natural resources. With more people on Earth, and more industrialization to produce more goods to have a higher standard of living, we use more and more natural resources to turn them into the goods we want. One of the problems with this is that we can run out of a number of these resources.

One answer to this problem is to recycle the resources we have already used and to use them over and over. The trick is to know how we can do this and then make it profitable, if possible, for companies to want to be part of the recycling process. As a way to make this happen, the government can do more research to find new ways to recycle and reuse our resources. Also, we can give tax incentives to new businesses that want to go into the recycling business as a way to make money. Thus, we use the profit motive to help solve our depletion problem.

An additional way to solve the problem of depletion is to use different resources in place of the resources we are currently using. For example, instead of relying on oil and coal to produce much of our energy, we could do more research to find more and better ways to use solar, water, and air power that would not put carbon dioxide and sulfur dioxide in the air. These kinds of energies of the sun, the wind, and water power are not used up, can be used over and over, and do not hurt the environment. If we especially want to address the problems of global warming and acid rain, we will need to use less oil and coal and more solar, water, and wind power. As evidence that we are already beginning to shift to more wind power, a car trip through Kansas, Nebraska, and other states will provide the traveler with visible evidence of windmills cropping up seemingly everywhere in what are historically miles and miles of wheat fields and grasslands. As a result, these lands are not only producing wheat but also generating electricity that neither pollutes nor depletes.

How can we decrease our use of coal and oil and increase our use of solar, wind, and water power? We can take some of the stimulus money created by

the administration of President Barack Obama to stimulate our economy and put it into creating more ways to use solar, water, and wind power. For example, Boeker and Van Grondelle (2000) stated, "The present period should be used to introduce renewables on a large scale, both by stimulating research and development and by adapting the energy infrastructure" (p. 80). We can also have local, state, and federal governments create tax incentives for business, industry, and homeowners to use these kinds of energy sources.

A big problem that will stand in the way of using more solar, water, and wind power is the potential loss in profits by oil and coal companies and the potential loss of jobs these industries provide people. As a remedy for this, and as a way of diffusing opposition by the oil and gas industries, we could give these industries tax incentives to create a profit-making industry based on the selling of solar, wind, and water power. In other words, these oil and coal industries could begin to switch over to new kinds of power to market. This process is already occurring; the oil company known as BP has invested \$2.9 billion in wind, solar, and biofuels as a way to make profit through these new energy sources ("An Introduction to Alternative Energy," 2009). If there were employees who lost their jobs as we cut back on oil and coal production, the government could help people to train for and also help to find new jobs.

Because the use of oil and coal causes great problems for our environment, we need to become more serious about using nonpolluting and nondepleting sources of energy. If the climate and overall environment were not affected so much, we could continue to go on as we have been doing. But that is not the case. We are fooling ourselves if we think that there is not much wrong with the environment and that we can go on as we have been doing.

A third partial solution to help control the depletion of resources is to redistribute land, especially to manage the depletion of rainforests and the use of a country's land to produce cash crops for export instead of producing crops that feed the people of that country. If more poor people in developing countries had enough land to farm to grow enough food to sustain themselves, the pressure to cut down the rainforests would be less.

If land redistribution could occur, there would also be less malnutrition, less starvation, and less disease, because people could grow their own food, have better diets, and (as a result) be healthier. As you might predict, land redistribution, as a partial solution to the problems of depletion of rainforests and lack of food, is very difficult; it would require the wealthy people of these countries to give up some or much of their land. Even though the wealthy people could still keep a fair portion of their land, they might not like this solution. As an incentive to get land redistribution to come about, the developed countries could agree to decrease or abolish the debt load on these countries. Also, if developed countries would forgive part or

all of the debt of these developing countries, these poorer countries would have less pressure to farm mainly cash crops for export that take land away from the production of sustainable crops.

Another important partial solution is that developed countries could provide money for developing countries to plant millions of new trees to replace the trees that have been used up for firewood. As you might already know, as there is a disappearance of trees and entire rainforests, there is less rainfall and hence less fresh water for the people to drink and use in farming. This has happened in Haiti (before the recent earthquake), where many trees have been cut for firewood. As a result, Haiti Erica DeLuca has had less and less rainfall. With increasing populations in developing countries with decreasing rainfall, this is a recipe for disaster. Hence, we need to plant trees to stop and reverse the process of forest depletion. This could become one of the activities of the Peace Corps. As an excellent example of what can be done, Wangari Matthai from Kenya created a social movement to plant trees that resulted in the growth of 7 million new trees, helping to stop erosion, create more rain and fresh water, and use up the carbon dioxide in the air (Gore, 2000, p. 324; Brown, 2009, p. 201).

Another partial solution to stop the depletion of resources is for our government to be the role model in conserving our resources. For example, local, state, and national governments could use only recycled paper and longer-lasting light bulbs (Gore, 2000, p. 350). They could establish higher mileage requirements for cars, sport utility vehicles (SUVs), and trucks, slowing down the depletion of oil and at the same time decreasing the carbon dioxide emissions produced in our country (p. 350; see also Renner, 2000). Finally, the government could be a key source of funding research that would lead to inventing new ways to deplete less.

Pollution: What We Can Do

We can continue to write and enforce laws dealing with pollution. This requires that the government be involved in this process. Given the nature of capitalism and the desire to make a profit by keeping down costs, if owners and managers of business and industry are left alone, many times they will not take responsibility on their own to pollute less because doing so means increasing their costs and decreasing their profits. As a result, the government will need to continue to create and enforce antipollution laws and to provide tax incentives and tax penalties for business and industry to decrease their pollution. This will require us to have a stronger Environmental Protection Agency than currently exists, with sufficient funds to carry out any needed enforcement.

A second way to get business and industry to decrease their pollution is to provide them with money to conduct research on decreasing their pollution

(Gore, 2000, p. 320). Also, other research entities, such as universities and private research organizations, can be given more funding to find new ways to decrease pollution. For example, Romm (1991) pointed out that during recent years, “the cost of wind-generated electricity has dropped by 80 percent, to under seven cents per kilowatt hour, which is competitive with some of today’s conventional power sources” (p. 32). Also, the cost of solar energy has decreased to such an extent that it too is becoming more competitive with the cost of using coal and oil (p. 34). As universities and private research organizations are given more funds to find new ways to decrease pollution, their new discoveries will provide ways to compete financially with current systems that pollute.

Another way to decrease pollution is to address the carbon dioxide emissions by cars, SUVs, and trucks. Higher standards can be placed on all of these vehicles. The federal government can give tax incentives to car companies to create lower levels of emissions and can levy tax penalties on those that do not make any progress. Also, the government can provide funding for research to car, SUV, and truck companies; universities; and independent research institutes to create ways to decrease carbon dioxide emissions. Realistic deadlines could be set up for car companies to retool to meet new standards. In other words, tax incentives, tax penalties, and more research together can be ways to get these companies to meet these deadlines.

Another way to decrease pollution is to use more mass transportation in the larger cities of our country. Because the cities and states in our country are not in great financial shape, the federal government will need to help in this effort. By having the latest technology applied to creating mass transportation systems throughout the United States, we, as a country, could make a large dent in the amount of carbon dioxide emissions we produce. As we mentioned previously, since our country disproportionately produces more carbon dioxide than other countries, we in the United States have a greater responsibility than other countries to decrease our carbon dioxide emissions. We can look to Japan, Germany, and France as our role models. Japan has a steel-wheel-on-steel-rail train that goes 130 miles per hour (Moberg, 1993). Japan is also using “maglev” technology, in which magnets are used in place of wheels and the train can go 300 miles per hour (p. 14). Germany and France are creating trains that can go 200 miles per hour and that will link major European cities (p. 14).

We could also cut carbon dioxide emissions by using more rail transportation to transport goods around the country instead of the thousands of trucks that produce greenhouse emissions. The problem with this is that many of our factories are located next to interstate highways and have increasingly moved away from rail lines. Although Boeker and Van Grondelle

(2000) suggested this as a partial solution (p. 85), it does not seem realistic for the United States, as compared with European countries, because so many of our plants are now placed near interstates. We might need to look into this matter more and to consider the pros and cons. Given that such a move would put a lot of truck drivers out of work, and given that there could be a huge expense in building new rail infrastructure, it might be more logical to build new truck engines that produce little or no greenhouse emissions. More research on the pros and cons of truck use versus rail use needs to be conducted.

We have emphasized cars and interstates so much in our country that we have not given other modes of transportation a chance. If we could look more seriously at other modes of transportation, as well as look at what other countries are doing, we might be able to come up with a new transportation system that is much more energy efficient and environmentally friendly. The federal government could give more research money to car companies, universities, and independent research institutes to create a much less pollution-producing and resource-depleting transportation system. We might be closer than many people think; it is already being reported that we might soon (by 2010, 2011, or 2012) see cars that get 200 to 300 miles per gallon ("Good for Us, Good for GM?" 2009, p. A9).

One way to address the high carbon dioxide emissions of cars, SUVs, and trucks is to change from the current gasoline-using engines to other kinds of engines. For example, we are beginning to see cars that use a combination of gasoline-consuming engines and electricity from batteries to propel cars; the gasoline engines recharge the batteries. This promising technology, along with the use of new kinds of fuel such as corn, sugar cane, beets, and various grasses (known as biofuels), could cut carbon dioxide emissions substantially.

Another trend that may continue, and that could decrease our air pollution from cars, is the trend of working at home. If businesses find that they can continue to cut costs by not having so much office space and can cut costs of salaries, retirement benefits, and health care benefits by not hiring full-time employees, the search for higher profits through lower employee costs could have the unintended consequence of decreasing carbon dioxide emissions. If this trend continues during the coming years, it could be a mixed blessing. We will have lower pollution due to less car transportation to work. However, a number of people could have fewer full-time jobs and more temporary jobs with lower salaries, fewer retirement benefits, and fewer health care benefits. We will need to continue to watch how this trend continues and what the consequences will be.

At the international level, given increasing evidence of global warming due to increasing amounts of carbon dioxide in the atmosphere, we will need

to work as a world community to reduce carbon dioxide emissions. The United States initially agreed to a voluntary agreement, but President George W. Bush rescinded that agreement. However, it now appears that, given the mounting evidence of global warming, we, as a world community, will need to make some type of global agreement.¹⁰

One of the things that we, as world citizens, need to do is stop the destruction of our rainforests and begin to replenish these forests. This is easier said than done, but we will need to do it for a number of reasons. To decrease the carbon dioxide that is causing the warming of our world, we will need to have more forests to use up carbon dioxide. Also, for people to have sufficient water for drinking and water for their crops, we need more forests to produce more fresh water.

At least three things can be done to replenish the rainforests. First, developed countries can provide seedlings to poor nations, such as Haiti and Ethiopia, that have lost much of their forests and hence much of the rain that produces fresh water to drink and grow crops. These countries will, in all probability, not be able to afford to purchase these seedlings. Consequently, if developed countries do not do this, it will probably not get done.

A second action developed countries can take is to forgive much of the debt that poor countries have so that they can use what little money they have to dig themselves out of their poverty. With less debt or no debt, developing countries can use the money they would have paid for interest on their loans to buy the seedlings themselves or invest in their countries in other ways (Murshed, 1993, p. 41). Also, with more money available, they will be more likely to use pollution control devices.

A third, more long-term solution is to provide these countries with birth control devices at low cost or no cost, the training on how to use them, and the transportation to get these devices to inaccessible areas. This should begin to slow down population growth and, in turn, should help to put less pressure on people cutting down the rainforests over time; there would not be as much pressure to acquire more land to produce more food and to consume more timber for firewood. As you can see, the solving of one social problem will help to diminish another problem in that decreasing the population will take pressure off people cutting down the rainforests, and this, in turn, will help to solve the problems of too much carbon dioxide and not enough fresh water.

Storage of Waste: What We Can Do

One of the key actions we can take in the area of decreasing our waste is to connect research entities to business and industry to find profitable

ways business and industry can use the waste products they produce. In other words, one way to solve our waste problem is not to have so much waste left over. Another way to decrease our waste is to change the way we produce goods so that we reduce the overall waste and then find new ways to recycle the waste we do produce (Gore, 2000, p. 146). A good example of this is the German electrical plants that used coal to generate electricity and turned their waste into a marketable product. The process worked as follows. As the air pollution was created from burning coal, these plants used what are known as *scrubbers* to trap sulfur dioxide and other air pollutants by spraying a mist of water and limestone over the smoke before it left the smokestacks. The resulting waste, known as *sludge*, was then processed to make wallboard for homes and other buildings (Moore, 1995). In other words, the German plant decreased the amount of waste in the production process. So, a new norm, and possibly a new law, could be created that holds that whenever we create a new production process, we need to include within our overall planning of this new production process what we intend to do with the leftover waste, so as to ultimately decrease our waste.

The principle is clear. How can we help business and industry to take their waste and (a) decrease it or (b) if possible, make something marketable with it? This will require new research on how we can invent new ways to decrease and market waste. If we cannot find a profitable way to market it, how can we at least find ways to decrease the amount of waste and also store it safely? We can give companies tax breaks for doing their own research and can give universities and other research entities funding to do research. Innovation will seldom occur in this area unless we provide incentives for business, industry, universities, and research institutes to do research on these matters. This means that we, as taxpayers, will need to provide tax revenue for more research.

There is a lot of hazardous waste in the form of chemicals produced by business and industry, as well as radioactive waste produced by nuclear power plants, that needs safe storage. A recent solution that has been suggested is to store hazardous waste in underground caves that are fairly inert in their physical stability. This is not a perfect solution, however, because the hazardous material must be transported to the new storage site (Carroll, 2002a). There is a concern that trucks and trains carrying this waste could have accidents (although the evidence indicates that the waste, so far, has been transported safely).¹¹

If we use this method, we will in the future be transporting much more waste in many more trucks and trains than we have used in the past. Hence, there will be a greater chance that accidents could occur. Probably, during

the coming years, we will need to see how we can make the transportation process safer if we choose to transport waste to one site. Currently, our government is considering transporting our hazardous waste to caves 1,000 feet underground within Yucca Mountain, located 90 miles north of Las Vegas, Nevada (Carroll, 2002a, p. A10). The U.S. Senate endorsed using Yucca Mountain as the collection site (Carroll, 2002b), and President George W. Bush signed the congressional bill into law during the summer of 2002 (Associated Press, 2002).

Another potential problem we currently face if we do go ahead and store this waste in these underground caves is that if these substances leak, they could get into the ground water and contaminate, and hence devastate, much of our water supply. So, this potential problem calls for additional research into the matter both to come up with safer storage places and make the substances themselves in some way inert, possibly by combining them with other substances. It appears that we need to do more research on the matter.

Another partial solution to the nuclear waste problem is to create fusion reactors. Kahn and Brown (1975) asserted, "The fusion reactor is nearly free of radioactive threats . . . [and] would not leave any radioactive waste to be disposed of directly or indirectly" (p. 334).

One of the solutions that our country has been trying more during recent years is that of burning solid waste in incinerators. There are, however, both good and bad consequences of this partial solution to reducing our volume of waste. The good is that we can reduce the volume of waste by 90% (Gore, 2000, p. 157). The bad is that we create more air pollution by putting into the air a number of poisonous substances such as dioxins, arsenic, and mercury (p. 156). So, although we may be forced to burn some of the waste in the short term, this is an unsatisfactory solution in the long term because it adds poisonous waste to our air. We, as citizens of the world, will need to do more research on this matter as well.

Conclusion

To carry out the preceding measures will not be easy. As I mentioned in previous chapters, vested interests will play a strong role in preventing or slowing down these solutions. This will happen in the United States as well as in other countries. Even though The Netherlands is seen to have some of the most progressive environmental policies in the world, it too has faced the problem of vested interests of corporations, of making more profit and

keeping down costs, and the influence of those who have power in economic matters to hold sway over those who have concern for environmental matters. Barriers will continue to be placed in front of those who seek a healthier environment. Consequently, the general public and those who have economic interests will need to be convinced that these proposed solutions will need to be carried out if we want to improve our environment and have a sustainable place for humans to live.¹²

In concluding this chapter, we might consider what a *New York Times* columnist, Thomas Friedman, said about what we need to do (Friedman, 2006, p. A9). He said that the “direction in which America needs to go is obvious: toward energy independence” (p. A9). He further added, “we must impose the highest energy efficiency standards on our own automakers and other industries so we force them to be the most innovative” (p. A9). He said that we need to encourage a lot of young people to study math, science, and engineering so that we can “make oil obsolete” (p. A9). So long as we depend so much on oil, the United States and other countries that depend on oil will need to coddle countries that own the oil even though these countries may have unethical dictators and policies that we do not support. He therefore urged that the Congress pass the Energy Freedom Act, where there would be great disincentives to produce SUVs and great incentives to produce energy-efficient cars as a way not only to save our environment but also to save our deeply hurting auto industry (Durbin, 2005; Maynard, 2006). With such incentives, this “will force Detroit to out-innovate Toyota” (p. A9). Considering what we have suggested in this chapter as a way to solve our environmental problems, Friedman’s call to seriously address the problems of our environment seems timely.

Probably, a key factor, if not the key factor, in solving our environmental problem is time. Can we, as a world community, act soon enough to head off environmental trends that could be difficult, if not impossible, to reverse—for example, rising carbon dioxide emissions leading to rising temperatures, melting glaciers, rising sea levels, and changing climate patterns throughout the world? Lester Brown (2009) in his book, *Plan B 4.0: Mobilizing to Save Civilization*, states that we know “what we need to do” (p. xiii), and he further states, “The challenge is how to do it in the time available” (p. xiii). Time, along with a sense of urgency and proceeding with bold action, are probably the ingredients to solving our environmental problem. The question now for all of us in the 21st century is Will we realize that this is indeed an urgent problem and take bold enough action in sufficient time? The answer to this question is yet to be given.

Questions for Discussion

1. What else could we do in our country to improve the environment?
2. What do you think we should do in our country to improve the environment?
3. What do you predict we will do in our country to improve the environment during the next 5, 10, and 20 years? What is your reasoning?
4. What could other developed countries do to improve the environment?
5. What should other developed countries do to improve the environment?
6. What do you predict other developed countries will do to improve the environment during the next 5, 10, and 20 years? Why?
7. What could poor countries do to improve the environment?
8. What should poor countries do to improve the environment?
9. What do you predict poor countries will do with regard to improving the environment? Why?
10. During the next 10 to 20 years, will nations come together more not only to discuss problems of the environment but also to make binding agreements?

The Internet: For Further Study

<http://www.mms.gov/eppd/socecon/files/picou.pdf>

<http://www.socialresearchmethods.net/Gallery/Neto/Envsoc1.html>

<http://www.ejrc.cau.edu/>

<http://www.p2.0rg/>