III

The Only Option

11

Plan B: Rising to the Challenge

Plan B is a massive mobilization to deflate the global economic bubble before it reaches the bursting point. Keeping the bubble from bursting will require an unprecedented degree of international cooperation to stabilize population, climate, water tables, and soils—and at wartime speed. Indeed, in both scale and urgency the effort required is comparable to the U.S. mobilization during World War II.

Our only hope now is rapid systemic change—change based on market signals that tell the ecological truth. This means restructuring the tax system: lowering income taxes and raising taxes on environmentally destructive activities, such as fossil fuel burning, to incorporate the ecological costs. Unless we can get the market to send signals that reflect reality, we will continue making faulty decisions as consumers, corporate planners, and government policymakers. Ill-informed economic decisions and the economic distortions they create can lead to economic decline.

Plan B is the only viable option simply because Plan A, continuing with business as usual, offers an unacceptable outcome—continuing environmental degradation and disruption and a bursting of the economic bubble.

The warning signals are coming more frequently, whether they be collapsing fisheries, melting glaciers, or falling water tables. Thus far the wake-up calls have been local, but soon they could become global. Massive imports of grain by China—and the rise in food prices that would likely follow—could awake us from our lethargy.

But time is running out. Bubble economies, which by definition are artificially inflated, do not continue indefinitely. Our demands on the earth exceed its regenerative capacity by a wider margin with each passing day.

Deflating the Bubble

Stabilizing world population at 7.5 billion or so is central to avoiding economic breakdown in countries with large projected population increases that are already overconsuming their natural capital assets. Some 36 countries, all in Europe except Japan, have essentially stabilized their populations. The challenge now is to create the economic and social conditions and to adopt the priorities that will lead to population stability in all remaining countries. The keys here are extending primary education to all children, providing vaccinations and basic health care, and offering reproductive health care and family planning services in all countries.[1]

Shifting from a carbon-based to a hydrogen-based energy economy to stabilize climate is now technologically possible. Advances in wind turbine design and in solar cell manufacturing, the availability of hydrogen generators, and the evolution of fuel cells provide the technologies needed to build a climate-benign hydrogen economy. Moving quickly from a carbon-based to a hydrogen-based energy economy depends on getting the price right, on incorporating the indirect costs of burning fossil fuels into the market price.

On the energy front, Iceland is the first country to adopt a national plan to convert its carbon-based energy economy to one based on hydrogen. It is starting with the conversion of the Reykjavik bus fleet to fuel cell engines and will proceed with converting automobiles and eventually the fishing fleet. Iceland's first hydrogen service station opened in April 2003.[2]

Denmark and Germany are leading the world into the age of wind, as noted in Chapter 9. Denmark, the pioneer, gets 18 percent of its electricity from wind turbines and plans to increase this to 40 percent by 2030. Germany, following Denmark's early lead, has developed some 12,000 megawatts of wind-generating capacity. Its northernmost state of Schleswig-Holstein now gets 28 percent of its electricity from wind. Spain is also moving fast to exploit its wind resources.[3]

Japan has emerged as the world's leading manufacturer and user of solar cells. With its commercialization of a solar roofing material, it leads the world in electricity generation from solar cells and is well positioned to assist in the electrification of villages in the developing world.[4]

The Netherlands leads the industrial world in exploiting the bicycle as an alternative to the automobile. In Amsterdam's bicycle-friendly environment, up to 40 percent of all trips are taken by bicycle. This reflects the priority given to bikes in the design and operation of the country's urban transport systems. At many traffic lights, for example, bicycles are allowed to go first when the light changes.[5]

The Canadian province of Ontario is emerging as a leader in phasing out coal. It plans to replace its five coal-fired power plants with gas-fired plants, wind farms, and efficiency gains. This initiative calls for the first plant to close in 2005 and the last one in 2015. The resulting reduction in carbon emissions is equivalent to taking 4 million cars off the road. This approach, which may soon

be adopted in some other Canadian provinces, is a model for local and national governments everywhere.[6]

Stabilizing water tables is particularly difficult because the forces triggering the fall have their own momentum, which must be reversed. Arresting the fall depends on quickly raising water productivity. It is difficult to overstate the urgency of this effort. Failure to stop the fall in water tables by systematically reducing water use will lead to the depletion of aquifers, an abrupt cutback in water supplies, and the risk of a precipitous drop in food production. In pioneering drip irrigation technology, Israel has become the world leader in the efficient use of agricultural water. This unusually labor-intensive irrigation practice, now being used to produce high-value crops in many countries, is ideally suited where water is scarce and labor is abundant.[7]

With soil erosion, we have no choice but to reduce the loss to the rate of new soil formation or below. The only alternative is a continuing decline in the inherent fertility of eroding soils and cropland abandonment. In stabilizing soils, South Korea and the United States stand out. South Korea, with once denuded mountainsides and hills now covered with trees, has achieved a level of flood control, water storage, and hydrological stability that is a model for other countries. Although the two Koreas are separated only by a narrow demilitarized zone, the contrast between them is stark. In North Korea, where little permanent vegetation remains, droughts and floods alternate and hunger is chronic.[8]

The U.S. record in soil conservation is also impressive. Beginning in the late 1980s, U.S. farmers systematically retired roughly 10 percent of the most erodible cropland, planting the bulk of it to grass. In addition, they lead the world in adopting minimum-till, no-till, and other soil-conserving practices. With this combination of programs

and practices, the United States has reduced soil erosion by nearly 40 percent in less than two decades.[9]

Thus all the things we need to do to keep the bubble from bursting are now being done in at least a few countries. If these highly successful initiatives are adopted worldwide, and quickly, we can deflate the bubble before it bursts.

A Wartime Mobilization

Adopting Plan B is unlikely unless the United States assumes a leadership position, much as it belatedly did in World War II. The nation responded to the aggression of Germany and Japan only after it was directly attacked at Pearl Harbor on December 7, 1941. But respond it did. After an all-out mobilization, the U.S. engagement helped turn the tide, leading the Allied Forces to victory within three-and-a-half years.[10]

The U.S. conversion to a wartime economy actually began in a modest way in 1940. On May 16th of that year, in a message to Congress, President Franklin Roosevelt said the United States would eventually have to step up its arms production. That spring Congress passed the Lend Lease Act, which authorized the sale of arms to the United Kingdom and allied countries without expectation of payment. And in December the President created the Office of Production Management to facilitate the shift from a peacetime to a wartime economy.[11]

These actions enabled the United States to begin the economic conversion needed for the war effort: to move industries into the manufacture of armaments, to establish the contracting procedures, and to launch the research and development that was needed. When the Japanese attacked Pearl Harbor, the United States was already starting to gear up for war.[12]

In his State of the Union address on January 6, 1942,

one month after Pearl Harbor, President Roosevelt announced ambitious arms production goals. The United States, he said, was planning to produce 60,000 planes, 45,000 tanks, 20,000 anti-aircraft guns, and 6 million tons of merchant shipping. He added, "Let no man say it cannot be done."[13]

Achieving these goals was possible only by converting existing industries and using materials that previously went into manufacturing civilian goods. Nowhere was this shift more dramatic than in the automobile industry, which was at that time the largest concentration of industrial power in the world, producing 3–4 million cars a year. Auto companies initially wanted to continue manufacturing cars and simply to add on production of armaments. They agreed only reluctantly—after pressure from President Roosevelt—to a wholesale conversion to war-support manufacturing.[14]

Aircraft needs were enormous. They included not only fighters, bombers, and reconnaissance planes, but also the troop and cargo transports needed to fight a war on two fronts, each across an ocean. From the beginning of 1942 through 1944, the United States turned out 229,600 aircraft, a fleet so vast it is hard to visualize.[15]

While the aircraft industry did nearly all the assembly, the auto industry supplied some 455,000 aircraft engines and 256,000 propellers. The aircraft industry was given the job of assembling all planes to ease its fears that the auto industry would become firmly entrenched in the manufacture of aircraft and would dominate the industry after the war.[16]

The year 1942 witnessed the greatest expansion of industrial output in the nation's history—all for military use. Early in the year, the production and sale of cars and trucks for private use was banned, residential and highway construction was halted, and driving for pleasure was banned.[17]

In her book *No Ordinary Time*, Doris Kearns Goodwin describes how various firms converted. A sparkplug factory was among the first to switch to the production of machine guns. Soon a manufacturer of stoves was producing lifeboats. A merry-go-round factory was making gun mounts; a toy company was turning out compasses; a corset manufacturer was producing grenade belts; and a pinball machine plant began to make armor-piercing shells.[18]

In retrospect, the speed of the conversion from a peacetime to a wartime economy was stunning. The automobile industry went from producing nearly 4 million cars in 1941 to producing 24,000 tanks and 17,000 armored cars in 1942—but only 223,000 cars, and most of them were produced early in the year, before the conversion began. Essentially the auto industry was closed down from early 1942 through the end of 1944. In 1940, the United States produced some 4,000 aircraft. In 1942, it produced 48,000. By the end of the war, more than 5,000 ships were added to the 1,000 that made up the American Merchant Fleet in 1939.[19]

The harnessing of U.S. industrial power tipped the scales decisively toward the Allied Forces, reversing the tide of war. Germany and Japan could not match the United States in this effort. Winston Churchill often quoted Sir Edward Grey, Britain's foreign secretary: "The United States is like a giant boiler. Once the fire is lighted under it, there is no limit to the power it can generate."[20]

A rationing program was also introduced. In addition to an outright ban on the sale of private cars, strategic goods—including tires, gasoline, fuel oil, and sugar—were rationed beginning in 1942. Cutting back on consumption of these goods freed up resources to support the war effort.[21]

This mobilization of resources within a matter of

months demonstrates that a country and, indeed, the world can restructure its economy quickly if it is convinced of the need to do so. Many people—although not yet the majority—are already convinced of the need for a wholesale restructuring of the economy. The issue is not whether most people will eventually be won over, but whether they will be convinced before the bubble economy collapses.

Creating an Honest Market

The key to restructuring the economy is the creation of an honest market, one that tells the ecological truth. The market is an incredible institution—with some remarkable strengths and some glaring weaknesses. It allocates scarce resources with an efficiency that no central planning body can match. It easily balances supply and demand and it sets prices that readily reflect both scarcity and abundance. The market does, however, have three fundamental weaknesses. It does not incorporate the indirect costs of providing goods or services into prices, it does not value nature's services properly, and it does not respect the sustainable-yield thresholds of natural systems such as fisheries, forests, rangelands, and aquifers.

Throughout most of recorded history, the indirect costs of economic activity, the sustainable yields of natural systems, or the value of nature's services were of little concern because the scale of human activity was so small relative to the size of the earth that they were rarely an issue. But with the sevenfold expansion in the world economy over the last half-century, the failure to address these market shortcomings and the irrational economic distortions they create will eventually lead to economic decline.[22]

As the global economy has expanded and as technology has evolved, the indirect costs of some products have become far larger than the price fixed by the market. The price of a gallon of gasoline, for instance, includes the cost of production but not the expense of treating respiratory illnesses from breathing polluted air or the repair bill from acid rain damage. Nor does it cover the cost of rising global temperature, ice melting, more destructive storms, or the relocation of millions of refugees forced from their homes by sea level rise. As the market is now organized, the motorist burning the gasoline does not bear these costs.

Something is wrong. If we have learned anything over the last few years, it is that accounting systems that do not tell the truth can be costly. Faulty corporate accounting systems that overstate income or leave costs off the books have driven some of the world's largest corporations into bankruptcy, costing millions of people their lifetime savings, retirement incomes, and jobs.

Unfortunately, we also have a faulty economic accounting system at the global level, but with potentially far more serious consequences. Economic prosperity is achieved in part by running up ecological deficits, costs that do not show up on the books, but costs that someone will eventually pay. Some of the record economic prosperity of recent decades has come from consuming the earth's productive assets—its forests, rangelands, fisheries, soils, and aquifers—and from destabilizing its climate.

If we want to determine the full cost of burning gasoline, we need to calculate the indirect costs of doing so. A model for doing this is provided by the U.S. Centers for Disease Control and Prevention (CDC), which in April 2002 released a study on the cost to society of smoking a pack of cigarettes. Calculating the expenses of treating smoking-related illnesses and lost employee productivity

due to illness and absenteeism shows that each pack of cigarettes smoked in the United States costs society $7.18. This is in addition to the costs of growing the tobacco, curing it, and manufacturing the cigarettes. The question is not whether the additional $7.18 is paid. It is paid by someone—by the smoker, by the employer, or by the taxpayers who fund Medicare programs.[23]

For gasoline, calculating the true costs to society means including the medical costs of treating those who are ill from breathing polluted air; the costs of acid rain damage to lakes, forests, crops, and buildings; and, by far the largest, the costs of climate change. Higher temperatures can wither crops and reduce harvests. They can melt ice and raise sea level, inundating coastal cities, low-lying agricultural lands, and low-lying island countries. The interesting question is, What is the cost to society of burning a gallon of gasoline? Is it more or less, for example, than that of smoking a pack of cigarettes?[24]

No one has attempted to assess fully the worldwide costs of rising temperature and then to allocate them by gallon of gasoline or ton of coal. Some studies were done, however, during the early and mid-1990s on the external cost of automobile use in the United States, including direct subsidies, such as parking subsidies, and many local environmental costs. A summary of eight of these studies by John Holtzclaw of the Sierra Club indicates that if the price were raised enough to make drivers pay some of the indirect costs of automobile use, a gallon of gas would cost anywhere from $3.03 to $8.64, with the variations largely due to how many indirect costs were covered. For example, some studies included the military costs of protecting petroleum supply lines and ensuring access to Middle Eastern oil, while others did not. No studies, unfortunately, incorporated all the costs of using gasoline—including the future inundation of

coastal cities, island countries, and rice-growing river floodplains.[25]

Some of the looming costs associated with continued fossil fuel burning are not only virtually incalculable, but the outcome is unacceptable. What is the cost of inundating half of Bangladesh's riceland by a 1-meter rise in sea level? How much is this land worth in a country that is the size of New York state and has a population half that of the United States? And what would be the cost of relocating the 40 million Bangladeshis who would be displaced by the 1-meter rise in sea level? Would they be moved to another part of the country? Or would they migrate to less densely populated countries, such as the United States, Canada, Australia, and Brazil?[26]

Another challenge in creating an honest market is to get it to value nature's services. For example, after several weeks of flooding in the Yangtze River basin in 1998—flooding that eventually inflicted $30 billion worth of damage and destruction in the basin—the Chinese government announced that it was banning all tree cutting in the basin. It justified the ban by saying that trees standing are worth three times as much as trees cut. This calculation recognized that the flood control service provided by forests was far more valuable than the timber in them.[27]

Forests also recycle rainfall inland. Some 20 years ago, two Brazilian scientists, Eneas Salati and Peter Vose, published an article in *Science* in which they pointed out that when rainfall coming from clouds moving in from the Atlantic fell on healthy Amazon rainforest, one fourth of the water ran off and three fourths evaporated into the atmosphere to be carried further inland and provide more rainfall. When land was cleared for grazing, however, the numbers were reversed—with roughly three fourths running off and one fourth evaporating for recycling inland.

Ecologist Philip Fearnside, who has made a career of studying the Amazon, observes that the agriculturally prominent south-central part of Brazil depends on water that is recycled inland via the Amazon rainforest. If the Amazon is converted into a cattle pasture, he notes, there will be less rainfall to support agriculture.[28]

Once we calculate all the costs of a product or service, we can incorporate them into market prices by restructuring taxes. If we can get the market to tell the truth, then we can avoid being blindsided by faulty accounting systems that lead to bankruptcy. As Øystein Dahle, former Vice President of Exxon for Norway and the North Sea, has pointed out: "Socialism collapsed because it did not allow the market to tell the economic truth. Capitalism may collapse because it does not allow the market to tell the ecological truth."[29]

Shifting Taxes

The need for tax shifting—lowering income taxes while raising taxes on environmentally destructive activities—in order to get the market to tell the truth has been widely endorsed by economists. The basic idea is to establish a tax that reflects the indirect costs to society of an economic activity. For example, a tax on coal would incorporate the increased health care costs associated with breathing polluted air, the costs of damage from acid rain, and the costs of climate disruption.[30]

With this concept in hand, it is a short step to tax shifting—that is, reducing taxes on income and offsetting this with taxes on environmentally destructive activities. Nine countries in Western Europe have already begun the process of tax shifting, known as environmental tax reform. The amount of revenue shifted thus far is small, just a few percent. But enough experience has been gained to know that it works.[31]

Among the activities taxed in Europe are carbon emissions, emissions of heavy metals, and the generation of garbage (so-called landfill taxes). The Nordic countries, led by Sweden, pioneered tax shifting at the beginning of the 1990s. By 1999 a second wave of tax shifting was under way, this one including the larger economies of Germany, France, Italy, and the United Kingdom. Tax shifting does not change the level of taxes, only their composition. One of the better known changes was a four-year plan adopted in Germany in 1999 to shift taxes from labor to energy. By 2001, this had lowered fuel use by 5 percent. A tax on carbon emissions adopted in Finland in 1990 lowered emissions there 7 percent by 1998.[32]

Environmental tax reform is spreading, with the reform process now under way in Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Sweden, and the United Kingdom. There are isolated cases elsewhere. The United States, for example, imposed a stiff tax on chlorofluorocarbons to phase them out in accordance with the Montreal Protocol of 1987. At the local level, the city of Victoria, British Columbia, adopted a trash tax of $1.20 per bag of garbage, reducing its daily trash flow 18 percent within one year.[33]

One of the newer taxes gaining in popularity is the so-called congestion tax. City governments are turning to a tax on vehicles entering the city, or at least the inner part of the city where traffic congestion is most serious. In London, where the average speed of an automobile was 9 miles per hour—about the same as a horse-drawn carriage—a congestion tax was adopted in early 2003. The $8 charge on all motorists driving into the center city between 7 a.m. and 6:30 p.m. immediately reduced the number of vehicles by 24 percent, permitting traffic to flow more freely while cutting pollution and noise.[34]

Singapore was the first city to adopt such a tax some

two decades ago. Although it was quite successful, only quite recently have other cities, such as Oslo and Melbourne, done so. London is by far the largest city to join in. Other cities that are becoming unlivable because of congestion, pollution, and noise may also turn to such taxes.[35]

For some products where the external costs are large and obvious, pressure is mounting to impose taxes. By far the most dramatic example of this was the agreement negotiated between the tobacco industry and state governments in the United States. After numerous state governments had launched litigation to force tobacco companies to reimburse them for the Medicare costs associated with treating smoking-related illnesses, the industry decided to negotiate a package reimbursement, agreeing in November 1998 to reimburse the 50 state governments to the tune of $251 billion—nearly $1,000 for every person in the United States. This landmark agreement was, in effect, a retroactive tax on cigarettes smoked in the past, one designed to incorporate some of the indirect costs. In order to pay this enormous bill, cigarette companies dramatically raised the price of their cigarettes, further discouraging smoking.[36]

The CDC study that calculated the social costs of smoking cigarettes in the United States at $7.18 per pack not only justifies raising taxes on cigarettes, it also provides an empirical framework within which to do so. In 2002, a year in which almost every state government in the United States faced a fiscal deficit because of deteriorating economic conditions, 21 states raised cigarette taxes. Perhaps the most dramatic increase came in New York City, where smokers faced an increase of 39¢ in the state tax and $1.42 in the city tax—a total increase of $1.81 per pack. This brought the price of a pack of cigarettes in New York City to roughly $7.50. Since a 10-percent price increase typically reduces smoking by 4 percent, the health benefits of this tax increase should be substantial.[37]

Environmental tax shifting usually brings a double dividend. In reducing taxes on income—in effect, taxes on labor—labor becomes less costly, creating additional jobs while protecting the environment. This was the principal motivation in the German four-year shift of taxes from income to energy. The shift from fossil fuels to more energy-efficient technologies and to renewable sources of energy reduces carbon emissions and represents a shift to more labor-intensive industries. By lowering the air pollution from smokestacks and tailpipes, it also reduces respiratory illnesses, such as asthma and emphysema, and health care costs—a triple dividend.[38]

When it comes to reflecting the value of nature's services, ecologists can calculate the values of services that a forest in a given location provides. Once these are determined, they can be incorporated into the price of trees as a stumpage tax of the sort that Bulgaria and Lithuania have adopted. Anyone wishing to cut a tree would have to pay a tax equal to the value of the services provided by that tree. The market would then be telling the truth. The effect of this would be to reduce tree cutting, since forest services may be worth several times as much as the timber, and to encourage wood and paper recycling.[39]

Tax shifting also helps countries gain the lead in producing new equipment, such as new energy technologies or those used for pollution control. For example, the Danish government's tax incentives for wind-generated electricity have made Denmark, a country of only 5 million people, the world's leading manufacturer of wind turbines.[40]

Some 2,500 economists, including eight Nobel Prize winners in economics, have endorsed the concept of tax shifts. Former Harvard economics professor N. Gregory

Mankiw, who was nominated to be Chairman of the President's Council of Economic Advisors in early 2003, wrote in *Fortune* magazine: "Cutting income taxes while increasing gasoline taxes would lead to more rapid economic growth, less traffic congestion, safer roads, and reduced risk of global warming—all without jeopardizing long-term fiscal solvency. This may be the closest thing to a free lunch that economics has to offer." Mankiw could also have added that it would reduce the military expenditures associated with ensuring access to Middle Eastern oil.[41]

The Economist has recognized the advantage of environmental tax shifting and endorses it strongly: "On environmental grounds, never mind energy security, America taxes gasoline too lightly. Better than a one-off increase, a politically more feasible idea, and desirable in its own terms, would be a long-term plan to shift taxes from incomes to emissions of carbon." In Europe and the United States, polls indicate that at least 70 percent of voters support environmental tax reform once it is explained to them.[42]

Shifting Subsidies

Each year the world's taxpayers underwrite $700 billion of subsidies for environmentally destructive activities, such as fossil fuel burning, overpumping aquifers, clearcutting forests, and overfishing. A 1997 Earth Council study, *Subsidizing Unsustainable Development*, observes that "there is something unbelievable about the world spending hundreds of billions of dollars annually to subsidize its own destruction."[43]

Iran provides a classic example of extreme subsidies when it prices oil for internal use at one tenth the world price, strongly encouraging the consumption of gasoline. The World Bank reports that if this $3.6 billion annual subsidy were phased out, it would reduce Iran's carbon emissions by a staggering 49 percent. It would also strengthen the economy by freeing up public revenues for investment in the country's economic and social development. Iran is not alone. The Bank reports that removing energy subsidies would reduce carbon emissions in Venezuela by 26 percent, in Russia by 17 percent, in India by 14 percent, and in Indonesia by 11 percent.[44]

Some countries are eliminating or reducing these climate-disrupting subsidies. Belgium, France, and Japan have phased out all subsidies for coal. Germany reduced its coal subsidy from $5.4 billion in 1989 to $2.8 billion in 2002, meanwhile lowering its coal use by 46 percent. It plans to phase them out entirely by 2010. China cut its coal subsidy from $750 million in 1993 to $240 million in 1995. More recently, it has imposed a tax on high sulfur coals. Together these two measures helped to reduce coal use in China by 5 percent between 1997 and 2001 while the economy was expanding by one third.[45]

The environmental tax shifting described earlier reduces taxes on wages and encourages investment in such activities as wind electric generation and recycling, thus simultaneously boosting employment and lessening environmental destruction. Eliminating environmentally destructive subsidies reduces both the burden on taxpayers and the destructive activities themselves.

Subsidies are not inherently bad. Many technologies and industries were born of government subsidies. Jet aircraft were developed with military R&D expenditures, leading to modern commercial airliners. The Internet was a result of publicly funded efforts to establish links between computers in government laboratories and research institutes. And the combination of the federal tax incentive and a robust state tax incentive in California gave birth to the modern wind power industry.[46]

But just as there is a need for tax shifting, there is also a need for subsidy shifting. A world facing the prospect of economically disruptive climate change, for example, can no longer justify subsidies to expand the burning of coal and oil. Shifting these subsidies to the development of climate-benign energy sources such as wind power, solar power, and geothermal power is the key to stabilizing the earth's climate. Shifting subsidies from road construction to rail construction could increase mobility in many situations while reducing carbon emissions.

In a troubled world economy facing fiscal deficits at all levels of government, exploiting these tax and subsidy shifts with their double and triple dividends can help balance the books and save the environment. Tax and subsidy shifting promise both gains in economic efficiency and reductions in environmental destruction, a win-win situation.

A Call to Greatness

History judges political leaders by whether they respond to the great issues of their time. For today's leaders, that issue is how to deflate the world's bubble economy before it bursts. This bubble threatens the future of everyone, rich and poor alike. It challenges us to restructure the global economy, to build an eco-economy.

Among national political leaders, none has articulated the new agenda better than U.K. Prime Minister Tony Blair. He believes that environmental degradation is the issue for our generation, noting that climate change is "unquestionably the most urgent environmental challenge." Arguing that the Kyoto Protocol was not radical enough, he calls for a 60-percent reduction in carbon emissions worldwide by 2050. Summing up, he calls for a "new international consensus to protect our environment and combat the devastating impacts of climate change."[47]

Following the terrorist attacks on the World Trade Towers and the Pentagon on September 11, 2001, several world leaders suggested a twenty-first century variation of the Marshall Plan to deal with poverty and its symptoms, arguing that in an increasingly integrated world, abject poverty and great wealth cannot coexist. Gordon Brown, U.K. Chancellor of the Exchequer, notes that "Like peace, prosperity was indivisible and to be sustained, it had to be shared." Brown sees a Marshall Plan–like initiative not as aid in the traditional sense, but as an investment in the future.[48]

French President Jacques Chirac, a political conservative, told the Earth Summit in Johannesburg in early September 2002 that "the world needed an international tax to fight world poverty." He suggested a tax on either airplane tickets, carbon emissions, or international financial transactions. To illustrate his commitment, Chirac announced that over the next five years France would double its development aid, reaching the internationally agreed upon goal of devoting 0.7 percent of gross domestic product to aid. Going beyond economic issues, he also suggested the creation of a world environment organization to coordinate efforts to build an environmentally sustainable economy.[49]

Some corporate leaders are also beginning to urge efforts to deal with global poverty. Juergen Schrempp, CEO of DaimlerChrysler, said in a speech at the U.S. Chamber of Commerce that the world needed a new Marshall Plan. The question for the industrial world, he said, was not, Can we afford another Marshall Plan? The question is, Can we afford *not* to have another Marshall Plan?[50]

There is a growing sense among the more thoughtful political and opinion leaders worldwide that business as usual is no longer a viable option, that unless we respond to the social and environmental issues that are undermining our future, we may not be able to avoid econom-

ic decline and social disintegration. The prospect of failing states is growing as mega-threats such as the HIV epidemic, water shortages, and land hunger threaten to overwhelm countries on the lower rungs of the global economic ladder. Failed states are a matter of concern not only because of the social costs to their people but also because they serve as ideal bases for international terrorist organizations.

We now have some idea of what needs to be done and how to do it. The United Nations has set social goals for education, health, and the reduction of hunger and poverty. The preceding chapters have sketched out a restructuring of the energy economy to stabilize atmospheric carbon dioxide levels, a plan to stabilize population, a strategy for raising land productivity and restoring the earth's vegetation, and a plan to raise water productivity worldwide. The goals are essential and the technologies are available.[51]

We have the wealth to achieve these goals. What we do not yet have is the leadership. And if the past is any guide to the future, that leadership can only come from the United States. By far the wealthiest society that has ever existed, the United States has the resources to lead this effort. Economist Jeffrey Sachs sums it up well, "The tragic irony of this moment is that the rich countries are so rich and the poor so poor that a few added tenths of one percent of GNP from the rich ones ramped up over the coming decades could do what was never before possible in human history: ensure that the basic needs of health and education are met for all impoverished children in this world. How many more tragedies will we suffer in this country before we wake up to our capacity to help make the world a safer and more prosperous place not only through military might, but through the gift of life itself?"[52]

Unfortunately, the United States continues to focus on building an ever-stronger military as though that were the key to addressing these threats. The $343-billion defense budget dwarfs those of other countries—allies and others alike. U.S. allies, most of them North American Treaty Organization members, spend $205 billion a year on the military; Russia spends $60 billion; China, $42 billion; and Iran, Iraq, and North Korea combined spend $12 billion. (See Table 11–1.) The United States is spending more than its allies and possible adversaries combined. As retired admiral Eugene Carroll, Jr., astutely observed, "For forty-five years of the Cold War we were in an arms race with the Soviet Union. Now it appears we are in an arms race with ourselves."[53]

As discussed in Chapter 10, the additional external

Table 11–1. *Military Spending in Key Countries, 2002, and Additional Funding to Reach Social Goals*

Country	Expenditure (billion dollars)
United States	343
U.S. allies	205
Russia	60
China	42
Iran, Iraq, and North Korea	12
Total excluding U.S.	319
Additional annual funding to reach global social goals	62

Source: See endnote 53.

funding needed to achieve universal primary education in the 88 developing countries that require help is conservatively estimated by the World Bank at $15 billion per year. Funding for an adult literacy program based largely on volunteers is estimated at $4 billion. Providing for the most basic health care is estimated at $21 billion by the World Health Organization. The additional funding needed to provide reproductive health and family planning services to all women in developing countries is $10 billion a year.[54]

Closing the condom gap and providing the additional 9 billion condoms needed to control the spread of HIV in the developing world and Eastern Europe requires $2.2 billion—$270 million for condoms and $1.9 billion for AIDS prevention education and condom distribution. The cost per year of extending school lunch programs to the 44 poorest countries is $6 billion per year. An additional $4 billion per year would cover the cost of assistance to preschool children and pregnant women in these countries.[55]

In total, this comes to $62 billion. If the United States offered to cover one third of this additional funding, the other industrial countries would almost certainly be willing to provide the remainder, and the worldwide effort to eradicate hunger, illiteracy, disease, and poverty would be under way.

This reordering of priorities means restructuring the U.S. foreign policy budget. Stephan Richter, editor of *The Globalist*, notes, "There is an emerging global standard set by industrialized countries, which spend $1 on aid for every $7 they spend on defense. . . . At the core, the ratio between defense spending and foreign aid signals whether a nation is guided more by charity and community—or by defensiveness." And then the punch line: "If the United States were to follow this standard, it would have to commit about $48 billion to foreign aid each year." This would be up from roughly $10 billion in 2002.[56]

The challenge is not just to alleviate poverty, but in doing so to build an economy that is compatible with the earth's natural systems—an eco-economy, an economy that can sustain progress. This means a fundamental restructuring of the energy economy and a substantial modification of the food economy. It also means raising the productivity of energy and shifting from fossil fuels to renewables. It means raising water productivity over the next half-century, much as we did land productivity over the last one.

This economic restructuring depends on tax restructuring, on getting the market to be ecologically honest. Hints of what might lie ahead came from Tokyo in early 2003 when Environment Minister Shunichi Suzuki announced that discussions were to begin on a carbon tax, scheduled for adoption in 2005. The benchmark of political leadership in all countries will be whether or not leaders succeed in restructuring the tax system.[57]

It is easy to spend hundreds of billions in response to terrorist threats, but the reality is that the resources needed to disrupt a modern economy are small, and a Department of Homeland Security, however heavily funded, provides only minimal protection from suicidal terrorists. The challenge is not just to provide a high-tech military response to terrorism, but to build a global society that is environmentally sustainable, socially equitable, and democratically based—one where there is hope for everyone. Such an effort would more effectively undermine the spread of terrorism than a doubling of military expenditures.

We can build an economy that does not destroy its natural support systems, a global community where the basic needs of all the earth's people are satisfied, and a world that will allow us to think of ourselves as civilized.

This is entirely doable. To paraphrase Franklin Roosevelt at another of those hinge points in history, let no one say it cannot be done.

The choice is ours—yours and mine. We can stay with business as usual and preside over a global bubble economy that keeps expanding until it bursts, leading to economic decline. Or we can adopt Plan B and be the generation that stabilizes population, eradicates poverty, and stabilizes climate. Historians will record the choice, but it is ours to make.