GUEST ESSAY

Launching the Environmental Revolution

Lester R. Brown

Lester R. Brown is president of the Earth Policy Institute, which he founded in 2001to provide a vision and a road map for achieving an environmentally sustainable economy. Before that served as president of the Worldwatch Institute, a private nonprofit research institute he founded in 1974 that is devoted to analysis of global environmental issues. While there he began publishing the annual State of the World Reports and Vital Signs: The Trends That are Shaping our Future*, both considered to be the best ways to become informed about key environmental issues. He is author or coauthor of 50 books. His most recent book in* Plan B 2.0: Rescuing a Planet Under Stress. *He is recipient of many prizes and awards, including 23 honorary degrees and has been described by the* Washington Post *as "one of the world's most influential thinkers."*

The world faces potentially convulsive change. Two challenges facing us today are that human numbers are 4 times the level of a century ago and the world economy is 17 times as large. This growth has allowed advances in living standards that our ancestors could not have imagined, but it has also undermined natural systems in ways they could not have feared.

The question is, in what direction change will take us? Will the change come from strong worldwide initiatives that reverse the degradation of the planet and restore hope for the future, or will it come from continuing environmental deterioration that leads to economic decline and social instability?

Muddling through will not work. Either we will turn things around quickly or the self–reinforcing internal dynamic of the deterioration–and–decline scenario will take over. The policy decisions we make in the years immediately ahead will determine whether our children live in a world of development or decline.

There is no precedent for the rapid and substantial change we need to make. Building an environmentally sustainable future depends on restructuring the global economy, major shifts in human reproductive behavior, and dramatic changes in values and lifestyles. Doing all this quickly adds up to a revolution that is driven and defined by the need to restore and preserve the earth's environmental systems. If this *environmental revolution* succeeds, it will rank with the agricultural and

industrial revolutions as one of the great economic and social transformations in human history.

Like the agricultural revolution, it will dramatically alter population trends. Although the former set the stage for enormous increases in human numbers, this revolution will succeed only if it stabilizes human population size, reestablishing a balance between people and natural systems on which they depend. In contrast to the industrial revolution, which was based on a shift to fossil fuels, this new transformation will be based on a shift away from nonrenewable fossil fuels to a mix of renewable energy resources based mostly on the earth's sun, wind, and water flows.

The two earlier revolutions were driven by technological advances—the first by the discovery of farming and the second by the invention of the steam engine, which converted the energy in coal into mechanical power. The environmental revolution, though it will obviously need new technologies, will be driven primarily by the restructuring of the global economy so that it does not destroy or degrade its natural support systems.

The pace of the environmental revolution needs to be far faster than that of its predecessors. The agricultural revolution began some 10,000 years ago, and the industrial revolution has been under way for about two centuries. But if the environmental revolution is to succeed, it must be compressed into a few decades.

Progress in the agricultural revolution was measured almost exclusively in the growth in food output that eventually enabled farmers to produce a surplus that could feed city dwellers. Similarly, industrial progress was gained by success in expanding the output of raw materials and manufactured goods. The environmental revolution will be judged by whether it can shift the world economy into an environmentally sustainable development path, one that leads to greater economic security, healthier lifestyles, and a worldwide improvement in the human condition.

Many still do not see the need for such an economic and social transformation. They see the earth’s deteriorating physical condition as a peripheral matter that can be dealt with by minor policy adjustments. But 40 years of effort have failed to stem the tide of environmental degradation. There is now too much evidence on too many fronts to take these issues lightly.

While economic indicators such as investment, production, and trade are consistently positive, the key environmental indicators are increasingly negative. Forests are shrinking, water tables are falling, soils are eroding, wetlands are

disappearing, fisheries are collapsing, rangelands are deteriorating, rivers are running dry, temperatures are rising and plant and animal species are disappearing. The global economy as now structured cannot continue to expand much longer if the natural systems on which it depends continues to deteriorate at the current rate.

This planetary degradation is damaging human health. By the age of 10, thousands of children living in southern California's Los Angeles basin have respiratory systems that are permanently impaired by polluted air. The accelerated depletion of ozone in the stratosphere in the northern hemisphere will lead to an estimated additional 20,000 skin cancer fatalities over the next half century in the United States alone. Worldwide, millions of lives are at stake. These examples, and countless others, show that our health is closely linked to that of the planet.

A scarcity of new cropland and fresh water plus the negative effects of soil erosion, air pollution, and hotter summers on crop yields is slowing the growth of the world grain harvest. Combined with continuing rapid population growth, this has reversed the steady rise in grain output per person that the world had become accustomed to. Between 1950 and 1984, the historical peak year, world grain production per person climbed by nearly 40%. Since then, it has fallen roughly 1% a year, with the drop concentrated in poor countries. With food imports in these nations restricted by rising external debt, there are far more hungry people today than ever before.

On the economic front, the signs are equally ominous: Soil erosion, deforestation, and overgrazing are adversely affecting productivity in the farming, forestry, and livestock sectors, slowing overall economic growth in agriculturally based economies. The decline in living standards that was once predicted by some ecologists from the combination of continuing rapid population growth, spreading environmental degradation, and rising external debt has become a reality for one–sixth of humanity. Moreover, if a more comprehensive system of national economic accounting were used—one that incorporated losses of natural capital, such as topsoil and forests, the destruction of productive grasslands, the extinction of plant and animal species, and the health costs of air and water pollution, nuclear radiation, and increased ultraviolet radiation—it might well show that most of humanity suffered a decline in living conditions since the 1980s.

The key limits in the 21st century are fresh water, forests, rangelands, oceanic fisheries, biological diversity, and the global atmosphere. Will we recognize

the world's natural limits and adjust our economies accordingly, or will we expand our ecological footprint until it is too late?

Some good news is that there is a growing worldwide recognition outside the environmental community that the economy we now have cannot take us where we want to go. Three decades ago, it was only environmental activists who were speaking out on the need for change. Now the ranks of activists have broadened to include CEOs of major corporations, government ministers, prominent scientists, and even intelligence agencies.

The goal is to develop a new type of economy. It is a solar–powered, bicycle/rail–centered, reuse/recycle economy that uses energy, water, land, and materials much more efficiently and wisely than we do today. This challenge to humanity rivals any in its history.