

An Environmental Revolution

Lester R. Brown

Lester R. Brown founded the Worldwatch Institute in 1974, a research institute devoted to the analysis of global environment issues. Ten years later he launched the State of the World reports and in 1988 launched World Watch, a bimonthly magazine focusing on the Institute's research. He is the recipient of a MacArthur Foundation award, winner of the UN 1989 environment prize and author of numerous books on environmental and development issues. He published *Launching the Environmental Revolution: State of the World 1992* this year.

If the degradation of the planet is to be halted then a major shift has to take place socially, economically and politically. A revolution is necessary to reverse the deterioration which has occurred in the last twenty years. Such a revolution will involve a dramatic change in lifestyle, a major shift in human reproductive behaviour and a restructuring of the global economy.

In early June 1992, the United Nations convened its Conference on Environment and Development in Rio de Janeiro. Coming 20 years after the UN meeting in Stockholm that officially launched the environmental movement, this so-called Earth Summit dwarfed its predecessor. With close to 10,000 official delegates from 150 or more countries and perhaps 15,000 concerned citizens and activists participating in a parallel Global Forum, it was the largest UN conference ever held.

The 116 national political leaders gathered in Rio was the largest such gathering in history. The 7,000 journalists accredited to the conference may have been the largest gathering of representatives of the global communications media ever assembled.

As part of their preparation for the meeting, governments prepared reports on the state of their environments. Most focused on national achievements – a reduction in air pollution here or a successful reforestation programme there. But overall, global environmental trends were not reassuring. The health of the planet had deteriorated dangerously during the 20 years since Stockholm.

Our world of the mid-nineties faces potentially convulsive change. The question is, in what direction will it 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 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.

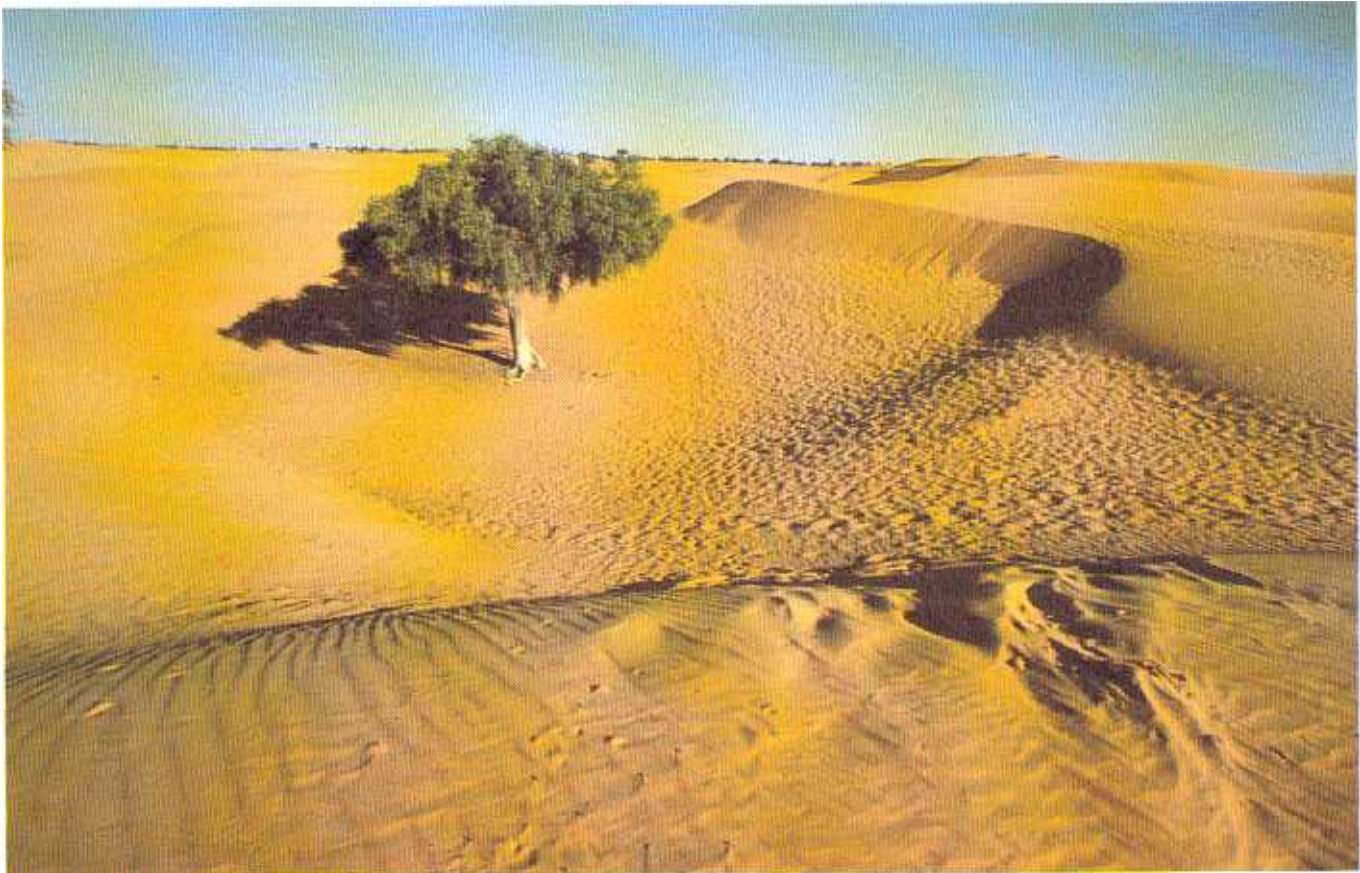
There is no precedent for the change in prospect. Building an environmentally sustainable future depends on restructuring the global economy, major shifts in human reproductive behaviour, and dramatic changes in values and life-styles. Doing all this quickly adds up to a revolution, one defined by the 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. While the former set the stage for enormous increases in human numbers, this revolution will succeed only if it stabilizes population size, re-establishing a balance between people and the 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 fossil fuels.

The two earlier revolutions were driven by technological advances – the first by the discovery of farming and the second by the inventions of the steam engine, which converted the energy in coal into mechanical power. The Environmental Revolution, while it will obviously use new technologies, will be driven primarily by the restructuring of the global economy so that it does not destroy its natural support systems.

The pace of the Environmental Revolution will 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 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 gauged 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 on to an environmentally sustainable development path, one that leads to greater economic security, healthier life-styles, 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 20 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.

Already the planet's degradation is damaging human health, slowing the growth in world food production, and reversing economic progress in dozens of countries. 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. Some 300,000 Soviet citizens are being treated for radiation sickness. The accelerated depletion of the stratospheric ozone layer in the northern hemisphere will lead to an estimated additional 200,000 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 growth of the world grain harvest. Combined with continuing rapid population growth, this has reversed the steady rise in grain output per person to which the world has become accustomed. Between 1950 and 1984, the historical peak year, world grain production per person

climbed by nearly 40 per cent. Since then, it has fallen roughly one per cent 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 World Bank reports that after three decades of broad-based economic gains, incomes fell during the eighties in more than 40 developing countries. Collectively, these nations contain more than 800 million people – almost three times the population of North America and nearly one sixth that of the world. In Nigeria, the most populous country in the ill-fated group, the incomes



of its 123 million people fell a painful 20 per cent, exceeding the fall in US incomes during the depression decade of the thirties.

Anyone who thinks these environmental, agricultural and economic trends can easily be reversed need only look at population projections. Those of us born before the middle of this century have seen world population double to five billion. We have witnessed the environmental effects of adding

2.5 billion people, especially in the Third World. We can see the loss of tree cover, the devastation of grasslands, the soil erosion, the crowding and poverty, the land hunger, and the water pollution associated with this addition. But what if 4.7 billion more people are added by 2050, over 90 per cent of them in the Third World, as now projected by UN demographers?

The decline in living conditions 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 forest, the destruction of productive grasslands, the extinction of plant and animal species, or 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 during the eighties.

Today we study the archaeological sites of civilisations that were undermined by environmental deterioration. The wheat lands that made North Africa the granary of the Roman Empire are now largely desert. The early civilizations of the Tigris-Euphrates Basin declined as the waterlogging and salting of irrigation systems slowly shrank their food supply. And the collapse of the Mayan civilization that flourished in the Guatemalan lowlands from the third century BC to the ninth century AD may have been triggered by deforestation and soil erosion.

No one knows for certain why the centres of Mayan culture and art fell into neglect, nor whether the population of one million to three million moved or died off, but recent progress in deciphering hieroglyphs in the area adds credence to an environmental decline hypothesis. One of those involved with the project, Linda Schele of the University of Texas, observes: "They were worried about war at the end. Ecological disasters, too. Deforestation and starvation. I think the population rose to the limits that their technology could bear. They were so close to the edge, if anything went wrong, it was all over."

Whether the Mayan economy had become environmentally unsustainable before it actually began to decline, we do not know. What we do know is that our economy has, and that unless we harness the knowledge, information and technology available to us in halting that decline, we are destined to follow the same route as those ancient civilisations.