

## WORLD ON THE EDGE <sup>1</sup>

by Lester R. Brown — A Review Essay by Andrew R.B. Ferguson)

**Abstract.** The first half of Lester Brown's latest book is a brilliant resumé of the problems the world faces, but the second half, with its suggestions of how to prevent environmental and economic collapse — his so-called Plan B — is entirely unrealistic.

---

Paul Ehrlich's *Population Bomb* published in 1971<sup>(1)</sup> made a considerable impact at the time, drawing people's attention to the fact that overpopulation would soon lead to disaster. However, in the longer term the effect of the book was not entirely helpful. Because by overestimating how quickly mass starvation would start to become apparent, the book soon came to be cited as an example of yet another venture into doom saying.

Predicting the exact time when disaster will become apparent is something to be avoided. The book *Food, Energy, and Society* by David and Marcia Pimentel, the first edition of which was published in 1979, with the third edition in 2008,<sup>(2)</sup> avoided predictions about the time and extent of disaster, but provided irrefutable evidence of the relationship between food, energy, and the sort of society that can be supported by a combination of these two factors. Having considered (1) the damage to life support systems being done by the existing population, (2) the near certainty of fossil fuel becoming scarce in this century, and (3) that it was far from certain that renewable energy sources would provide adequate substitutes, it was suggested that a wise target for world population — to allow all people to enjoy a modest but civilized lifestyle — was in the order of 2000 million.

Over decades, Lester Brown has produced many fine books showing that humans are damaging their life support systems. The phase of deeper disasters that we are entering now is apparent to all. Brown's latest book, *World on the Edge*, provides a fine survey of those imminent and current dangers. The first four chapters are superb. I will mention their well-chosen titles, and then give some extracts from each.

Chapter 1 is titled *On the Edge*. The following paragraph from it refers to many of the subjects which are treated in more detail in the rest of the piece (p6):

We are liquidating the earth's natural assets to fuel our consumption. Half of us live in countries where water tables are falling and wells are going dry. Soil erosion exceeds soil formation on one third of the world's cropland, draining the land of its fertility. The world's ever-growing herds of cattle, sheep, and goats are converting vast stretches of grassland to desert. Forests are shrinking by 13 million acres per year as we clear land for agriculture and cut trees for lumber and paper. Four fifths of oceanic fisheries are being fished to capacity or over-fished and headed for collapse. In system after system, demand is overshooting supply.

Chapter 2 is titled *Falling Water Tables and Shrinking Harvests*. The following is an example of the many facts that are gathered under this heading (p22):

Saudi Arabia's growing food insecurity has even led it to buy or lease land in several other countries, including two of the world's hungriest, Ethiopia and Sudan. In effect, the Saudis are planning to produce food for themselves with the land and water resources of other countries.

---

1. *World on the Edge: How to Prevent Environmental and Economic Collapse* by Lester R. Brown. 2011. New York, London: W.W. Norton & Company. US\$15.95. 240 pp.

In neighbouring Yemen, replenishable aquifers are being pumped well beyond the rate of recharge, and the deeper fossil aquifers are also being rapidly depleted. As a result, water tables are falling throughout Yemen by 2 meters per year. Near the capital, Sana'a — home to 2 million people — tap water is available only once every 4 days; in Taiz, a smaller city to the south, it is once every 20 days. ...

Half the world's people live in countries where water tables are falling as aquifers are being depleted. And since 70 percent of world water use is for irrigation, water shortages can quickly translate into food shortages.

Chapter 3 is titled *Eroding Soils and Expanding Deserts*. These excerpts give some indication of the ground covered therein (p36):

Today, roughly a third of the world's cropland is losing topsoil at an excessive rate, thereby reducing the land's inherent productivity. An analysis of several studies of soil erosion's effect of U.S. crop yields concluded that each inch of topsoil lost, wheat and corn yields declined by close to 6 percent. ...

Wang Tao, one of the world's leading desert scholars, reports that from 1950 to 1975 an average of 60 square miles of land turned to desert each year. Between 1975 and 1987, this climbed to 810 square miles per year. From then until the century's end, it jumped to 1,390 square miles of land going to desert annually. ...

While China is battling its expanding deserts, India, with scarcely 2 percent of the world's land area, is struggling to support 17 percent of the world's people and 18 percent of its cattle. According to a team of scientists at the Indian Space Research Organization, 24 percent of India's land area is slowly turning into desert. ...

While Nigeria's human population was growing from 37 million in 1950 to 151 million in 2008, a fourfold expansion, its livestock population grew from 6 million to 104 million, a 17-fold jump. With the forage needs of Nigeria's 16 million cattle and 88 million sheep and goats exceeding the sustainable yields of grassland, the northern part of the country is slowly turning to desert. ...

As countries lose their topsoil, they eventually lose their capacity to feed themselves. Among those facing this problem are Lesotho, Haiti, Mongolia, and North Korea.

Chapter 4 is titled *Rising Temperatures, Melting Ice, Food Security*. Once again Brown presents many relevant considerations (p49):

Recent studies indicate that a combination of melting ice sheets and glaciers, plus the thermal expansion of the ocean as it warms, could raise sea level by up to 6 feet during this century, up from a 6 inch rise during the last century.

Even a 3-foot rise in sea level would sharply reduce the rice harvest in Asia, home to over half the world's people. It would inundate half the rice land in Bangladesh,...

The number of people affected by the melting and eventual disappearance of glaciers will be huge. The prospect of shrinking dry-season river flows is unfolding against a startling demographic backdrop: by 2030 India is projected to add 270 million people to its population of 1.2 billion and China is due to add 108 million to its 1.3 billion. While farmers in China and India are already losing irrigation water as overpumping depletes aquifers, they are also facing a reduction of river water for irrigation. ...

Bolivia is also fast losing the glaciers whose ice supplies its farmers and cities with water. Between 1975 and 2006, the area of its glaciers shrank by nearly half. Bolivia's famed Chacaltaya glacier, once the site of the world's highest ski resort, disappeared in 2009.

The next section of the book expands on the likely consequences of these changes, such as environmental refugees and a growing number of failing states. Like the first section, it is

entirely sound. It is only in section 3 (which starts at page 99) — where Brown attempts to lay out his so-called Plan B for dealing with the problems — that the book enters the realm of fantasy. On page 16 Brown gives an overview of Plan B writing that it

has four components: a massive cut in global carbon emissions of 80 percent by 2020. A stabilization of world population at no more than 8 billion by 2040; the eradication of poverty; and the restoration of forests, soils, aquifers, and fisheries.

The impracticability of achieving such goals (and their insufficiency) is probably readily apparent to most readers of this journal. Mainly without arguing the case (most of which has been argued in other issues of the OPT Journal), I will list the many fallacious assumptions underlying Brown's Plan B:

1. It is highly unlikely that carbon emissions will reduce significantly until fossil fuels become scarce as the following figures illustrate. In 1990, scientists said that carbon emissions needed to be *reduced* by 60-80%. Politicians indicated their determination to take appropriate action. However, by 2010 emissions had *increased* by 40%.
2. On present evidence of the limitations, renewable energy is only likely to replace a small proportion of the energy being used today. Brown has almost unlimited belief in the efficacy of wind power, with almost no understanding of its limitations.
3. As vital oil and gas supplies become scarce, the price will rise, with rich countries paying whatever it takes to provide them with what they regard as their minimum requirements, while poor countries go without, greatly diminishing their agricultural potential.
4. As fossil fuels become scarce, globalization is bound to break down (not appreciated by Brown).
5. Many countries (or failed states) are barely aware of the significance of the size of their populations. Other countries become alarmed if they see their populations decreasing. So it is unrealistic to talk about saving the whole world. It is only countries that have come to see the overarching importance of establishing a sustainable population size that have a chance of saving themselves from disastrous consequence.
6. Even with a degree of wisdom rarely shown by humans, when relying on renewable energy the much reduced energy resources available will be unable to support anything like a population of 8 billion. It is therefore misleading to talk about merely stabilizing population — that is in any but a few countries such as Sweden and Finland.

In summary, the early chapters of Brown's book are excellent, but the part associated with the subtitle of the book, *How to Prevent Environmental and Economic Collapse*, is a misleading excursion into fantasy. Only a few farsighted people, of whom Paul Ehrlich and David and Marcia Pimentel are good examples, have seen the need for a much reduced population, for the time when humans can no longer make use of the immense amount of energy stored in fossil fuels — and even before that on account of the damage already being done to our life support systems. Lester Brown is not to be counted among them.

1. Ehrlich, P. 1971. *The Population Bomb*. Pan.
2. Pimentel, D. and Pimentel, M. 2008. *Food, Energy, and Society*. Third edition. Boca Raton, FL; London; New York: CRC Press. ISBN 978-1-4200-4667-0. CRC Press website <http://www.crcpress.com>

About Andrew Ferguson:

Airline pilot 1957-83. Research Co-ordinator for the Optimum Population Trust, UK, since 1997. From 2000, took over the editorship of the biannual *OPT Journal*. Special interests: a) applying eco-footprinting to estimating national carrying capacities; b) assessing the net energy capture of renewable energy sources; c) raising awareness of the existence of Clive Ponting's seminal book, *A Green History of the World* (1991)), and the revised version, *New Green History of the World* (2007)..

For more information on the Optimum Population Trust, please visit [www.populationmatters.org](http://www.populationmatters.org)