

BRIEF ANALYSIS

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Making Sense of Sustainable Development

by Steven F. Hayward

The idea of sustainable development, the focus of the recent United Nations Earth Summit in Johannesburg, South Africa, is both commonsensical and contentious. The usual one-sentence definition of sustainable development is “meeting the needs of the present without compromising the ability of future generations to meet their own needs” — a definition first offered by the U.N.’s “Bruntland Commission” in 1987. This definition reflects common sense because no one is *for* a mode of life that makes future generations poorer and less healthy. Yet it is also contentious because there is little agreement concerning what constitutes sustainability, and quantifying a sustainable rate of economic development is nearly impossible.

Sustainability and Resource Use. The idea of sustainable development is most clearly applicable to renewable resources — such as forestlands, watersheds, wildlife, and other living resources and ecosystems. A renewable resource is used unsustainably when it is exploited at

a faster rate than it can replenish itself. Typically, if a well-functioning market exists for a resource, price increases signal unsustainable use and induce conservation, substitution and innovation.

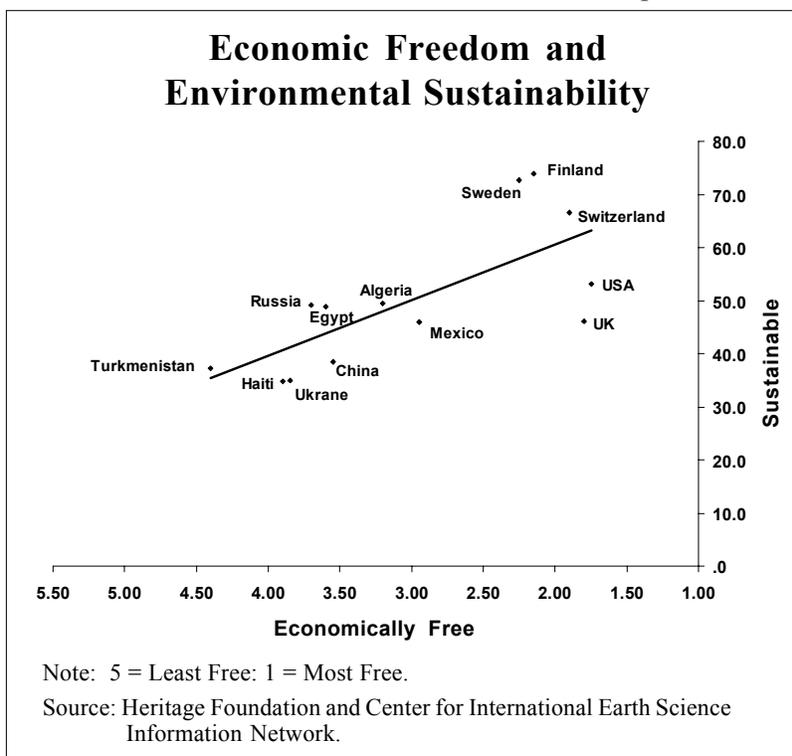
The implications of sustainable development for the use of such nonrenewable resources as fossil fuels and minerals are more complicated. It is by definition impossible to use a nonrenewable resource sustainably; each unit of a nonrenewable resource used is one less unit from a finite pool. But it does not follow that such resources need to be conserved to any particular

degree to sustain *development*, or even that exhausting those resources entirely will impinge on the ability of future generations to meet their needs.

Complicating the application of sustainable development to the use of nonrenewable (but relatively abundant) resources is the long time horizon involved. It is nigh impossible for one generation to know what resources future generations will need and in what proportions — and a little humility is in order when making long-range plans. A planner in 1900, worried about the resource needs of the year 2000, would have taken care to secure supplies of whale oil and firewood for heating and lighting, copper for telegraph wires, rock salt for refrigeration, horses for transportation, and vast expanses of land to grow feedstock for draft animals. The planner would likely have been unworried about securing supplies of oil and gas, since they were only starting to come into widespread use, and their supplies were abundant.

However, new technologies may change the rates at which both renewable and nonrenewable resources are used, and they often have vastly greater resource-conservation benefits than are recognized by later generations, which face different conservation challenges.

Consider the large, immediate and lasting resource benefits of the development of the automobile — now often portrayed as environmental public enemy number one. In 1900, 3.4 million horses were used for transportation in urban areas of the United States (another 17 million lived in rural areas, primarily pulling plows and performing other farm chores). The average horse consumed about 30 pounds of feed a day, or 5 tons a year. The air and water quality and public sanitation hazards from horse dung were substantial. A single horse could produce 12,000 pounds of manure and 400 gallons of urine a year, much falling on city streets.



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The amount of land used for growing feedstock for horses peaked in 1915 at 93 million acres — an area roughly equivalent to the area of all U.S. cities and suburbs today, representing as much as 25 percent of total agricultural land at the turn of the century. In addition to dramatically reducing urban pollution, the coming of the car and truck and tractor saved 90 million acres of U.S. land, a saving of resources usually left out of the environmental accounting of the internal combustion engine.

Environmental Quality Depends on Economic Progress. Recent studies from environmental organizations and from the U.N. Environment Program have reached the doom-and-gloom conclusion that we are in danger of running out of resources and choking on pollution. All of these studies have significant flaws. A more promising effort at measuring sustainability comes from a joint effort of the World Economic Forum, the Yale University Center for Environmental Law and Policy, and the Columbia University Center for International Earth Science Information Network. Their environmental sustainability index (ESI) offers a sustainability score ranging from 0 to 100 (with 100 being optimal sustainability) for 142 nations based on 20 indicators and 68 related variables. The ESI indicators include basic measures of pollution trends and ecosystem conditions, along with measures of human well-being, social capacities and governance. (One variable, for example, is control of political corruption.) The methodology enables systematic cross-national comparison of environmental progress.

The ESI confirms a central point that free market environmentalists have argued for a decade: that improving environmental quality in developing countries depends on economic growth, which leads to higher incomes. The term of art for this is the “environmental Kuznets curve” (named for development economist Simon Kuznets), according to which environmental quality degrades during the early stages of economic growth but begins to improve after a certain level of income is reached. Developed countries not only have higher incomes but also have made substantial environmental progress despite much higher rates of nonrenewable resource consumption than undeveloped countries.

Environmental Quality and Economic Freedom. The World Economic Forum’s ESI study can be further refined by comparing environmental sustainability scores with measures of economic freedom. The *Heritage Foundation/Wall Street Jour-*

nal Index of Economic Freedom 2002 measures economic freedom according to eight variables: political corruption, trade barriers, the fiscal burden of government, the rule of law, regulatory burdens, banking restrictions, labor market regulations and black market activities. Each variable is assigned a score of 1 to 5 (with 1 being best), and the scores are averaged to generate a composite score for each country. When the ESI scores are plotted against the scores from the *Heritage/Wall Street Journal* index, we see that nations with freer economies have better records in improving environmental quality — confirming that free markets and democracy are the best path to sustainability. For example:

- Developed countries such as Finland, Sweden and Switzerland have high ESI scores (73.9, 72.6 and 66.5, respectively) and are among the most economically free countries (with *Heritage/WSJ* index scores of 1.95, 2.05 and 1.90). [See the Figure.]
- Countries ranking in the middle range of ESI scores (around 50), such as Algeria, Russia and Egypt, have less economic freedom (3.10, 3.70 and 3.55).
- The low end of the ESI scale includes less-developed countries such as Haiti, Ukraine and Turkmenistan that have little economic freedom (3.80, 3.85 and 4.4).

In developed nations, measures to control immediate problems of pollution and wasteful resource use as they arise go a long way toward achieving environmental sustainability as measured by the ESI study. They also go well beyond what is necessary for sustainable development, given that we do not know the resource needs of future generations, in part because we do not know the technologies that will be developed.

It is difficult, then, to derive from the idea of sustainable development justification for radical new environmental measures. The political forces that will carry new environmental measures further will have much less to do with concerns over future sustainability than with the preferences and resources of wealthy populations to make their own lives safer, healthier, cleaner and more agreeable.

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