

(reprinted with permission from New Scientist, 16 November 1991)

Are we throwing away the planet's future?

FIVE hundred years after Christopher Columbus, we still have not come to terms with the real significance of the "round-Earth" theory. For more than two decades, we have been grappling with the problem of finite resources. But we have been grappling with the wrong end of the problem. Resource economists are missing the point; and resource economics will have to be fundamentally redefined.

The first wave of popular environmental concern, from the 1960s onwards, seized on the idea that resources were running out - in other words, that reserves of fossil fuels, metals and other material essential to modern civilisation were in limited supply, and that we were using them up,

In an abstract theoretical sense, and given a long enough timescale, the concept is undoubtedly true. In the 1990s, however, we have to confront a much more immediate and daunting challenge. On our finite planet, the most pressing problem of resources is not about sources. It is how we dispose of the leftovers into "sinks", such as the atmosphere, the oceans and the forests. After hundreds of years of throwing things away, we finally have to acknowledge that, on Columbus's round Earth, there is no such place as "away". Disposal of "waste" has always been a key problem for astronauts in their space capsules; now it is a problem for all of us on Spaceship Earth.

Not, of course, that "waste" itself is a novel issue. Until recently, however, it has been regarded merely as an unfortunate local side effect - condemned because it represents inefficient use of resources and because the resulting pollution degrades amenities and may damage natural systems and human health. Indeed, an old Chinese proverb declares that "waste is just something we have not yet learned to use". Unfortunately, that is not the whole story.

The fundamental resource we rely on is energy from the Sun. It drives almost all the material processes on the Earth; and the one genuine waste disposal facility we have - the only "away" to which we can actually throw anything - is outer space. It is where we throw our used energy; everything else stays here on Earth.

We already face major local problems with sinks. Waste disposal of every kind arouses controversy; toxic wastes are high on political agendas, and the legacy of past excesses will take decades and untold sums to rectify. However, the sink problem is now not only local, but also global.

Until now, we have developed a value structure and an economic system based on the sources of resources - that is, on acquiring and manipulating materials. We assign values to the materials as they progress through the system until we have no further use for them. Then we abandon responsibility for them, assign them zero value and release them, into the atmosphere, the oceans and the land. Recently we have begun to impose controls on the releases, to reduce the impact on the sinks - mainly because we fear the consequences of overloading them.

But the sinks themselves are resources - essential resources. Just as the sources - the coal seams, the oilfields, the gas fields and so on - have an economic value, so do the sinks. Innovative economists have lately begun to wrestle with the task of placing a value on these sinks. They are features of our planet that we have hitherto taken as common property, and used thoughtlessly.

The philosophical challenge of the sinks is daunting, but it must be met. The process of meeting it will upset a lot of very powerful people.

Consider the ultimate resource: energy. Although almost all the energy that drives the planet comes directly from the Sun, policy makers devote most of their attention to energy from fuels, especially fossil fuels. Less than two decades ago, the concern driving official policy was that reserves of oil, gas and coal were being used so rapidly that they would soon become scarce and costly. In the 1990s, oil, gas and coal are abundant, and their prices disconcertingly low. But the more we use them, the more carbon dioxide we create, and the sinks are already showing signs of overflowing.

The dilemma is obvious, and it will get worse. Suppose for the sake of argument that our governments took the greenhouse effect seriously. Suppose they really tried to improve the efficiency of buildings, lighting, appliances, industrial plant, vehicles and other hardware. Suppose active support for renewable energy became a global reality. Demand for fossil fuels would fall; and so would their prices.

Efficiency and renewables are traditionally costed by direct comparison with fossil fuels. But the more successfully they are implemented the more they will lower the price of the fuels that compete with them.

According to traditional resource economics, efficiency and renewables may never become truly competitive with fossil fuels, even though the fossil fuels overload the sinks, while efficiency and renewables lighten the load on them.

Redefining resource economics to include the sinks, however, poses equally stubborn problems. Proposed instruments like carbon taxes and tradeable permits for emissions are indirectly assigning values to the sinks, as also are moves to protect the rainforests. But such measures are already meeting fierce resistance from those who see their interests in jeopardy.

In our global economic system, the economic success not only of major corporations but of entire countries is based on selling energy from fossil fuels. It is possible that corporations can change their role - some utilities, for instance, are already metamorphosing into energy service companies supplying not just electricity and gas but, for example, heating and lighting as such. But what about national economies based on fossil fuels? Can a mechanism be devised to charge for the use of sinks? Even if it can, valuing the sinks will create not only winners but also losers.

The UN Conference on Environment and Development next year will be taking place 500 years after Columbus set out to demonstrate that the Earth is round. On a round Earth the sinks are at least as important as the sources. Somehow, resource economics must close the circle - and politics must follow. If the conference and the policies emerging from it do not cope with the problem of the sinks, the conference may go down the drain - and the rest of us may follow.