# The running out of resources myth

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***Markets and ingenuity will ensure supply***

**By Brian Lee Crowley**

The premise behind the question “Are we running out of natural resources?” is terribly mistaken. There is indeed a finite quantity of fossil fuels and other resources in the Earth’s crust. But that does not mean that we will ever run out of them. In fact, human beings will likely cease using fossil fuels long before we have used them up, and this transition is independent of any policy designed to speed up the development of alternative energy sources.

Fears that we are running out of commodities are not new. In the 18th century, Thomas Malthus predicted that mass starvation would result from an inability of the food supply to adjust for rapid population growth. In the 1970s, the Club of Rome predicted massive shortages of natural resources due to overconsumption and overpopulation, with disastrous effects on human health and material well-being. In 1980, The Global 2000 Report to the President noted that: “If present trends continue, the world in 2000 will be more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the world we live in now.… ”

But the ecosystem hasn’t collapsed. We haven’t run out of oil. We are still successfully feeding ourselves. Our incomes are rising and our health status is improving around the globe. Why?

First, while it might be popular, it is quite incorrect to think of natural resources as not only exhaustible, but on the verge of being exhausted. If natural resources were actually getting scarcer, then their price would rise. That’s part of what prices do: They signal shortages and availability, and trigger exploration and innovation where required.

But the price of natural resources has been remarkably steady or even declining for centuries. Yes, the recent entry of developing countries like China and India into the marketplace may have moved natural resources prices temporarily higher, but that increase is not because of shortages, but chiefly because of China’s fondness for old-fashioned and highly inefficient mercantilism.

In fact, thanks to human ingenuity, the “carrying capacity” of the planet—its ability to support a greater human population with increasing living standards — is not fixed, but is hugely variable, depending on how much of our intelligence we mix with the natural world. Put another way, we could say that the availability of natural resources is not determined merely by the quantity of such resources in the earth, but by the interaction between such resources and our ability to squeeze more value out of them.

We now require less and less land to feed each human being. We need less steel for each car, and less gasoline for each mile travelled than ever before. And that minimum is falling all the time. Human ingenuity is creating cheaper alternatives, or finding ways to increase the supply, both of which ease shortages.

Consider the telephone. In the last century, a forest of utility poles carried hundreds of copper wires that connected telephones to each other. Today, if we had to run that many wires to every person wanting a phone, it would probably be beyond the limit of our planet’s copper resources, and copper prices would be astronomical.

The reality is that the long-term price of copper has been stable or falling for years, overhead wires are disappearing, and those cables that do connect us are usually fibre-optic, made of cheap and plentiful materials that carry millions more bits of data per second than the old copper wires did. Moreover, we have developed a whole wireless technology that is not connected by any physical object at all. We are vastly extending the reach of the telephone, yet using fewer and fewer resources to do so.

A similar effect occurs with energy. The doomsayers of the 1970s thought we would have run out of oil by now because they compared knowledge about the state of supply then with rates of consumption then, and concluded that those available supplies would soon be exhausted. But we have consumed 40 more years’ worth of oil since then and yet find ourselves with more reserves than we believed we had in 1970.

That is possible because the supply of oil isn’t only what is in the earth’s crust. Supply is also determined by the application of human intelligence to the problem of finding the oil we need. Today’s extra reserves are not due chiefly to discoveries of new deposits, but from wringing more supply from already known reserves through enhanced recovery techniques.

Alberta’s oil sands are a classic example. A few decades ago, people knew that the oil sands existed, but the oil they contained was not accessible, or the technology to make it so was too expensive when compared with more conventional sources of oil. But human ingenuity and financial capital have shifted the oil sands from theoretical but non-recoverable reserves into recoverable ones.

At current prices and technology, we can only recover about 10% of the oil in the oil sands. Yet that 10% is enough to make Canada’s new reserves the second largest in the world. When we can increase the recovery rate to 20%, we will once again vastly increase the supply of oil available to humanity with no increase in the quantity in the earth’s crust.

Another example of technological innovation opening vast new deposits of energy is hydraulic fracturing, or ­­fracking. This new process has opened up enormous new deposits of natural gas worldwide. Indeed, some analysts predict that shale gas supplies will constitute as much as half of the natural gas production in North America in less than a decade. Similarly, we have not yet developed gas hydrates as an energy source because the technology to do so economically does not yet exist. Yet there is estimated to be more energy content in gas hydrate deposits around the world than in all other fossil fuels combined.

We are nowhere near to running out of natural resources. Human creativity and financial resources together will ensure a continued supply of all the resources we need. The exact form those resources will take cannot be known today, however. It relies on future innovations, which are, by their nature, unpredictable because they will be the fruit of our imagination and curiosity. That is why the human mind is the greatest natural resource of all.

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