‘Peak Oil’ Equals ‘Peak Food’

Peter Goodchild

Food will become quite an obsession. If one looks at "peak oil" in terms of its daily effect on the average person, one gets a simple equation: "peak oil" equals "peak food." Oil made it possible to keep 7 billion people alive - well, only barely alive, of course, since half of them don't get a very good diet. When the oil is gone, most of that population will also have to go. But they will not float up into the sky. Or someone will invent spaceships to take them to Mars. To put it rather bluntly, there will be some truly astonishing famines in the next few decades. The decline in oil production will be swift and ruthless, because without all the fertilizer and tractors and trucks, there will not be enough food for more than a small number of people. Judging the oil-to-population ratios of previous years and projecting those same ratios onto the right-hand side of that bell curve, it's fairly easy to see that about 50 million people will be starving to death every year as a result of global oil depletion. One way or another, the population will have to return to about 1 billion rather than 7.

Even that 1 billion is rather optimistic, because by then there will have been so many side-effects from the entire spectrum of systemic collapse—ranging from resource depletion to governmental collapse—that it is unlikely that the planet will be able to keep as many as a billion people alive. To look at the future, then, one must start by looking at a world in which the human population has been dramatically reduced. The most basic principle is that each person will have to start thinking in terms of a smaller radius of activity. The globalized economy will have to be replaced by the localized economy.

Most food will have to be produced at a local level, and probably each family will have to produce its own food. The catch to growing food, however, is that most of the world's surface is unsuitable for growing food, no matter what techniques of farming are employed. This is not the fault of mankind, it is merely a consequence of the nature of the planet. On many parts of the globe, the climate is too hot, too cold, too wet, or too dry. In other cases, the land is too barren to support anything but a sparse growth of wild plants, which in any case are simply growing and then dying and replacing their own material.

A small human population could nevertheless survive on agriculture, at least if it learned how to revert to some ancient methods, particularly as described by F H King in "Farmers of Forty Centuries." One technique of some Asian cultures was to bring grass or other wild plant material from the mountains, for example, and turn it into compost, thereby making use of the nitrogen, phosphorus, potassium, etc. of the wilderness, as well as the basic humus (carbonaceous plant material). Many other cultures used wood ashes. What it amounts to is that a large area of wild land was scoured to provide growth materials for the cultivated vegetable. The nutrient "source" of the wilderness, in other words, fed the nutrient "sink" of the farmland. This process of taking from the "source" and giving to the "sink" is one of the basic principles behind all "organic gardening," although few practitioners would admit it or even know it. The process also raises some enormous doubts about the concepts of "sustainability".

A second technique used by Asian cultures was to recycle all sorts of materials, and to do so as intensively as possible. Among the most important materials were human and animal feces. Of course, the process of recycling could never be stretched to eternity. One cannot create a perpetual-motion machine: every time those materials are recycled, a certain amount of N-P-K is lost to leaching and evaporation.

A third agricultural technique, found in Asia as well as in other parts of the world, was to grow legumes or other plants that absorb nitrogen from the air. Unfortunately there are no similar tricks for phosphorus or potassium; plants with very deep roots can draw some of these elements from far underground, but not enough to turn barren land into farmland.

If one goes further back in time, or further down the ladder of cultural evolution, one finds an even simpler method of maintaining a sort of temporary sustainability–if such a term is not a self-contradiction. All over the world, many primitive cultures simply grew crops in one area for a few years and then abandoned that plot, cut and burned another patch of forest or jungle, and started a new garden. Such a practice is hard on the environment, but for a sparsely inhabited region the technique is feasible. In any case, sheer necessity will make this a common practice in future ages.

David Pimentel, in his excellent analyses of food and energy resources, points out that if one is living mainly on cultivated plants, at least a quarter of a hectare per person would be needed, in the absence of synthetic fertilizers or mechanized irrigation. For example, one could live–barely–on about 400 kilograms of dried non-sweet corn (maize) per year. The yield per hectare of corn, however, is not likely to be over 1,500 kilograms.

It might be worthwhile to take a closer look at the overused and misused word "organic." "Organic fertilizers" can certainly do the trick, but in a post-petroleum world where are these going to come from, and how are they going to be transported? Powered dolomite, for example, will supply calcium and magnesium, but that's very heavy stuff. If farmers are living in an environment where the soil is naturally barren, and if they have no access to petroleum-based manufacturing and delivery, then that dolomite might as well be sitting on the moon.

"Organic gardening" should be treated as a scientific hypothesis - and, indeed, it is worthy of consideration. Instead it is treated as a cult. One either "believes" or does not "believe," and any request for precise observation or measurement is treated with scorn.

The most useful crops will be those that are high in carbohydrates and protein. Crops that are susceptible to diseases, pests, bad soil, or bad weather should be avoided. In most of North America, the most important crops will be corn and beans. Of course, those would have to be open-pollinated types, because hybrid varieties do not produce viable seeds—one will have to buy the seeds every year from big companies that produce them, and those big companies will not be around in the future (which is perhaps a great blessing). In other parts of the world, other grains will be more suitable.

Good farmland will of course be scarce, but many people will become aware of one of the curious side-effects of the urbanization that has characterized so many

countries since the Industrial Revolution: the abandonment of good land. Over the last few centuries, as people moved from the countryside to the city, the result for some of those rural areas was a considerable decline in population. The same process is still underway. Even in highly developed countries, although the cities may be crowded there are rural areas that are steadily losing population. Such depopulation will present opportunities for those with a pioneering spirit. Admittedly a lot of these abandoned lands are what the encyclopedias dismiss as "marginal uplands" - as opposed to the lands along the valley bottoms, where rivers and rains have carried the good soil - but the better farmers will know how to deal with these more-fragile environments.

It would be quite an understatement to say that, without gasoline and diesel fuel, transportation will be limited. Not only will the fuel be lacking, but even the roads to drive on will become less common. Anyone who has driven past a construction site should suspect that a modern road is not as durable as Roman aqueduct. Asphalt is made from oil. As oil becomes scarce, so will asphalt, and paved roads will therefore go unrepaired. As social chaos intensifies and municipal governments watch their budgets disappearing, the maintenance of paved roads will be further reduced. When those roads are not repaired, it will take little time for them to become cracked and unusable, and they will often be blocked by smashed and abandoned cars whose owners have lost the ability - or the sheer willpower - to keep them running. In any case, the main roads will generally be going in the wrong directions: from one city to another, exactly where most people will not want to go. Any clever human being would stay away from the cities, and instead go up into the hills, well away from populated areas, further on, to greener pastures.

There will be only 3 methods of travel: on foot, in a non-motorized boat, or on the back of a horse, a donkey, or some other animal. One's speed by any of these 3 methods will be about the same: 40 km per day, if one is in excellent shape. For short distances, one means of transport may be quicker than another, but the longer the distance the less it seems that walking is to be despised. Certainly the history of bicycles is not likely to go on for much longer: even where paved roads are usable, bicycles will be hard to repair without the industrial infrastructure to provide the spare parts and the servicing.

It should be obvious that those who live in the country will be better prepared than those who live in the city. A city is a place that consumes a great deal and produces little, at least in terms of essentials. A city without incoming food or water collapses rapidly, whereas a small community closely tied to the natural environment can more easily adjust to technological and economic troubles. Even out in the country, however, the present housing patterns often resemble the gasoline-induced sprawl of the suburbs. Paradoxically, many "rural" areas have become "urbanized," in the sense that they are doing their best to imitate the worst aspects of large cities. More useful would be something resembling a traditional village, with the houses at the focus and the fields radiating from that point -one can read Thomas Hardy's novels to see how this used to be.

"Something resembling a traditional village" is, of course, different from the real thing. In a genuine "traditional village," people have known one another for generations, and a bunch of pale-skinned visitors is not likely to be received with

open arms. If these urban refugees show up flashing their useless credit cards all over the place, and demanding assistance, but they have no practical skills and don't even have the muscles for basic manual labor, it is unlikely that they will be welcomed in any long-settled community. These refugees will have to develop their own communities, and they will have to overcome the problem of their inadequate social skills. But they will learn. In spite of themselves, they will learn.

By the end of the present century, the human population will be much smaller than it now is. The 200-odd nations of the present day will be only a dim memory, and the major languages will have broken up into local dialects, to such an extent that a linguistic outsider will be one who lives only over the next hill. Grass will be growing everywhere, and the long miles of cracked highways will be merely a curiosity. Yet those days will not be the Dark Ages: on the contrary, starlight will once again appear over the cities at night. Humans were not designed to live in groups of such immense size as people see today, nor were they given the physiological equipment to deal with the over-stimulation of crowded living-spaces. It is also true, for various reasons, that the sight of green trees is more pleasing than that of gray machines. It is not just a platitude to say that people are out of touch with Nature. □□□