

What to do in a failing civilization

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Can global civilization adapt successfully to degradation of the biosphere and depletion of fossil fuels?

I argue that it cannot. Important elements of all constituent societies would have to be reformed. Reform would have to be radical and would be uncertain of success. It could be undertaken only in the presence of incontrovertible necessity—a necessity that will reveal itself incontrovertibly only when catastrophic collapse has become unavoidable. I conclude that those who seek to preserve civilization should plan for its survival in restricted regions.

The nature and scale of our economic behavior is reducing the capacity of the Earth to support us in the future. The list is long: destruction of biological diversity, over fishing, ozone holes, aquifer depletion, the drying up of rivers and lakes, the pollution of ground water with salt and industrial chemicals, soil degradation, desertification, fossil fuel depletion, mineral depletion, and climate change. In spite of these trends, we demand more from the Earth each year. The demographers say that there will be 8 or 9 billion of us in 2050, absent intervening catastrophe, just when some of these trends will have reached their full destructive capacity, and all of them will be working furiously to demolish the support Earth lends us. Can we react in time to oppose these trends effectively?

The overshoot trap

Limits to the growth of population and economic activity are sometimes imagined to be like walls we might run into. When we get close to the walls, this simile suggests, we can slow down to avoid a crash, or at least slow down enough that the crash bends our fenders instead of smashing us to bits. A better simile reveals a greater hazard. We are like a thoughtless retired person without a pension who lives too lavishly on substantial saved capital. We consume greatly more than the income generated by our natural capital, consuming the capital as well as the income. Addicted to luxury, we increase our spending each year.

As concrete examples of natural capital and income, think of rivers, lakes, and aquifers that should be pumped out no faster than they can be replenished by rain and melting snow. Think of stocks of oceanic fish that should be harvested only to an extent that does not reduce their yearly census. Think of forests and wetlands that should be kept as reservoirs of biological diversity and sources of clean water, instead of being clear cut or paved. Think of soils that once had a natural vitality and generative power, but have been rendered lifeless by their overuse to hold fertilizers and pesticides, or by making them foundations for roads, buildings, airports, and houses. Think of fossil fuels that might have been invested in infrastructure for renewable energy but which have instead gone into food, clothing, buildings, and personal transportation.

The capacity to produce sustainable income—food, energy, materials—disappears with the natural capital that generates it. Day by day the proportion of capital in our consumption increases. We don't see that the income portion of our consumption is decreasing as long as we don't distinguish between consumed income and consumed capital. At some point, retrenching to rebuild our natural capital becomes impossible. If we were to decide to consume only income, we would starve and there would not be any income left over to

rebuild capital. At this point we are trapped. Bankruptcy is inevitable, but we may continue to live still more lavishly each year as long as capital remains to be consumed. The trap is known by ecologists as *overshoot*. When we finally reach the limits of natural capital, the Earth's support for our presence will decrease suddenly to an astonishingly low level compared to the largesse we have become used to. This necessary consequence of overshoot is called *crash*, or *die-off*.

Ignorance of the trap hidden in the consumption of natural capital encourages a belief that the human population of the Earth is not now intrinsically excessive and will not become intrinsically excessive before the occurrence of a benign demographic transition—a supposedly naturally decreasing fertility that will stabilize the human population at, say, 8 or 9 billion. There are two versions of this belief. In the first version, if the rich reduce their consumption and share with the poor, all will be well because there will then be enough to go around, and population growth will have stopped. In the second version, if the rich cooperate to make the poor much better off through economic development, the benign demographic transition, which is said to be caused by prosperity, will be virtually certain. We don't need to worry about not having enough to go around, this version continues, because we've always found enough before. None of this is credible to those who perceive that most of current consumption is capital. It is likely that the Earth's long term carrying capacity for humans has already been reduced well below the current level of population. If so, the inevitable reduction of population will probably be initiated and paced by the decline of fossil fuel production over the next 50 years.

What has kept us from anticipating and avoiding overshoot? Or, if you are not convinced that we are already in overshoot, what keeps us from modifying our behavior now to avoid an otherwise inevitable overshoot? I will not attempt a complete answer to this question. I offer instead a few partial answers that provide sufficient support for my thesis. One partial answer: most of us are ignorant of the overshoot trap, hence do not fear it. Another partial answer: our economic life depends in several ways on continuing economic growth. We are afraid of disturbing the economic arrangements that keep us prosperous.

The economic growth trap

Economic growth requires increasing the amount of high quality energy and materials degraded by the economy each year. Economic growth on a finite planet will eventually stop. If it does not exhaust the resources needed for its continuation, it will stop earlier for some other reason. Allowing resource depletion and biosphere degradation to terminate economic growth will produce catastrophe. Unfortunately, our dependence on economic growth makes it extremely unlikely that we will give it up voluntarily before the catastrophe. Our dependence has at least four aspects: A) in the need to deal with adverse consequences of labor-reducing innovations, B) in commercial bank money, C) in the need to maintain tolerance of inequality, and D) in financial markets.

A) The first dependence on economic growth is in the need to avoid the adverse consequences of innovations that reduce the need for labor.¹ By definition, each labor-reducing innovation either increases the amount of a good produced or throws some people out of work. Firms that create or exploit a labor-reducing innovation create new jobs internally by driving other firms out of business. The new jobs implementing the innovation offset the loss of jobs caused by the innovation, but the innovating firms don't necessarily hire all of the job losers, because the innovation reduced the total amount of labor needed to produce the original amount of the good. In order to re-employ all job losers, the economy must grow to produce more of the good with all of the original workers, or produce more of some other good with the cheaper labor (the job losers) now available. In either case the economy grows. Much of what we consider

progress is due to labor-reducing innovations. In order to live without economic growth, we would have to give up this kind of progress, or introduce arrangements to allow workers who become unproductive to retain their relative wealth and self-respect, or relegate most people to a repressed underclass. There is a powerful incentive to avoid these contingencies by encouraging economic growth.

B) The second dependence on economic growth is in the creation of money by the act of borrowing at interest from commercial banks. Much of the money in each loan by a commercial bank is created by the loan itself. The bank collects a fee—the interest—for providing the service of creating the money. Other ways of creating money have been explored in theory and practice. Successful local currencies have been based on some of these alternatives, (see Douthwaite, *Short Circuit*, page 61) but all national money is now created by interest-bearing loans from commercial banks. This way of creating money contributes instability to an economy based on it. In order to keep the money supply from contracting when a loan and its interest are paid, a larger total of new loans must be created, increasing the money supply. (This is not transparently obvious. For a more detailed explanation, see Douthwaite, *The Ecology of Money*, page 24.) When the economy grows to match the increasing money supply, the value of money is relatively stable, and commercial-bank-created money is benign. If the rate of economic growth does not match the rate of growth of the money supply, the money supply becomes unstable. Given the use of money created by interest-bearing loans from commercial banks, an economy can minimize the resulting instabilities of the money supply by sustaining moderate growth. Monetary instability would put significant hazards in the way of deliberate attempts to contract our economy unless the creation of money was radically reformed.

C) The third dependence on economic growth is in the political and geopolitical need for tolerance of inequality. Differences of wealth are at least as great within the developed countries as they are between developed and developing countries. Think of the ratio of the average income of American CEOs to the average salary of workers in their companies. Domestically and internationally, the tolerance of the poor and middle classes for the existence of wealthier classes and countries depends on a belief in economic growth. The poor struggle, while seeing that others are wealthy and still others are grotesquely wealthy. The poor are told a story: if they keep to their work and to their diversions, and tolerate the rich, they will be better off in the future than they are today. They believe this story, or at least don't revolt against it, because it is supported by propaganda and shared myths, and has been true for many. When economic growth disappears forever, the poor, like everyone else, will recognize that they will be progressively worse off, with no future relief possible. The peaceful tolerance by the poor and the middles for the rich will disappear. A peaceful end of economic growth would require redistribution of wealth, with consequent political and geopolitical contention. Desire to avoid the contention makes it unlikely that deliberate elimination of economic growth will be attempted before economic growth is ended by nature. The intolerance of differences of wealth that will then appear will itself not be tolerated by the rich, causing additional domestic and international conflict just at the advent of other adverse changes. At that time, if not before, tyrannical repression of the poor will greatly tempt the rich.

D) The fourth dependence on economic growth is in the financial markets—the mechanism of capitalization of public corporations. Public corporations, the main actors in industrial economies, depend on financial markets not only for capital for innovation, but for discipline, valuation, motivation, and a major part of their rationale for existence. Owners of capital—investors—give the use of it over to public corporations by buying equity or debt in financial markets. They do so only because they expect that they will, on average, and over the long term, receive back more than they gave up. That expectation disappears when most investors understand there will be no economic growth. Most of the apparent wealth of the world consists of equity and debt bought and sold in financial markets. A general decline of market prices reduces general

wealth in proportion. Any realistic possibility of the end of growth would fill investors with something like terror. Political initiatives to bring an end to growth will be opposed by investors with every means at their command. The controversial nature of proposals that would reduce or eliminate economic growth will likely prevent the proposals from reaching even the status of political contention. When the onset of sustained economic contraction is generally perceived, investors will withdraw from financial markets. The resulting failure of the markets will make many necessary developments impossible to finance and will produce confusion and stasis in public corporations just when we need them to adapt to new circumstances.

The trap of taboo and incrementalism

The possibility of overshoot should have stimulated reform to prevent it many years ago. Instead, it seems likely that reform will never occur. Many informed people sense that our way of life cannot continue, but few understand the trapping effect of overshoot. Why? It's a simple and powerful concept from a well established discipline. It remains esoteric for no obvious reason. There are many influential interests that deny the importance of such ideas, but even committed and resourceful opposition cannot explain the complete marginalization of the issue. Why is there not more discussion of the destructive and doomed nature of unrestrained economic growth? Limits to Growth, the 1972 report to the Club of Rome, investigated economic growth and overshoot. Its initial popularity stimulated a subsequent widespread repudiation. The complete success of that repudiation is puzzling. Even environmentalists can be heard to repeat the refrain of the growth enthusiasts that the predictions of Limits to Growth failed to come true. Read the book again to locate the failed predictions. You won't find them, because they don't exist. The only predictions contained in Limits to Growth cannot fail before 2070.

Organized groups don't address the concerns of Limits to Growth because they cannot "sell" them. Discussion of radical reform repels many and attracts few. Catastrophic contingencies can be mentioned in public only at some risk of ridicule or ostracism. Most environmental organizations acknowledge these realities, and restrict themselves to limited "consciousness raising", or to conservation, recycling, the Kyoto protocol, or preserving tiny parts of the biosphere. None of these activities, even if temporarily successful, can alter the outcome of overshoot. Nor can they prevent entry to overshoot as long as the fundamental problems of excess population and unrestricted economic growth are not solved.

Environmental activists believe that non-alarming incremental improvements of awareness and "concern for the Earth" will eventually create political conditions in which more fundamental action will be possible. Unfortunately, the necessary reforms are intrinsically radical, and always will be. Vested interests will always oppose improved understanding of the fundamental problems, not always cynically. We must not limit our conception of vested interests to investors, captains of industry, and politicians who minimize and avoid controversies that are not forced on them. We must also count a wish for a new child as a vested interest—or a dream of a new car, or a new house, or college for the kids, or a raise in pay, or a career in advertising, or a secure retirement. Important psychological barriers stand in the way of understanding that dreams must be canceled and replaced by much more modest ambitions. The psychological barriers cannot be overcome by agreeing that the dreams are not threatened, but tacit agreement is implied when the taboo against "alarmism" is respected. Only epiphany or a shocking and credible threat will overcome those barriers. Epiphany is too rare to produce social change. That leaves the shocking and credible threat. Who, other than a few marginalized academics and some isolated commentators, would explain the overshoot trap to the public? Certainly not our "leaders". It might have been explained by organized activists, but organized activists become too quickly addicted to acquiring new followers and avoiding taboo by trimming alarming contingencies from their messages.

What to do

A catastrophic collapse of the economy and population of the world is more than likely. We cannot escape overshoot's trap. What should we do?

First, who are "we"? Until now I have used "we" to refer to all humanity. If we insist that "we're all in the same boat", we shall all drown, because the one boat will sink. Those who hope to preserve civilization must accept that it is likely to sink into chaos in much of the world. The survival of some elements of civilization will require lifeboats that can be constructed only from communities, regions, perhaps nations, that are not now in overshoot. To preserve civilization at least some of these must choose to stay out of overshoot, establish independence in the production of food, energy, materials, and crucial manufactured goods, and defend their borders against the migrations that will tend to spread overshoot everywhere.

This strategy may fail. The necessary awareness and resolve may not develop soon enough in any of those fortunate regions not already in overshoot. Awareness and resolve may be prevented by the very institutional and psychological mechanisms that have been described earlier in this essay. Regions with resolve may be prevented from implementing it by superior governments or by economically or militarily stronger trade partners. But those who argue for survival of a community may have a better chance of persuading their audience than had those who argued for better management of global population and resources. They will have the advantage of arguing at a time when less fortunate regions of the world have begun to provide both unmistakable examples and unmistakable threats.

There is a great need for a culture of guerilla relocalisation—a movement that would have as its goal to partially prepare communities so that they may coalesce more readily into autonomous regions when the need becomes apparent. Richard Douthwaite has discussed methods that would serve these goals in his book *Short Circuit*.

Overshoot and crash may so damage the biosphere and deplete other natural capital as to extinguish humanity, or to reduce humanity to a few bands of wandering hunter-gatherers. These possibilities are now beyond our control. We can only hope there will be enough world left to sustain at least a greatly reduced new civilization, and act to keep the final struggles of overshoot from precluding even that possibility.

End Notes

1) I first learned of the obstacle that productivity-improving innovations put in the way of proposals to limit economic growth from a post by Roger Arnold in the Energy Resources discussion group, <http://groups.yahoo.com/group/energyresources/>, January, 2005.

Readings

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- Matthew R. Simmons. 2000. Revisiting "The Limits to Growth"; could the Club of Rome have been correct, after all? An energy white paper. <http://www.simmonsco-intl.com/files/172.pdf>. Simmons and Co. 78 pages. Limits to Growth (LTG) made no predictions that can fail before 2070, the time horizon of its predictions. Far from being pessimistic, it predicted that the exponential growth it observed could be stopped in time to prevent catastrophe. The adverse trends it observed have continued unabated and unaddressed, proving LTG essentially correct in its understanding of the dynamics of the population and economy of the world. The 30 years of inattention to LTG's message have greatly increased the risk of catastrophe.
- Richard Douthwaite. 1996. The ecology of money. In *Schumacher Briefings No. 4*. Devon, England: Green Books, www.greenbooks.co.uk. 78 pages. A comparison of the properties of different kinds of money, of which debt based commercial money is the only one in common use. The different money systems are compared on their adequacy to serve the three key functions of money: as a medium of payment or exchange, as a store of value, and as a unit of account. The book argues that currency reform is needed to support sustainability. Conclusions: 1. All monies should be created by, or on behalf of, their users, and not by institutions wishing to profit from the activity. 2. Different types of currency have to be used concurrently if the three key functions of money are to be adequately performed. 3. The international unit-of-account currency, to which all other monies would be related, has to represent, and thus protect, a truly scarce resource. In other words, when we save money, we should also be saving something vitally important, like the integrity of the natural world.
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