Confronting the inevitable: Population reduction, voluntary and otherwise

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Editor's note: One can run into a good report on a critical subject, only to find the author has a deficit of understanding on peak oil, for example. Or one may encounter the delusion that population growth is a problem basically in "Third World" countries. Not with this new essay for Culture Change. Professor Ken Smail has put together the best argument for facing depopulation.

Its full title was Acknowledging and Confronting the Inevitable: A Significant Shrinkage in Global Human Numbers, and Other Inconvenient Truths. Some readers may find Ken's timing-scenario for depopulation optimistic -- picturing it further off into the future than the 21st century -- but he acknowledges its possibly being played out earlier due to today's "toxic brew" of crises.- JL

Assuming then, my postulata as granted, I say that the power of population is
indefinitely greater than the power in the earth to produce subsistence for man.

- Thomas Malthus (1798)

It has become increasingly apparent over the past half-century that there is a growing tension between two seemingly irreconcilable trends. On one hand, moderate to conservative demographic projections indicate that global human numbers will almost certainly reach 8 to 9 billion by mid-21st century, only two generations from the present. On the other, prudent and increasingly reliable scientific estimates suggest that the Earth's long-term sustainable human carrying capacity, at what might be defined as an “adequate” to “moderately comfortable” developed-world standard of living, may not be much greater than 2 to 3 billion. It may in fact be considerably less, perhaps in the 1 to 2 billion range, particularly if the normative life-style (level of consumption) aspired to is anywhere close to that currently characterizing the United States.

As a consequence of this modern-day “Malthusian dilemma,” it seems reasonable to suggest that it is now time -- indeed, past time -- to think boldly about the midrange future, and to consider alternatives that go beyond merely slowing the growth, or even the stabilization, of global human numbers. In this brief essay, I shall argue that it has now become necessary for the human species to develop and implement, as quickly as possible, a well conceived, clearly articulated, flexibly designed, broadly equitable, and internationally coordinated program focused on bringing about a very significant reduction in global human numbers over the next two or more centuries. In simple quantitative terms, this effort will likely require a global population “shrinkage” of at least two-thirds to three-fourths, from a probable mid-to-late 21st century “peak” in the 9 to 10 billion range to a future (23rd century and beyond) “population optimum” of not more than 2 to 3 billion, or perhaps even fewer.

Obviously, a demographic change of this magnitude, whether brought about by conscious human design or ultimately by forces beyond human control, will require a major reorientation of human thought, values, expectations, and lifestyle(s). Unfortunately, there is no guarantee that such a program will be successful. Moreover, if humanity fails in this effort, it seems likely that nature’s even harsher realities will almost certainly be imposed. Speaking as a professional physical anthropologist/human evolutionary biologist, it is entirely possible that this rapidly metastasizing -- yet still partly hidden -- demographic and environmental crisis could emerge as the greatest evolutionary/ecological “bottleneck” that our species has yet encountered.

Validating the Hypothesis

It is important to recognize that this admittedly controversial proposition -- that there must be a very significant reduction in global human numbers over the next two or three centuries -- is presented here in the form of a testable scientific hypothesis, one that is amenable not only to continued empirical confirmation but also to potential falsification. Specifically, this hypothesis may be quickly and easily rejected (i.e., empirically falsified) if it can clearly be demonstrated that ongoing estimates for global population size over the next few hundred years will not exceed what will presumably be increasingly accurate projections of both current and future optimal human carrying capacities.

However, this hypothesis is confirmed if future global population size continues to exceed (by a significant margin) these same carrying capacity estimates. Moreover, such confirmation would be true regardless of whether human numbers continue to grow at current rates, grow more slowly, stabilize, or even begin to decline. For example, even if future research shows that the 2 to 3 billion optimal carrying capacity utilized in this essay has been significantly underestimated (i.e., is “off-target” by a factor of two or more), the argument put forth here loses little if any of its persuasive power, nor is the above hypothesis in any way invalidated. The reason for this is simple. Even a global population optimum of 4 to 5 billion, approximately double the figure recommended here, would still necessitate a very

substantial reduction (of some 50% or more) from the 9-plus billion projected for the mid-to-late 21st century.

Notwithstanding the numerous difficulties in addressing a problem of such complexity, it is nonetheless surprising how little scientific and public attention has been directed toward establishing empirically quantifiable, scientifically testable, and socioculturally agreed-upon parameters for what the Earth's long-term human carrying capacity -- or flexibly defined "optimal population range" -- might actually be. Unfortunately, with only a few notable exceptions, many otherwise well-qualified scientific investigators and public policy analysts have been rather hesitant to take a clear and forthright position on this profoundly important matter, certainly destined to become the overarching issue of the current century.

It is difficult to say whether this unfortunate reticence is due to ingrained investigatory caution, concerns about professional reputation and advancement (particularly among younger investigators), the increasingly specialized structure of both the scientific and political enterprises, personal qualms about reaching conclusions that have potentially unpalatable social and political ramifications, or other unspecified (and perhaps deeply-rooted) ideological, moral, or religious reservations. Or perhaps, given its global nature and seemingly endless ramifications, the chief difficulty in dealing with the complex population/environment conundrum represents little more than a manifestation of "scale paralysis," that enervating sense of individual and collective powerlessness when confronted by problems whose magnitude seems overwhelming.

Certainly the rough approximations of global human carrying capacity put forth during the past century show considerable variation, ranging from fewer than 1 billion to well beyond 20 billion (an order of magnitude or more). It is, however, important to note that over the past two decades there have been a growing number of investigators and organizations who have put forth reasonably well-thought-out positions on future global population optimums. Interestingly enough, these estimates have all clustered in the 1 to 3 billion range. This is an important development, since it is patently obvious that it will be difficult to engender any sort of effective public response to the above-mentioned global crisis if future population goals (i.e., desired demographic optimums) continue to be imperfectly understood and poorly articulated.

Quite frankly, I hope the above hypothesis is wrong and that various demographic optimists are correct in their recent claims that human numbers will begin to show a "natural" stabilization and subsequent decline somewhat sooner than expected. Presumably, when this welcome demographic trend is coupled with "enhanced efficiencies" in energy production, resource utilization, and materials conservation, and is further reinforced by efforts toward significantly reduced per capita consumption levels (particularly in the developed world), it might allow for somewhat larger carrying capacities, or optimal population sizes, than we currently imagine.

But this sort of optimism is warranted only by corroborative data, that is, only if the above-mentioned "irreconcilable numbers" show unmistakable evidence of coming into much closer congruence. And it is now increasingly apparent that any such optimism should be further tempered by an honest and full consideration of the problems surrounding at least two other rapidly emerging (and converging) "inconvenient truths," global phenomena whose powerful downstream effects will undoubtedly become manifest within the next few decades:
(1) the broad-scale ecological and environmental consequences of ongoing "climate change," or increasing "climatic instability" (or more popularly, anthropogenic "global warming"). Based on the evidence provided by extensive scientific research and analysis over the past two decades, these wide-ranging climatic effects are empirically quite well-documented, certainly resting on an overwhelming "preponderance of evidence" as they come ever closer to the level of "beyond all reasonable doubt."

(2) the unpredictable consequences -- including the potential for widescale political, economic, and social destabilization -- of passing the global "production peak" of oil, gas, and coal. For it seems quite likely that the "post-carbon" world will very soon be engaged in a massive struggle to adapt to a steady and significant decline in the supply of cheap and abundant energy derived from fossil fuels (i.e., the aptly named "ancient sunlight," or "one-time bonanza," that for the past two centuries has fueled the exuberant growth of modern industrial/technological civilization).

More specifically, the evidence from recent "peak energy" research and analysis increasingly suggests that by the middle of the present century humanity could well be faced with a global population of some 9 billion, struggling to maintain -- or in several instances still trying to acquire -- some semblance of modern (first- world) civilization on but 1/4 to 1/3 of the oil and gas the world currently produces, exacerbated still further by a notable deficit of "proven" or "environmentally benign" energy substitutes (renewable or otherwise) on anywhere near the scale that would be necessary.

This of course is in addition to dealing with growing constraints and pressures due to other important "limiting factors:" the above-mentioned climatic instability (all too likely enhanced by increasingly heavy reliance on coal); availability of fresh water; adequate food supplies; ongoing topsoil degradation; shortages of various minerals and materials; continuing biodiversity and wilderness losses; enhanced geopolitical competition over essential resources; and the growing power and influence of various "non-state" actors.

Acknowledging Our Dilemma

Clearly, assertions that the Earth might be able to support a population of 10 to 15 billion people for an indefinite period of time at a standard of living superior to the present are not only cruelly misleading but almost certainly false. Notwithstanding our current addiction to continued and uninterrupted economic growth, surely the dominant political mantra of the 20th and early 21st centuries, it is essential for humanity to recognize that there are, after all, finite physical, biological and ecological limits to the Earth's long-term sustainable carrying capacity (i.e., the "natural capital" that supports us). And to recognize further that we are now drawing down on the principal, as well as the interest, of this precious "capital," as many of these finite limits have already been reached (and in a number of instances surpassed).

Consequently, since at some point in the not-too-distant future the negative ramifications and ecological damage stemming from the mutually reinforcing effects of excessive human reproduction and over-consumption of resources could well become irreversible, and because there is only one Earth with which to experiment, it would undoubtedly be better for our species to err on the side of prudence, exercising wherever possible a cautious and careful stewardship.

Perhaps it is time to suggest that the burden of proof on these matters, so long shouldered by so-called "neo-Malthusian pessimists," be increasingly shifted to the "cornucopian optimists." In other words, for those who might be inclined to ignore (or summarily reject) the hypothesis put forth here, the scientific "burden of proof" should be quite clear: What is the evidence that the Earth can withstand -- without irreparable damage -- another two or more centuries during which global human numbers and per capita consumption greatly exceed the Earth's optimal (sustainable) carrying capacity?

In any event, having established in this essay a "quantifiable and falsifiable" frame of reference, it seems obvious that it is now time to go one step further, and at the very least begin to make the case that current rhetoric about "slowing the growth," or even the "stabilization," of global human numbers is clearly insufficient to the task that lies before us. Quite simply, both the empirical data and inexorable logic suggest with increasing clarity that what will be required for the foreseeable future -- the "default position" for the next two or three centuries -- is a very significant reduction in global human numbers.

Admittedly, this presents a vexing "temporal disconnect" that may be difficult (perhaps even impossible) to resolve, particularly in a manner that will be perceived as equitable, voluntary, and humane. It seems all too likely that the period of time -- two centuries or more -- that will be minimally necessary for population stabilization and subsequent significant reduction, eventually to a desired "global optimum" in the 1 to 3 billion range, is clearly inconsistent with the much more "restricted" time frame suggested by the rapidly swelling chorus of those who project significant fossil-energy production declines, and steadily growing problems associated with global climatic change, appearing within the next generation or two. I refer here to the distinct possibility of an environmental "critical threshold," or quasi-evolutionary "bottleneck," or cascading political, economic, and social "breakdown," or global "synchronous failure," all emerging over the next several decades (by mid-century or before), while demographic momentum remains an active force and global human numbers continue to increase.

I am therefore only cautiously optimistic that the human species will be able successfully to confront the complex and interrelated problems we have managed to create for ourselves -- what some have begun to characterize as an ecological, economic, political, sociocultural, and moral "perfect storm." In fact, when I see how little traction various mitigating (or ameliorative) efforts have gained over the past 30 to 40 years, I have become increasingly pessimistic that humanity -- potentially some 9-plus billion of us within our children's and grandchildren's lifetimes -- will be successful in staving off some very difficult times over the next several generations (throughout the 21st century and beyond).

Put bluntly, the synergistic combination of declining "post-peak" energy supplies (and other essential resources), a still growing global population, increasingly apparent finite limits on food production and the availability of fresh water, unpredictable and likely deleterious climatic instability, potentially destabilizing challenges from various (non-state) terrorist organizations, and increasingly massive (and largely uncontrolled) 3rd world to 1st world patterns of human migration, is surely a "toxic brew."

And it certainly doesn't help that this deteriorating state of affairs -- with a few notable exceptions -- has been further exacerbated by a generalized lack of political, economic, social, and moral foresight and cooperation on both a national and a global level, not to mention a recalcitrant human nature all too prone to both individual and collective denial. Nevertheless, to the extent that humans universally share a deep-rooted and powerful "investment in immortality" -- however we might individually or collectively choose to define it -- it is essential that we keep trying to bias the future in a positive direction.

Final Thoughts

And so, the crucial question... Is it naive to suggest that the evidence is now sufficiently convincing that a "critical mass" of concerned and motivated investigators should quickly begin to put together a serious, legitimate, and empirically well-documented case for what appears to be a rapidly emerging global catastrophe? If so, it would certainly become much easier -- or more "palatable" -- for still other scientists, as well as environmentalists,

politicians, economists, moralists, and other concerned citizens of the planet, to speak forthrightly and with ever greater confidence about humanity's responsibility to rapidly and resolutely address this burgeoning existential crisis. Surely it is essential that elected public officials, civil servants at all levels of government, academics from a broad range of disciplines, representatives of the news media, religious leaders from all the major faith traditions, and spokespersons for national and international environmental organizations not feel as though they are committing political, professional, or moral suicide by bringing these matters to public attention. For time is becoming increasingly precious, and our “window of opportunity” for effective remedial action may be quite short, if it has not already passed.

I very much hope that this all-too-brief essay has helped to clarify an important and often underappreciated point: that ongoing population growth has a significant influence on, or connection with, nearly every other issue that humanity currently faces. I hope it is also obvious that this influence is both reciprocal and mutually reinforcing, resulting in numerous and interconnected positive feedback (or deviation amplifying) systems and subsystems, many of which are imperfectly understood. It may thus be entirely appropriate to characterize the 20th and early 21st centuries’ rapid and continuing population expansion as the critical factor underlying many, if not most, of our species’ growing political, economic, social, environmental, and moral difficulties.

Until demonstrated otherwise, I would therefore argue that unchecked or “insufficiently restrained” population growth should perhaps be considered the single most important feature in an admittedly complex (and synergistic) physical, ecological, biocultural and sociopolitical landscape. It should by now be unassailable that the limitation of human population size, and subsequently confronting the numerous problems that will be engendered by its eventual and inevitable contraction, should occupy a central position within the “modern problematique,” and as such should be dealt with much more forthrightly, and much more promptly, than has heretofore been the case.

More than half a century ago, at the dawn of the nuclear age, Albert Einstein suggested that we shall require a new manner of thinking, if humankind is to survive. Even though the aptly named “population explosion” is neither as instantaneous nor as spectacular as its nuclear counterpart, its ultimate consequences may be just as real (and potentially just as devastating) as the so-called “nuclear winter” scenarios promulgated in the early 1980s.

That there will be a large-scale reduction in global human numbers over the next two or three centuries appears to be inevitable. The primary issue may well be whether this lengthy and difficult process will be comparatively benign or unpredictably chaotic. More specifically, is modern humanity capable of a comprehensive organized effort to compassionately reduce global human numbers, or will brutal self-interest prevail -- either haphazardly or selectively -- resulting in an unprecedented toll of human lives? Clearly, we must begin our "new manner of thinking" about this critically important issue now, so that Einstein's prescient and very legitimate concerns about human (and civilizational) survival into the 21st century and beyond may be addressed as rapidly, as fully, and as humanely as possible.

Don’t speak to me of shortage. My world is vast

And has more than enough -- for no more than enough.

There is a shortage of nothing, save will and wisdom;

But there is a longage of people.

- Garrett Hardin (1975)

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