An Epic Struggle

Sustainability and the emergence of a new social contract

by John Cairns, Jr.

Abstract

Human society is addicted to growth on a finite planet. As is often the case for psychological dependence, contrary evidence is ignored and wishes are confused with reality. When Malthus noted that exponential growth of the human population was a major problem, he was ridiculed and scorned -- a practice that has continued for two centuries. Those who believe in infinite substitutability of resources show no concern for the concept of sustainable use of the planet. This assertion has been termed *exemptionalism,* which holds that human ingenuity and technology provide continuing opportunity for economic growth and solutions for limits to growth; that economic activities create more than they destroy; and that the history of the world refutes claims of limits to growth, carrying capacity, and other assumptions of dependence on organic, natural systems. The opposing view, *environmentalism,* asserts that *Homo sapiens* is basically just another biological species that is tightly controlled by biophysical laws, despite its unique ability to modify natural systems more than any other species. Others believe that sustainability can be achieved by relatively modest changes in the present system. None of these groups has paid sufficient attention to the consequences of exponential growth of' either human population or affluence. If human society continues on the present path — as many advocate — and this direction turns out to be wrong, cataclysmic events are highly probable. This scenario justifies the application of the term *epic,* since the transition will be traumatic rather than comfortable. The widespread expectation of economic growth rates of no less than 7 percent annually for some countries and no less than 10 percent for some industries simply cannot continue in a finite world. Some contrasting illustrative choices are provided here as a preliminary effort toward the development of a new social contract on the relationship of human society and natural systems.

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The more optimistic the prediction the greater is the probability that it is based on faulty arithmetic or on no arithmetic at all.

—Bartlett (1994)

Bartlett (1997-98) is arguably the most outspoken critic of the loose, imprecise use of the term *sustainability:*

> *And so we have a spectrum of uses of the term "sustainable." At one end of the spectrum, the term is used with precision by people who are introducing new concepts as a consequence of thinking profoundly about the long-term future of the human race. In the middle of the spectrum, the term is simply added as a modifier to the names and titles of very beneficial studies in efficiency, etc. that have been in progress for years. Near the other end of the spectrum, the term is used as a placebo. In some cases the term may be used mindlessly (or possibly with the intent to deceive) in order to try to shed a favorable light on continuing activities that may or may not be capable of continuing for long periods of time. At the very far end of the spectrum, we see the term used in a way that is oxymoronic* (p.7).

Development is customarily associated with growth. Sustainable development implies to many that minor adjustments in societal behavior are all that is needed to permit indefinite increases in the use of the planet. The

tendency to discuss sustainability by components (e.g., sustainable agriculture, sustainable cities, sustainable transportation) leaves the impression that the status quo of each particular category will not be threatened, and it suggests that these are independent of each other. Even my favorite terminology, *sustainable use of the planet,* implies mainly human use, not necessarily use by other species.

Because achievement of sustainable use of the planet will require a major commitment of a significant majority of humans and political entities, there has been a reluctance to acknowledge the epic nature of the ideological struggle now underway. Although minimally poetic, the struggle is certainly of great size/extent both temporally and spatially. The components of an epic are present in the struggle between human society and other species for limited space and resources of a finite planet. The irony is that we appear to be dependent (exemptionalists would disagree) upon an ecological life support system made up primarily by other species that need a significant portion of these resources to continue functioning. The classical components of an epic struggle in this context follow: (1) cataclysm — loss and fragmentation of ecosystems and species impoverishment/social disruption, (2) rebirth — ecological restoration, and (3) heroines and heroes — e.g., Rachel Carson, Aldo Leopold, Edward O. Wilson. (During a visit to Virginia Tech in 1996, Norman Myers stated that the generation developing a harmonious relationship with natural systems will be viewed as heroic figures, as well they should.) Ecological restoration is a major component of this relationship (Cairns, 1994) because it is human society's partial atonement for the damage it has done to natural systems. This attempt to restore mitigates, to a degree, the harsh penalties exacted when one attempts to circumvent the laws of nature. Ironically, much of our research and technology are designed to avoid natural law.

The Epic Struggle

This epic struggle is not about the survival of nature, because many species will persist regardless of human society's practices. Much biological damage will be done, as in past major extinctions, but life will endure. Instead, the epic struggle concerns the survival of human society if the ecological life support system is badly damaged and the ecological island Earth becomes a far less hospitable environment for *Homo sapiens.* Biological diversification and concomitant ecological recovery, unaided by humans, have followed past major extinctions, but have required millions of years. Ehrlich and Ehrlich (1981) note Peter Raven's estimate that for every plant that vanishes, 10 to 30 other organisms go down with it. Thus, the ecological life support system could collapse rather quickly.

There is a second epic struggle concerning sustainable use of the planet that is not the focus of this discussion, but which deserves mention. Planning for the well-being of remote descendants forces each person to confront mortality. Many people fear making a will for this reason. Discussing the idea of leaving a habitable planet for remote descendants involves considering a future that does not include everyone, and this concept is frightening, arguably unthinkable, for many. It is important that the epic struggle to confront mortality not override the analysis of the other epic struggle that is the focus of this discussion.

Huxley (1957) describes humans as "evolution become conscious of itself." Surely this revelation includes an acknowledgment both of human society's dependence on other species and the cruelty of driving many other species to extinction to satisfy short-term perceived human economic needs! But traditionally, this admission is not the case.

What value system should human society use to deal with the following situation? As human population approaches 6 billion, there are tiny numbers of whooping cranes in North America, giant pandas in China, or golden lion tamarins in Brazil. And, these endangered species are the exceptions because most species are gone forever before human society even knows how they lived. Many species have not even been named. Should they be mourned less when they vanish because human society did not take the time to know them? Does ignorance of the consequences of their loss protect human society from risks? Does a callousness toward the fate of other life-forms presage a similar indifference toward members of the human species that are unknown and cannot be called by name? I would answer "yes" to this last question and note that population growth increases our indifference to the welfare of other humans. These illustrative questions are raised as a reaction to present exemptionalist beliefs (the belief that humans are exempt from the laws of nature because of the omnipotence of science and technology), which threaten the ability of humankind to leave a habitable

Table 1

Factors affecting population (Bartlett, 1994). Nature chooses from the right-hand column; people choose from the left-hand column.

Factors Increasing Population[1]	Factors Decreasing Population
procreation	*abstinence*[2]
motherhood	contraception
large families	abortion
immigration	small families
medicine	halting immigration
public health	disease
sanitation	war
peace	murder/violence
law and order	famine
scientific agriculture	accidents
accident prevention	pollution
(55 mph speed limit)	(cigarette smoking)
clean air	
ignorance of the problem	

[1] Many of the activities in the left-hand column are subsidized with taxpayer money (my comment, not Bartlett's). For details, see Myers and Kent (1998).
[2] Added by Cairns, with Bartlett's approval.

planet for future generations. The "epic struggle" may result in a major paradigm shift. We are experiencing one of the greatest ecological dramas of all time, but we are missing the play because we are all bit players on the stage! As the human population continues to grow, each of us becomes a smaller part of the expanding whole.

The Cause of the Epic Struggle

The continuing economic growth paradigm touted by most elected officials, chambers of commerce, and the like is arguably the choice social contract of this era. The growth paradigm seems to be accepted by most citizens — probably because it is the only way of life that our political "leaders" espouse. Two growth areas cry out for attention: (1) growth of populations and (2) growth of per capita consumption of resources. The Public Television specials "Affluenza" and "Escape from Affluenza" document the way many lives are dominated by the quest for material goods, but show clearly that many people are deeply concerned about the effects of consumerism on their own lives and the environment. (It seems ironic that videos of both programs could be purchased with credit cards, which exacerbate affluenza!)

One book on alternative lifestyles is the pioneering work of Helen and Scott Nearing (1979). I had the pleasure of hearing them lecture at the Philadelphia Ethical Culture Society in the 1950s and 1960s on their seminal book, *Living the Good Life*. An illustrative recent book has been written by Luhrs (1997), who also publishes *The Simple Living Journal* (Box 149, Seattle, WA 98103). In addition, what has been lost from the past is beautifully described in Brower's (1990) autobiography. Neither he nor I deplore the technological advances that extend productive life (e.g., bypass heart surgery or blood pressure and diabetes control), but we do deplore ravaging nature for more and more material goods.

The New Social Contract

A new, desperately needed social contract governing human society's relationship with natural systems should be explicitly stated and should also ensure that future generations have at least the same opportunities to enjoy natural systems as the present generation: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on the Environment and Development, 1987). The contract could even go further and embark on an era of ecological restoration that would provide even better opportunities to enjoy natural systems than those of the present — approaching those Brower (1990) enjoyed in his early years. Cairns (1995) speculates that the integrity of ecosytems might be approximated by examining the practices of the human society inhabiting them. In short, much of their fate depends on human behavior.

Human society cannot achieve any of these goals if the number of humans on the planet keeps increasing and if economic growth (as now experienced) continues, unless humans are exempt from the biophysical laws of nature that apply to all other species, which, of course, they are not! There is persuasive reason for this belief. Natural systems have breakpoints or thresholds just as do elevators, bridges, electric power grids, etc. Until the threshold is crossed, all appears well. The problem is further complicated because thresholds are not fixed but modified by an array of other factors. Thresholds are

recognized for humans in high stress professions (thus, such sayings as "the straw that broke the camel's back"). Technology has modified these biophysical laws by finding ways around them or substituting resources, etc., which some people interpret as abolishing or repealing the biophysical laws. This idea is an unfortunate interpretation and has scanty supporting evidence.

A new social contract (as always, I gratefully acknowledge the inspiration furnished by the Natural Step Program) governing human society's pledge to esteem other species with which it shares the planet and its common ecological life support system follows.

1. We will immediately balance ecological destruction and repair. This action is the only way to leave a habitable planet for our descendants.

2. The health of humans depends on the health of ecosystems. We affirm that other species have a right to a sufficient share of the planet's resources, including space, to ensure their survival. As a minimum, we pledge that ecosystem health will not be further impaired.

3. The owner of land is responsible for off-site damages that may result from activities carried out on the land.

4. Environmental debates should be on a level playing field. Politicians maintain that society can have growth and still save the environment if environ-mentalists will just compromise — read "give up." However, developers and environmentalists never debate as equals. The developers want to destroy a lot of the environment while the environmentalists want no destruction. If they debated as equals, the developer would say "I want to build this shopping center," and the environmentalist would say "Fine, take out that subdivision and restore nature on that site, then you can build your shopping center." Such a debate would be between equals — it never happens this way (Bartlett, 1994).

5. We pledge that the health and condition of the planet for both human society and natural systems will take precedence over affluenza (the addictive, never-satisfied quest for possessions).

6. We pledge to examine vigorously any claims of benefits for continued population growth of any kind.

7. We pledge to view exponential growth (as now understood) as a mechanism for increasing the imbalance of resource distribution both among human generations and among species.

8. We pledge to restore ecological capital (e.g., old growth forests, topsoil, quality water resources) at a rate substantively in excess of depletion rates.

Surely something this beneficial to future generations should be possible in a democracy.

Indices of Happiness, Misery, Sustainability, and Compassion

As I was completing the first draft of this manuscript, I received a call from a scientist in one of the government agencies asking about a Gross National Happiness Index (GNHI) that had come to my attention when Tashi Wangchuck, a citizen of Bhutan, was taking my field course on restoration ecology at Rocky Mountain Biological Laboratory in Colorado (Cairns, 1993). Tashi told me then that the concept could not easily be conveyed from one language to another and one culture to another. We were discussing Gross National Product (GNP), which would be increased if a hydroelectric power dam were constructed in Bhutan, but that such an activity might well not result in a concomitant rise in the GNHI of Bhutan. I recalled a proverb that happiness is like a butterfly; pursue it and it is exceedingly elusive; but sit quietly and it may light on your shoulder.

I think the point that Tashi was making is that happiness is not as quantifiable as the Dow Jones industrial average. Additionally, happiness in the American culture may be dominated by whether one possesses the latest computer hardware and software (if conversations in a university town are a good criterion) or, for the younger generation, possession of the fanciest automobile. But in Bhutan, although they have roads, most people walk and they are not yet, if pictures are any indication, a bicycle culture as is the People's Republic of China and as we are an automobile culture. Happiness in Bhutan may be brought on by the arrival of cranes to the aquatic ecosystems near the monastery, whereas happiness in the American culture may be standing behind a rope and screaming at the television camera on

Table 2

Illustrative choices that will hamper or facilitate sustainable use of the planet.

1. Born to shop	1. Simple living
2. Exponential growth of resource use	2. Exponential growth of resource use
3. Flagrant individualism	3. Community spirit
4. Misery as the primary means of human population control (e.g. Boulding, 1971)	4. An enlightened social contract as the primary means of population control
5. Live for the moment	5. Compassion for future generations
6. Technology and ingenuity to free humans from natural laws	6.Acknowledgment of human dependence on ecological life support systems
7. Species extinction, if it actually occurs, does not bother me	7. Humans have an ethical and moral responsibility to cease anthropogenic extinction of other species
8. Economic development can and should raise all humans to the U.S. per capita level of affluence	8.The planet cannot support Earth's present population at the U.S. per capita level of affluence
9. Nobody can tell me what to do on my property	9. Property owners should be financially responsible for ecological damage resulting from their management practices
10. With low oil and coal prices, why spend money on alternative energy sources?	10. Solar and other alternative energy sources should be developed at an accelerated rate
11. No sharing of resources until human needs are fully satisfied	11. We should share resources equitably with other species — now
12. It is my right to drive wherever I please and own as many cars as I can afford	12. Environmentally, mass transit is essential for sustainable use of the planet

one of the early morning TV shows.

The question is how human society can re-think its "mythologies" about the natural world in light of growth patterns never envisioned in the earlier, and still commonly accepted, world views. In a very real sense, it is a call for a paradigm shift, especially in the Western scheme of things, toward a position more compatible with Eastern religions/philosophies by putting aside for the moment the economic growth paradigm that now seems global.

Specifically, in the Eastern view (Hindu, Buddhist, etc.), the biosphere is part and parcel of the entire creation, which is inhabited by all sorts of life-forms. No one species can dissociate itself from the entire system, since life is a continuum in space and time, encompassing the "lowest" to "highest" life over a large span of time. Life-forms change state and status over time, but the universe continues to embrace them all. On this continuum, there are no hard division lines between humans and other animals, or even between animals and plants. Life migrates from one stage to another, depending on the degree to which it has conformed to its inherent role in the whole — a good ant can progress "upward" in the scale; a bad human can sink to a "lower" form of life. All actions have inevitable consequences at some point in time, although it may not be apparent to humans just when these consequences will become evident. Ignoring pedestrian crossovers may or may not get one caught by the police; however, violating laws will affect future driving habits. Not getting caught leads to the belief that the violation has no consequences. Getting caught may lead to better driving habits or a letter to the editor condemning the police. In short, the Eastern paradigm sees a more interrelated universe, closer to the ecological model, than the Western version, closer to the economic growth model.

For Westerners (Jewish-Christian-Muslim), the biosphere is a backdrop for human activity (e.g., "subdue the earth") intended for human use because humans are a unique species. Only humans have the ability to make something new from existing materials. Some Easterners believe that human creativity and technology free us from the laws of nature that limit other species. Charles A. Kennedy (personal communication) notes that the word *paradise* borrows its meaning from the Persian formal gardens, related to the Mughal gardens of India, as well as the formal gardens of Europe. It is a fabricated garden, rigidly ordered, not a wild habitat.

Acknowledging our dependence on natural systems and penalties for violating natural law (the judgment motif) is ignored these days as a "gloom and doom" mentality. The idea of accountability and responsibility for actions is not very popular in an era of individual rights and freedom. But, the idea of infinite growth on a finite planet is untenable. Sooner or later, there will be an accounting. Elected officials, corporate executives, and many individuals hope that all the consequences will occur after they are out of office or dead. Here is where the notion of community needs to extend intergenerationally.

Arguably, this continuing debate began 200 years ago with Malthus' insightful publication. The basic problem is human population and affluence. In my opinion, the most difficult opposition comes from the "diverters." Bartlett (1998) notes that debaters of Malthus' theory could be divided into two camps: (1) believers and (2) critics, which include (a) nonbelievers and (b) diverters. The diverters he, in turn, divides into three groups:

> *The "other causes" group would have people believe that the problems of population growth are best addressed not by looking at the numbers, but by focusing our attention on other things.*
>
> *The sustainers try to convince people that we need not worry about population because "sustainable development" will solve the problems.*
>
> *The "them/not us" group seeks to divert attention away from the population problem in the United States and focus people's attention on the growth of populations elsewhere.*

The last point uses "elsewhere" to assign the consequences of the world's environmental crises to the nations with very high birth rates, conveniently ignoring the amount of the world's energy used by the United States and many other developed countries. These diversionary or marginalizing tactics have been used for environmental problems in general. Orr and Ehrenfeld (1995) believe that human society is in a state of denial about ecological problems, while Ehrlich and Ehrlich (1996) believe that there has been a substantive betrayal of science and reason. Both of these perceptions are probably operative and not mutually exclusive. Unfortunately, there is no clinic that human society can visit to solve these problems; a new social contract must be a self-healing process!

Conclusion

Few people faced reality as unblinkingly as the late Kenneth E. Boulding (1971)! I had the privilege of sitting beside him at a conference, which was eventually summarized in his "Ballad of Ecological Awareness" (Boulding, 1969). A small portion follows (with permission from Doubleday & Company, New York).

> *Development will conquer the diseases of the poor*
> *By spraying all the houses and by putting in the sewer.*
> *And we'll know we have success in our developmental pitch,*
> *When everybody dies from the diseases of the rich.*

These four lines humorously describe today's situation, although it is nearly three decades since they were first written. Also, Boulding (1971) offers three theorems on human population limitations as follows.

> *First Theorem: The Dismal Theorem*
>
> *If the only ultimate check on the growth of population is misery, then the population will grow until it is miserable enough to stop its*

growth.

Second Theorem: The Utterly Dismal Theorem

This theorem states that any technical improvement can only relieve misery for a while, for so long as misery is the only check on population, the [technical] improvement will enable population to grow, and will soon enable more people to live in misery than before. The final result of [technical] improvements, therefore, is to increase the equilibrium population which is to increase the sum total of human misery.

Third Theorem: The Moderately Cheerful Form of the Dismal Theorem

Fortunately it is not too difficult to restate the Dismal Theorem in a moderately cheerful form, which states that if something else, other than misery and starvation, can be found which will keep a prosperous population in check, the population does not have to grow until it is miserable and starves, and it can be stably prosperous.

As Boulding noted at that time, the moderately cheerful form of the dismal theorem remains a question mark. (We now refer to the cheerful form of the dismal theorem as sustainable development, sustainability, sustainable use of the planet, etc.) We know that misery can surely be as effective today as it was when Boulding originally proposed the three theorems, but we hope, in our quest for sustainability, that a new social contract using intelligence guided by reason and scientific evidence will do so with less suffering. Whether we have the will to change or whether those who call attention to the planet's carrying capacity, resource exhaustion, destruction of ecological capital, and the like will be regarded as "enemies of the people" (as Ibsen's play "An Enemy of the People" [Fjelde, 1965] so vividly described) remains to be seen.

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