

# **The End of the World, and the New World Order**

Joseph George Caldwell, PhD

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## I. Introduction and Summary

This article discusses the end of the industrial age on planet Earth. It describes why it will happen and how it is likely to happen. It identifies a better system of planetary management and ways for increasing the likelihood that it is implemented after the industrial age is over.

The article assesses the current planetary situation (“state of the world”), in which large human numbers and industrial activity are destroying the biosphere and causing a mass species extinction, and it describes what will happen if current trends continue. It examines the relationship of industrial production to energy availability, and concludes that the era of global industrialization will end within a few decades, as global fossil fuel reserves exhaust. When the industrial age comes to an end – either because fossil fuels run out or because of some sort of catastrophe such as global nuclear war – global human population will drop to the same levels as before the industrial age, i.e., to a few hundred million or less.

If the industrial age continues at its present level of activity until fossil fuels exhaust, many of the biosphere’s species will be made extinct, and the risk increases that a catastrophic collapse of the biosphere (or at least a major change in the “balance of nature”) will occur. The article examines a number of different ways in which the industrial age might come to a catastrophic end prior to the exhaustion of global fossil fuel reserves. It concludes that global nuclear war is probably the most likely means, and it describes the likelihood of occurrence and expected consequences of global nuclear war.

The article explores alternatives to the current system of planetary management, under which the biosphere is being radically altered. It describes a human population size and composition (a “minimal-regret” population) that is “environmentally friendly,” i.e., that keeps the impact of human activity low and thereby reduces the likelihood of extinction of mankind and other species from human activities. It identifies and discusses alternative planetary management paradigms that will promote the long-term survival of the biosphere (as we know it) and mankind. It identifies and discusses strategies for reducing the damage that the industrial age will cause to the biosphere prior to its demise, and for increasing the likelihood that a preferred planetary management paradigm is implemented after its end.

This article draws on and *summarizes* material that is presented in detail at Internet web sites <http://www.foundation.bw> and <http://www.foundationwebsite.org>. It synthesizes the book, *Can America Survive?* (Reference 1), an on-line version of which is available at the Foundation web sites. That book contains detailed discussion of the concepts discussed here, and an extensive bibliography. The primary data source for the points made in this article is the World Bank’s *World Development Indicators* CD-ROM. Other data sources are cited in *Can America Survive?* This article does not present detailed documentation or arguments in support of its observations, conclusions and recommendations – it is a *summary* of results that are presented in detail at the Foundation web sites.

(This article is an update of an earlier article entitled, "On Human Population, Global Nuclear War, and the Survival of Planet Earth," written in 2000. It has been expanded to include some additional discussion of catastrophes other than global nuclear war, and to include mention of alternative paradigms for planetary management.)

## II. The State of the World

The state of the world is disastrous. The planet is currently experiencing the greatest mass extinction of species since the time of the dinosaurs, 65 million years ago, and it is being caused solely by mankind's massive numbers and industrial activity. Most of the species extinction is being caused by rampant destruction of forests and wildlife habitat. In other cases, species are being deliberately singled out for destruction, as in the case of rhinoceros horn (for Yemeni dagger handles), or tigers (for Chinese medicine), or whales (for Japanese whale-meat shops).

Industrial gasses are poisoning the atmosphere to such an extent that the ozone layer that protects all biological life from extreme radiation is being destroyed. These gasses are contributing to global warming. Signs of global warming are dramatic and ubiquitous; see the web site <http://www.climatehotmap.org> for a description of the global-warming picture. Mankind's large numbers and industrial activity are causing such great changes to the atmosphere that it is conceivable that all life on the planet's surface could be extinguished in a relatively short time.

Apart from the possibility that present human numbers and activity risk catastrophic destruction of the planet's biosphere, the human species is at the very least causing a tremendous change in the planet's biodiversity. Of the estimated 5-30 million species on the planet's surface, an estimated 30,000 are being exterminated every year. The naturalist Edward O. Wilson has estimated that if the current rate of extinction continues, half the Earth's plant and animal species will disappear by the end of the twenty-first century. With each passing year, the world becomes a less and less varied and interesting place to be. With each passing year, mankind is disturbing to a greater degree the balance of nature in the biosphere in which it evolved over millions of years, increasing the risk of precipitating major planetary changes and its own extinction.

For details on the current state of the world, refer to the annual Worldwatch Institute publication, *State of the World*, or the World Resources Institute's annual publication, *World Resources*.

In summary, mankind's large numbers and industrial activity are causing the extinction of large numbers of other species, and could lead quickly to the biological death of the planet. This destruction began with the advent of modern technology several centuries ago, and accelerated tremendously with the advent of the petroleum age. The human population continues to grow by about 1.3 - 1.4 percent a year, and economic activity (industrial production) is increasing by about three percent per year. Ecologically diverse forests are being destroyed at the rate of 16 million hectares per year. The pace of the destruction is relentless.

### **III. Current Trends, and What Will Happen if They Continue**

World human population is exploding. It passed the six billion mark in 1999, and it increases by about 80 million every year. In many regions of the world, the human population is increasing at horrific rates, and it will continue to do so because birth rates are very high – much higher than the “replacement” level of just over two children per woman in her lifetime. Birth rates are dropping in many regions, but very slowly, and rarely to replacement levels. Current estimates by the United Nations and the World Bank are that the world population will continue to increase for decades, even if human birth rates were to drop rapidly to replacement levels everywhere. Under the most optimistic assumptions about fertility declines, the human population will increase to perhaps nine billion people. If birth rates do not drop to replacement level, the population will continue to soar.

History offers no cause for optimism that the human population explosion will spare any portion of the world. Underdeveloped nations continue to grow in population until they simply run out of natural resources and cause total destruction of their forests and wildlife. Most developed industrial nations continue to grow in population at about one-half of one percent per year. They strive for maximum and sustained economic growth, regardless of consequences to the local environment or the planet’s ecological well-being.

The world’s forests are where many plant and animal species survive, and it is the destruction of forests that is causing much of the ongoing species extinction. About 94 percent of the forest that existed just sixty years ago has been destroyed. In the past 20 years, forests have disappeared in 25 countries. At these rates, most of Earth’s forest cover will soon be gone. As human population continues to increase, the demand for wood products and land will increase, so that the destruction of the shrinking forests will accelerate.

From the point of view of destruction of Earth’s natural resources, the US population is the most destructive nation on Earth, since its industrial activity is the largest. Its population is large and its industrial production per person is one of the highest in the world. Its per capita commercial energy consumption is one of the highest in the world. Although birth rates for the US white population fell to replacement level years ago, US population growth continues to soar by about three million (one percent) a year, due in large part to immigration. For each new resident added to the country, about an acre of land is taken permanently out of wildlife habitat or agricultural production. The US has no plans to reduce its per capita energy consumption, or reduce its industrial production per capita, or reduce its population. Its policy, quite the contrary, is to increase both the population and the per capita industrial production as fast as possible, regardless of the consequences to the planet’s biosphere. Every year, it strives to increase its population size, expand industrial production, and push the standard of living ever higher, imposing an ever-greater burden on the planet’s biosphere and driving more species to extinction.

All nations of the Earth strive for increased economic and industrial activity. Perhaps the simplest readily available measure of industrial activity is the amount of commercial energy consumed, which is usually measured in terms of kilograms of oil equivalent (kgoe) per capita per annum. Over the past few decades, the commercial energy

consumption of the planet has increased at an average rate of about three percent a year, somewhat less in recent years. Note that this is about the same as the rate of increase of economic activity as measured by the standard measure, gross domestic product (GDP). Without energy, there is no industrial activity. See web site <http://www.dieoff.com> for much information on the relationship of energy availability to economic production.

At the present time, about one-sixth of the planet's population has a high level of industrial production, and the rest of the population is striving to achieve high levels also. What this means is that, in the absence of war or other phenomena to reduce industrial capacity and activity, the level of industrial production will continue to increase even if the human population tapers off. The annual GDP per capita of the richest nations is on the order of about \$25,000 (GNP per capita, purchasing-power-parity (PPP), current international \$), whereas for poor countries it is about \$2,000 per year. The world average is about \$6,000. At a growth rate (in industrial production) of three percent a year, it would take the rest of the world about fifty years to catch up to where the developed countries are today. This means that even if the human population were to level off by 2050, global industrial production would continue to increase throughout this period, even if the developed nations "stood still" and the poorer nations just tried to catch up. Given the commitment of all nations to the increased standards of living associated with increased industrial production, global industrial production is bound to continue to soar as poor countries strive to become rich, even if population levels off. Under the current world order, industrial production will continue to soar to higher and higher levels, and the massive destruction of the environment that is caused by industrial activity will intensify.

In summary, even under the wildest assumptions about decreasing fertility rates, human population levels will continue to rise, and industrial activity will soar exponentially, for generations to come. The destruction to the biosphere will continue unabated. The planet's biosphere and biodiversity – already reeling from mankind's assault – are doomed.

Unless radical change happens.

## **IV. What Can Halt Mankind's Destruction of the Biosphere?**

What can change things? What can halt the rapid destruction of the world's forests, atmosphere, oceans, and species by human overpopulation and global industrialization? Well, any of a number of things. A large asteroid might hit the planet, as is believed to have occurred 65 million years ago when the dinosaurs disappeared. The atmosphere becomes so filled with dust that sunlight is blocked out for days or weeks. Many of the planet's plant and animal species are destroyed. Food is gone and large animals perish. Massive volcanic activity could accomplish the same end. The problem with both of these eventualities is that they accomplish the same result as mankind's current overpopulation and global industrialization – the destruction of the biosphere and mass species extinction.

How about famine? As long as fossil fuels hold out, it does not appear that famine will halt the human population explosion. The world can easily feed nine billion, just by converting all forests to cropland and eliminating meat from the human diet (i.e., use cereal grains for human consumption, rather than for animal feed). The world can continue to feed billions of people, however, only as long as fossil fuels hold out. The world's petroleum and natural gas reserves will be exhausted by 2050 (coal will last somewhat longer), and solar energy can support only about 200-500 million people. When fossil fuels are gone, the era of global industrialization and large human populations will be over. The human population will indeed drop, but by the time that that happens, mass extinction of the biosphere's species will have taken place.

There is continuing debate over whether a suitable energy alternative might be found to replace the energy from oil, as it runs out. As discussed in Reference 1, there is little evidence, and certainly no compelling evidence, that a comparable substitute will be found. Moreover, from the point of view of the health of the biosphere, it would be very unfortunate if a substitute energy source *were* found. The mass species extinction started in full force at about the beginning of the petroleum age (ca. 1950), i.e., when mankind, numbering in the billions and armed with modern high-energy-consumption technology, started using vastly more energy than was available from the daily solar energy flux. The biosphere as we know it evolved with nature using the energy contained in the daily solar energy flux. The Garden-of-Eden biosphere in which we evolved cannot survive if mankind continues to utilize vastly more energy than this amount. The destruction of the biosphere and the mass species extinction are being caused by large human numbers and high industrial production / energy use, and this destruction will not stop until human numbers and energy use drop back to the low levels that prevailed prior to the start of the destruction. The lie that species extinction can be stopped even though high levels of energy use and industrial production continue has been disproved over and over and over again, year after year after year. Each year that global industrialization continues spells more destroyed forests; tens of thousands more species are made extinct, and more portions of our biosphere sustain permanent, irreversible damage. The ecological carnage of global industrialization will not stop until either global industrialization comes to an end or the biosphere is destroyed.

So, from the point of view of what might stop the ongoing destruction of the biosphere, it does not really matter whether fossil fuels exhaust by 2050 or whether an energy replacement for them is found. The destruction of the biosphere and the mass species extinction began when mankind's numbers and energy use reached its present high levels, and it will continue as long as those levels remain high, whatever the energy source may be. This section of this article is not concerned, however, with the issue of whether an energy replacement for oil will or will not be found. The purpose of this section is to identify events that might halt the destruction of the biosphere and mass species extinction that is being caused by large human numbers and industrial activity, i.e., to identify events that would reduce human numbers and industrial activity / energy use. One such event is the exhaustion of fossil fuels, but the biosphere will have been seriously damaged and possibly destroyed long before that, if the present rate of fossil-fuel consumption continues. We are hence more concerned here with events that might reduce human numbers and industrial activity *before* the end of the petroleum / fossil-fuel age.

Disease could wipe out mankind. It is clear that HIV/AIDS will not accomplish this – it is not even having a significant impact on slowing the population explosion in Africa, where

prevalence rates reach over thirty percent in some countries. But a real killer plague *could* certainly wipe out mankind. The interesting thing about plagues, however, is that they never seem to kill everyone – historically, the mortality rate is never 100 per cent (from disease alone). Based on historical evidence, it would appear that, while plagues may certainly reduce human population, they are not likely to wipe it out entirely. This notwithstanding, the gross intermingling of human beings and other species that accompanies globalization nevertheless increases the likelihood of global diseases to high levels.

The introduction of genetically modified organisms (GMOs) into the biosphere poses a danger similar to that of disease. When a plant GMO is created, its pollen spreads around the world. It is quite conceivable that much of mankind's food supply could be eliminated, simply by a terrible error in which the introduction of one or more GMOs resulted in the global loss of harvests of a staple food, such as a cereal grain.

And war. War could wipe out mankind. Not small wars, such as the scores of small conflicts that continue year after year. Not even big wars, such as the First and Second World Wars. But a really big war, involving thousands of nuclear weapons. That can make a real difference. Furthermore, it can bring an immediate halt to the high level of industrial activity that is destroying the planet. It can reduce human numbers to the point where they no longer have a significant impact on the planet's ecology.

The famous astronomer and writer Sir Fred Hoyle once observed that mankind will have only one chance to do something worthwhile with the energy from fossil fuel and the minerals at the Earth's surface: if it ends up destroying the planet it will never have a second chance. Global industrialization is causing the destruction that Hoyle referred to. Global nuclear war could bring that process to a halt.

This section has identified a number of phenomena that might bring a halt to mankind's destruction of the biosphere. Some of them, such as asteroids or volcanoes, are beyond mankind's control, and their occurrence has nothing to do with its large numbers and high industrial production / energy use. Of the anthropogenic factors that might reduce mankind's destruction of the biosphere – famine, plague, and war – it appears that famine and plague would have little effect on stopping the mass species extinction. They may cause a temporary reduction in human numbers, but the population would rebound, and high levels of industrial production would continue, and damage to the biosphere would continue. The industrial nations of the world, which account for most of the global energy use, would likely continue in numbers and in industrial activity pretty much as before. These eventualities would do little to stop the destruction of the biosphere and the mass species extinction.

But war is different. The main difference is not that it may reduce human numbers faster or to a greater degree than famine or plague, but that it can cause a catastrophic decrease in the level of industrial production, which is the major cause of environmental destruction. Also, it can occur at any time – it does not have to wait until fossil fuels run out, after many more species have been destroyed. It can occur tomorrow, and prevent the species loss that would otherwise occur over the last half century of the petroleum age. By reducing industrial activity by a large amount, it could reduce the current horrific rate of consumption of fossil fuels, leaving some for many future generations to take advantage of – to use for mankind's benefit, rather than for a few generations' mindless pleasure. (Of course, economics does not distinguish between production spent on war



or video games or tourism or religion or art or philosophy, and the discounted “present value” of things in the far distant future is negligible, so this argument is of little consequence in today’s world.) And the likelihood of its occurrence is increasing fast. The next two sections will discuss the likely damage from global nuclear war, and the likelihood of its occurrence.

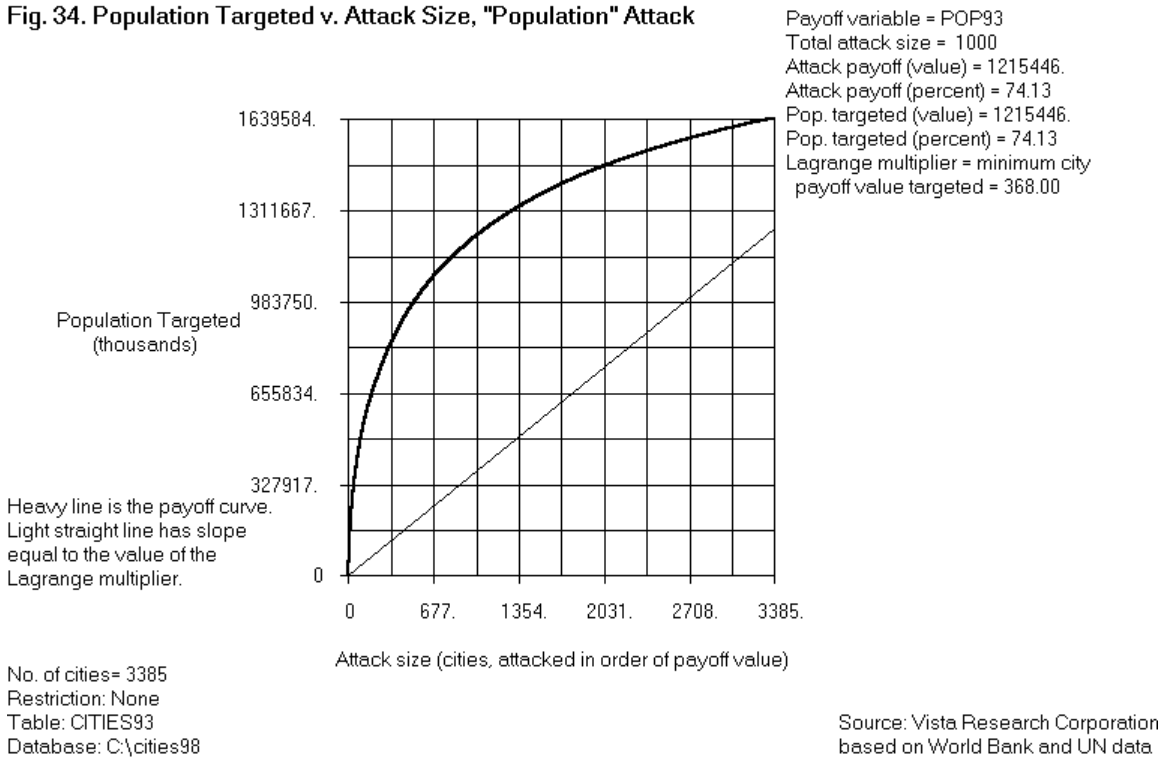
## **V. The Effects of Global Nuclear War**

Reference 1 contains an assessment of the impact of a moderate-sized global nuclear war on human population and industrial activity. It analyzes several different types of nuclear attack, each of which is optimal with respect to a different objective. One attack is designed to maximize the total population destroyed; another maximizes destruction to industrial capacity. A third attack is oriented to reducing population in countries that still have a substantial amount of biodiversity. A fourth attack is a “combination” attack that is oriented toward achieving all three objectives (reduction in population, reduction in industrial capacity, and reduction of population in high-biodiversity countries).

Figure 1 (Figure 34 of Reference 1) shows the “damage curve” for a nuclear attack designed to maximize population destroyed. The damage curve shows what proportion of the world’s city population (of cities of 100,000 or more) is destroyed as a function of the number of weapons (nuclear bombs) deployed. The figure shows that a relatively modest number of weapons can destroy a very large proportion of the planet’s city population.

Figure 1. Graph Showing that a Medium-Scale Global Nuclear War Can Destroy a Large Proportion of the World's City Population (from Reference 1)

Fig. 34. Population Targeted v. Attack Size, "Population" Attack



For example, Figure 1 shows that an attack involving 1,000 nuclear bombs can destroy about three-quarters of Earth's total city population. An attack of 1,000 weapons is of modest size. One thousand nuclear bombs could be produced, for example, with just the amount of plutonium that the nuclear powers have lost track of. At the present time, the US possesses about 12,000 nuclear weapons, and Russia possesses 22,500 nuclear weapons, of which about 7,000 (on each side) are classified as "strategic." Either of these stockpiles is sufficient to destroy all 3,385 cities of population 100,000 or more. Under the START II arms treaty, the number of strategic nuclear weapons will be halved, to about 3,500 deployable warheads each for the US and Russia, by the end of 2007 -- still enough to target every city of population 100,000 or more in the world. (See Internet web sites <http://www.cdi.org> or <http://www.nrdc.org> for data on nuclear arsenals.)

As everyone now knows, the major potential source of global nuclear war is no longer from ballistic missiles or airplanes – it is from nuclear “suitcase bombs.” With all of the sources of plutonium becoming available, terrorist organizations or “rogue states” will soon be able to produce several thousand suitcase bombs containing nuclear weapons. With today’s high levels of immigration and transportation and porous borders, it would be a relatively easy matter for a committed group to place 1,000 nuclear bombs in the world’s largest cities – certainly far easier than building airplanes or submarines or missiles to deliver them! The point being made here is that global nuclear war involving a few thousand weapons is not an unreasonable attack size to consider.

Figures 2 and 3 illustrate several population scenarios, corresponding to different attack sizes and post-attack population policies. These figures graphically illustrate that current human population levels, enabled by industrial agriculture and massive consumption of fossil fuels, are vastly greater than sustainable levels (i.e., the levels that can be supported by non-industrial agriculture). (For discussion of the methodology used to construct the figures, refer to Reference 1.)

Figure 2. World Population Scenarios

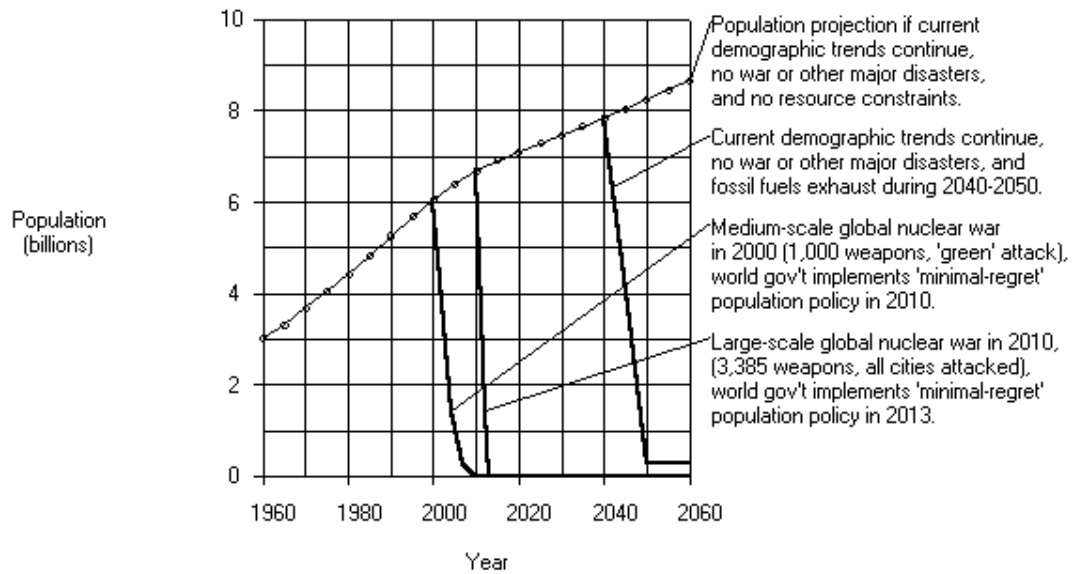
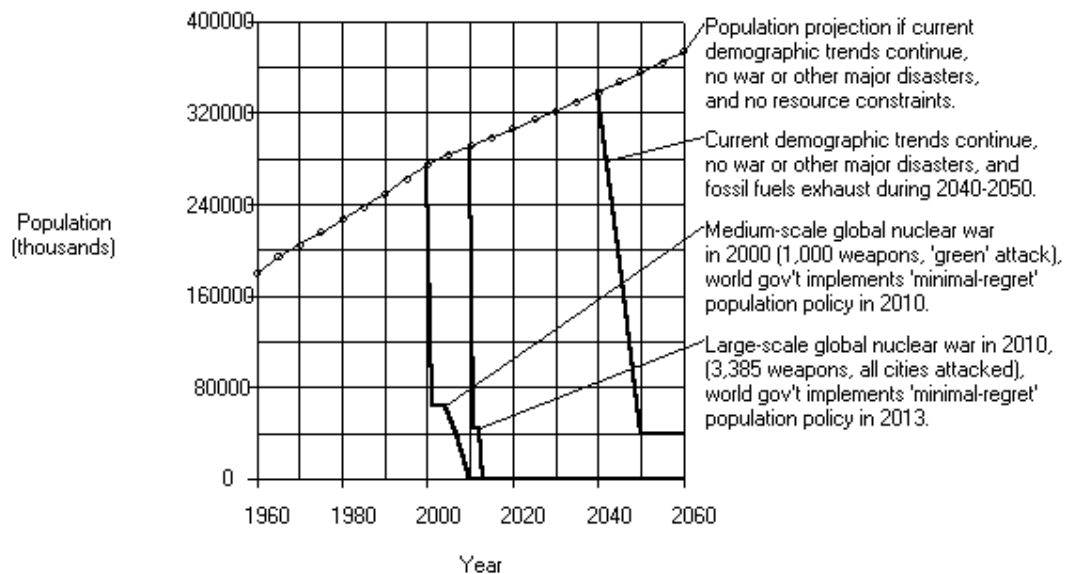


Table: WorldScenarios  
 Database: C:\Program Files\DevStudio\WB\pop98\WorldScenarios.mdb

Source: Vista Research Corporation  
 based on World Bank and UN data

Figure 3. Country Population Scenarios

Country: UNITED STATES OF AMERICA



Country: UNITED STATES OF AMERICA

Table: CountryScenarios

Database: C:\Program Files\DevStudio\WB\pop98\CountryScenarios.mdb

Source: Vista Research Corporation based on World Bank and UN data

## VI. The Likelihood of Global Nuclear War

It would appear that global nuclear war is inevitable, for several reasons. A major factor is the “politics of envy” – the desire for the “have-nots” of the world to destroy what the “haves” have. The gap between the industrialized “west” and the rest of the world is widening, and the hatred and envy are growing as the poorer nations realize that they will never catch up. Each year, millions more human beings are born into direst poverty, overcrowding, misery and hopelessness. The realization is dawning that it is global industrialization that is the root cause of human misery, and the motivation to bring that inhumane system to an end is growing as fast as the global human population. With the proliferation of plutonium from nuclear reactors, terrorists and rogue nations will soon have the capability to produce thousands of suitcase-sized nuclear bombs, and deliver them to any cities in the world. As mentioned earlier, no missiles or airplanes or submarines are required.

Another reason why global nuclear war appears inevitable is the fact that nuclear war “dominates” all other proposed solutions as a means of stopping the ongoing species extinction. No other alternative accomplishes this. As long as this situation holds, it is just a matter of time until the global-nuclear-war solution is implemented, since continuing on the present course leads to a “dead” planet.

It would appear that global nuclear war will happen very soon, for two main reasons, alluded to above. First, human poverty and misery are increasing at an incredible rate. There are now three billion more desperately poor people on the planet than there were

just forty years ago. Despite decades of industrial development, the number of wretchedly poor people continues to soar. The pressure for war mounts as the population explodes. Second, war is motivated by resource scarcity -- the desire of one group to acquire the land, water, energy, or other resources possessed by another. With each passing year, crowding and misery increase, raising the motivation for war to higher levels.

There is also a third factor motivating global war, and that involves timing. With the passage of time, less and less benefit accrues to the winner. If anyone is motivated to wage global nuclear war and has the means to do so, sooner is very likely better than later. If delayed too long, there may be nothing left to gain. With each passing year, the planet's biodiversity decreases, another two percent of the planet's remaining petroleum reserves are consumed, and the risk of biospheric extinction (e.g., from a greenhouse effect) increases.

Once gone, these resources -- the very reasons for waging war -- are gone forever. Extinct species will never return, and the planet's fossil fuel reserves, once exhausted, are gone forever. In the past 50 years, human industrial activity has consumed about half the world's reserves of petroleum and has led to the extinction of perhaps one million species. In another 50 years, human industrial activity will consume all of the remaining petroleum reserves and destroy millions of species more, including the larger animal species. For those tempted to wage war, the time to strike is now -- in fifty years there will be nothing left to win.

With each passing year, 30,000 more species are exterminated by mankind's epidemic numbers and industrial activity (pollution, habitat loss). Many large-animal species are in danger of extinction, becoming so small in number that they are effectively extinct. Each passing year sees a rise in the number of species made extinct, never to roam the Earth again. If global war happens this year, no more species will be made extinct from the habitat destruction and pollution of an exploding industrial human population. If global war happens next year, another 30,000 species are lost -- forever. If global war happens in ten years, another 300,000 species are extinct. Delay simply leads to the loss of more species and increases the likelihood of a "hothouse" destruction of the biosphere. If a global nuclear war happens now, the production of greenhouse gases stops.

The point mentioned above about the depletion of the planet's fossil-fuel reserves warrants additional comment. A factor motivating a global nuclear war sooner rather than later is the desire to preserve the planet's remaining fossil fuels. The world's total original fossil fuel reserves have been about half used up. At current consumption rates, the remaining petroleum and natural gas will be used up within fifty years, and coal somewhat later. A similar situation holds for nuclear fuel (unless used in fast-breeder reactors, which produce plutonium, which may be used to make nuclear bombs). If global nuclear war occurs this year, and a single industrialized nation of five million takes control of the planet, it can be sustained on the solar energy flux. It would also have available, however, sufficient fossil fuel to last for thousands of years. It could safely burn the fossil fuel over a period of many generations, with a planet once again covered in forest and with healthy seas teeming with phytoplankton. This energy surplus could dramatically help the transition of mankind to the post-fossil-fuel era. Consuming all of the planet's remaining fossil fuel in the mindless, hedonistic orgy of consumption that is currently in progress is a tragic waste.

In summary, global war is increasingly likely because the misery and overcrowding caused by the large human population is rapidly increasing, and the benefits to be derived from war (i.e., a planet with full biodiversity and substantial remaining fossil fuel reserves, or a planet that is still biologically alive, in any condition) are rapidly decreasing. The conditions are ripe for global nuclear war, now. Motive, means, and opportunity are all in abundant supply.

## **VII. Planning for the Post-Industrial Era**

So, for a number of reasons, it would appear that the likelihood of global nuclear war or other mankind-caused planetary catastrophe is increasing, and that it increases more as the human population grows and the biosphere is destroyed by large human numbers and industrial activity. What can be done to address this problem? Well, there are basically two approaches. First, mankind could attempt to reduce the likelihood of nuclear war or other catastrophe. But if, as argued here, the likelihood of nuclear war (or other catastrophe) is increasing because of human overcrowding, misery, and industrial activity, then that likelihood cannot be reduced unless these problems are resolved. The problem that arises is that no efforts to reduce human population numbers and industrial activity have succeeded. Indeed, all nations are pressing for more industrial activity, not less. In the face of this commitment, it is rather futile to hope for a voluntary, immediate reduction in human numbers or industrial activity. (Mankind's greed knows no bounds. In addition to burning fossil fuel at a suicidal rate and destroying the planet's forest cover, it is also using a vast proportion (estimated 40 per cent) of the current solar energy budget for its own purposes. Under current world leadership, no amount of energy is sufficient to satisfy man's greed.)

A second approach to the problem is to recognize, or accept, that the likelihood of global nuclear war or other catastrophe is great, and that the factors contributing to it are growing in strength, and to prepare for the post-catastrophe era. Whereas the first approach has proved hopeless, this approach appears feasible. What can be done?

First, countermeasures should be taken to reduce the destruction that will result to the biosphere by war or other catastrophe, and facilitate the post-catastrophe recovery of the biosphere. This can be done through planning and analysis, and the distribution of information that will help. Steps that can be taken including efforts to preserve the planet's remaining biodiversity, and to prepare for a reduced world population after global nuclear war or other catastrophe.

The following are examples of what can be done.

First, identify or develop planetary management approaches that promote the long-term survival of mankind and the rest of the biosphere, and disseminate information about them. Make preparations such that if global nuclear war or other catastrophe occurs, it will be possible to establish a small global population that will live in harmony with the rest of the biosphere. These preparations should include the development of social, political, military, and religious concepts and structures to bring about and sustain long-term stabilization of the biosphere.

Second, assemble a collection of all of the world's knowledge. Replicate the collection and store it in various hidden locations around the world, to minimize the chance of its extinction.

Third, take steps to preserve the planet's biodiversity, such as storing seeds in many secret locations and establishing ecologically viable safe zones (large reserves) of sufficient size (and with suitable protection from the social turmoil that will follow the collapse of the industrial world) to ensure the survival of the world's disappearing larger species.

Note that, with the exception of elements of the third item, the preceding measures can be implemented by a small, independent (but well-funded) organization. They are not measures that require massive funding, the consensus of nations, or a massive global mobilization. They can be accomplished in local areas by a small, well-organized group, committed to saving the planet. Unlike so many previous proposals of ways to "save the planet," they are quite feasible, they can be implemented quickly, and they do not require agreement or support from many nations or international organization. Furthermore, they are not contingent on the occurrence of a host of other improbable events or conditions (such as waiting fifty years for a worldwide demographic transition and economic development to occur, after which time it is too late -- the world is destroyed).

The Foundation web sites have taken steps to address the first step mentioned above, viz., the development of social, political, military and religious concepts and structures to bring about and sustain long-term stabilization of the biosphere. These include efforts to disseminate information about the nature of the problem, including dissemination of the fact that continued large human numbers and high industrial activity spell doom for the biosphere and mankind, and that a totally different scheme of planetary management must be implemented at the first opportunity (e.g., in the wake of global nuclear war) if the planet's biodiversity is to be saved. This information includes discussion of optimal population sizes and compositions (such as the "minimal regret" population) and planetary management alternatives (such as synarchy). The following sections describe these concepts in brief.

## **VIII. Optimal Human Population Size and Composition**

Over the years, some effort has been invested in trying to determine an "optimal" human population size for Earth, although more effort has been invested in attempting to determine a "maximum" human population for Earth. Relatively little effort, however, has gone into determining an optimal population *composition* (nature, structure, geographic distribution). Reference 1 proposes a global population consisting of a single-nation industrial population of five million people and a primitive (hunter-gatherer) population of five million, distributed over the globe. Very briefly, the rationale for these numbers and composition is as follows.

First, some facts. For millions of years, Earth supported a hunter-gatherer population estimated to be about five million in size. When agriculture was developed, the planet was able to support 300 million to 500 million people. Careful analysis (Reference 5) shows that 500 million people is about all that can be supported by solar energy –

today's population of six billion was achieved because of the use of fossil fuels, which will soon be depleted (oil and natural gas within 50 years, coal somewhat later). People in advanced industrial nations consume about 2,500 – 8,000 kgoe per capita per annum of commercial energy. People in poor nations consume as little as one-hundredth of that amount.

In *Can America Survive?* (Reference 1), the “optimal” human population is defined as the *smallest* population that can be maintained for a long period of time. This approach differs markedly from other approaches, which attempt to *maximize* the size of the human population. The objective is to reduce the planetary impact of mankind to a very low level, while at the same time keep the human numbers sufficiently high and widespread to reduce the likelihood of extinction to a low level.

Reference 1 does not attempt to find a single “best” solution to the problem of determining an “optimal” human population. Instead, it addresses the (simpler) problem of identifying a human population size and composition that keeps the likelihood of extinction low for both human and other species. In other words, it identifies a “feasible” solution – one that satisfies the constraints placed on the problem, but it does not attempt to find a population size and composition that maximizes or minimizes a particular “objective” function. It specifies criteria for determining human population size and composition, and proposes a particular solution that satisfies these criteria.

The approach in Reference 1 is to split the population into two parts – a single industrially advanced nation of five million and a hunter-gatherer population of five million, spread over the Earth. The purpose of the industrial nation is to keep the hunter-gatherer population in check. The purpose of the hunter-gatherer population is to reduce the chance of human extinction from a local cataclysmic event (by having the population geographically dispersed).

The purpose of having but a single industrial nation is the realization, from history, that having more than a single nation leads to competition, with all nations striving to maximize their population size and industrial activity (limited only by resource constraints). And that is exactly what has caused the current human overpopulation problem. If, after global war or other catastrophe, more than one nation survives, the age-old process of national competition will result in the reestablishment of a global industrial civilization, which has proved nonviable.

The rationale for a size of five million for the industrial population is that the planet can support at most 500 million people on solar energy at a very low-energy level of living, and that high-technology (industrial) man utilizes about 100 times as much energy as low-technology (hunter-gatherer) man. In order to live within the planet's daily solar energy budget, the following formula applies:

$$\text{size of hunter-gatherer population} + 100 (\text{size of industrial population}) = 500 \text{ million.}$$

Historically, the planet had little stress with a hunter-gatherer population of five million, so let us set the size of the hunter-gatherer population equal to that number. In this case, the preceding formula becomes:

$$5 \text{ million} + 100 (\text{size of industrial population}) = 500 \text{ million}$$



or

size of industrial population = 4.95 million, say five million.

The global population that consists of five million industrialized human beings and five million hunter-gatherers is referred to in Reference 1 as a “minimal regret” population, since it was motivated by the desire to determine a population strategy that minimizes the “regret” that mankind and the planet’s biodiversity are destroyed.

It is noted that there are infinitely many feasible solutions to the problem of determining a human population that is long-term sustainable and does little damage to the biosphere. The “minimal regret” population proposed in *Can America Survive?* is just one such population. The strongest argument in favor of this particular feasible solution is that a population of this size (and energy consumption) existed on Earth for millions of years.

It is noted that the high-technology population of five million was referred to in *Can America Survive?* as a “nation.” This is not the best term. It is more in the nature of a company (or military organization or religious order) whose business is to manage the planet. And it does this, not by trying to “play Mother Nature” (planetary engineering), but simply by keeping human population in check, so that Mother Nature may continue to operate the biosphere in the same marvelous – and anthropogenic – fashion as in the past. A better term is “planetary management organization.”

## **IX. Planetary Management Alternatives**

The current system of planetary management has proved itself totally incapable of stopping the destruction of the biosphere and the mass extinction of species. In fact, it is making the situation worse, not better. The government of the planet at the present time is basically anarchic. There are over two hundred independent countries, each striving, competing, champing at the bit to outproduce each other. Each country is attempting to increase its own industrial production and its industrial production per capita, despite the fact that this goal is continuing, and exacerbating, the destruction of the biosphere and the mass extinction of species.

Scientists were calling attention to the environmental destruction decades ago – in the 1950s and 1960s. Rachel Carson wrote her famous book, *Silent Spring*, in 1963. That year, while I was working at the Research Triangle Institute, I used to read the many articles in *New Scientist* and other magazines about the destruction of the biosphere and extinction of species, such as whales. Recently I came across an old book, *The Doomsday Book: Can the World Survive?* (by Gordon Rattray Taylor, Thames and Hudson, London, 1970) in Mary’s used-book shop in Lusaka, Zambia. It was amazing how little the observations and warnings about environmental destruction have changed in the thirty years since that book was written! Garret Hardin and Barry Commoner and Wendell Berry and Paul Ehrlich had already made names for themselves in describing the ecological disaster that was taking place. Yet, today, after another thirty years of discussion, nothing has changed. Each year, another 30,000 species are made extinct. Each year, world leaders and industrialists and economists keep saying that we can save the environment, that we are being “environmentally friendly.” Each year, the lie continues that, although it is economic development and industrial activity that are

destroying the biosphere, more economic development and industrial activity will save it. Each year, nothing changes – except for the further more destruction of the biosphere and more loss of species. Is it that, as Hitler observed, if you tell a lie often enough and loudly enough, people will believe it? Or is it that people – or at least their leaders – are completely addicted to global industrialization and the material riches it provides, and they reject any notion that it is completely unsustainable and must end soon – in *their* lifetimes, not in the distant future?

The world has seen a number of different political systems, and all of the ones that have been adopted on a large scale have totally failed to protect the environment. On the contrary, they vary simply in how rapidly and efficiently they destroy the environment. This includes capitalism, communism, socialism, dictatorships, empires, republics, secular states and religious states, monarchy, democracy – all of them. In his book, Gordon Rattray Taylor points out, as I observed in *Can America Survive?*, that democracy thrives only when resources are ample, and that when resources become limited, hierarchical social structures evolve. For the past few centuries, the world has had ample resources – the discovery and exploration and settlement of North America, South America, Africa, Australia, and Southeast Asia / Oceania. Democracy thrived. It was a wonderful form of government for a species – modern, technological man – that was spreading over a planet. But its time has passed. It is now – technologically developed, large in population, and rapaciously devouring fossil fuels and animal habitat – destroying the planet at an incredible rate. The time has arrived for a different system of government, such as Saint-Yves d'Alveydre's synarchy, or the concepts of Plato's *The Republic*, to manage the planet. These planetary management schemes – quite different from the liberal democracy that is destroying the planet today – are discussed at the Foundation web sites (see, e.g., *The Omega Project*, or *Call for Action*). One such system will be the New World Order.

In *The Republic*, Plato discusses a government consisting of three main groups – the Guardians, who are subdivided into the Rulers (Government) and the Auxiliaries (Military/Executive/Police), and the rest of the population, who are engaged in economic activities (e.g., farming, manufacturing, trading). The Auxiliaries assist the Rulers in the execution of their decision. Saint-Yves' concept of synarchy was very similar to Plato's governmental system, but with perhaps more emphasis on economics. In Saint-Yves' concept of synarchy, the governmental authority controls religion, the military, and education. His philosophy is divided into three categories: education (culture, art, science), law (military, police, justice), and economy (unions, civil service, working class). In Plato's concept, the Rulers are philosophers selected on the basis of merit. In Saint-Yves' concept, the members of the Authority are “enlightened initiates” of spiritual science, and it is not clear how they are selected – they operate from “behind the scenes.” Under Plato's concept, the third class (the “rest” of the population, other than the rulers) are involved in economic activities (e.g., food production), but they are conceived as belonging to various occupations, not to various income classes or groups. Under Plato's concept, education (including religious instruction) is provided exclusively by the state. Note that in both Saint-Yves d'Alveydre's synarchy and Plato's concepts of government, religion plays a central role. For Plato, the ultimate objective of philosophic training is religious.

Plato's and Saint-Yves' concepts are similar in that they are both hierarchical systems controlled by an authoritarian class (Plato's Guardians, Saint-Yves' Authority). They are both highly authoritarian (nondemocratic) organizations, which differ mainly in how the

leaders are determined. Although they may serve as the conceptual basis for a sustainable system of planetary management, it should be recognized that the planetary-management paradigms presented at the Foundation web sites view planetary management as a mission-oriented activity that is more in the nature of a business operation or franchise, or a military operation, or a religious mission, than a government in the usual sense. Synarchic / Platonic government is similar to the management of a ship (in this case, Spaceship Earth) than the management of a tribe or nation on a low-population low-technology planet. The purpose of the planetary management organization is specifically to restrict global human population size to a very low level that has a negligible impact on the biosphere, thereby promoting the long-term survival of mankind and the natural environment in which it evolved. Fundamentally, its purpose and goals are similar to the stated ideals of modern nations – to promote life, liberty, and the pursuit of happiness to mankind. The major difference is that concern is not just for the current generation of mankind, but for all potential future generations of mankind, and for the quality of the biosphere in which they (and the other species of the biosphere in which mankind evolved) will live. Modern nations on Earth today are oriented toward providing pleasure and wealth for the ruling élite, with no concern for the future of the biosphere or for all of the generations of mankind that might have been.

The salient feature of the world's national governments is that they are run according to the principles and guidelines of economics. The planetary management alternatives described at the Foundation web sites eschew economics as the basis for planetary management. Economics is a fine conceptual framework for the exciting times of growth, development, war and peace, in a primitive, low-population world. But it cannot serve as a long-term basis for managing a planet once advanced technology has been developed. It can only operate for a short time, without producing disastrous results. This was obvious to the renowned mathematician / economist, John Maynard Keynes, who cited (in his 1930 essay, "Economic Possibilities for our Grandchildren") the fatal limitations of economics as a long-term basis for human society:

"Some day we may return to some of the most sure and certain principles of religion and traditional virtue – that avarice is a vice, that the extraction of usury is a misdemeanor, and the love of money is detestable. But beware! The time for all this is not yet. For at least another hundred years we must pretend to ourselves and to every one that fair is foul and foul is fair; for foul is useful and fair is not. Avarice and usury and precaution must be our gods for a little while longer."

## **X. Concluding Discussion**

This article has briefly summarized the human population problem, the concomitant environmental problem, and prospects for the future. A detailed analysis and proposal for change are presented in *Can America Survive?* (Reference 1) and other articles at Internet web sites <http://www.foundationwebsite.org> and <http://www.foundation.bw> . The Foundation web sites present general concepts. These sites are intended to increase the likelihood that the survivors of the catastrophe that will end the industrial age will attempt to set up a long-term-survivable system of planetary management, such as synarchic government of a minimal-regret population. The Foundation web sites do not present detailed plans for implementing this form of planetary management. They are

intended to stimulate awareness and discussion. Following a planetary catastrophe, it is impossible to say who will survive. The task of implementing a long-term-sustainable population will require dynamic and inspired leadership in a world quite different from that of today. The important thing is to get the message across that it was global industrialization and a multiplicity of independent nations that destroyed the planet, and that what is required for long-term survival in a biologically diverse biosphere is a single planetary government and a very small human population.

The suggestions at the Foundation web sites are oriented toward dissemination of information. *Foundation* is taking advantage of the Internet to distribute its message to the world. In addition, it is calling for the establishment of departments of planetary management at universities around the world, to stimulate discussion of its planetary management concepts. The goal of the Foundation web sites is to increase awareness of the nature of the problem, and of a feasible solution. It is intended to promote awareness, discussion, and preparation. If you have suggestions about what to do to enhance the chance of survival of mankind and the biosphere, please send them to these web sites.

Most people, when I tell them of my view of what is happening to planet Earth, deny that this is really happening, tell me that I must surely be mistaken, and ask me how I can be so pessimistic. I tell them that I am not at all pessimistic, and that I am thrilled to live in such exciting times. I firmly believe that massive change is just around the corner, but that it will lead to a better world. We are leaving the Piscean Age of exploration and discovery behind us, and entering the Aquarian Age of wisdom. The king is dead; long live the king! This is the dawning of a New Age, a Golden Age. It is a great time to be alive!

René Thom, the “father” of catastrophe theory (expounded in his book, *Structural Stability and Morphogenesis*), defined a catastrophe as the loss of stability in a dynamic system. Catastrophes are inevitable, but their damage can be lessened if they can be predicted. Without an understanding of what is happening to the planet, and an appreciation for what is possible, the Earth’s biosphere will be severely damaged and many species made extinct, including man. With an understanding of what is going on, and an awareness of what approaches can mitigate the damage being caused by the industrial age, the damage can be controlled, and mankind can continue to inhabit a Garden-of-Eden biosphere for millions of years to come. The “catastrophe” that will destroy industrial civilization and decimate human population is inevitable (since petroleum will soon be gone, and also for the other reasons discussed above). But it is not inevitable that mankind and other large animals become extinct, or that our descendents inherit a destroyed world. By analyzing the problem, synthesizing alternatives, choosing a good solution, and working to implement it, we can surely build a better world for tomorrow.

The tendency for dynamic systems to fail catastrophically has been observed many times, not only in natural systems, but also in mathematical representations of them (i.e., in “system models”). Catastrophes may be caused by forces that are essentially “exogenous” in nature (e.g., an asteroid, volcano, invasion of one tribe or nation or civilization by another), or they may be caused by factors that are essentially “endogenous” (e.g., overpopulation). Examples of the former include the Chicxulub-Crater asteroid that reputedly caused the extinction of the dinosaurs, and the destruction of Carthage by the Romans. Examples of the latter include the sudden disappearance

of Assyria, political revolutions (America, France, Russia), algal blooms (e.g., Lester Brown's *The Twenty-Ninth Day*), the Easter Island human population explosion and collapse, and the St. Matthew Island reindeer population explosion and collapse. And, of course, today's global population explosion and imminent collapse. In large natural (population) systems, an equilibrium may last for a very long time, but sudden and dramatic changes invariably occur from time to time. Change always happens, and sometimes it is dramatic.

In the 1950s, MIT professor Jay W. Forrester developed a methodology, called system dynamics, for describing, modeling and simulating dynamic systems. (The methodology was implemented in a computer simulation language called DYNAMO (predecessor to STELLA and other system simulation languages), and had various names, such as Industrial Dynamics and World Dynamics.) This methodology was the basis for the book, *The Limits to Growth*, published in 1972 and its sequel, *Beyond the Limits*, published in 1992. The most likely end of a world simulation model is a sudden and uncontrollable decline in population, per-capita food output, energy use, and industrial capacity (see the SynEarth CommUnity of Minds web site <http://solutions.synearth.net/2003/02/26> for a synopsis of the *Limits to Growth* and *Beyond the Limits*). What often happens in a finite-resource system is that a limit is reached on a critical resource and the system has no suitable substitute that would enable it to continue to operate as in the past. After an extended period, important variables may be operating at extreme levels that are quite unsustainable, and the system becomes unstable if even small changes occur, or a key resource exhausts. The interesting thing to note is that dynamic systems often evolve, as noted by Thom, toward a catastrophic failure, *even though no external factor is involved!* Dynamic systems, it appears, tend to "crash and burn," whether in nature or in the laboratory. The incredible thing is that, although this type of behavior is a very salient characteristic of dynamic systems, most people, including world political leaders and environmental scientists, act as if it will be possible to somehow avoid a catastrophic end. History has almost always proved otherwise.

While it is indeed possible to manage human population at a long-term sustainable level, the sustainable level of human population is but a small fraction of today's high levels. The fact is that human population has grossly exceeded the carrying capacity of the planet. It has grown to massive size because of the one-time tapping of fossil fuel. The recurrent budget of solar energy can support at most a few hundred million people. Because petroleum will soon be gone, and because human numbers are so high, it is now totally impossible for human population to shrink back to sustainable levels in an orderly fashion, before the end of the petroleum era. A precipitous collapse of human population is now inevitable. This is quite apart from the possibility of an ecological disaster brought on by mankind's mass extermination of the species comprising its ecological home, or by global warming. We have "overshot" the carrying capacity of the planet, and the population will collapse as soon as petroleum exhausts (or sooner). (See Prof. William R. Catton, Jr.'s article on overshooting carrying capacity, at <http://solutions.synearth.net/2003/03/02> .)

Mankind began treading on dangerous ground over ten thousand years ago, when it evolved beyond the hunter-gatherer lifestyle, when it as a species acquired the "knowledge of good and evil" and left the Garden-of-Eden paradise in which it evolved. Agriculture was the first major step along the road to economic development of the planet. The second major step was the development of modern technology and the

tapping of fossil fuels, a few centuries ago. At that time, human population began to grow and grow and grow. Human population began to overshoot the planet's carrying capacity (solar-energy capacity) several hundred years ago. It now exists at incredibly and unsustainably high levels, supported by the one-time windfall of fossil fuels. As fossil fuels exhaust, billions will perish. There is no avoiding this demise, no matter how low or how fast the birth rate falls in the world's nations. The "demographic transition" is too late and too exceptional. We are today witnessing the last few moments of the fabulous overshoot, and we will soon experience the spectacular collapse. The authors of *The Limits to Growth* and *Beyond the Limits* suggest that it may be possible to avoid the collapse, and transit peacefully to a long-term-sustainable equilibrium. This is no longer possible. What *is* possible is to set up a different kind of world, a long-term-sustainable world, after the collapse.

The end of the world – the end of the industrial age – is coming soon, and, according to Thom's catastrophe theory (and Forrester's system dynamics and Catton's overshoot-and-collapse theory), it will come fast and hard. The United Nations, the World Bank, and all the world's leaders are calling for ever more industrial production and a higher standard of living for everyone, even as the biosphere shudders from mankind's savage onslaught and petroleum reserves continue their decline to exhaustion with ever increasing speed. This final orgy of industrial production and consumption will hasten and magnify and ensure the collapse.

It should be recognized that the *significant* catastrophe that is happening now is not the imminent collapse of human population from many billion to a few hundred million or less. The significant catastrophe that is happening now is the sudden mass species extinction that is taking place. A big change in the human population is of no long-term significance, as long as the biosphere remains intact, i.e., the balance of nature remains essentially the same as that in which the human species evolved. Under these conditions, future generations of mankind can continue to live meaningful lives, for millions of years, in the rich environment in which it evolved. As long as the biosphere is essentially intact, mankind as a species continues to thrive, and all options remain open. But the mass species extinction can render mankind extinct, or, what is infinitely worse, make his planet-home a much less interesting and desirable place to live, for millions of future generations. As long as the biosphere is preserved intact, mankind may continue to experience and enjoy life on a marvelous planet for a very long time. If the biosphere is substantially damaged, some doors, some varieties of experience, some alternative futures, will have been closed forever.

Mankind has, it seems, an infinite capacity for denial. This was discussed at some length in my recent article, *Hubris*. The evidence is overwhelming that we are in the "overshoot" phase of the industrial life cycle, yet most people and most organizations refuse even to discuss this matter, let alone acknowledge it. There is indeed none so blind as he who will not see. The US and other nations are scrambling to discover and control more oil, even though all oil will be gone in a few decades. The only difference that this activity will make in the long run is to ensure that things will be worse, because precious time, effort and resources will have been taken away from solving the real problem confronting mankind. People and organizations and nations are busying themselves with things that make no difference – economic efficiency, recycling of resources, fuel-efficient cars, hydrogen fuel cells, human rights, gender equality, racial inequality, poverty reduction, higher standards of living, lower infant mortality, longer life spans, controlling HIV/AIDS – when none of these things will make any difference at all

in stopping the mass species extinction or reducing the risk of biospheric death from industrial activity, and in preserving our options for the future. None of the significant national or international or private programs on Earth today will help solve this problem. They are in fact tackling the wrong problem. The human population has overshoot the planet's carrying capacity and will soon collapse (either because fossil fuels will soon be gone or because of a global system failure of some sort), and the efforts to try to avoid this collapse are as futile as trying to sweep back the tide. Time and effort spent on trying to solve this problem are worse than wasted, since they take attention and resources away from the real problem. Attention should focus on how to stop the mass species extinction, not on how to continue the system that is causing it. Attention should focus on identifying what systems of planetary management will ensure long-term sustainability of humankind in a preserved biosphere, and on taking steps to ensure the implementation of one such system after the collapse of the current one.

Over the past few decades, the problem facing mankind and the biosphere has undergone an incredible transmogrification. International organizations such as the United Nations and the World Bank have focused world attention on increasing global industrial production and per capita industrial production, and on improving standards of living for more and more people, even though this destroys more and more species every year. They have sold the message that the problem will be solved by more industrial production, when in fact this is the source of the problem. They have successfully transformed global industrialization from being the *problem* into being the *solution!* Many people now believe that mankind's salvation rests in increasing the standard of living for everyone, no matter how large the human population, and that the mass species extinction is nothing more than an unfortunate and not-very-important side-effect. All of the world's economic and political resources are now focused on increasing the level of global industrialization and industrial production. The message is very seductive: liberal democracy and peace and economic development and globalization and privatization and deregulation and decentralization will make everyone better off (see Thomas L. Friedman's *The Lexus and the Olive Tree* for details). Alas, none of this will save mankind from the impending die-off. In fact, it simply increases the magnitude of the overshoot, assuring a sooner and harder collapse. And it ensures more mass species extinction. What a pity that those incredible resources could not have been applied to the problem of determining a long-term-sustainable system of planetary management.

Students and masters of catastrophe theory and related subjects (e.g., system dynamics) evidently agree that if the nature of an impending catastrophe can be better understood, it may be possible to reduce the damage from it. This viewpoint is the subject not only of scientific studies (e.g., the *Limits to Growth*), but of science fiction as well (e.g., Isaac Asimov's *Foundation*). What is amazing, however, is that today's human society views the present planetary catastrophe (to the limited extent that it considers it at all) only in terms of its impact on itself – on the current generation of human beings. From the viewpoint of future generations, Nero is fiddling as Rome burns. US President George Bush declared, "The US lifestyle is not negotiable!" From this viewpoint, what happens to the quality of life for all future generations of man is not relevant. The nations of the world are working feverishly to find new energy sources that might maintain humanity's bloated numbers for a little while longer, even though this means more damage to the biosphere and a reduced quality of life for all future generations. If the problem is to be solved, it is essential that people recognize that the significant catastrophe of our age is the mass species extinction, not the impending die-

off of mankind's absurdly high and planet-destroying numbers. The coming die-off is not the problem. It is inevitable. The problem is how to transit, as the die-off transpires, to a human population and planetary management system that is sustainable in the long term, both for mankind and the biosphere. It is also how to minimize the further damage that will occur to the biosphere prior to and during the transition. This bears repeating: In the catastrophe that is taking place, the significant damage is mass species extinction, not a decrease in human population size. If it is accepted that the objective is to increase the likelihood of survival of mankind and a diverse biosphere, then the objective is not to avoid a human die-off, which will happen in any event, and which is in fact the root cause of the mass species extinction.

In *An Historian's Approach to Religion*, Arnold Toynbee discusses the sin of hubris: "Self-centeredness is thus a necessity of Life, but this necessity is also a sin. Self-centered is an intellectual error, because no living creature is in truth the center of the Universe; and it is also a moral error, because no living creature has a right to act as if it were the center of the Universe. It has no right to treat its fellow-creatures, the Universe, and God or Reality as if they existed simply in order to minister to one self-centered living creature's demand. To hold this mistaken belief and to act on it is the sin of *hybris* (as it is called in the language of Hellenic philosophy); and this *hybris* is the inordinate, criminal, and suicidal pride which brings Lucifer to his fall (as the tragedy of Life is presented in the Christian myth.)

"Since self-centeredness is thus both a necessity of life and at the same time a sin that entails a nemesis, every living creature finds itself in a life-long quandary. A living creature can keep itself alive only in so far, and for so long, as it can contrive to steer clear both of suicide through self-assertion and of euthanasia through self-renunciation. The middle path is as narrow as a razor's edge, and the traveler has to keep his balance under the perpetual high tension of two pulls towards two abysses between which he has to pick his way." Today's generation of human beings is acting as if it is the only generation of human beings – and indeed the only species – that matters. And for that sin it will pay dearly. All billions of it will perish. As it is written, "Those who destroy the Earth shall be destroyed."

The world after the industrial age will be very different from the world of today. For most people on Earth (if mankind escapes extinction), it will be similar to the world of the past millions of years – a primitive, natural environment (although perhaps less bountiful and beautiful than before). Although most people will not survive the collapse of the industrial age, it will belong, in concept and structure, to those who prepare for the great change that is about to happen – to the planetary "change managers." Since it is difficult to predict who the survivors of the collapse of the industrial age will be and where they will be located, it is necessary for any group committed to assuming control of the planet after the collapse of the industrial age to have advocates – informed, prepared, and committed advocates – distributed everywhere around the world, so that they are sure to be included among the survivors. And achieving that state is the purpose of *The Omega Project*, and of this article: to sensitize the world about what is happening and is about to happen, to inform it of a better system of planetary management, and to help ensure that such a system will be established after the end of the present system.

Will the industrial age end with a destroyed biosphere and the extinction of mankind and other large species? Or will further damage to the biosphere be averted, and a synarchic government of a minimal-regret population be established to ensure the long-



term survival of mankind and the biosphere as we know it? I believe that it will, but bringing it about will take much hard work and decisive action. This goal will not be accomplished by the weak of heart or the weak of mind or the weak of body. As I noted in *Can America Survive?*, the land belongs to those who are willing (and able) to kill for it. This has always been the way of the world, throughout the ages – not just in prehistoric times but in historic, “civilized” times as well (e.g., the Egyptians, the Romans, the British and Americans in North America, the whites of yesterday in Rhodesia, the blacks of today in Zimbabwe). The industrial age will end soon, and the planet will belong to those who, as always, are willing and able to kill for it.

The era in which large nations possess parts of the planet, destroying nature for commercial profit, is almost over. In the New Age, a single group – a planetary management organization – will be in charge of the entire planet, and its goal will be to ensure that natural planetary processes operate largely unhindered by mankind. Note that although the present system of having many independent nations will give way to a single world government, local possession of the land by small groups, such as clans or tribes, will return. The planet will be controlled by a single high-technology organization, whose essential function is simply to prevent the return of global industrialization (and, it follows, massive human population). Except for its role of disallowing the resurgence of global industrial activity, however, it will leave the globally distributed hunter-gatherer population rather on its own (at least initially). Local tribes will be free to live in a natural setting, as they did for millions of years. It is industrial nationalism – a world of many independent and industrialized and competing states – that is not a viable system of planetary management. Local nonindustrialized tribes will regain the freedom they once had. The stranglehold that nationalism (or imperialism) had on local ethnic groups will be broken, since the military and political power that flowed from industrialization (including industrial agriculture), will no longer exist, except as embodied in the single, small high-technology planetary management organization. (It is noted that primitive human groups do not really “possess” or “own” the land, any more than a pride of lions possesses a part of the African savanna. They simply “occupy” it along with many other species, and function in harmonious balance with each other as an integral part of the biosphere.)

A single-nation government of a small human population will stop the mass species extinction, and will afford humanity an opportunity to “figure things out.” I am not so much of utopian, however, as to believe that this arrangement, or any other, will last forever, or even for a very long time. Mankind thrives not only on challenge but also on conflict. A single-nation planetary management organization will face the challenge of preventing a second destruction of the planet by economic philosophy and industrial development, but it will also face the challenge of new minds and new thinking and new people who want to do new things their own way. All that is certain is that the present out-of-control, anarchic system of planetary management – two hundred independent nations, all striving to produce and consume and to grow – is rapidly destroying the planet and will not last much longer. The present world order will soon disappear, and a new world order will take its place. While we cannot stop the collapse of the current system, we can certainly influence what replaces it, and determine the quality and diversity of life on the planet for millennia to come. That is an achievable goal; preventing the collapse of the industrial world and today’s large human population is not.

You may ask, “If the industrial world collapses, and, as you say, most people will die, then why should I prepare?” It is true that most of us will die as the industrial world ends

and human population declines to levels that can be supported by current solar energy. But, barring a total collapse of the biosphere, there will still be human population remnants alive in various parts of the world. Some of them will be related to you – either your family, or your tribe, or your nation, or your race. If one group sets up a synarchic government of the planet and establishes a minimal-regret population, odds are that you or your tribe or nation will not be a part of the governing group, since that group will be a single, small, locally compact organization. But your descendents will surely number among the remnant groups that are distributed over the Earth. And, if a synarchic government / minimal-regret population is established, they will continue to survive. In either case, the long-term survival of people related to you – descendents of your family / tribe / race – is assured, if a synarchic government / minimal-regret population is established. Under a continuation of the present planetary management system (large human population, global industrialization, many independent nations) all people – including your descendents – will almost surely perish, and the Garden-of-Eden biosphere in which we evolved will be forever diminished. Will your descendents survive, and inhabit a wonderful continent, bountiful in natural splendor, on a marvelous planet? Or will your succeeding generations perish; or be doomed to millions of years on a ruined planet, and curse your name and time? The choice is yours. The choice is for Earth's present generation. May you choose well.

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