

Imminent Peril

by
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Scientists are warning
that we have only one or two generations to avoid global catastrophe.
Why aren't we heeding their warnings,
and what can be done?

Commentary

This article originally went out through several different sources in spring & summer of 2003. However, the collection of scientific statements referred to in this report are possibly the most important announcements of our lifetime, and still have not received the attention they deserve.

Two recent occurrences should be noted here. First is the release of **State of the World 2006**, by the Worldwatch Institute (<http://www.worldwatch.org/pubs/sow/2006/>). This edition of State of the World emphasizes that the planet cannot sustain our current levels of consumption, much less the projected increase in consumption of the U.S., China, and India. The report warns that if we cannot curb our consumption, then it will only be a matter of years before we drive this planet into a crisis.

The second occurrence is the publication of Dr. James Lovelock's **The Revenge of Gaia** (Penguin, February 2, 2006). Dr. Lovelock is the independent environmental scientist who came up with the Gaia Theory, that the Earth is a dynamic system of self-regulatory biological and geological components that work together to keep the planet fit for life. While the Gaia Theory was first met with skepticism, it is now accepted by most scientists.

In his latest book, Dr. Lovelock relates his suspicions that the planet has already passed the point of no return for global climate change. He bases his assessment on the analysis of diverse evidence from around the world. Dr. Lovelock believes that industrial emissions have already triggered positive feedback mechanisms that will themselves increase the effects of global climate change even if humans now move to curb their own contributions.

He advises the world's governments to plan on how to secure food and energy in a global environment run amok, and warns that coastal cities must be protected from rising sea levels. He expects a population crash, with the survivors living in what is presently the Arctic, and a few other places on the planet.

While I agree that our situation is dire, and with all due respect for Dr. Lovelock, I do believe there is a chance yet to avoid such a gloomy future. While the threshold is certainly very close, I do not believe we have crossed the point of no return with regard to Global Climate Change. But do not breathe easy. To avoid a disaster such as Dr. Lovelock describes will require us to stop everything we are doing now, and devote all of our efforts—every one of us—to evolving a new lifestyle based on sustainability, remediation, and a healthy stewardship of the planet. You can read my own assessment of global warming at the following website: <http://www.angelfire.com/planet/eatingfossilfuels>.

Once again, I have to say that while the outlook is very bleak, we cannot give up hope. Those who give up hope, give up.

Introduction

Current world events are being played out against a setting of resource depletion and other environmental problems which are not recognized by most people, nor even acknowledged by many of the world's decision makers. In fact, there is a concerted effort by many corporations and economists to dismiss these problems as nonexistent. Corporations choose to dismiss these problems because they do not want to admit their own culpability, and because the solution to these problems will prevent them from carrying out business as usual. Economists refuse to face these problems because to do so they must admit that their pet economic models are deeply flawed, and because these problems point up the unsustainable madness of capitalism with its market mechanisms. Yet the scientific community reached a consensus over the last decade

and has attempted to sound the warning bell.

Royal Society of London & US National Academy of Sciences, 1992

The first warning was issued over a decade ago, in 1992, when the Royal Society of London (RS) and the US National Academy of Sciences (NAS) issued a joint statement entitled **Population Growth, Resource Consumption, and a Sustainable World**.¹ This joint statement was unprecedented. For its part, the Royal Society has a history of being reticent about making statements of a controversial nature.

In this statement, the RS and the NAS point out that environmental changes affecting this planet may irreversibly damage the earth's capacity to sustain life. Furthermore, humanity's own efforts to achieve satisfactory living standards are threatened by environmental deterioration. The report warns that, while science and technological advances can prove invaluable in resolving these problems, still... "it is not prudent to rely on science and technology alone to solve problems created by rapid population growth, wasteful resource consumption, and harmful human practices."² The scientists maintain that changes in human patterns of behavior and resource consumption are necessary, along with stabilization and even reduction of human population.

The statement concludes: "The future of our planet is in the balance. Sustainable development can be achieved, but only if irreversible degradation of the environment can be halted in time. The next 30 years may be crucial."³

World Scientists' Warning to Humanity, 1993

Also in 1992, the Union of Concerned Scientists issued a **World Scientists' Warning to Humanity**, which was signed by over 1,700 scientists from around the world, including the majority of the Nobel laureates in the sciences.⁴ The language in this document is a little less cautious than the statement by the RS and NAS. The Warning to Humanity spells out quite plainly the peril we face, and the necessity and urgency of resolving these problems; it also helps to point in the direction of a possible solution.

Humanity is warned that we must make fundamental changes if we are to avert the collision towards which our present course is steering us. The scientists point to the various vital environmental systems which are all suffering from critical stress: the atmosphere, fresh water resources, the oceans, the soils, the forests and living species. They point out that much of this damage is either permanent or irreversible on a scale of centuries. The warning states that:

Our massive tampering with the world's interdependent web of life—coupled with the environmental damage inflicted by deforestation, species loss, and climate change—could trigger widespread adverse effects, including unpredictable collapses of critical biological systems whose interactions and dynamics we only imperfectly understand.

Uncertainty over the extent of these effects cannot excuse complacency or delay in facing the threat.⁵

They emphasize that we are quickly approaching many of the earth's limits. They state that current economic practices in both the developed and the developing world cannot continue without doing irrevocable damage to the planet's vital systems. The statement places a limit of only a few decades before we have lost any opportunity to resolve the threats now facing us. And they iterate:

We the undersigned, senior members of the world's scientific community, hereby warn all humanity of what lies ahead. A great change in our stewardship of the earth and the life on it is required, if vast human misery is to be avoided and our global home on this planet is not to be irretrievably mutilated.⁶

The document admonishes the developed countries for being the greatest polluters in the world, and

exhorts them to reduce over-consumption. It also points out that the developed nations have an obligation to provide aid to the developing nations. This is incumbent upon the affluent nations because much of their wealth has accrued through the extortion of resources and labor from the developing nations. The developing nations cannot make the changes necessary without the financial resources and technical skills which can only be supplied by the developed nations. We must realize that we are all in this together, and we will only resolve these problems if we refuse to leave any group of people behind. Failure will trap us in "...spirals of environmental decline, poverty and unrest, leading to social, economic and environmental collapse."⁷

The success of this endeavor, the document points out, will require a major reduction in violence and war. The trillions of dollars devoted annually to the preparation and conduct of war should be diverted to these new challenges, where they will be badly needed.

The Warning to Humanity concludes that we need a new ethic for humanity, an ethic of compassion and responsibility toward all of humanity and toward the earth.

Statement of the New Delhi Conference, 1993

The 1992 joint statement of the RS and the NAS, along with an international conference organized by the Royal Swedish Academy of the Sciences, led to a 1993 conference of the world's scientific academies in New Delhi. The New Delhi conference was the first large-scale collaboration undertaken by the world's scientific academies. The conference sought to examine the complex and interrelated problems of population growth, resource consumption, socioeconomic development and environmental pollution. This conference resulted in another statement, signed by 58 of the world's scientific academies.⁸

The conference concluded that many environmental problems, such as degraded agricultural viability and diminishing availability of drinking water should be viewed as warnings that the earth is finite and that natural systems are being pushed ever closer to their limits. If the entire world consumed fossil fuels and other resources at the same rate as the developed world, resource depletion and environmental pollution would already have reached a critical point. Yet they recognized that development is a legitimate expectation of less developed countries. Developed countries need to become more efficient at resource use and environmental protection, and must seek to curb wasteful consumption.

Population growth was the major focus of this conference, and as such was the main focus of the resulting statement. It was the consensus of the world's scientific academies that continued population growth poses a great risk to humanity. And they concluded that it would be foolish to rely on science and technology alone to solve the problems caused by rapid population growth, wasteful resource consumption and poverty. To avert a global crisis, it is necessary to make a transition to economies that provide increased human welfare with less consumption of energy and materials.

Finally, they warned that, "Humanity is approaching a crisis point with respect to interlocking issues of population, environment and development. With each year's delay the problems become more acute."⁹ Studies were undertaken in order to better understand the threats facing humanity and the planet, and an informal network of the science academies of the world, the InterAcademy Panel on International Issues (IAP), was formed to facilitate further collaboration.

The next few years saw intensified efforts on the part of the world scientific community to gather information and achieve a better understanding of the interlocking problems threatening the world. And the scientific community also endeavored to inform decision makers of the threat to humanity.

The UN undertook a series of conferences on issues of long-term global significance. There was a conference on the environment and development (Rio, 1992), a conference on population growth (Cairo, 1993), a conference on social concerns such as poverty (Copenhagen, 1994), a conference on the plight of women and importance of women's rights (Beijing, 1995), and a conference on the problems associated with burgeoning urban populations and decaying cities (Istanbul, 1996).

1997, the year of the Kyoto conference on global warming, saw renewed announcements from the RS and NAS, and from the Union of Concerned Scientists.

Joint National Academy of Scientists and Royal Society Resolution: Towards Sustainable Consumption (1997)

In this document the RS and the NAS reiterate their earlier warnings while placing more emphasis on resource consumption. This document reflects the growing understanding that the problems faced by this planet are not simply a result of overpopulation, but are more specifically an effect of over-consumption. Furthermore, this resolution recognizes a dilemma in that the poorer countries of the world require increased resource consumption in order to pull their people up out of devastating poverty.

As the document points out, consumption rates of developed countries are grossly out of line with the percentage of world population contained in these countries. The report cites examples to make its case that the rate of resource consumption is more of a problem than is simple population:

The population of Bangladesh is increasing by about 2.4 million per year, while that of Britain is increasing by about 100,000 per year. Yet, because carbon dioxide emissions per person in Britain are 50 times higher than in Bangladesh, the 100,000 people in Britain cause more than double the carbon dioxide emissions of the 2.4 million people in Bangladesh.

Since 1950, the richest 20% of the world's population has increased its per capita consumption of meat and timber two-fold, its car ownership four-fold and its use of plastics five-fold. The poorest 20% has increased its consumption hardly at all.¹⁰

The document also points out that, as of 1997, US per capita use of petroleum is seven times the world average.

These two prestigious scientific associations declare that developed countries must curb their consumption in order for the rest of the world to climb out of debilitating poverty. Furthermore, they state that developed countries must cut their rates of consumption if global use of resources is to become sustainable.

The resolution calls for research and action in determining rates of consumption which are sustainable for various different resources, research into sustainable energy sources and energy efficiency, development of environmental technologies, research into determining environmental costs and incorporating them into economies, improvement of energy- and land-efficiency in food production, and the management, protection and regeneration of natural systems. The resolution ends by stating that societies must examine their values and form goals which can be met through sustainable consumption.¹¹

World Scientists' Call for Action (1997)

Signed by more than 1,500 scientists from 63 countries, including 110 Nobel laureates and 60 US National Medal of Science winners, the **World Scientists' Call for Action** was set forth by the Union of Concerned Scientists at the 1997 Kyoto Climate Summit.¹² Looking back on the four years since the **World Scientists' Warning to Humanity**, the Call notes that there has been very little progress in addressing the issues raised in that earlier document. It notes that, in fact, the situation has continued to deteriorate. And it states that world leaders are much to blame for this, because of their failure to rise to the challenge. The Call for Action does, however, point to the Kyoto Climate Summit as a possible signal that world leaders have recognized their responsibility for stewardship of the earth. It was their hope that the Kyoto Climate Treaty would serve as a precedent for addressing other grave environmental threats. They state that the only responsible choice is to act now.

The Call to Action concludes:

We, the signers of this declaration, urge all government leaders to demonstrate a new commitment to protecting the global environment for future generations. The important first step is to join in completing a strong and meaningful Climate Treaty at Kyoto. We

encourage scientists and citizens around the world to hold their leaders accountable for addressing the global warming threat. Leaders must take this first step to protect future generations from dire prospects that would result from failure to meet our responsibilities toward them.¹³

Unfortunately for future generations, the United States refused to sign the Kyoto Agreement until concessions were made which virtually negated the agreement and rendered it unenforceable. It should be noted that Al Gore, the environmental vice-president, was in command of the US delegation to the Kyoto conference. Yet even this watered down agreement was not enough for US decision makers. In 2001, George W. Bush reneged on the Kyoto Treaty, thereby demonstrating that the word of US policy makers is worthless.

A Statement of the World's Scientific Academies: May 2000

In the year 2000, the InterAcademy Panel (IAP) met again in New Delhi to review the research undertaken following the 1993 conference. This meeting led to another joint statement, **Transition to Sustainability in the 21st Century: The Contribution of Science & Technology**.¹⁴ As suggested by the title, this statement was not so much a warning as a statement of how science and technology can help solve the problems.

The generally accepted solution is captured in one word: sustainability. The goal is a lifestyle that is sustainable; that is, levels of consumption that do not exceed the carrying capacity of the planet. The scientific academies perceive three key issues which must be tackled to achieve this goal:

Meeting the needs of a larger world population. 17% or one-sixth of the world's population is severely impoverished or starving, and this proportion is increasing. World income disparities are also widening the gap between the rich and the poor. Poverty, starvation and inequity are incompatible with sustainability. The challenge here is to reduce disparities and provide everyone with basic human requirements such as a home, food and medicine. The scientific academies seek to meet this challenge by building the capacity for people to meet their own requirements. This will be done by providing access to knowledge and resources. (It is quite likely that the scientific academies were naïve in addressing this challenge without recognizing the greed of those who benefit from this disparity.)

Preserving and maintaining the environment and the natural resource base. Sustainability is only possible if we can safeguard the welfare of biological species and their ecosystems. To do this we must improve our understanding of complex ecological processes. Likewise, we need a better understanding of how resources are deposited and how these resources can be sustainably utilized. Furthermore, this knowledge must be made readily available—not just to decision makers, but to everyone.

Moving toward sustainable human consumption patterns. In this document, the IAP recognizes that unsustainable consumption is the basic cause behind the threats we face today. Conspicuous consumption leads to resource depletion and environmental damage. The forces that drive consumption include economic output, distribution of wealth and income, technological choices, social values, institutional structures, and public policies.¹⁵ In all of these areas, we need to temper our decisions and our actions with a responsible and conscientious stewardship of the earth. Science and technology can contribute to these goals by providing information necessary to make responsible decisions. Science can also aid by increasing the efficiency of various technologies and reducing damaging impacts.

The IAP does warn that science and technology alone cannot solve the problems threatening us, nor achieve the goal of sustainability. Economic, social and political efforts are necessary as well. To succeed, we must forge a new relationship with the natural world.

Reinforcing remarks in the 1997 Union of Concerned Scientists' declaration, the IAP states:

Military programs, even in periods of peace, have consumed resources that could otherwise be devoted to meeting such needs as food, housing, and education. During the decades ahead, conflicts could arise from competition for resources such as food, water, and information. A better understanding of how these events can be mitigated, or made less probable, is essential for a successful transition to sustainability.¹⁶

The IAP statement concludes:

To preserve human well-being over the long term, people need to move toward new ways of meeting human needs, adopting consumption and production patterns that maintain the Earth's life support systems and safeguard the resources needed by future generations. Yet if current trends in population growth, consumption of energy and materials, and environmental degradation persist, many human needs will not be met and the numbers of hungry and poor will increase.

Such a dismal forecast need not come to pass. Scientific, technological, and health capabilities—if supported by the necessary worldwide political will and international cooperation, and mobilized by appropriate social and economic policies—can produce substantial progress over the next two decades toward a sustainable human future.¹⁷

Statements from the Turn of the Millennium

The first three years of the new millennium saw the release of preliminary results from several global studies looking at the health of major ecosystems and assessments of the various problems threatening the quality of life on this planet. All of these studies agree that the situation is grave, and that little time remains in which to turn the situation around. Here we will review three of the most prominent studies issued since the turn of the century.

Guide to World Resources, 2000-2001

This study is the first global assessment of the state of the world's ecosystems ever undertaken. The report, **Guide to World Resources, 2000-2001: People & ecosystems; The Fraying Web of Life**¹⁸ was a joint venture of the United Nations Development Programme, the United Nations Environmental Programme, the World Bank and the World Resources Institute. The project took over two years to complete and contained the input of 197 scientists. The model developed for this study is known as the Pilot Analysis of Global Ecosystems (PAGE). It is a pilot study because it points out where further study is needed to fill existing gaps in our knowledge about the world's ecosystems.

PAGE drew its assessment from information already available on a global scale about the condition of the planet's ecosystems. The study concentrated on five major classes of ecosystems: agro ecosystems, coastal areas, forests, freshwater systems, and grasslands. PAGE assessed the condition of these ecosystems based on resource output (both quantity and quality) and the biological basis for production (soil quality, water quality, biodiversity, etc.). PAGE also took into account all the ecosystem goods and services that people rely on but do not buy in the marketplace. Scorecards were developed to judge ecosystem health, with each ecosystem graded on the following criteria—where applicable: food/fiber production, water quality, water quantity, biodiversity, carbon storage, recreation, shoreline protection, and wood fuel production. Here, then, is the resulting report card on the status of the planet.

Agro ecosystems

Food Production: Decreasing, **Water Quality:** Decreasing, **Water Quantity:** Decreasing, **Biodiversity:** Decreasing, **Carbon Storage:** Mixed.

Agro ecosystems cover more than one-quarter of global land area, but almost three-quarters of this land has poor soil fertility. Two-thirds of agricultural land has been degraded in the past fifty years due to erosion,

salinization, compaction, nutrient depletion, biological degradation or pollution. Forty percent of agricultural land has been strongly degraded.

Coastal Ecosystems

Food Production: Decreasing, **Water Quality:** Mixed, **Biodiversity:** Decreasing, **Recreation:** not enough data, **Shoreline Protection:** Decreasing.

Population increase and conversion for development, agriculture, and aquaculture are reducing mangroves, coastal wetlands, seagrass areas, and coral reefs at an alarming rate. Almost seventy percent of the world's major fisheries are fully fished or over-fished, and fishing fleets have the capacity to catch many more fish than the maximum sustainable yield.

Forest Ecosystems

Fiber Production: Increasing, **Water Quality:** Decreasing, **Water Quantity:** Decreasing, **Biodiversity:** Decreasing, **Carbon Storage:** Decreasing, **Wood Fuel Production:** not enough data.

Logging and conversion have shrunk the world's forests by as much as half. Thirty percent of the world's original forests have been converted to agriculture. Thirty percent of the world's major watersheds have lost more than three-quarters of their forest cover. Sixty percent of the remaining forest cover has been fragmented due to agriculture, logging and road construction. Tropical deforestation probably exceeds 130,000 km² per year. Nine percent of the world's tree species are at risk of extinction.

Freshwater Ecosystems

Food Production: Mixed, **Water Quality:** Decreasing, **Water Quantity:** Decreasing, **Biodiversity:** Decreasing.

Algal blooms and eutrophication¹⁹ are becoming more frequent on most inland water systems. Currently almost forty percent of the world's population experience serious water shortages. Large dams have increased sevenfold since the 1950's and now impound fourteen percent of the world's runoff. Almost sixty percent of the world's largest 237 rivers are strongly or moderately fragmented by dams, diversions, or canals. Half the world's wetlands are estimated to have been lost in the 20th century. Fish are being hauled out at or above the maximum yield for these systems. Twenty percent of the planet's freshwater fish species are extinct or endangered.

Grasslands Ecosystems

Food Production: Decreasing, **Biodiversity:** Decreasing, **Carbon Storage:** Decreasing, **Recreation:** Decreasing.

Though grasslands cover forty percent of the Earth's land surface, fifty-five percent of all grasslands are considered fragile drylands, and one-fifth of these are now degraded by human activity. Grasslands are being gobbled up by agriculture and urbanization. In the North American prairies, conversion is already nearly one-hundred percent.²⁰

The report concludes that even the most remote ecosystems on the planet are affected by human influences. The world's major ecosystems are all in decline and in all nations people are experiencing the effects of ecosystem decline. And the situation will only get worse if we continue our current patterns of usage. We are drawing on the world resources now more intensely than ever, and we are degrading the planet's ecosystems at an accelerating pace. The planet's capacity to provide goods and resources is declining, while demand for goods and resources is climbing. Human activities are impacting the biosphere and even altering the earth's basic chemical cycles (water, carbon, and nitrogen) upon which all life depends.

However, the damage has not yet reached critical proportions. The earth can recover, if we act now to curb our demands and manage our resources in a sustainable manner. But time is growing short, and if we fail to act responsibly, then we will pay the price, as will our children and our children's children.

Global Environmental Outlook-3 (2002)

The Global Environmental Outlook (GEO) was undertaken following a United Nations Environmental Programme (UNEP) decision in the mid-1990s which requested a comprehensive global state of the environment report. The first report (GEO-1) was issued in 1997 and the second (GEO-2) was issued in 1999. The third report, GEO-3²¹ provides an assessment of environmental trends over the 30 years since Earth Day 1972, identifies four divides which separate the world and threaten sustainable development, and then outlines four disparate strategies and projects the effects of each strategy 30 years into the future.

The four divides roughly represent the disparity between the haves and the have-nots. It is well recognized that the impoverished see no options but to draw down their local resource base in an unsustainable effort to stay alive. Likewise, the poor cannot afford proper waste disposal or remediation. Furthermore, due to their lack of personal resources, the poor suffer a more direct impact from environmental disasters.

The affluent, on the other hand, are in a much better position for weathering environmental catastrophes. Likewise, the affluent have no pressing need to draw down local resources below sustainable levels. And they have better access to science and technology with which to inform policy decisions and develop more efficient lifestyles. However, affluence does not necessarily equate to responsible behavior. The market principles which govern developed nations are ruled by unbounded growth, which leads to excessive consumption. The affluent are drawing down the resources of the entire world. They extort resources from developing countries while forcing their burgeoning wastes upon the poor.

The four gaps are:

- **The Environmental Divide**—This is a gap between regions characterized by a stable or improving environment (North America, Europe), and regions characterized by continued environmental degradation (most of the developing countries).
- **The Policy Divide**—This gap separates regions which have strong policy development and implementation, and regions which do not. This is not so clear cut as the other divides; for instance, the US vacillates between strong and weak policy positions.
- **The Vulnerability Gap**—This gap is widening both within countries and across regions. This is the divide between the disadvantaged, who are at greater risk from environmental change, and the affluent, who are at less risk.
- **The Lifestyle Divide**—This divide is characterized by the excessive consumption of the affluent and the extreme poverty at the other end of the spectrum. The most affluent one-fifth of the world population are responsible for 90 percent of personal consumption, while the poorest one-fifth of the world population live on less than US1\$ per day.²²

Before examining the four scenarios projected over the next 30 years, first we must be aware of the delayed reaction time between policy changes and environmental impact. The direction of environmental change to occur over the next 30 years has—for the most part—already been decided by past and current actions. For instance, CFC emissions have been reduced significantly in the last decade; however, due to CFC/ atmospheric chemistry, ozone depletion is still increasing. It is not expected to level off for at least another decade and will not decrease significantly until the middle of the century. Similarly, many environmental policy changes enacted over the next 30 years may not bear fruit until long afterwards.

Bearing in mind these caveats, let's introduce the four policy strategies considered in Global Environmental Outlook-3.

Markets First: Trust is placed in market mechanisms to economically resolve all problems. Globalization and neoliberal policies will raise the standard of living for everyone. Communities will be wealthy enough to insure or remediate social and environmental problems. Governmental powers to regulate society, the economy and the environment will be severely limited.

Policy First: Government regulation in an attempt to reach specific social and environmental goals.

Environmental and social costs are factored into policy measures. Efforts are made to balance the momentum of economic development at any cost.

Security First: This is a scenario of increasing inequality and conflict. The impoverished rise up periodically in waves of violent protest. The elite seek protection in gated and guarded communities. Governments devolve into strong military and police states to serve and protect isolated rich and powerful communities.

Sustainability First: A new paradigm evolves based on sustainability, equitable values and cooperation. There is a major change in the way people interact with each other and with the world around them. There is a much fuller application of democratic principles in local communities, between governments and in the management of corporations. Personal goals and basic needs are balanced with environmental health and the continued prosperity of future generations.

Applying each of these policy strategies to the global situation over the next 30 years, the hundreds of analysts contributing to GEO-3 came up with the following projections.

	Markets First	Policy First	Security First	Sustainability First
<i>Carbon Dioxide Emissions</i>	- Significant increases	+ Actual reductions by 2030	-- Significant increases, beyond Markets First	++ Decline by 2020
<i>Biodiversity</i>	- Much worse	-+ Continues to decline, beginning to stabilize by 2032	- Much worse	-+ Continues to decline, but stabilizes in 2032
<i>Hunger and Population</i>	- Even with a percentage decrease in hunger, actual numbers increase due to population growth	+ Dramatic reductions	-- Sharp increases	+ Dramatic reductions
<i>Soil Depletion</i>	-- Better quality land taken over by commodity & cash crop production, depletion elsewhere	+ Improved soil management, integrated land management	- Improvement only in areas serving elite, severe depletion elsewhere	+ Improved soil management, integrated land management
<i>Fresh Water Depletion</i>	-- Water stress increases globally	+ Water withdrawals remain at current level or decrease	- Slower economic growth tempers demand	+ Water withdrawals remain at current levels or decrease
<i>Transportation & Energy Efficiency</i>	- No improvement	+ Improvement	-No improvement	+ Improvement
<i>Land & Forest Degradation</i>	-- Significant loss of forest cover	+ More effective management ameliorates some problems	- Control of forests by transnationals promotes some forest growth, but not enough to stop net deforestation	++ Unsound deforestation stops almost completely
<i>Fisheries</i>	-- Fish populations crash	+ Total collapse averted	- Fishing highly regulated, but controlled exploitation rises to very high levels	++ fish and marine mammals are defended against overexploitation
<i>Marine & Coastal Pollution</i>	-- Nitrogen loading increases sharply	-+ Only small increases	-- increases sharply except in guarded areas	-+ Only small increases
<i>Poverty & Disparity</i>	- Increase	+ Decrease	-- Sharp increase	++ Largest decrease

Overall, the Markets First and Security First scenarios will likely prove untenable. Both of these scenarios will probably result in environmental and social melt-downs which could lead to the complete collapse of modern civilization. The Policy First scenario could prove to be a more viable option, though over-regulation has the potential to derail the market economy entirely. Sustainability First would not only produce notable improvements in the health of the environment and pronounced decreases in poverty, it could also result in safe and hospitable communities where families can flourish and children will be nurtured.

State of the World 2003

Much of what is said in **State of the World 2003**, issued by the Worldwatch Institute²³ is a repeat of data mentioned above in previous reports. The Worldwatch Institute is a highly respected organization founded in 1974 for the purpose of helping the world move toward an environmentally sustainable and socially just society. The Institute offers data and fact-based analysis on critical global issues and is consulted by governments, scientists, businesses and citizen groups.

The 2003 State of the World report reiterates the warnings covered earlier in this chapter. This publication warns that the more time which passes without remedial action, the greater the degree of misery and biological impoverishment that humanity will have to suffer. Most importantly, the report states that we have

only one, or at most two, generations to resolve the situation.

Energy Depletion—The Warning Being Whispered

All of the warnings and reports mentioned above fail to take note of one impending crisis which will severely affect all of these other problems, and which will impact our world in only a few short years. This is the issue of energy depletion. These reports are not to be blamed for this failure; the issue of energy depletion is hidden by false and misleading data from the energy industry and governmental regulatory agencies. And the issue is further obfuscated by economists and other well-wishers who refuse to face the problem because it would mean that their pet economic models are flawed and worthless. Yet the threat of energy depletion is already beginning to have an impact on all of our lifestyles.

Beginning in the early 1990s, petroleum geologists and other energy specialists began sounding the alarm about energy depletion. Most of the early warnings were issued by retired petroleum geologists who were now able to speak freely about the approaching threat. They were either ignored or shouted down by critics using flawed data. Yet the energy depletion argument has slowly gained support as more authorities reach the same conclusions, and as their analysis of data has been perfected.

There is an unstated consensus that oil depletion will become an inescapable reality by 2010. And evidence is mounting that world oil production peaked in the year 2000 and has leveled off since then. By implication, rising energy demand will soon exceed oil production, and the result will be rising prices and limited capacity.

The end of the oil age could signal the collapse of technological civilization. There are those who believe that we are preparing to enter a period of social disintegration which would make the Dark Ages seem idyllic. There are warnings that once hydrocarbons fail, we will never again be able to achieve an industrial level of civilization. And hydrocarbon depletion will affect every other problem mentioned in this report, mostly for the worse.

To Be Continued...

So you haven't heard about any of these scientific warnings or global assessment reports? Don't feel alone; in the United States very few people have heard more than a passing comment on these issues. These reports have been buried under the sensational news of terrorist threats, school shootings and a flood of advertising exhorting us to buy, buy, buy our way to a better world.

In the second half of this series, we will look at some of the reasons why these warnings have been underreported. And we will address the questions of why we are not doing anything about these impending crises and in what direction are our leaders taking us. Finally, we will look briefly at alternatives.

(Endnotes)

¹ **Population Growth, Resource Management and a Sustainable World.** Joint Statement of the Royal Society of London and the US National Academy of Sciences, 1992. Archived at <http://www.dieoff.com/page7.htm>

² Ibid.

³ Ibid.

⁴ **World Scientists' Warning to Humanity.** Union of Concerned Scientists, 11/18/1992. <http://www.ucsusa.org/ucs/about/page.cfm?pageID=1009>

⁵ Ibid.

⁶ Ibid.

⁷ Ibid.

⁸ **Joint Statement by 58 of the World's Scientific Academies.** US National Academy of Sciences, 10/27/1993. <http://www4.nas.edu/iap/iaphome.nsf/weblinks/SAIN-4XVKHY?OpenDocument>

⁹ Ibid.

¹⁰ **Joint National Academy of Sciences and Royal Society Resolution: Towards Sustainable Consumption.** US National Academy of Sciences, 1997. <http://www4.nas.edu/NAS/nashome.nsf/Multi+Database+Search/65F4E52642745F1485256709006FBD91?OpenDocument>

¹¹ Ibid.

¹² **World Scientists' Call for Action.** Union of Concerned Scientists, December, 1997. <http://www.ucsusa.org/ucs/about/page.cfm?pageID=1007>

¹³ Ibid.

¹⁴ **Transition to Sustainability in the 21st Century: The Contribution of Science & Technology**. InterAcademy Panel, May 2000. <http://www4.nas.edu/iap/iaphome.nsf/weblinks/SAIN-4XVLCT?OpenDocument>

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ **Guide to World Resources, 2000-2001: People & ecosystems; The Fraying Web of Life**. World Resources Institute, April 2000. <http://wri.igc.org/wri/wrr2000/>

¹⁹ Eutrophication: A process whereby a body of water is choked by the presence of too many nutrients.

²⁰ Ibid.

²¹ **Global Environmental Outlook-3**. United Nations Environment Programme, May 22 2002. <http://www.grida.no/geo/geo3/>

²² Ibid.

²³ **State of the World 2003**. Worldwatch Institute, June 2003. <http://www.worldwatch.org/pubs/sow/2003/>