

# Democracy, the Earth, and You

## Presentation Two: The Ecological Crisis, Facts and Prospects

(Approximately 40 minutes)

The following write-up contains recommended content for the second presentation. Obviously, each presenter must make this presentation his or her own. The write-up speaks from the first person "I" in order to indicate the sort of ownership needed. This write-up may be more thorough than some presentations need to be. The presentation can be simplified or expanded to fit each group. Also, note that the titles are not part of the script.

The basic intent of this presentation is to illustrate what it means to face the basic facts of the ecological crisis and to think for ourselves in a realistic, unexaggerated, scientific manner.

### Introduction

(During the break place on every seat the outline of this presentation and sixth extinction chart.)

In the first session we examined our master overviews for the coming era. In this session we will look at some of the specific challenges facing industrial civilization and why a new sort of society will be required to meet them. I have placed at your seat a copy of the outline of this presentation. The presentation is entitled "**The Ecological Crisis, Facts and Prospects.**" Most people see that we have serious ecological problems and have in some sense entered an Ecological Era, but not all see the depth of our crisis. The aim of this session will be to face some of the grim facts of our situation.

I am going to examine the four topics printed on your sheet:

1. **The Sixth Extinction and the Importance of Biological Diversity**
2. **Global Warming and the Importance of Stabilizing the Climate**
3. **The Population Explosion and the Importance of Stabilizing Population**
4. **Planetary Exhaustion and the need for a New Mode of Society**

What I will say will only touch on these vast topics, but I hope to give an accurate overall impression. I am leaning on the Worldwatch Institute for most of my facts. Lester Brown of that organization has written an essay entitled "Challenges of the New Century" in which he lists the following trends that are shaping the new century: "population growth, rising temperature, falling water tables, shrinking cropland per person, collapsing fisheries, shrinking forests, and the loss of plant and animal species."<sup>1</sup> I am going to look at the last of these first.

## I. The Sixth Extinction and the Importance of Biological Diversity

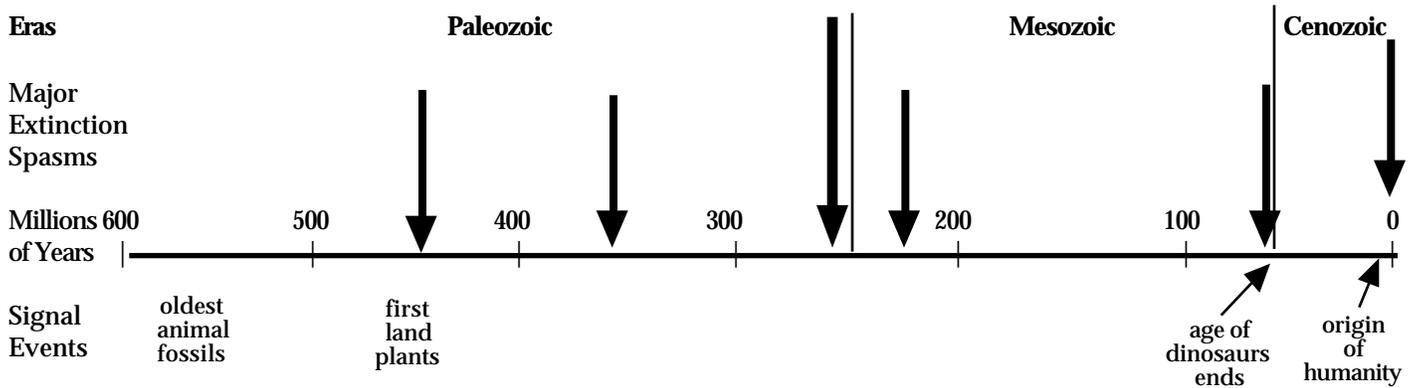
Sometimes people say: "Why worry about the loss of species? We have always had extinctions, and we always will have extinctions." And it is true that over 99 percent of the species that have ever lived are now extinct. So why worry about one more frog species or owl species, or fish species or plant species?

### Extinctions and Extinction Spasms

In order to answer this objection, we must make a distinction between **extinctions and extinction spasms**. The chart on the handout pictures the last 600 million years of life on this planet. The six arrows are extinction spasms. I have taken this data from the book *The Sixth Extinction* by anthropologist and paleontologist Richard Leakey.<sup>2</sup>

<sup>1</sup> Brown, Lester ; *State of the World 2000* (W. W. Norton and Company: 2000) page 5.

<sup>2</sup> Leakey, Richard; *The Sixth Extinction* (Doubleday: 1995)



We are most familiar with the fifth of these spasms of species die offs—the one that included the death of the dinosaurs. Here is the likely scenario: some 65 million years ago a large meteor crashed into the Gulf of Mexico. This object, moving in from the south east at a tremendous speed, created a crater seven miles deep and threw molten rock all the way to the arctic circle. Every tree in north America was leveled and every North American animal not underground was killed. This event also filled the whole atmosphere with dark debris that blocked out the sun for several growing seasons resulting in the death of every land animal larger than a cat. Some small birds, mammals, reptiles, and many more sea creatures made it through this holocaust. Our world was created by these survivors.

But this was not the biggest extinction spasm. The longest arrow on your chart is the third from the left—about 250 million years ago. In this extinction spasm over 70 percent of the then living species died off. The cause of this one has been difficult to discern, but a recent Science News Magazine reported the discovery of evidence that a huge comet crashed into the open ocean.

**The Sixth Extinction Spasm**

This arrow on the right hand side of the chart indicates that we are now living in the sixth extinction spasm of this magnitude. What makes our current extinction spasm different from the other five is that ours is not being caused by an object from outer space but by one of the species in the evolutionary process. This extinction spasm is being caused by you and me, by humanity in its industrial glory, by humanity in its current “hypermagical ultraomnipotence.”

For generations we have celebrated the upside of the industrialized wonder-world. And while it is understandable that we no longer want to live in a technologically primitive world, we now need to pay closer attention to the downside of the industrial revolution.

**The diversity of life** on our living planet is being reduced at a rate that seems hard to believe. Richard Leakey estimates that at least 17,000 species of plant and animal life are wiped out forever each year.<sup>3</sup> Some estimates are higher. Not all of these are the larger animals with which we are most familiar. But the threat to the larger animals is also great: 11 percent of the world’s 8615 bird species are threatened, as are 25 percent of the world’s 4355 mammalian species, and about 34 percent of all fish species. These estimates were calculated by Lester Brown and the Worldwatch Institute.

Six billion human beings, by simply doing what has become normal living, are rapidly destroying the diversity of life on this planet. **Over the long haul, we are a more dreadful threat to the current forms of life on this planet than an incoming comet, for a comet is just one big hit.** After the comet strikes, life has a period of quiet in which to recover and move on—using the surviving diversity as its new base.

<sup>3</sup> Leakey, Richard; *op. cit.*, page 236

But the current extinction spasm is destined to continue until the cause of it, namely we humans, is gone. It will continue until all the most complex forms of life on this planet have been destroyed—including, of course, the human species itself. Perhaps the cockroaches will make it once again.

We can, perhaps, still avoid this, but it will mean some big changes. The current form of industrial civilization is killing us, and it is perfectly capable of doing so in no more than a century or two.

#### Diversity and the Healthy Ecosystem

Long before the human species dies out completely, our lives will be greatly diminished. The entire fabric of life is weakened as the diversity of life is reduced. Nature loves diversity. A strong mature ecosystem of living beings has great diversity. Where only a few species exist, we have a weak community of living beings. In a strong community of living beings, every species has a relatively stable place that is nurtured and limited by all the other forms of life. Diversity is strength.<sup>4</sup>

**A strong diversity of life was a necessary precondition for our species to come into being.** Our lives are now rich because of the vast diversity of life in which we dwell. We may not understand how a particular beetle or dragon fly is contributing to our lives. But it is still true that we are being cared for by this vast life process that we only slightly understand and will never fully control.

Biological life on this planet is so vast and so complex that we will never understand it fully even if we live another thousand years. **In one teaspoon of soil there is more living mystery than could be fully described in all of the human libraries on the planet.** This diversity, however mysterious and irrational it may seem, is the gift that we must preserve if we are to preserve our own species.

#### A Biocentric Human Presence

So we must become **a new kind of presence** on this planet. A presence that **honors** rather than merely **uses** the other species of life. It does not matter whether or not a particular life form will someday be useful to the human economy. **Every life form is valuable just as it is—valuable for being what it is—regardless of how or whether human beings value it.** Even though we choose to restrict certain insects or eliminate certain disease bacteria, we must not assume that microbial life is less valuable than human life or that one human being is more valuable than all the spiders on Earth.

Why are humans valuable? We are not valuable because our parents or our society value us. We are not valuable because we are useful to someone. We are valuable because we are what we are; we are valuable for being the being we are. This way of thinking about value shifts the center of value away from human usefulness to the glory of our elemental being. A beetle has its glory. Each human has his or her glory. Each animal, plant, fungus, and microbe has its glory. The whole planetary system has its glory. We are part of that glory, but we do not have to gather all the glory to our species and consider all the other species as slaves or machinery designed only for our service. **This attitude that everything is here simply for human use inevitably results in the misuse of living ecosystems and the misuse of most human beings.**

## II. Global Warming and the Importance of Stabilizing the Climate

Let us look at **Global Warming and Climate Stabilization.** This is a controversial topic. Some conclude there is no such thing as global warming, or that whatever warming there is is a very minor issue.

#### The Facts and Fictions of Global Warming

But whenever large groups of scientists work in independence from the biases of our current energy corporations, they arrive at the conclusion that there has been a warming of the planet and

<sup>4</sup> For a discussion of the importance of biodiversity see: Wilson, Edward O.; *The Diversity of Life* (W. W. Norton: 1992)

that this warming is being accelerated by the increase in greenhouse gases in the atmosphere. Greenhouse gases act like a window in a closed up car. Sunlight comes in and heat is trapped. One of those greenhouse gases is carbon dioxide produced from burning carbon fuels like coal, oil, and gasoline.

Almost no one argues with the increase in carbon dioxide levels. Here is a quotation from Lester Brown, "When the Industrial Revolution began more than two centuries ago, the CO<sub>2</sub> concentration was estimated at 280 parts per million. By 1959, when detailed measurements began, using modern instruments, the CO<sub>2</sub> level was 316 ppm, a rise of 13 percent over two centuries. By 1998, it had reached 367 ppm, climbing 17% in just 39 years. This increase has become one of the Earth's most predictable trends."<sup>5</sup>

The cause of our rising temperatures is more controversial because other factors besides CO<sub>2</sub> levels are involved. Nevertheless, CO<sub>2</sub> is involved, and here are the predictions that seem quite convincing to many scientists: ***if CO<sub>2</sub> levels double their preindustrial levels, as projected, we can expect a rise in average temperatures in the range of 2 to 7 degrees Fahrenheit.***

#### The Grim Prospects of Climatic Instabilities

Such a rise in temperature, Brown estimates, could mean a rise in sea level of 39 inches in this century. This would eliminate from existence a number of already flooding islands and provide serious issues for most coastal cities. Such changes in temperature will also alter every ecosystem on Earth.

The rising temperatures are already impairing coral reefs in nearly all the world's oceans. Coral reefs, Brown reminds us, are sometimes referred to as the rainforests of the sea, because they are the breeding grounds for so many species of marine life.

Life forms all over the world will be seriously stressed by such rapid changes in mean temperature; life systems cannot adapt to new conditions that quickly. Weather patterns will become more and more erratic. Some croplands will be lost to desertification. Some forests will be further diminished. We do not know the full extent of what might happen. It is very likely true that we have already endangered the quality of our planetary atmosphere to the extent that we may not be able to avoid dire consequences in the next fifty years.

#### The Human Cause of Global Warming

Is there anything we can do? Yes, the extensive fossil fuel burning of industrial civilization is the primary cause for the rise in CO<sub>2</sub> levels. Even if global warming has other causes as well, the fact remains that humans are contributing in a prominent way to these climatic instabilities.

#### The Costs of Meeting this Emergency

Since possibilities exist for drastically reducing our use of fossil fuels, why aren't we doing so? Because oil companies, coal companies, auto and truck companies, truck drivers, and all of us ordinary energy users are uncomfortable with making the needed changes.

Some very simple laws would help. A great deal could be accomplished by simply requiring higher gasoline mileage on all new cars. The hybrid electric-gasoline cars which are already on the road get 48 to 65 miles per gallon. Still-improving technologies can take this up to eighty or a hundred miles per gallon.

Electricity-producing fuel cells, wind generation of power, and many other innovations have

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<sup>5</sup> Brown, Lester; op. cit., page 5

already been thoroughly tested. Conservation measures also have enormous potential in our currently wasteful society.

But we are being encouraged in our current habits by politicians and energy companies who quite frankly are more concerned with maximizing their profits and longevities than they are with serving our long-range needs.

Extensive fossil fuel usage has problems other than global warming. It also creates pollution in our air quality, acid rain on our forests, and in some cases pollution of our water tables. In Los Angeles, Houston, Mexico City, and other places, a number of days each year are “breathing alerts” that are announced to the entire public. Breathing alerts do not mean “Don’t breathe,” but “Don’t breathe too hard.”

Furthermore, our North American and European economies are being warped by our dependencies on foreign oil. Indeed the oil trade warps every economy and spawns wars as well.

And in the long haul fossil fuels are running out. We are living in a brief 200-year interval in Earth history in which petroleum has been plentiful and cheap. In the next several decades we will be forced to make a transition from our fossil-fuel energy system to an extensive use of renewable forms of energy and energy conservation. Our economy is like an airliner that left New York for London on a half-tank of fuel. We are not going to make it to the end of this century. The longer we wait to act, the harder it will be to make the changes needed in our economy.

Finally, these consequences and the consequences of global warming will make all our other problems harder and perhaps impossible to solve. We need a healthy atmosphere and healthy ecosystems in order to deal with poverty, disease, social chaos, and the preservation of species. Indeed, we need a healthy atmosphere in order to breathe.

### **III. The Population Explosion and the Importance of Stabilizing Population**

Let’s look at the third huge issue on this list: the population explosion and the importance of stabilizing population. A continuing rapid expansion of the human population can also make resolving all our other problems harder and perhaps impossible.

#### **Population Facts and Figures**

So where are we now in human population growth? Here are the current figures according to Lester Brown of the Worldwatch Institute.

“Between 1950 and 2000 world population increased from 2.5 billion to 6.1 billion, a gain of 3.6 billion. And even though birth rates have fallen in most of the world, recent projections show that population is projected to grow to 8.9 billion by 2050, a gain of 2.8 billion. Whereas past growth occurred in both industrial and developing countries, virtually all future growth will occur in the developing world where countries are already overpopulated, according to many ecological measures.”<sup>6</sup>

Why is population growing so persistently in the developing world? Partly, this is a result of the momentum of the cultural conditioning of earlier times. But it is also true that poverty-stricken people have no old-age security except the care that can be given by their surviving children. So having a large family is an investment in the future. In the developed world conditions are very different; each child is a large economic expense, and old-age security is provided in other ways.

#### **The Tragedy of Population Growth**

***So what is wrong with a larger human population?*** While the human population is growing, the amount of fresh water being produced by evaporation and rainfall is not growing. Sustainable

<sup>6</sup> Brown, Lester; op. cit., page 5

yields of oceanic fish are not growing. Production from forests, rangelands, and croplands is not expanding and cannot expand to match the growth in population. **Therefore, the planet's support per person is being drastically reduced.**

Such grim conditions will make the tensions between rich and poor even more horrific. Social chaos will increase. Extinctions will increase. Ecosystems will collapse. The entire planetary abundance will be diminished. It is not a pretty picture.

#### How Stabilization is Being Effected

**Can something be done about population explosion?** Yes. Some developing nations have already stabilized their populations. How have they done it? In places like Uganda and Thailand population is approaching stability through massive government-led educational programs. In both of these countries the heads of state led the educational campaign against both the AIDS epidemic and population growth. People do not want their children and grandchildren to be without water and food, but they need to know the facts and the prospects and be strongly encouraged to make the changes that are needed. It is especially important for women to be included in this massive reeducation effort. As long as women are oppressed, there is no solution to the population explosion.

We are talking about big changes. In Pakistan, the projected population growth for the next 50 years is 193 percent. In the same time period, many other countries have projections in excess of 100 percent. In places like South Korea where all out efforts have been made, the projected growth in population for the next 50 years has been reduced to 5 percent, and it can be reduced to zero. **We must not conclude that nothing can be done, but stabilizing the population does require both the money to do mass education and the common political will to do it.**

#### The Costs of Meeting this Emergency

Countries like the U.S. and Canada who are capable of giving aid to the developing world need to give massive economic support to any country that has the political will to deal with its population explosion. A massive, comprehensive educational campaign that includes women is the key.

Some have argued that population growth cannot be controlled until poverty is eliminated. But that is not true. The relationship is exactly the opposite. **Poverty cannot be eliminated until population growth is controlled.**

## IV. Planetary Exhaustion and the need for a New Mode of Society

Let's look at the fourth area: **Planetary Exhaustion and the need for a New Mode of Society.** In addition to species depletion, global warming, and population explosion, we also need to pay close attention to a list of other issues such as: ample fresh water, depleted forest cover, shrinking cropland, and fish depletion. To Brown's list we might add mineral depletion. By "mineral depletion" I mean the burning of the Earth's stored fuels and the scattering rather than the recycling of the Earth's rarer metals.

#### The Depletion of Fresh water, Forest Cover, Cropland, Fish and Minerals

I am going to quickly barrage us with some of the grim facts.

1. We are pulling fresh water out of our aquifers and rivers at a larger rate than they can replenish. China and India are already facing serious water shortages. Dry areas like southern California are approaching water war with the wetter mountain states. Alien trees in South Africa are destroying the water systems of that dry area. Fresh water may turn out to be our most limiting commodity for handling the growing population.

2. **Forest cover** is another planetary resource being overwhelmed by human demands. Logging companies unless restrained will cut the last 5 percent of North America's old growth forests for short-term profit. We face the prospect of forever losing the majesty and nurture of these natural sanctuaries.

And the tropical rain forests not only house the most diverse array of life species; they are also the most important oxygen replenishment organs on our planet. Forest cover is a fraction of what it once was and is still shrinking about 1000 acres per day.<sup>7</sup>

3. We also continue to destroy **croplands** through extractive agricultural methods and uncontrolled erosion. More than 11 percent of the world's cropland was identified in 1989 as severely eroded. And this process continues on 75 percent of the land in some regions. Lester Brown says, "Since the mid-twentieth century, grainland area per person has fallen in half, from 0.6 acres to 0.3 acres."<sup>8</sup> By 2050 it can be projected to be 0.2 acres per person—about the size of a city lot. In the most populous places it could be half of that, an area the size of a tennis court.

4. We are **over-fishing** the oceans. "From 1950 to 1997 oceanic fish catch expanded from 19 million tons to more than 90 million tons." "Most marine biologists believe the oceans cannot sustain an annual catch of more than 95 millions tons."<sup>9</sup> This means that the marine food per person is shrinking. Some populations of once abundant species of fish have already become almost extinct through our technological wizardry.

However disturbing these and other such facts may be, we have to face up to such actualities if we are going to make the transitions that are challenging us.

#### Poverty, Disease, Terrorism, and Horrific Chaos

Furthermore, many other types of problems reinforce and aggravate these ecological challenges. Vast poverty and the increasing gap between rich and poor are a horror on their own terms. And poverty breeds still other problems.

Disease epidemics that break out in one section of the planet now threaten all of us.

Terrorism can seem a meaningful option to people who are impoverished, disrespected, and hopeless. As we have seen, there is no absolute defense against terrorists who are willing to expend their very lives in making their statements.

Horrible chaos in any part of the world is a problem in our own neighborhood.

#### No Social Justice without Ecological Integrity

The policing of terrorist networks of global scope is an important matter, but this urgent matter is only a small part of the whole picture. The conditions that foster terrorism and despair are where we must focus most of our attention.

Those of us who are concerned about racism, women's issues, and other social justice challenges need to see each of those crucial matters in their ecological context. In patriarchal and impoverished societies, ecological degradation affects women more than men. Minority races and other disparaged groups also have the most to lose from ecological degradation and the most to gain from ecological integrity. Furthermore, oppressed groups are becoming more aware that the forces which prevent social justice are the same forces which prevent ecological integrity.

#### A Third Mode of Human Society

Some improvements are being made in every area we have mentioned in this presentation, but

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<sup>7</sup>Brown, Lester; op. cit., page 8

<sup>8</sup>Brown, Lester; op. cit., page 7

<sup>9</sup>Brown, Lester; op. cit., page 8

not nearly enough. To find solutions to these horrendous problems, we need to think bigger. We need to think about the entire frame of our society.

Most people believe that the mode of society we currently have is the only viable possibility for our future, but the society of the future can be very different from what we have—so different that calling that new society “civilization” is a misnomer. Let us consider the possibility that we are not being challenged to **save civilization**, but to **build post-civilization**. What does this mean? Consider this chart:

(Draw the following chart on the board.)



So far in the history of our species, we have constructed two basic modes of society. Small **tribal societies** were the first; **civilizations** were the second. Neither of these two modes of society will handle the challenges of the coming Ecozoic Era. We will have to construct a third basic mode of social living. We don't know what name to call this new mode of society. “Post-civilization” is not a name; it is just a marker for this unnamed future. I will describe some of the qualities of this third mode of society, but first let us recall briefly what these first two modes of society have been.

Tribal society is the mode of society that has characterized over 94 percent of the history of our species. We developed this mode of society in close association with our biological evolution. For perhaps a thousand centuries, this mode of society enabled our survival and nurtured us in the basic adventure of being human. Tribal societies still survive and nurture people to this day (wherever civilizations allow tribal groups to have an adequate habitat in which to live).

**Tribal people quite often view civilization as a mistake**—as an oppressive and ruthless reality that should never have begun. They see the current reality of civilization as catastrophic to the natural world and to the human species. Many tribal people feel it is time for civilized people to learn from tribal people how to live.

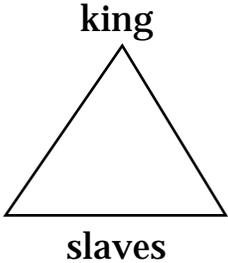
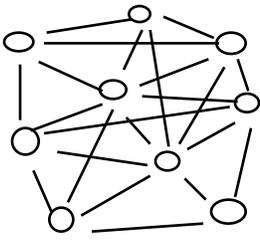
Such a view is surprising to most civilized people, **for it has been the standard view of civilized people that they were a huge advance over tribal society**. To support this view they note how civilizations have moved beyond tribal parochialism into wider perspectives on the world, as well as better technologies, greater sophistications, greater organization of the power to do things, and greater prosperity (at least for some).

The point I am making with this picture is that we must do more than go forward to a better form of civilization. Furthermore, we cannot go backward to some old form of tribal society or even forward to some new form of tribal life. **Our only realistic option is to go forward to a form of social life that is so different from anything that has ever existed before that it cannot be understood as a new form of civilization nor as a new tribalism**. Both tribal societies and civilizations have gifts and lessons that are important for our future, but both forms of social organization are inadequate to handle that impending future. We need something fundamentally new, an innovation in human social mode that will become the third major form of human social organization.

The chart I am passing out attempts to sketch some of the qualities of that third mode of human society.

(Pass out the following chart on the qualities of the three modes of society and read through the various shifts)

# Social Mode Qualities

Precivilization	Civilization	Post civilization
<p>Tribal Intimacy</p> 	<p>Hierarchical Order</p> 	<p>Planetary Confederation</p> 
Companionship	Aristocracy/Commoners	Full Democracy
Nature-Honoring	All-out Use of the Earth	Ecological Design
Natural Roles	Male Rule	Male/Female Balance
Isolated Diversity	Uniformity	Interactive Diversity
Isolated Autonomy	Centralized Power	Local Empowerment
Local Enmeshment	Mobile Expansion	Grounding in Life Regions
Boundary Maintenance	All-out Warfare	Negotiation and Restraint

Clearly, we need to move away from the negative qualities that have characterized every civilization for the last 6000 years.

(1) We must move away from **aristocratic rulership** toward full democracy.

(2) We must move away from **all-out use of the Earth** toward an intentional and effective balance between human wellbeing and the wellbeing of the entire community of living beings.

(3) We must move away from **male rule** toward a society in which men and women have full equality and operate in full partnership in all aspects of social life.

(4) We must move away from racism and other oppressive **uniformities** that demean “other” groups for their racial, cultural, or religious differences. This means moving toward the full honoring of our ever-present and interacting diversities.

(5) We must end our excessive **centralization** of political and economic power and work to empower local communities with the capability of shaping their common lives.

(6) We must end our rootless, excessive **mobility** and learn to marry our local communities and natural regions and take responsibility for them.

(7) And finally, in this age of atomic power, biological agents, and super technology, we must do away with **all-out warfare** and move toward a planet-wide community which restrains all-out warfare and solves our conflicts in peaceful ways.

One of the fruits of moving in these seven directions will be the mitigation of grueling poverty and the opening of opportunities for all humans to construct for themselves a viable life.

Civilization is failing. Ecological collapse and grueling poverty are signs of that failure. Only a third mode of society will provide the context within which humanity can provide answers to the grim challenges that confront us.

***Let us talk about these matters together.***