Hope in an Environmental Wasteland

If we can’t fix something, does it make sense to try?

It's too late to prevent climate change; it already happening, and much worse is coming. The powerful forces of consumerism, a capitalist economic system, government, the power of the corporations, and the influence of the media create a web that we will not untangle without profound changes in our society. If we can't actually solve the problems of global warming and climate change, if the results are going to be tragic, where do we find hope? How do we respond? Paradoxically, responses are is popping up everywhere. Something new is afoot.

I sometimes teach classes about the environmental crises facing us and the devastation they’ll cause. One of the basic messages of the course is that preventing climate change is no longer possible. It’s already here and much more is inevitable. I explain at the beginning of the course that the forces arrayed against environmental sanity are simply too strong for the usual political or personal fixes to be effective. And until we understand what we’re up against, we can’t react effectively. American consumerism, the structure of our government, the nature of our economic system, the power of the corporations, and the dominance of media are a tightly interwoven web that is virtually invulnerable to human attack. I warn class members that the first two-thirds of our time together will be depressing, but I ask them to hang in there with me until our last sessions when we can begin to talk about what hope might look like.

But they never do hang in there. By the third or fourth session, each class has, in one way or another, resisted or outright refused to continue examining the web and has insisted on asking, sometimes angrily, what we can do about it.

But to ask “What can we do about it?” usually means “What can we do to fix it?” When I respond that there’s nothing we can do to fix it, there’s near rebellion within the class. Where’s the hope, then? What good does it do to understand it if we can’t fix it? Why should we do anything at all?

Every class so far has responded this way. It seems built in, programmed. You may have similar feelings as you read on. What’s going on?

The Positive Outlook as Problem

Our country's historical optimism and positive outlook are blinding us to the painful future that awaits us. We Americans have an unshakeable faith in progress, in our capacity to overcome obstacles. "Things'll turn out," we remind each other. "Look at the bright side," we say. Even when things clearly won't work out, even when there is no bright side, it's rude to say so in mixed company.

This official optimism is thoroughly grounded not only in the Enlightenment thinking that suffuses the West but also in our particular history as a nation. The colonization of the Americas, the taming of the frontier, and the growth of an affluent middle class all required confidence unwarranted by the chances of success. But the eventual success reinforced our native optimism. Until the last fifty years, our experience has been that as a nation we can accomplish whatever we set our minds to.

We've been understandably proud of our can-do attitude. We attribute much of our success to our optimism and willingness to forge on against seemingly insuperable odds. We have risen above nature, we believe, and are no longer subject to it. Our intellect and our technology will ultimately solve any problem. Anything less than a positive outlook is considered "defeatist" or "needlessly depressing." We shouldn't be "quitters." Optimism is part of the American creed. It's official.

So what's the matter with that?

The circumstances of our history have changed dramatically and our persistent optimism is obscuring reality, shrouding what's really happening and diverting us from our real work. The United States is the only industrialized country, for instance, where there is no national, politically effective response to our environmental future. The most benign bill to establish a system of cap-and-trade of carbon emissions didn't stand a chance in Congress. Of the 65 Republicans who agreed to answer the question (most refused an interview), "only five said they believed a 'significant amount' of climate change was due to human activity." [1] As we'll see, there are political and economic reasons for this stance, but it could not dominate the public discussion except for our official optimism that, really, we can manage anything that happens.

Global Climate Change

The environmental challenges we face are overwhelming, any one of which could rise to the top of our list of concerns under the right circumstances:

- climate change
- the loss of farmland the size of Nebraska around the world every year
- the decimation of ocean fisheries from overfishing
- the loss of biological diversity with an estimated rate of species extinction 1000 times the rate of normal loss
- the pollution of air and water, the long-term effects of which (cancer, fetal abnormalities, cognitive dysfunction, and so on) often take decades to reveal themselves, and
- the loss of freshwater, which will almost certainly lead to 21st century resource wars

Any of these is a profound threat to our civilization, but the most immediate and most on our minds is climate change, so I'll stick with that.

Carbon Emissions, Tipping Points, and Likely Outcomes

Most readers will know a fair amount about global climate change, recognize that it's primarily the result of carbon dioxide (CO_2) emissions from human activity, and accept the scientific consensus of an ominous future if carbon emissions are not controlled. To recapitulate briefly, climate change is the result of a drastic rise greenhouse gases—CO_2, methane, nitrous oxide and others—unlike any the Earth has seen in 200,000 years. Sunlight can pass unchanged through this layer of gases, but the warmth produced when it strikes the Earth can't pass back out. So the Earth has warmed an average of 0.7º Celsius (C) or 1.0º Fahrenheit (F) above the baseline that had been consistent for millennia.

What some are just beginning to acknowledge is that the battle to prevent climate change is already lost. Even some mainstream TV has dropped the conditional. It's no longer "possible" or "some-scientists-say" climate change or "if" or "when" climate change occurs. With rising oceans; frightening changes in disease distribution; the increasing occurrence of record-setting heat waves and droughts; and record floods, hurricanes and tornados; the climate is changing fast. As environmentalist Bill McKibben writes in his book *Eaarth*, we live on a new planet … and we won't get the old one back.

Given the current forty percent increase in the concentration of greenhouse gasses, the unwillingness of major polluters like China and the United States even to consider real changes, and how long it will take to reach sustainable levels of emissions even after major polluters have sincerely committed themselves to radical action, CO_2 emissions won't even begin to decrease anytime soon, and certainly not before further, even more dangerous, destabilization of the climate.

Reports from the UN's Intergovernmental Panel on Climate Change (IPCC) warn that if we don't keep the total temperature rise below 2º C, the risks will be too great to accept. Unfortunately, because of CO_2's long half-life in the atmosphere, just the CO_2 we've already emitted commits us to a rise of 1.5º C.

One must understand, however, that the IPCC's estimates and predictions are very conservative. Their mandate is to carefully present data that is unassailable, but individually many scientists on the panel are more forthcoming and, in general, deeply pessimistic. For them, the science is bad enough, but the practicalities are worse. We'll examine those practicalities below.

The End of the Long Summer

There's a further dark cloud on the horizon that—in keeping with our innate optimism—has been only minimally publicized. The last 11,700 years have been a period of unusual climatic stability, labeled by one author "The Long Summer." [2] Without this stability, many scientists believe, agriculture and the establishment of our civilizations would have been unlikely. But in the last 120,000 years, no other stable period like this has occurred. The normal has been wild swings in climate with temperature changes of up to 10º C in as little as fifty years, perhaps fewer.

Scientists aren't yet sure what has given us the long summer, but, given the much more common instability in our history, they fear that even small temperature changes will tip us out of this fragile balance and into almost unimaginable scenarios. The details (when and how bad) are unknown but could include: sea level rises of twenty feet or more that inundate Florida and much of the tip of Manhattan; an uninhabitable tropical belt and American Southwest; the loss of the Amazon rainforest; and the deaths of even billions of people from hunger, thirst, and the

resultant political instability.

Unfortunately, this is not science fiction. How could it happen? One reason we can't make reliable specific predictions is that "positive feedback loops" are one of the big unknowns that science doesn't yet understand well. The loss of albedo (the fraction of the sun's rays reflected away from the Earth) that causes the Arctic's melting ice is well known. Ice reflects most sunlight harmlessly back into space, but the darker, ice-free water absorbs it, warming the sea. As warming shrinks the ice cap, less ice and more open sea causes further warming, melting the ice cap even faster. That's a positive feedback loop, a destructive spiral.

A potentially more ominous example comes from the massive amounts of methane stored in the arctic permafrost, frozen Siberian peat bogs, and vast deposits under ocean beds. Molecule for molecule methane is twenty times more potent a greenhouse gas than CO_2 although its much smaller concentrations in the atmosphere make it, currently, less important than CO_2. When the permafrost or peat bogs begin to melt, however, the methane is released, intensifying the greenhouse effect, warming the earth, further melting the permafrost and round we go. There's so much methane locked in the permafrost and peat bogs that once serious amounts begin to be released, all bets about climate future are off. The even greater amounts of methane under ocean beds are very sensitive to the temperature of the water just above them; even a small change could cause large "burps" of methane release, which are believed to have caused dramatic warming and mass extinctions earlier in Earth's geological history.

There are many other known positive feedback loops:

- Oceans are a major sink for CO_2, but as they warm they can't hold as much CO_2.
- Rain forests sequester huge amounts of CO_2, but as the tropics warm, they dry out and release all that carbon, further warming the Earth.
- Ocean plankton, small plants responsible for approximately half of the Earth's photosynthesis, [3] metabolize CO_2, taking the carbon with it when it dies and sinks to the bottom. Warming seas reduce not only the amount of ocean plankton but also its metabolism, decreasing CO_2 uptake, increasing the concentration in the atmosphere and creating another vicious feedback loop.

The timing of such feedback loops and the resultant sudden rise in temperature can't yet be predicted, but their likelihood renders the IPCC's gradual curve hopelessly conservative. Even more worrisome are the still unknown feedback loops in this complex organism that is Earth.

Such feedback loops will be important in the end of the long summer. Rising temperatures will almost certainly push the climate off the perch it's balanced on. How soon? According to the geological record, even the current 0.7º C rise has previously been enough to bump the earth off balance. And once that happens, it's a whole new ballgame. The Earth itself becomes the major player—and the illusion of human control of the environment will dissipate quickly.

No amount of optimism can change the reality that we live on a new planet.

Political and Social Realities That Will Make Change Very Difficult

So far what I've said will be not be news to anyone who has made it their business to study these matters. The nation's response to this frightening reality, however, has been muted. Some individuals have changed their lifestyles considerably to reduce their carbon footprint; some states have followed the leads of California and New England in passing laws to limit CO_2 emissions. But the federal government has done virtually nothing.

If we don't understand the reasons behind this minimal response, we will either continue in our blind optimism or descend into despair. Even most national environmental groups still talk—publicly at least—about avoiding the coming tragedy *if* we do such and so: if the people were to push hard enough, if politicians could be convinced, if the media were to wake up, and so on. But these environmentalists have apparently not been talking to the political or social scientists, for the "ifs" aren't going to happen. Few of the writings on climate change (or other environmental crises, for that matter) have taken political and/or economic realities, consumerism, the power of modern media, or the influence of the corporations into account, [4] which is something like ignoring sexual desire when considering overpopulation.

Each of these forces is powerful in itself. But it is their interaction that creates the impenetrable web that will make escalating climate change inevitable.

A small diversion: As a physician I'm in the habit of being precise with my language, and I'm quite aware that, logically, nothing in the future is inevitable. But climate change has already happened and given the physics of CO_2 and the time it will take to reduce emissions once the world agrees to reduce them significantly, much more climate change is utterly certain. But I'm saying something more. What I mean is that given this web of forces,
calamitous
climate change is as certain as human predictions get. There will be no world-wide binding agreement to reduce emissions in the foreseeable future. Only a literal miracle or a momentous breakdown in the social and economic order soon would be enough to open new possibilities.

Given the precarious position of our economy, the dysfunction of our politics, and the coming environmental realities, of course, such a breakdown is likely eventually, say within 50 years, if not sooner. But when it eventually happens and the requisite changes are eventually made, it will be too late to prevent widespread suffering.

The danger is that recognition of the inevitability of this catastrophe can lead to despair and inaction. My purpose is not to snuff out hope but to open our eyes. Gar Alperovitz has written that within human history change is "as common as grass." And we must prepare ourselves for that moment, ready to take advantage of it to limit the coming catastrophe as much as possible. And until those changes can occur we must find ways of acting that will relieve as much suffering as possible.

Let's begin to tease the web apart.

Consumerism

Although the majority of Americans recognize the reality of climate change and want governmental action, there has been no sustained popular demand for a change in policy. Why not?

Most Americans are deeply committed to their material lifestyle. The unspoken reality is that any effective challenge to climate change will require a radical transformation of that material

lifestyle. Environmentalists and their organizations generally want to avoid this “inconvenient truth,” but the energy for indoor temperatures to our satisfaction, transportation of food, importation of goods from distant lands, personal transportation, manufacturing and much else all guzzle fossil fuels and emit CO_2. A sustainable level carbon emissions—ie a level that the natural earth could recycle without rises in atmospheric CO_2 levels—would be about two tons of CO_2 for each person in the world per year. The average American uses 20 tons. As China, India and other poor countries develop economically, it’s utterly unrealistic—to say nothing of unjust—to expect them to keep to a 2-ton limit unless the Western world reduces its consumption accordingly.

What would 2 tons per year for the average American look like? It’s difficult to imagine, but for starters it would mean:

- no air travel (period)
- mostly local transportation on foot or bicycle (or the not-yet-existent) adequate public transportation
- vegetarian, if not vegan, diets
- only locally produced food … even in the winter
- no air conditioners … even in the South
- elimination of individual ownership of luxuries (and many other things we consider necessary), for instance, TVs, computers or washing machines
- reducing the average size of our homes by at least a third, if not a half (or having others share our space)
- and so on

Virtually no national environmental group acknowledges publically that a truly sustainable lifestyle will require such drastic changes. In Al Gore’s otherwise excellent and important film, *Inconvenient Truth*, we are left with the impression that changing to CFL light bulbs, driving a Prius, recycling, and buying carbon offsets would be enough. Well, no, it won’t be enough. In this sense those opposing carbon limitations are absolutely right: our “way of life” will have to change. Polls may show that most Americans are concerned about the environment, but how many will voluntarily vote for such changes until absolutely forced to?

This consumerism is powerfully encouraged by media advertising. Corporations and the US government are powerful purveyors of consumerism. Only economic reality (that is, major

declines in personal incomes) will force a possible (though not guaranteed) loosening of the vise-like grip of American consumerism. But consumerism is only one element of the web.

The Capitalist Economic System

Our current economic system has been a direct cause of our environmental crises. Absent government intervention, capitalism's fundamental theory *precludes* a significant reduction in carbon emissions. Think about these basic assumptions of capitalism:

- Self-interest should be the primary economic motivator.
- Monetary profit is the only goal.
- The value of everything is measured by money.
- Who gets what is determined by how much money they have.
- Property is private and—within broad legal limits—owners can do anything they want with their property, regardless of the suffering it may cause others.

I am not exaggerating; these assumptions are recognized in basic economic textbooks. While individual owners and corporations serving a local area may, and fortunately often do, ignore some of the assumptions for the sake of the wider community, large publicly-held corporations adhere to them rigorously. But if we examined these assumptions carefully, most of us would find each one immoral as a basis for our behavior. Who of us, for instance, believes that pure self-interest, defined as monetary profit, should be one's goal, especially one's sole goal?

How does capitalism lead inexorably to environmental devastation? First, the problem of "externalities" is well recognized. An externality is a cost of producing a product that is foisted onto someone else in order to sell the product at the cheapest price. Environmental costs, for instance, are usually externalized. When a coal-fueled electric plant discharges CO_2 into the air, for instance, the company doesn't pay for the cost of the resulting damage; the rest of us do. The public thus subsidizes electricity generation from fossil fuels which allows the companies to lower their prices. If companies had to pay the full cost of their production, however, wind and solar power would be more than competitive, and we'd have much more of it.

Competition will force externalization of environmental costs upon even the CEO who is truly concerned about the environment. If the company were to buy the expensive equipment necessary to sequester the CO_2, its electricity would be priced out of the market. It's not

necessarily greed (although it sometimes is); it's not necessarily an unconcerned management (although it sometimes is). The problem is built right into capitalism and wouldn't change significantly if you or I were the CEO. The morally right decision would too often run a company out of business.

A second, related, built-in characteristic of capitalism is that businesses must grow to survive; growth generally requires higher and higher levels of consumption fueled by powerful advertising that increases consumer desire and the sense that luxury items are actually necessities. Consumer desire increases, creating growth and the increased consumption of natural resources.

Third, the private nature of property legally inhibits the government from many of the regulations that could limit greenhouse gas emissions.

Adam Smith, the first theorist of capitalism, recognized another problem. Extremes of inequality are built into free-market capitalism. Under capitalism, government intervention is required through some kind of redistribution of income, for instance, progressive taxation. Free-market theorists claim that in material terms the market "lifts all boats." Even if this were true, it's clear that in practice the freer the market, the greater the inequality. Inequality ultimately destroys democracy because of the power of the wealthy and the powerlessness of the poor. The wealthy not only have massively disproportionate influence on government, they also control the media, which can obscure what's actually happening politically. This demoralizes the population who consequently won't become active and work to change policy. This has become especially obvious in the United States over the last thirty years.

The theory of capitalism loudly trumpeted by those in power, constrains government from "interfering in the market," but that "interference" is, in fact, the only way to control capitalism's built-in environmental devastation.

Corporations and Their Structure

Their wealth and power give corporations commanding influence over attempts at environmental sanity. Whole communities can be held hostage to a corporate threat to abandon the area, destroying jobs. Corporate political contributions and lobbying provide

overwhelming influence over politicians. Their immense size allows them power over the structure of the economy, for instance, over economic agreements among and within countries.

Much of the corporate impact on the environment is exacerbated by the legal structure of the corporation. Small or local businesses tend to moderate capitalism's underlying assumptions through loyalty to employees, concern about environmental impact on the local community, and rigorously honest behavior. But the "owners" of large corporations are many thousands of investors—whether working-class individuals through their retirement funds, wealthy individuals, or other corporations—who have bought stocks for the sole purpose of financial returns. Management has only one mandate, to maximize profits, which leads to the pure capitalism described above. Regardless of the environmental consciousness of the management, corporate managers are constrained from any other concern except the best interests of the stockholders, the bottom line.

Since the late 1800s, corporations have, notoriously, had most of the legal rights of individuals. Outside narrow legal limits, the right to free speech, for instance, allows the most blatantly exploitative advertising, which pushes the conspicuous consumption at the heart of global climate change. The right to free speech also allows corporations to offer essentially unlimited financial support to advancing a particular political position. The corporate right to privacy prevents routine public examination of the internal records which could hold them accountable for their practices; such accountability could have prevented the operational "shortcuts" that led to the Gulf oil disaster. The corporate right to equal protection before the law makes the efforts of West Virginians to prevent mountain-top removal much more difficult. And so on. We are so used to these individual rights being afforded to corporations that—except when their most egregious behavior leads to disasters—we hardly think about it.

But corporations are not persons.

- They are immortal.
- They are wealthy beyond imagination and collectively have dominance over the economic lives of millions of voters.
- No live person or group of persons has actual legal responsibility for their actions. Shareholders cannot be held accountable for even illegal behavior by the corporation. Corporate managers have no personal responsibility for corporate actions that might hurt, or even kill, others, as long as the action is technically legal. True, the corporation may go bankrupt, but the worst actual persons can suffer is the loss of their investment.
- As inanimate "persons" corporations feel no sense of moral responsibility, for instance, to their communities.

The power of corporations has not always been so overwhelming. Those of us of a certain age can remember

- when unions were strong enough to successfully stand up to employers,
- when CEO salaries were “only” forty times their employees;’ not six hundred,
- when their impact upon democracy was not so detrimental, and
- when it was possible to get elected without corporate support.

But in the late 1970s—after media became crucial to getting elected and campaign costs skyrocketed—the business community developed new and powerful tactics. Previously, individual companies or industries had lobbied for their own interests, often at cross-purposes with one another. But, as documented by Jacob Hacker and Paul Pierson in *Winner-Take-All Politics*, in the 1970s, several national business associations (such as the Chamber of Commerce and the Business Roundtable) organized their members to act in concert. Within only two or three years the impact on government had become profound, forcing Democrats—who controlled the presidency and both houses of Congress in the late 1970s—to reduce corporate and capital gains taxes and preventing them from passing labor and consumer-protection legislation. While there have been important exceptions, virtually no one gets elected and no bill gets passed if the corporations are united and strongly opposed. And even when they lose the vote in Congress, the corporate lobbying presence at every step of the way assures their influence in writing the details of the laws, writing the regulations, pressuring the regulatory agencies, and assuring their own impact in enforcing the law. Corporations can lose the election and win the wars. An obvious example is the failure of even the Democrats—despite vast popular support—to agree on minimal tax increases on the wealthy.

Corporations provide the cheap goods and encourage the consumerist culture of *more*. They own the media and are thus powerful influences on the cultural and political beliefs of the consumer.

Media

Progressives will sometimes respond to these concerns by suggesting that, when economic conditions turn bad enough, the middle class will soon start voting for the 99%. And virtually every progressive essay on either the environment or economic inequality will eventually

suggest new legislation or a constitutional amendment that could change things for the better. And there is no shortage of workable ideas: public financing of campaigns, tax rates as progressive as they were thirty or fifty years ago, a Tobin tax that would put a minuscule tax (perhaps ¼ of one percent) on stock transactions, powerful cap-and-trade legislation, and so on. The ideas are endless, and they are all good ones that would indeed improve the situation markedly. What those who suggest these ideas usually ignore or vastly underestimate, however, is the power of advertising and, thus, the media, to influence our thinking.

We are all aware of the power of advertising to keep us addicted to consumerism. We can be sold things we don't need, don't really want, and certainly can't afford … even if they are collectively destroying us. As individuals, however, most of us believe that we are immune to the effects of advertising. But advertisers would not spend over $3 billion a year in the US alone if it were not effective. A hundred years of psychological research has provided the industry the tools to influence us well underneath our conscious radar. Even media *content* that 's not technically advertising is, for the most part, a powerful advertisement for a consumerist lifestyle as we watch the way that the mostly affluent characters in the dramas live.

Also often missed is the ability of a well-funded advertising campaign to sway voters' preferences and their understanding of an issue. Polls suggest that less than 5% of people know much about political issues or how politics work. In our ingnorance, it's not difficult for the media to use the same techniques used to sell us new cars in order to sell us political opinions and policies. A good example is the sophisticated advertising campaign against that majority of Americans who, at the beginning of the campaign, supported required caps on carbon emissions. At the end of the advertising campaign, however, large swaths of the population viewed the bill as damaging to the economy, certain to raise prices, and devastating to employment. The bill, toothless as it was, didn't stand a chance against the media.

Other than poorly funded public radio and television, the national media are large corporations themselves, almost always owned by other corporations. Like most corporations, media claim to be strongly pro-environment. But their impact on global climate change has been devastating.

Yes, it's true that American voters *could* radically change the system to reduce carbon emissions, but they won't … at least until things get much worse. Against the propaganda, fear techniques, and commitment to consumerism, the likelihood of a majority of the electorate demanding the very painful change necessary is extraordinarily low. And when it does finally happen, it will be far too late to prevent truly catastrophic change.

Government

Only government—when it is functioning as government—can mandate limits on carbon emissions or regulate the many other changes necessary. With a democratic government, a nation's people decides what the majority wants and creates laws to make it possible.

The government *could* modify the economic system to force the internalization of environmental costs or alleviate inequality. It *could* drastically reduce the political power of corporations through public financing of campaigns and limitations on corporate lobbying. Government *could* control the power of media by breaking up the oligopoly, reinstating the fairness doctrine, mandating balanced coverage of political issues, and requiring a certain percentage of public service programming. It *could* eliminate economic subsidies for oil companies or corporate farming. And it *could* use its "bully pulpit" to enlist the support of the population in reducing our material consumption. Needless to say, little of this will happen anytime soon.

Perhaps the most dangerous and successful tactic of the far right over the last forty years has been to convince most of us—liberals and conservatives alike—that the federal government is incompetent at its best and malevolent at its worst. Considering the government a negative force, voters have been willing either to "starve the beast" by supporting tax cuts and reducing government impact or to withdraw from the democratic process completely. As the government becomes weaker, of course, it becomes less capable of providing services effectively, which makes voters even less willing to invest in it, a vicious circle of emasculation. As government loses its public support, however, the corporations and the 1% remain by far the strongest kids on the block.

Like the corporations, government is also firmly committed to economic growth fueled by consumerism. George W Bush's notorious comment after 9/11, "Go shopping," is emblematic. What the public learns is that "growth" (ie material growth) is necessary to the American way of life … which is true if increasing material wealth is essential to the American way of life.

The government's unwillingness to face climate change is typified by President George HW Bush's statement twenty years ago at the first Earth Summit: "The American way of life is not negotiable."

Unfortunately, the founders of our country deliberately and explicitly designed the Constitution to prevent radical change. The presidential system (rather than a parliament led by a prime minister) and the two separate houses of Congress (one of which is elected to two-year terms, the other to staggered six-year terms) means that the president often belongs to a different party from the legislature and/or that the legislature itself is divided. Since the consent of both houses of Congress and the president is almost always necessary, controversial change is seriously hampered. An amendment to the Constitution requires two-thirds vote of each house of Congress, plus ratification by 75% of state legislatures. The filibuster—while not established by the Constitution—is a matter of Senate rules. This requirement of a supermajority can hamstring the Senate … as it has, most notably since the last presidential election.

This governmental structure makes blocking change much easier than creating change. With its power to block legislation, the minority can control and paralyze government, as the Republican Party is now doing. While government has the technical capacity to make the needed changes, in fact, it is virtually impotent in the face of the wealthy and the corporations.

The "impossibility" of making change with the usual means.

So, that's the web of forces blocking the way to environmental sanity. The political histories of DDT and tobacco teach us that it can take decades after a scientific consensus is reached to create adequate regulation. And those political struggles were before the corporations developed their extraordinary power. Each strand in the web is supported by each of the others, making any one element virtually impervious to change from below. I've taken these many paragraphs outlining these forces because I really do mean that change is not possible within the current social, economic, and political structure of our country. Despite our native optimism, many of us know this: voting, political organizing, running pro-environment candidates, lobbying, recycling campaigns, running for office, or anything else we have imagined have not fundamentally challenged these dominant forces and won't until other powerful forces confront them.

I'm sure I sound like an utter cynic or nihilist. But I'm not emphasizing the inevitability of tragedy out of cynicism, perverseness or sensationalism. Nor do I have a secret roadmap to a

solution that I'm about to reveal. Rather, I think we need to consciously face up to what most of us st some level really know. Only this will allow meaningful hope and appropriate response.

How Do We Respond to the Coming Tragedy?

Despair, grief, even cynicism and apathy are normal responses to the coming tragedy. We must not push them aside but recognize their reality and allow ourselves to grieve. And we must help each other navigate through these painful waters.

But we must also remember that what's coming makes it even more important to find hope *wit hin our grief*
and act with courage and decisiveness. We can't make it all better, but we have been given the opportunity to participate in what is perhaps the greatest human struggle in recorded history. We are witness to a time in history like no other, and we can make a difference. Helen Keller once said, "I rejoice to live in such a splendidly disturbing time."
[5]

What can we do? One response is to continue our work to reduce carbon emissions even in the face of the lost opportunity to prevent climate change. One of the great tasks before us is to alleviate as much as possible of the human suffering that is coming. Because there will be so much pain, even our seemingly small response—reducing our own consumption, educating others about the realities of what we face, working for (even minimal) political change, or forcing an oil company to slow down (or even back down from) some planned expansion—anything that slows the process down even minutely will still have profound impact on this greatest of all challenges.

Another important task will be to mitigate the impact of the climate change that will occur. Two obvious examples are the Dutch strengthening of their dikes and the prior preparations to relocate residents of South Pacific islands that will soon be inundated. One impact of climate change will be a disruption in the economy. Such disruptions always impact the poor most heavily so any work for justice is also an important response to climate change. Creating structures that will give the best chances for survival in a post-carbon world (local sustainability, learning basic skills, farming and farmers markets, for example) will be important.

Until recently many environmentalists have resisted such work for mitigation for fear of relaxing societal pressure to reduce carbon emissions. It's a legitimate point, but since complete prevention is no longer an option, mitigation must be part of any response we make.

Such responses may feel puny and insufficient to us who are used to fixing things. We will need each other's help to work through those feelings of despair and hopelessness.

Localization

As one important kind of reaction, the localization movement is particularly important. Even small responses by individual citizens, small cities, or regions with common interests are crucial to the survival of our civilization. In any ecological niche, diversity and complexity give the needed resilience against threats. But the modern obsession with efficiency has destroyed much of that complexity. In her book *The End of the Long Summer*, Dianne Dumanoski points out that "the electronics industry has relied on specialized semiconductor chips made by [only] two companies who manufacture them in the same industrial park" in Taiwan.
[6]
A small earthquake or terrorist strike could wipe them out.

But local initiatives to create, grow or manufacture what is absolutely needed in the immediate area mean that many separate locations within the world are supplying necessities, offering a functional diversity that, like any ecology, offers stability in the face of multiple threats. Protest against local environmental damage can provide an opportunity for social and political change that tends to unite the community. Democracy, too, can be localized through the intimacy of town meetings or individual meetings with elected officials who are more likely to be neighbors than bureaucrats. Jobs that are localized, that is, tied to local needs—in hospitals, schools, garbage collection, and so on—can't be exported abroad.

This localizing of power, production and social connection is well underway. In his book *Bless ed Unrest*
, Paul Hawken describes his lecturing on environmental issues in the mid-1990s. He noticed that, at the end of his talks, people would often come up, describe their (mostly) local environmental or political projects, and hand him their business cards. Soon he had thousands of cards. Wondering what this meant, he started researching such small groups around the world. He estimates that there may be over a million such groups from the massive Sierra Club to individual young people selling local produce in the farmers' market. If we Include not only

the social justice groups, indigenous rights groups and those with no official standing that Hawken recognizes but also the many direct-service nonprofits, there are millions around the world. Hawken points out that the first group formally created to meet the needs of others was the Society for Abolition of the Slave Trade organized in England in 1787. Now they are countless. And their explosive growth continues, spreading inexorably.

These are not, Hawken stresses, an organized movement, with any kind of central leadership. Their goals are often quite different from one another, sometimes working at cross-purposes. They come into existence and may disappear. But they're part of a spiritual awakening that's happening around the globe.

The Earth's Immune System

Hawken likens this loose network to the human immune system, which has usually been characterized in top-down military images, but, in fact … there's nobody in charge. There are different parts to the immune system that actually work independently, and within each of those parts there are millions of individual elements that do their job with considerable independence. The immune system is only minimally coordinated and comprises diverse, disordered and imprecise entities … and yet without it we'd die in a matter of days.

Like the immune system, these countless organizations in this global web may have little individual power to cure the earth's sickness, and there's no guarantee of any individual's or group's positive impact. You might think that—given the vast and powerful forces aligned against them—their uncoordinated efforts would have only minor impact. But Hawken's work suggests that the whole may be much greater than the sum of its parts.

The city of Cleveland, for instance, is experimenting with worker-owned cooperatives that supply laundry to hospitals and educational institutions, creating local jobs that pay reasonable wages and are not going to move away. Hawken has long lists of other examples, for instance, small local banks that have sprung up to meet the financial needs of the community (and have been relatively immune from the 2008 crash, largely because their loans were made on a personal basis); they are a good example of functional redundancy. Volunteer organizations form free clinics, social service organizations, or foot patrols to protect the neighborhood. Credit unions and other co-ops (with about 120 million members across the country), 10,000 worker-owned firms, and community- or customer-owned businesses have all begun to change the face of capitalism.

These millions of organizations may be something like an ant colony. No single ant grasps the big picture or needs to direct the group's effort, but following a few simple innate principles, the shortest route to the food is located, the anthill is built. Perhaps these few simple principles of the global movement are care for the Earth, care for one another, and care for future generations.

Hawken subtitles his book *How the Largest Movement in the World Came into Being and Why No One Saw It Coming* .

Its grass-roots origins, minimal ideology and loose coordination give this movement a resilience that no top-down organization could ever have; you can't kill it by co-opting the leadership … because there isn't any overall leadership. Its use of modern communications technology give the whole a power never before available to dispersed groups. The "movement" constantly grows and renews itself; one organization may disappear because of whatever, but others take its place. Those that are small with few resources by necessity use their resources efficiently and work with profound dedication. They are familiar with local conditions. They go with whatever works rather than ideology, so they tend to be far less polarizing than national politics. Unlike most larger organizations, they're much more able to switch their activity in response to the actual conditions on the ground. They can make mistakes, even disappear, without seriously undermining the whole.

The current international order won't last forever; it never does. As Alperovitz writes, the details are never clear in advance, but fundamental political, economic, and social change is routine in world history. The upheavals of the last decade are only the foreshocks. And we're right in the middle of that now. What will happen when the current order falters? Could it be that a new order has been developing, unnoticed, right under our nose? The Polish union Solidarity had its political uprising, but after that was crushed, it continued organizing, providing needed services that the government couldn't handle, developing a powerful base. It became almost a shadow government, so that, when the Polish government collapsed in the 1980s, Solidarity was there to pick up the pieces.

Hope

Do I think that these organizations are going to save the environment? No, I don't. Do I think

that they will topple the current order, bring about justice, and restore human rights? Possibly, but not anytime soon.

Then what about hope? If the future is so bleak, where does one find hope? My response is: Hope for what? What do you want to be able to hope for? Hope that we'll prevent climate change? Hope that our lifestyle will survive? Hope that our grandchildren will inherit the same Earth we've known? I don't know where to find that kind of hope except in illusion.

But if we hope to ameliorate the worst of climate change, if we hope to prepare ourselves so that the damage is minimized, or if we hope to create new structures that provide for local communities, then there is reason for hope. If, at a personal level, we hope for fulfilling and deeply meaningful work; if we hope for joy in participating with others for the general good; if we hope for community; in fact, if we hope for any of the most important things in life, then there's hope and a lot of it.

Let me offer one possible scenario. The collapse, whether it comes now or in fifty years, will be painful, one we probably can't imagine now … not just from the environment but from financial instability, inequality, resource wars and so on. In the rubble of all that, some new order will have to develop. It could be fascist totalitarianism, but it could also be the fundamental rebuilding we are hoping for. After the economic collapse of the Great Depression, Franklin Roosevelt picked up ideas and small projects that had been lying around and working on a small scale. He expanded them into national programs. As our future new order is built, it may also be the ideas lying around, the already existent small structures we've created that will be picked up. And they could form the basis for a new society. For that, it's reasonable to hope.

Given the uncertainty of the future, we can't know what's going to be picked up and what will disappear. But we do know that loving others, having compassion for our neighbor, prioritizing the poor, caring for the Earth, and following our deepest yearnings are both needed now and must be the hallmarks of the new society that will survive. Anything based on those values is worth doing.

So we follow the leadings we're given: OccupyingOurLocalCommunity, personal recycling, getting arrested to stop the XL pipeline, putting pressure on politicians to stop mountaintop removal, teaching adult education, fostering community-supported agriculture, growing our own food, supporting large national organizations, working for a constitutional amendment, lobbying

political representatives, running for office, and on and on. It may be that we continue to do the very same things we're doing now. Those things that are not going to change the immediate future may well be part of the coming new order. If our understanding of reality deepens and is not blinded by optimism, we are less susceptible to being blown away by our failure to fix the crisis or the criticism that what we're doing won't make any difference. Perhaps our preparation will ameliorate the future crisis and lessen much suffering. Perhaps our preparations will be taken up as building blocks for a new society. We live under fewer illusions. We cannot hope to get the same Earth back, but we can hope to soften what's coming. We can find hope in the process, in the community, in our work together. These are hopes we can count on.

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[1] A poll in which the *National Journal* reached out to every Republican congressperson. http://www.theatlanticwire.com/politics/2011/12/heads-sand/45707/. (retrieved Jan 2012)

[2] Fagan, Brian, *The Long Summer: How Climate changed Civilization,* Basic Books, Cambridge, Mass, 2004

[3] San Francisco Examiner, Dec 2006, http://articles.sfgate.com/2006-12-07/news/17327061_1_phytoplankton-climate-pacific-ocean (retrieved Jan 2012)

[4] James Gustav Speth's Bridge at the End of the World is a major exception and required reading for anyone concerned about the broader realities underlying climate change.

[5] Hawken, Paul, *Blessed Unrest: How the Largest Movement in the World Came into Being and Why No One Saw It Coming* , Penguin, New York City, p 189.

[6] Dumanoski, Dianne, *The End of the Long Summer: Why We Must Remake Our Civilization to Survive on a Volatile Earth* , p 190, Three Rivers Press, New York, 2009.