

**AN EXAMINATION OF THE VIEWS OF RELIGIOUS
ORGANIZATIONS REGARDING GLOBAL WARMING**

HEARING

BEFORE THE

**COMMITTEE ON ENVIRONMENT AND
PUBLIC WORKS**

UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

JUNE 7, 2007

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ONE HUNDRED TENTH CONGRESS
FIRST SESSION

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AN EXAMINATION OF THE VIEWS OF RELIGIOUS ORGANIZATIONS REGARDING GLOBAL WARMING

THURSDAY, JUNE 7, 2007

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 10:05 a.m. in room 406, Dirksen Senate Office Building, the Hon. Barbara Boxer (chairman of the committee) presiding.

Present: Senators Boxer, Inhofe, Carper, Isakson, Bond, Klobuchar, and Whitehouse.

Senator BOXER. The committee will come to order.

I would ask the members of the panel to please kindly take your seats behind your name. We are very honored that you are here.

I want to just welcome everybody here. Senator Inhofe and I are very honored that you are here this morning.

I did want to give Senator Inhofe a gift this morning, because we are always under pressure and rushing. But he gave me a very funny and very cute gift the first day—

Senator INHOFE. A very useful gift.

Senator BOXER. An extremely useful gift. It was a cup, a global warming cup. When you pour hot water into it, the coast melts away. So he gave me that. So I have something for him. This will only take 30 seconds.

I don't know how useful it is, but it is from me to you, from my heart.

Senator INHOFE. Well, let me open it right now.

[Laughter.]

Senator INHOFE. That is really neat. You know, we have 20 kids and grandkids. They are going to relish this.

They are particularly happy because in the last 50 years, the polar bear population has doubled and it is on the increase now.

[Laughter.]

Senator INHOFE. Of the 19 populations of the polar today, with the exception of Western Hudson Bay, they are all on the increase. So I am really happy and they will be rejoicing with us, and thank you very much.

Senator BOXER. You are very welcome. I knew you would use that as an opportunity to explain your views on the polar bear. But I couldn't resist it, Senator, when I saw it.

So here is where we are. Because we have back to back votes at 11 o'clock, which is just the way it goes, we will just go with the

flow. Senator Inhofe and I are going to make opening statements. Then to the extent possible, we are going to turn to our panel. I will return with Senator Inhofe after the votes and I will stay as long as it takes to hear all your testimony. So let me begin.

If you could set the clock for 8 minutes for each of us.

**STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM
THE STATE OF CALIFORNIA**

Senator BOXER. Today we will hear testimony from witnesses representing over 100 million Americans of faith who are joining together to protect God's creation from global warming. Americans are coming together, calling for action and our common values are bringing us together. This is coming from the people, from the ground up.

Evangelical Christians, Catholics, African Methodist Episcopalans, Jews, mainline Protestant Christians, and many other people of faith see the need for action on global warming as a moral, ethical and Scriptural mandate. In my own State, I was called by an ecumenical coalition. They wanted me to see the work they are doing on energy efficiency. This was a couple of years ago, before I took the chairmanship of this committee. Just from the ground up, they were teachers, they were telling me that they saw the problem and they were taking action.

I also want to recommend a book called *The Creation*, which, if you haven't read it, you should read it. It is written by a scientist who was raised in a very religious home. In the height of his science, he always felt that there was a clash between science and religion. It always hurt his heart, he was always crushed about it. He believes that this issue is going to bring together science and religion. It is a wonderful book and I do recommend it.

So as for me, I so welcome your support, your insight, your leadership as we work toward this great challenge of global warming.

The people of faith that have contacted us recognize that our best scientists say global warming's impacts will fall most heavily on the poor people throughout the world. Many times we hear in this committee, we can't do this and we can't do that, because it will hurt poor people. Well, the bottom line is the worst impacts of global warming will fall on the shoulders of poor people in developing nations and in rich nations like ours, all we have to do is look at what happened during Katrina. Even the wealthiest of nations, major flooding or storms hit the poor the hardest.

So people of faith tell us we must prevent these harms and protect the poor from bearing an undue burden, and joining together with common purpose and common values, we will solve this problem. The warming of our earth is one of the great challenges of our generation. It is a challenge that I certainly want to meet with hope, not fear, a challenge that will make us stronger as a Nation and as a people.

I just held a bipartisan briefing in the room right next to this with the Secretary of the Environment from Great Britain. His message to us is that, as in Great Britain since 1990, the carbon emissions have gone down about 19 percent, the GDP has grown by 45 percent, that the number of jobs in environment-related industries have gone from 100,000 to 500,000. So if we do this in the

right way, it is going to be a boon to our economy and it is going to give us a sense of purpose as a Nation. We can lead the world. Of course, that is my view.

Our generation faces a choice. Will we, in the stirring words of the 2004 Nobel Peace Prize Laureate, give our children, "a world of beauty and wonder"? I ask, will we leave them lush forests teeming with wildlife and fresh air and clean streams? Will our grandchildren know the thrill of holding their child's hand, watching with excitement, towering snow capped mountains or awesome calving glaciers? Will they have plentiful food and ample water and be able to wiggle their toes in the same beach that we did? Will our generation leave them a climate that supports the awe-inspiring diversity of creation?

I have a vision for my 11-year-old grandson and for my new grandson, who is expected any day now. My vision is that these children and yours will grow up and be able to know these gifts of God, that they will understand we made the right choice for them when we had to, that we protected the planet that is their home. I see this vision pretty clearly: cars that are running on clean, renewable fuels that don't pollute, and that the United States is a leader in exporting clean technologies and products that are the engine of a new, green economy. We will lead the way in showing how to live well in a way that respects the earth.

Of course, we have started in California in a bipartisan way. That is what I want to point out. This should be a bipartisan issue. I know Senator Bond is one of the Senators that has been to all of these hearings and always reminds us that we have to be so cautious when it comes to protecting the poor. Senator, I think one of the main points I made before you got here is that if you look at the predictions that the people who will suffer the most if we don't do this right will be the poor of the world and the poor of our Nation as well. So we have to join together in solving this problem.

Now, we have had many hearings, I think we are up to about 11 hearings on this subject. This is No. 12. What we are developing is a record. What I am developing are partners in this battle. To add many of you as partners in this fight, religious leaders, is just a tremendous boon to our cause. You are fighting for what many of you call creation care, the protection of the gifts we have inherited from our Creator. We share common concerns about what scientists are telling us about the future.

When we put your panel, after you are done, and as I say, we will have a break, but we will complete this panel, we put this together with what we have heard from the United Nations International Intergovernmental Panel on Climate Change, where we have been told very clearly, right here in this room by scientific experts that as many as 40 percent of the species on earth may be at risk of extinction from global warming. When we put together all of you partners, I think we come out with a very clear path to go down.

Today I want to enter into the record a document being released today by over 15 major national religious denominations and organizations representing tens of millions of Americans, ranging from the African American Methodist Episcopal Church, AME, to Jewish, Evangelical, Lutheran, Methodist, Presbyterian and many

other religious groups. They are calling for an 80 percent reduction in global warming emissions by the year 2050.

Many in the religious community add a strong voice to this discussion, calling for a strong actions needed to protect the future of our planet. Believe me, we need your voice, because we have still voices of dissent, voices that are challenging the science, even when the science is very obvious.

So we can move forward toward energy independence, with increased reliance on home-grown, clean fuels and clean, renewable energy sources. Again, as the British have shown us, with hundreds of thousands of green collar jobs, we can invigorate our economy.

So my vision includes a Nation driven by innovation, energy efficiency, green technology that we export around the world. I see a strong American economic base with entrepreneurs and businesses thriving. Yesterday I had a whole slew of businesses in from California, they met with Senator Warner. These are CEOs of major corporations, these are Republicans, they are Democrats, they are Independents, urging us to mandate these cuts in carbon.

So I will close, as my time has wound down, as the ancient religious writings say, see to it that you do not destroy any of my world, for there is no one to repair it after you. Working together, I think we can repair this. Thank you very much.

Senator INHOFE.

**STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM
THE STATE OF OKLAHOMA**

Senator INHOFE. Thank you, Senator Boxer, and I thank all the witnesses for coming. I sincerely appreciate it. As Senator Boxer said, we have had hearing after hearing after hearing, that is all we do in this committee is have hearings on global warming. It is kind of interesting. While that is happening, other committees are usurping our jurisdiction on energy issues and other things. So I hope to get to some of those.

Here is another thing I would like to suggest. We have had all these hearings, we have a couple, at least two bills, cap and trade, CO₂ bills that are out there. Let's bring them up and consider them. I think we have had a lot of hearings.

This hearing, though, I am kind of looking forward to. So we will go on with this. I am not surprised that there has been no effort to bring up these bills and have them considered, because when you do, it comes out as to what the real serious problems are with the science, with the costs and everything else. I think we all remember what the Wharton Econometric Survey did back during the initial Kyoto effort. They came out and said that it would cost about \$338 billion, which would cost each family of four in America \$2,700 a year. This is not Jim Inhofe, this is the Wharton study.

Just a couple of weeks ago, there was another study that came out from MIT. This was interesting, it said the report found that the costs to the energy consumers of instituting the Sanders-Boxer bill would be an amount equal to \$4,500 per family, per year, or on the Lieberman-McCain bill, \$3,500 a year. Now, each and every one of the proposes out there is a disaster in one way or another

that if exposed to serious discussion would make the American public think twice about these so-called solutions.

In the past, and I would ask that witness John Carr listen to this, because he probably knows this individual, Tom Mullen. Tom Mullen is the president of the Catholic Cleveland Charities, testified before this committee about the rising cost of energy that would be caused by the imposition of a carbon cap and trade scheme. Specifically he said that the one-fourth of the children in his city living in poverty would, and I am quoting him now, "will suffer further loss of basic needs as their moms are forced to make choices as to whether to pay rent or live in a shelter, pay heating bills or see their child freeze, buy food or risk availability of hunger centers." If we add to that the recent CBO study, it found that an allowance allocation scheme would increase costs to the poor who already spend up to five times as much of their monthly outlays on energy as other people do. He said the report found that it would transfer wealth from the poor to the rich, a reverse type of Robin Hood thing, I suppose.

These thoughts were echoed in a letter to me yesterday by Barrett Duke, vice president of the Ethics and Religious Liberty Commission of the Southern Baptist Convention, which I would ask to be entered into the record at the conclusion of my remarks, along with their resolution passed just June, and this is the Southern Baptist Convention, on Environment and Evangelicals. Duke wrote in his letter that the science was unsettled, which we all know is true, and if global warming policies make the delivery of electricity to the developing nations more difficult, millions of people will be condemned to more hardship, more disease, shorter lives and more poverty. I am particularly sensitive to this, as some people, such as Mr. Barton, know that I have been very active in Africa. These people are barely holding on as it is.

What makes all this more tragic is the science of global warming hysteria is so shaky. That has led to increasing numbers of political leaders coming forth to make public statements. We have heard statements in the past by Czech Republic president Vaclav Klaus and former French Socialist Party leader Claude Allegre, who was, incidentally, marching down the streets 10 years ago with Al Gore and now is on the other side, the skeptics' side of this issue.

The statement that was made just a couple of days ago by German Chancellor Helmut Schmidt, he said "The topic of global warming is hysterical, overheated and that is especially because of the media. We have had warm and ice ages for hundreds of thousands of years." He added that, "Believing we can alter global warming by any plans made at the G-8 is idiotic." This is echoed by a lot recently, and we plan to come forth with a list before long as to many hundreds of new scientists that are becoming outspoken on this side of the issue. They are really refuting what is this doctrine, this theology of Al Gore, the United Nations, the Hollywood elitists and the media's version of climate science.

Even putting the issue of science aside, religious leaders who have bought into the global warming hype need to consider the big picture of unintended consequences of legislative solutions. One example by the climate crusaders was the recent proclamation by a U.K. supermarket company announcing it would usher in carbon-

friendly policies and stop importing food from faraway nations. As of February 21, 2007, current, just a couple of weeks ago, BBC Report found, "Kenyan farmers whose lifelong carbon emissions are negligible compared to their counterparts in the west, are fast becoming the victims of a green campaign that could threaten their livelihood."

Now, I would say that one of the most brilliant things, ideas, that anyone had in trying to promote this idea that manmade gases causes climate change was the idea if they could somehow divide and conquer in the evangelical community and get people to quit worrying about their core values, whether it is gay marriage or abortion or any of the other issues and start worrying about the environment, along came Richard Cizik. Richard has a little portrait of himself there, it shows himself dressed like Jesus walking on water. Can you see the water down here? Can't see it too well there.

Anyway, he is frequently cited in the media to show that there is a split in the evangelical community. This actually is just flat not true. When you look at his beliefs, when he talks to liberal groups, you find out he does have a philosophy of population control. In May 2006, in a speech to the World Bank, he told the audience, "I'd like to take on the population issue. We need to confront population control and we can. We're not Roman Catholics, you know." That was a brilliant idea to divide and conquer.

I have skipped a page here. I know you regret that, Senator Boxer. Don't worry, I will get it back.

Senator BOXER. No, I really enjoy your musings here.

[Laughter.]

Senator INHOFE. Anyway, I did somewhere. But the alarmists, the reason you are seeing the desperation set in is because as you look at the science that is coming out now and the science that is changing on a daily basis, those are the individuals, and when we stood right down the hall and had Al Gore here for about a 3-hour confrontation, I started naming the names and we printed it, we had hundreds of names on charts of scientists who 10 years ago were believing that this global warming or manmade gases were causing climate change who are now on the other side of the issue. I mentioned Claude Allegre. He was one who was on the other side. David Bellamy in the United Kingdom was on the other side of the issue. He has now come over as a scientist. Nir Shariv from Israel was on the other side of the issue and he came over.

So let me just conclude by saying that the idea, it was a brilliant idea on divide and conquer, and I am glad we are having this hearing today.

I would like at this time just to introduce for the record the Cornwall Declaration, which I think provides a Biblical-based interpretation of God's calling to be stewards. I will leave you with this idea. I believe as I study the Scriptures that we were forewarned that something like this was going to happen. I would only quote that that was found in Romans 1:25 when they said "They gave up the truth about God for a lie and they worshipped God's creation instead of God, who will be praised forever, amen."

Thank you, Madam Chairman.

[The prepared statement of Senator Inhofe and referenced material follow:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE
STATE OF OKLAHOMA

Madame Chairman, I would like to thank you for having a hearing that I personally find interesting. Before I address the topic of today's hearing, however, I must again repeat my concern that other Committees encroach on this Committees jurisdiction while we sit idly by.

We have had hearing after hearing after hearing on global warming. But we have yet to have legislative hearings on the climate bills that are supposedly the reason for this endless parade of hearings. When we considered multi-emission legislation, we had two dozen legislative hearings examining the hard questions that need to be examined when crafting legislation. If this issue is so urgent and important, why are we delaying the beginning of that process?

In fact, we would have benefited yesterday when this Committee passed a small piece of legislation on a carbon capture demonstration project for the Capitol power plant. Although many technologies were praised as possibly being used for the plant, none of those technologies actually would qualify under the bill. Yet few Senators understood this because we never had a hearing on it before voting on it. That is simply unacceptable.

I'm not surprised that no effort has been made to seriously examine the many cap and trade proposals that have been introduced. Each of these bills would have massive economic consequences. An MIT report found that the costs to energy consumers of instituting the Sanders-Boxer bill would be an amount equal to \$4,500 per family and more than \$3,500 for the Lieberman-McCain bill.

Each and every one of the proposals out there has warts that, if exposed in serious discussion, would make the American public think twice about these so-called solutions.

In the past, Tom Mullen, President of Catholic Cleveland Charities, testified on his concern about the rising costs of energy that would be caused by the imposition of a carbon cap and trade scheme. Specifically, he said that the one-fourth of children in his city living in poverty:

"will suffer further loss of basic needs as their moms are forced to make choices of whether to pay the rent or live in a shelter; pay the heating bill or see their child freeze; buy food or risk the availability of a hunger center."

Recently, the Congressional Budget Office found that an allowance allocation scheme would increase costs to the poor—who already spend up to five times as much of their monthly outlays for energy. The report found that it would transfer wealth from the poor to the rich. A reverse Robin Hood, if you will.

These thoughts were echoed in a letter sent to me yesterday by Barrett Duke, Vice President of the Ethics & Religious Liberty Commission of the Southern Baptist Convention—which I request be entered into the record along with a resolution passed last June by the Southern Baptist Convention on Environment and Evangelicals. Duke wrote in his letter that that the science was unsettled and if global warming policies:

"make the delivery of electricity to [undeveloped countries] more difficult, millions of people will be condemned to more hardship, more disease, shorter lives and more poverty."

What makes this all the more tragic is the science to buttress global warming hysteria is so shaky. That has led to increasing numbers of political leaders coming forth to publicly say so.

The latest is former German Chancellor Helmut Schmidt just this week said the topic of global warming is "hysterical, overheated, and that is especially because of the media. We've had warm- and ice-ages for hundreds of thousands of years." He added that believing we can alter global warming by any plans made at the G-8 is "idiotic."

Schmidt's comments follow similarly strong statements by Czech President Vaclav Klaus and former French Socialist Party Leader Claude Allegre.

The global warming alarmists are becoming increasingly desperate as more and more scientists convert from belief in a man-made catastrophe to skeptics as new science becomes available. We will be issuing a report soon detailing the hundreds of scientists who have spoken out recently with differing views from Al Gore, the United Nations, Hollywood elitists, and the media's version of climate science.

Even putting the issue of science aside, religious leaders who have bought into the global warming hype need to consider the big picture of unintended consequences of legislative 'solutions.' One example of unintended consequences by cli-

mate crusaders was the recent proclamation by a UK supermarket company announcing it would usher in ‘carbon friendly’ policies and stop importing food from faraway nations. As a February 21, 2007 BBC report found:

“Kenyan farmers, whose lifelong carbon emissions are negligible compared with their counterparts in the West, are fast becoming the victims of a green campaign that could threaten their livelihoods.”

We need to consider what Danish statistician Bjorn Lomborg discovered: diverting precious resources to solve a so called “climate crisis” is not in the best interests of the developing worlds poor. ‘Solutions’ to global warming may be much worse than the feared problem.”

Next, let me discuss someone who the media frequently cites in an attempt to show evangelicals are moving toward the side of global warming activism—Rev. Richard Cizik, a global warming alarmist.

A 2006 Vanity Fair Magazine article had Cizik posing for a picture where he was walking on water dressed like Jesus. Cizik shares the beliefs of liberals on the issue of population control. In a May 2006 speech to the World Bank, he told the audience, “I’d like to take on the population issue. We need to confront population control and we can—we’re not Roman Catholics after all—but it’s too hot to handle now.”

In short, Cizik does not represent the views of most evangelicals.

My final thoughts are about biblical perspectives. While I read the Bible, I do not pretend to be a scholar. But I have read what has been written by some scholars on the topic of man’s relation to creation and what stewardship means from a biblical perspective.

I would like at this time to introduce for the record the Cornwall Declaration, which I think provides a biblically based interpretation of God’s calling to us to be stewards.

We should respect creation and be wise stewards, but we must be careful not to fall into the trap of secular environmentalists who believe that man is an afterthought on this Earth who is principally a polluter.

Rather, we are made in God’s image and should use the resources God has given us. I’ll leave you with a final thought from Romans 1:25. “They gave up the truth about God for a lie, and they worshiped God’s creation instead of God who will be praised forever. Amen.”

The Cornwall Declaration on Environmental Stewardship

The past millennium brought unprecedented improvements in human health, nutrition, and life expectancy, especially among those most blessed by political and economic liberty and advances in science and technology. At the dawn of a new millennium, the opportunity exists to build on these advances and to extend them to more of the earth's people.

At the same time, many are concerned that liberty, science, and technology are more a threat to the environment than a blessing to humanity and nature. Out of shared reverence for God and His creation and love for our neighbors, we Jews, Catholics, and Protestants, speaking for ourselves and not officially on behalf of our respective communities, joined by others of good will, and committed to justice and compassion, unite in this declaration of our common concerns, beliefs, and aspirations.

Our Concerns

Human understanding and control of natural processes empower people not only to improve the human condition but also to do great harm to each other, to the earth, and to other creatures. As concerns about the environment have grown in recent decades, the moral necessity of ecological stewardship has become increasingly clear. At the same time, however, certain misconceptions about nature and science, coupled with erroneous theological and anthropological positions, impede the advancement of a sound environmental ethic. In the midst of controversy over such matters, it is critically important to remember that while passion may energize environmental activism, it is reason -- including sound theology and sound science--that must guide the decision-making process. We identify three areas of common misunderstanding:

1. Many people mistakenly view humans as principally consumers and polluters rather than producers and stewards. Consequently, they ignore our potential, as bearers of God's image, to add to the earth's abundance. The increasing realization of this potential has enabled people in societies blessed with an advanced economy not only to reduce pollution, while producing more of the goods and services responsible for the great improvements in the human condition, but also to alleviate the negative effects of much past pollution. A clean environment is a costly good; consequently, growing affluence, technological innovation, and the application of human and material capital are integral to environmental improvement. The tendency among some to oppose economic progress in the name of environmental stewardship is often sadly self-defeating.
2. Many people believe that "nature knows best," or that the earth--untouched by human hands--is the ideal. Such romanticism leads some to deify nature or oppose

human dominion over creation. Our position, informed by revelation and confirmed by reason and experience, views human stewardship that unlocks the potential in creation for all the earth's inhabitants as good. Humanity alone of all the created order is capable of developing other resources and can thus enrich creation, so it can properly be said that the human person is the most valuable resource on earth. Human life, therefore, must be cherished and allowed to flourish. The alternative—denying the possibility of beneficial human management of the earth—removes all rationale for environmental stewardship.

3. While some environmental concerns are well founded and serious, others are without foundation or greatly exaggerated. Some well-founded concerns focus on human health problems in the developing world arising from inadequate sanitation, widespread use of primitive biomass fuels like wood and dung, and primitive agricultural, industrial, and commercial practices; distorted resource consumption patterns driven by perverse economic incentives; and improper disposal of nuclear and other hazardous wastes in nations lacking adequate regulatory and legal safeguards. Some unfounded or undue concerns include fears of destructive manmade global warming, overpopulation, and rampant species loss. The real and merely alleged problems differ in the following ways:
 - a. The former are proven and well understood, while the latter tend to be speculative.
 - b. The former are often localized, while the latter are said to be global and cataclysmic in scope.
 - c. The former are of concern to people in developing nations especially, while the latter are of concern mainly to environmentalists in wealthy nations.
 - d. The former are of high and firmly established risk to human life and health, while the latter are of very low and largely hypothetical risk.
 - e. Solutions proposed to the former are cost effective and maintain proven benefit, while solutions to the latter are unjustifiably costly and of dubious benefit.

Public policies to combat exaggerated risks can dangerously delay or reverse the economic development necessary to improve not only human life but also human stewardship of the environment. The poor, who are most often citizens of developing nations, are often forced to suffer longer in poverty with its attendant high rates of malnutrition, disease, and mortality; as a consequence, they are often the most injured by such misguided, though well-intended, policies.

Our Beliefs

Our common Judeo-Christian heritage teaches that the following theological and anthropological principles are the foundation of environmental stewardship:

1. God, the Creator of all things, rules over all and deserves our worship and adoration.
2. The earth, and with it all the cosmos, reveals its Creator's wisdom and is sustained and governed by His power and loving kindness.

3. Men and women were created in the image of God, given a privileged place among creatures, and commanded to exercise stewardship over the earth. Human persons are moral agents for whom freedom is an essential condition of responsible action. Sound environmental stewardship must attend both to the demands of human well being and to a divine call for human beings to exercise caring dominion over the earth. It affirms that human well being and the integrity of creation are not only compatible but also dynamically interdependent realities.
4. God's Law--summarized in the Decalogue and the two Great Commandments (to love God and neighbor), which are written on the human heart, thus revealing His own righteous character to the human person--represents God's design for shalom, or peace, and is the supreme rule of all conduct, for which personal or social prejudices must not be substituted.
5. By disobeying God's Law, humankind brought on itself moral and physical corruption as well as divine condemnation in the form of a curse on the earth. Since the fall into sin people have often ignored their Creator, harmed their neighbors, and defiled the good creation.
6. God in His mercy has not abandoned sinful people or the created order but has acted throughout history to restore men and women to fellowship with Him and through their stewardship to enhance the beauty and fertility of the earth.
7. Human beings are called to be fruitful, to bring forth good things from the earth, to join with God in making provision for our temporal well being, and to enhance the beauty and fruitfulness of the rest of the earth. Our call to fruitfulness, therefore, is not contrary to but mutually complementary with our call to steward God's gifts. This call implies a serious commitment to fostering the intellectual, moral, and religious habits and practices needed for free economies and genuine care for the environment.

Our Aspirations

In light of these beliefs and concerns, we declare the following principled aspirations:

1. We aspire to a world in which human beings care wisely and humbly for all creatures, first and foremost for their fellow human beings, recognizing their proper place in the created order.
2. We aspire to a world in which objective moral principles--not personal prejudices--guide moral action.
3. We aspire to a world in which right reason (including sound theology and the careful use of scientific methods) guides the stewardship of human and ecological relationships.
4. We aspire to a world in which liberty as a condition of moral action is preferred over government-initiated management of the environment as a means to common goals.
5. We aspire to a world in which the relationships between stewardship and private property are fully appreciated, allowing people's natural incentive to care for their own property to reduce the need for collective ownership and control of resources and enterprises, and in which collective action, when deemed necessary, takes place at the most local level possible.
6. We aspire to a world in which widespread economic freedom--which is integral to private, market economies--makes sound ecological stewardship available to ever greater numbers.
7. We aspire to a world in which advancements in agriculture, industry, and commerce not only minimize pollution and transform most waste products into



efficiently used resources but also improve the material conditions of life for people everywhere.

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Jewish, Catholic, and Protestant Wisdom on the Environment

The Interfaith Council's Cornwall Declaration on Environmental Stewardship forcefully and articulately summarizes the views of Jewish, Catholic, and Protestant thinkers about the nature of wise and Biblical stewardship. But in an effort to help flesh out the theoretical content and practical application of such stewardship as outlined in this declaration, and enable the wisdom of each religious viewpoint to be more fully expressed from its own distinct tradition, the ICES, in conjunction with the Acton Institute for the Study of Religion and Liberty, developed this series of accompanying essays. Each essay was created with the help of editorial boards comprised of respected Jewish, Catholic, and Protestant thinkers committed to truth and understanding. Introductions to the monographs can be read here, with links to the complete texts following.

A Comprehensive Torah-Based Approach to the Environment

Rabbi Kenneth B. Fradkin, Jewish Center of Sussex County, Newton, NJ
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Introduction

A Comprehensive Torah-Based Approach to the Environment

Young children often develop irrational fears of the world and find themselves haunted at night by a phantom menace until maturity—or a creative adult—successfully wipes away the tears. There's a story of a father who would regularly be awakened by his son's recurring nightmare, which was provoked by the boy's daily encounters with an overly affectionate dog. Several nights a week the man would rush into his son's room to calm a wild-eyed little boy with a racing pulse. There, the father would sit upon his son's bed while the boy pointed out half a dozen dogs sitting on the carpet waiting to munch on his toes. The young boy would sit in his father's arms trembling, while his father futilely explained to him that there was no pack of dogs at all. After several weeks of interrupted nights had reduced the man to a mere shadow of his usual robust self, he knew something drastic needed to be done.

The next night when he awoke to his son's scream of terror, the man strolled calmly into his son's room and began rounding up the dogs. It took him no more than half a minute or so of arm waving and hissing to chase the six canines out of the room. The man was rewarded with a sleepy smile and a "Thank you, Daddy," as he staggered back to bed. After two more nights of being chased out of the room, the dogs never returned. In the son's somnolent state, those dogs were a real problem. Trying to persuade him that the dogs did not exist merely frustrated the boy. He felt stuck with a handicapped parent who foolishly responded to dangerous dogs with mere words. The boy's father had to enter his son's frame of reference and see the dogs in order to get rid of them, and ease his son.

What we have come to refer to as the environmental issue also possesses two distinct frameworks of reality. According to one of these views, there is no imminent peril that threatens to destroy us, just as there were really no dogs attacking the boy who lay safely in his bed. According to the other view, however, the problem is real, terrifying, and seemingly intractable. According to this view, the world's original condition of natural perfection is being irreparably jeopardized by human activity. Currently, with many persuaded of imminent peril, the panic is spreading, and a portion of the population is horrified by "nocturnal dogs" that come in the form of "threats to the environment."

This is not to say that there is no environmental problem. We are not dealing with an unhappy child and imaginary dogs. It is to say, however, that the real problem may have more to do with beliefs and convictions than with objective and quantifiable peril. This in no way simplifies the problem. Just as in the case with the small child, it is usually necessary to enter the framework in which the problem exists before one can effectively attempt a solution. In the bright light of sunrise, that little boy laughed at the nighttime intruders. At the time of the crisis, however, help came only from someone within the framework of his reality. If someone really believes the dogs are there, the problem is not the dogs but the belief.

If we believe and are convinced that no more important value exists, for example, than prolonging life span, we would be justified in prohibiting all activities that could abbreviate national life span averages. But as humans, we have always demonstrated that we are often motivated by other conflicting values. Soldiers often perform heroic acts that shorten their own lives. Many individuals choose to smoke, skydive, or climb mountains because of what these activities contribute to their lives, and they do so in full knowledge of the possibility that they may be shortening their lives. Environmentalism, especially in its more radical and virulent forms, frequently places the preservation of nature in the forefront of moral consciousness, above and beyond other values with which it may well be in conflict. In so doing, any calculation of relative benefits may be censured. We might also be making facts irrelevant to judgment.

People seldom argue passionately over facts. We tend to dismiss as foolish people those who argue over facts that are either known or easily discoverable. People might well debate which is the most beautiful mountain in the world, but now that technology permits us to take accurate measurements, they will never debate which is the highest. The purpose of the Torah, according to traditional Judaism, is to help us establish the

correct beliefs with their profound ramifications, rather than to impart mere facts. Well-established scientific methods, on the other hand, provide the legitimate venue for resolving matters of fact.

Thus, the real environmental problem may well be the very belief that there exists a terrifying problem rather than any problem in itself. At the very least, it is a problem that is enormously exacerbated by certain beliefs that can stand in the way of a genuine commitment to stewardship of all God's creation.

We shall examine further in this essay the modern phenomenon known as environmentalism; we will look at the Torah's understanding of the "middle path" and how it relates to morality and human population; next, we will review the Jewish understanding of the right relationship between the human person and nature, especially as this relates to work and the creative spirit; and, finally, we will close with a discussion of the Torah's view of property, pollution, and the law.

I. Human Population and Achieving the Middle Path

Every year governments and prominent industrialists dedicate enormous sums of money to population reduction programs conducted by a variety of agencies ranging from Planned Parenthood to the United Nations Population Fund (unfpa). After all, the argument goes, it is obvious that there must exist some maximum number of people who can survive on "spaceship earth." We may not yet know what that number is, but that does not mean it does not exist. There must be some world population figure beyond which people will no longer have adequate food or enough resources to survive. And even if this turns out to be untrue, there surely must be some figure above which there simply will no longer be space for additional people to live. Granted, this number would be quite large, but as long as we concede that the annual growth in world population takes us inexorably closer, why not start doing something about it right away?

So what if all of America's population could comfortably live in the small part of California between Los Angeles and the Mexican border? All this means is that doom is not imminent in America. Clearly, in the far more crowded conditions of Africa or Asia, the argument continues, responsible leadership should demand immediate action. Not only is the welfare of entire nations threatened by unrestrained population growth, but so is the living standard of families within those nations. Too many children impose economic hardship on families who are discouraged from using "family planning" techniques by ignorance or religious taboo. These families require larger homes, use more water and heating resources, and shrink available "green space" within cities.

The argument appears formidable, and indeed it is. It is neither effective nor true merely to insist that people always find a timely and appropriate solution to their problems. Sometimes we do, but occasionally we do not. Against Thomas Malthus's stern warnings of two hundred years ago, we did find answers. New machines that made fabric plentifully and inexpensively could clothe those whom Malthus anticipated would be cold. Agricultural advances made food available for those whom he predicted would

starve. For some problems, we never did find an answer. Some of the costliest wars of the twentieth century, for example, could have been avoided had we found a timely solution.

The Torah stresses a golden mean in problem solving. The great transmitter of Torah thought, Moses Maimonides, discusses how to achieve this "middle path," as he calls it, in his magnum opus, the Mishneh Torah. Visualize the two extremes, he advises, and then seek the geometric midpoint. For instance, neither extreme sternness nor excessive indulgence is desirable as a full-time guide to life. The excessively stern person could never raise a child without injuring him or her physically, whereas the intensely indulgent person could never raise a child without injuring him or her spiritually. This person would never be capable of exerting discipline or administering the occasionally necessary punishment. However, the parents who guide themselves down the middle path will be able to reach into themselves for the reserves of both stern discipline as well as soft compassion, as the situation demands.

Similarly, there are two extremes of human behavior, neither of which serves well. One extreme occurs when we totally ignore the future while living hedonistically and indulgently for the present. Parents feel pangs of pain while watching a growing child live self-indulgently with no thought for the future. The alternative extreme is that we can suffer through a present of complete self-deprivation in order to save for the future. Many of us have known people who survived the Great Depression of the twentieth century. These persons frequently lived the rest of their lives in depression-like circumstances, even though they possessed financial reserves that made the self-deprivation unnecessary. The challenge facing the person wishing to live the good life is to find a more balanced approach. One of Judaism's great gifts to its adherents is a "manufacturer's guide" to how the human person can best attain this middle path. The Torah provides a roadmap to achieving balance—being neither a miser nor a spendthrift, being neither a libertine nor an ascetic. The middle path enables one to live each day to its maximum joy potential while also conserving resources for an unknown future.

The Torah's response to the population panic is consistent, teaching us first to identify the two extremes. One extreme is to invite government to impose draconian regulations and arduous restrictions upon us. This view insists that no sacrifice today is too great in the attempt to diminish tomorrow's threat, no matter that the precise nature and time frame of the threat remain unknown. The opposite view, in the words of Nobel Laureate Jan Tinbergen, maintains,

Two things are unlimited: the number of generations we should feel responsible for, and our inventiveness. The first provides us with a challenge: to feed and provide for not only the present, but all future generations, from the Earth's finite flow of natural resources. The second, our inventiveness, may create ideas and policies that will contribute to meeting that challenge.

So we see that one extreme is to regard no sacrifice today as too much to impose upon ourselves to protect all future generations until the end of time. Had earlier generations followed this perverted logic, they might well have restricted the use of whale oil. One

can imagine the decrees emanating from zealous eighteenth-century environmental activists, banning the use of oil lamps past nine o'clock at night to ensure that sufficient whale oil would remain to light the homes of the twenty-first century. In so doing, what they may well have effected is limiting the educational possibilities of the early scientists who studied and experimented late into the night to discover petroleum and its many uses.

The paradox revealed by the Torah is that far from solving any problem, following either extreme actually aggravates the underlying situation. This is one of the reasons that Judaism insists on a child being raised by both a man and a woman wedded into one. A healthy child needs to be raised with both the discipline and firmness that is the natural characteristic of the male as well as with the gentleness that comes so easily to the female. Guided only by the paramount principle of indulgence or by its counterpart, cruelty, raising a child will, in both cases, yield a monster. Only the balanced middle path offers any hope of raising a well-rounded person.

Similarly, we can either ignore the growth of the human population or we can impose limits on it. If we simply ignore the problem—insisting that there is no problem—we make the same mistake made by the father when telling his son that there were no wild dogs in his room. At best, ignoring population growth does no more than persuade the population-panic enthusiasts that we are blind. At worst, it may really blind us to what may turn out to be a valid concern. On the other hand, imposing oppressive regulations of either the criminal or the tax-policy variety or promoting an ethic designed to limit families to one or two children, for instance, will also aggravate the problem in a manner already conspicuous in India, Korea, and many other parts of Asia. One unintended consequence of the population policies that have already been in force in these countries for several decades is a severe imbalance in the sex ratio. Planners are already discussing the grim picture presented by the soon-to-arrive specter of several million Asian men unable to find wives.

Thus, whether we choose one extreme or the other, we will worsen the situation we are hoping to resolve. Is there a Torah approach to the so-called "population bomb"? Naturally, the proper approach is the balanced middle path. We should not ignore the problem, but neither should we precipitate chaos today in a foolhardy attempt to ward off a distant threat, one whose outlines are still dim and vague. What is this mysterious middle path? To discover it, we need to review our fundamental beliefs about whether a human being really is a consumer or a creator. If man is merely a consumer, then, obviously, the fewer, the better. If, however, man is a creator, then, equally obviously, the more, the merrier. And the answer is not "both." That would settle nothing. What we are asking is whether humans create more than they consume or consume more than they create. The Torah answers its own question: Humans can be either consumers or creators. This is quite a different answer from saying "both."

The Torah-true answer is that we can raise children to be either consumers or creators. If we raise them as if they were young animals, they will grow into animals—basically consumers who are able to work like horses, but never with the capacity to truly create. In

order to achieve that ability in our children, we have to raise them in the image of the ultimate Creator. That means imparting to them a sense of limits, an awareness of what is right and what is wrong. Only animals have finite needs. Humans, touched as they are by the finger of the Infinite Divine, have infinite wants. Children have to be taught that every want will demand a choice and a sacrifice, and that each of us must responsibly steward what we have been given and what we have earned. Children deserve to know that while we relate to and sympathize with their feelings, we do not expect them to follow those feelings unthinkingly. We expect them to follow their head, not their heart. They should grow into the realization that the world is not necessarily a fair place, but that it does have rules. Knowing those rules is better than whining about fairness. Finally, they should know that life judges us by our performance, not our intentions. Children raised to live by these and other similarly true and enduring principles, are a pleasure to be around.

How exactly does raising the right kind of people help to solve the problem of too many people? The Talmud relates that during the pilgrimage festivals, the Jerusalem Temple was so crowded that people barely had room to stand. However, during the period of the service that called for worshippers to prostrate themselves upon their knees on the floor, there was mysteriously sufficient room. This is, indeed, a mysterious account since everyone knows that people on their knees require more floor space than people standing erect. During the part of the service when people were on their knees, conditions should have been more, not less, crowded than when the people were standing. The traditional explanation is that standing erect is a metaphor for a condition of arrogant self-absorption. Prostration is a metaphor for humility and awareness of others. Finally, the Temple itself is depicted in the Torah as an almost mathematical model of the world. It is not hard to grasp the truth of this message: If a population consists of humble people constantly aware of one another, it never feels crowded. However, if a population finds itself surrounded by even a few arrogant and self-centered individuals, conditions feel overcrowded. Overpopulation is not a question of numbers or objectively measurable figures such as people per square mile. Instead, it is a question of whether people feel oppressed by the overwhelming presence of others. This has more to do with standards of civility and behavior than with actual population numbers. Most of us would feel less pressured and more comfortable on the crowded streets of Hong Kong or Tokyo than we would on a lonely urban alley in New York City. What we really have is not a population problem, but a perception of a population problem—a problem that results not simply from too many people, but from too many people arrogantly and thoughtlessly impressing their presence upon others. Rather than reducing the number of people, we need to reduce the incidence of selfish behavior that oppresses others and to increase the amount of creative behavior that meets others' needs.

This may seem an inadequately poetic prescription for a pressing and prosaic problem, but it is really all we have. To seek one extreme, by doing nothing and merely watching as selfish and coarse children are born and raised to crowd a culture, is foolish. Naturally, we will all come to feel that there are too many people. We have to do something. However, seeking the opposite extreme of encouraging fewer people while ignoring the behavior of those people is equally foolish. It should be noted that this is true as long as

the threat of overpopulation is vague and distant. All that is left for us to do is to focus on inculcating into our culture those values that would diminish the perception of overcrowding and also increase the contribution made by each member. This would not only reduce the clamor for population control but would also make for much more tranquility and considerably more prosperity for all of us.

II. The Right Relationships Among God, Man, and Nature

In the prevailing climate of the environmental debate, it is necessary to state categorically at the outset that the Torah unhesitatingly prohibits cruelty to animals. This is not because animals also have rights; it is because only human beings have obligations. In the Torah's depiction of moral reality, nobody has rights—only obligations. Naturally, if everybody discharges their obligations, we all end up enjoying those things we vainly attempted to obtain by claiming them as our rights.

The animal rights movement can best be understood by viewing it as an attempt to undo the opening chapters of the biblical Book of Genesis. The Torah and its accompanying oral transmissions insist that Genesis describes more the beliefs underlying Creation than its facts. This is to say that the Bible's central premise is that humans and animals are qualitatively different, a contention violently opposed by the animal rights movement. After all, a woman wearing a fur coat is offensive only if she is nothing more than an animal as well—a very intelligent and well-evolved animal to be sure, but an animal nonetheless. And wearing one's cousin's skin over your shoulder is simply barbaric. Animal rights advocates insist that we are all animals, and no animal should have any special, species-specific rights that all other animals do not also enjoy.

The Bible teaches that the human person is the apex of God's creation and that all creation is there for the human person to develop and use as a responsible steward. The principle at work here is, of course, precisely the same biblical principle that prohibits self-maiming, destroying a rented apartment, or even having an abortion. This is to say that tenants do not have the same rights as owners. We, as humans, do not own the world, our bodies, or the habitations we rent. Thus, we may improve them but not destroy them. According to the Torah, not only do women not have the right to do with their bodies as they wish, but neither do men. Our bodies are given to us by a gracious and generous God so that we may occupy them for a certain period of time. During that time they are to be treated with the same deference that a tenant should employ in caring for his rented premises. Similarly, we humans are granted use of the world and all it contains. We may hunt animals for food or clothing, build homes out of the wood we cut from trees, and mine the earth to extract the minerals it holds. However, we may not wantonly destroy anything at all.

Some of the areas in which animal rights activists have sought to infringe upon the rights of their fellow humans include efforts to curtail important, life-saving medical research; outlaw clothing made from animals; ban circuses; and damage the fur, meat, and poultry industries, sometimes through violence and intimidation. It is important to understand that they have taken these actions, not as the result of measurable data, but as the consequence of their own belief system. There exist two separate and utterly

incompatible belief systems regarding animals. One of these doctrines stems from the belief that God created the world and all it contains, and, when done, created man as his deputy to further his work. The other doctrine stems from the belief that by a lengthy and unaided materialistic process, primitive protoplasm evolved into Bach and Beethoven.

According to the latter view, the human person is nothing more than a sophisticated animal. To devotees of this secularist faith, animal rights should indeed become the sacrament of secularism. There is no way to satisfy adequately both sides of the animal rights debate. By their very name, activists betray their agenda. By aggressive evangelism, they intend to promote and advocate the belief that no qualitative difference exists between humans and animals. Needless to say, by encouraging the oppressive human behavior mentioned above, this belief adds fuel to those who promote the population panic.

It is chiefly because of the absence of any prevailing moral counter-force that animal rights activists manage so easily to infuse their faith into the general culture. The Torah depicts the entire account of the serpent enticing Adam and Eve as a tug-of-war between man's divine nature and his animalistic inclinations. Classical Judaism recognizes a sort of spiritual gravity that inclines humans to view themselves as animals. As animals, we would have few, if any, moral obligations; we would be free to act in accordance with whatever we believe are our instincts; and we could follow our hearts instead of our heads.

As the poet John Milton describes so faithfully in *Paradise Lost*, Adam and Eve do succumb to their animalistic inclinations, but finally atone and recover their place as God's special children, created in his image and charged with the task of improving the world by populating it and conquering nature. The Hebrew for conquering, *koveish*, clearly distinguishes between annihilating and conquering. The former is a verb for utterly destroying one's enemy. The latter refers to leaving one's enemy's resources and abilities intact, or even enhancing them, but redirecting them for one's own end. That is what we are told to do with the resources of the natural world. We may not destroy, but we may use them in every possible beneficial manner. Animals are part of the natural world, and their purpose is strictly in the context of human life. One reason that sacrificial rites played such a vital role in the daily services of the Jerusalem Temple was to drive home the point to the ancient Israelites that killing animals in the service of God, and for the purpose of his people, was morally permissible.

A religious Jew may choose to restrict his diet to vegetables during the week, but come Saturday and most holidays, he is to eat some meat as a religious obligation. The reason for this is that God created a world of hierarchy. Minerals are consumed by a higher life form, namely plants. Animals survive by consuming plants, while the highest life form of all, humans, eat animals. It is interesting to note that those animals permissible to Jews as food are animals that eat only plants. In other words, those animals that violate the hierarchical order, such as wolves and bears, may not be eaten by Jews. Now, for a Jew to attempt to improve on God's definition of morality by refraining from eating any meat on moral grounds is another way of announcing that one is nothing more than an animal

oneself. Animals are supposed to eat only plant life. Thus, a Jew who eats only vegetables is announcing himself to be a very good animal. Once each week, God demands of his people that they leave the moral refuge of vegetarianism. We are then forced to confront the reality that an animal died to provide our meal. That places an obligation upon us to be worthy of the sacrifice. Now, for an animal to die for no reason other than to provide meat for another animal is less than ideal. Thus, the plundering animal is regarded as non-kosher, or not fully worthy of being eaten by Jews. However, the Jew who eats meat on a regular basis knows that he must conduct himself in a manner that makes his food's sacrifice morally justified. He is obligated to be a human, not merely another animal.

While always prohibiting cruelty or wanton destruction, Judaism abhors the entire notion of animal rights since it violates the very foundation of biblical belief in God's sovereignty and God's role as ultimate arbiter of moral right. Judaism and secularism are fundamentally incompatible, and the doctrine of animal rights is a doctrine of secularism.

III. The Spiritual Nature of Human Work

The religious Jew has much appreciation for the beauty of nature. We are filled with gratitude for these natural treats to our senses that are also natural resources vital to the human race. In fact, a collection of benedictions is part of every religious child's early-learned faith arsenal. From the earliest age, Jewish children smilingly utter the benediction for a rainbow upon seeing this arc in the heavens. When seeing a beautiful tree, the ocean, hearing thunder, and for many other manifestations of God's world, we say a fervent "thank you."

But factories and skyscrapers also reflect Jewish values. A factory speaks of the human yearning to emulate God's power to create. A city speaks of humans living together in peace and harmony as instructed by their Father in heaven. For this reason, the Temple was to be constructed in the heart of Judaism's quintessential city, Jerusalem, rather than in a remote corner of unspoiled countryside. While forests and swamps are certainly recognized to be part of God's creation, merely leaving them in their original and pristine condition is ignoring God's directive to harness the forces of nature for the benefit of the human race. We are to leave our imprint upon the world in a way that improves what we found. The metaphor is the gracious landlord who allows rent-free tenancy in a not yet fully completed home, asking only that its tenants constantly work to improve its condition. Leaving it as we found it is poor repayment for the generosity.

The general hostility toward industrial development that is often evidenced by environmental activists is frequently rooted in a pantheistic opposition to the God of Abraham, Isaac, and Jacob, and is as old as the Tower of Babel. Judaism takes note of how industrial development tends toward the spiritual and away from the merely material. In our own times, this is quite clear as we see development lead societies past the manufacture of steel and large machinery to the creation of data and knowledge. One hundred years ago, Americans were building ships and railway locomotives. Today, that work is often being done by more recently emerging economies, while we have marched on to produce products whose value per unit of weight vastly exceeds anything that was

produced by our old heavy-industry economy. Judaism views this as a movement toward human recognition of the primacy of the spiritual over the material. It is no coincidence that this tendency for society to move toward the spiritual also brings along with it less disruption of nature. Instead of imposing barriers to industrialization upon the developing world, we would be better served to assist developing nations in moving through this early phase of growth. In this fashion, each part of the world can make its own decisions and judgments about how it will balance its own needs. There are parts of the world—and will probably always be parts of the world—where immediate access to food and shelter trumps all other concerns. Those of us in the developed world may not want a rubber-tire factory next door. However, if we lived near Cairo and presently were neighbors to the world's biggest garbage dump, which is populated by ghostly skeletons rummaging through the filth to find food for another day's existence, we may welcome the arrival of a tire plant to displace the garbage dump. Judaism has great faith in the ability of ordinary human beings to make their own decisions and to find ways to overcome tragic circumstances.

This faith comes from another religious conviction not shared by many environmentalists. Again, if we are nothing but sophisticated animals, it is only right that important decisions should be made for us by an elite group of people playing the roles of zookeeper or farmer. In this view of reality, we are not capable of determining for ourselves just how much prosperity we are willing to sacrifice to halt development. Since nature is the ultimate good, our zookeepers will determine that no burden is too heavy for us to shoulder in service to our god of nature. Judaism insists that we are exalted creatures built in the image of our Creator and equipped with almost godlike powers to create. Thus, Judaism opposes attempts to deprive humans from making their own personal choices; we each have the freedom and the responsibility to order our own behavior toward God's law. Naturally, Judaism also does not protect us from our own poor choices. Part of moral growth is living with the consequences of bad decisions. Part of Judaism's preoccupation with an oral transmission is the ongoing accumulation of experience that validates the Torah's laws.

The basic Jewish principle of balance and middle path also conflicts with the contemporary environmental doctrine that preserving each spotted owl and each kangaroo rat is more important than any costs borne by humans and any sacrifices made by people. Judaism would never countenance loggers suffering the indignity of joblessness in order not to disturb the nesting habitat of the owl. When homes for people become dramatically overpriced because of the regulatory costs of providing for the habitat of the kangaroo rat, Jewish tradition also must object. People need not justify their needs or desires to nature. They are warned only against destroying things for no good purpose.

The view being presented here is occasionally made less palatable by the admittedly immoral practices of some of the participants in our economy. When a large and powerful corporation inflicts measurable damage upon its neighbors, for example, and then takes refuge in legal tactics, a wellspring of local frustration understandably bubbles up. Morality cannot allow people to evade responsibility by hiding behind the corporate

veil. The corporation is nothing more than a vehicle for human cooperation. By surrounding a disparate group of people with a culture, an ethos, and an entire system, the corporation allows individuals who otherwise might have to be subsistence farmers to cooperate with one another in a larger and more lucrative enterprise. This cooperation allows for the provision of goods or services to their neighbors in such a manner as to allow them all to derive desirable income from the venture. Nonetheless, a corporation possesses no right to inflict upon its neighbors damage that its employees, managers, or shareholders would be prohibited from inflicting individually.

We see, therefore, that Judaism views development as people following their Creator's mandate to be fruitful, to multiply, and to conquer the earth. Instead of maintaining a sentimental and false image of nature, we religious Jews understand that nature is harsh and unforgiving. We understand that since the expulsion from the Garden of Eden, the struggle imposed upon us by God is to extract a living from an often reluctant earth. We must do so without laying claim to the benefits of another's labor and without recourse to dishonesty or theft. Our task is, in essence, to subdue nature and redirect it for holy purposes. Even the traditional Jewish practice of circumcision speaks to this godly mandate. The world I gave you is not perfect, says the Almighty. Even your own bodies await your finishing touch. Even more so, we are told, the entire earth awaits your finishing touch. Your labor is welcome, and its results are pleasing to me, says the Lord. For this reason, Judaism is prouder of man's skyscrapers than of God's swamps, and prouder of man's factories than of God's forests.

IV. Pollution, Property, and the Law

There is little question that Judaism and its comprehensive legal system consider pollution to be a serious offense. Numerous examples of how one citizen can harm another by various forms of pollution are cited in the Talmud. However, these examples are always civil cases brought by one individual seeking damages against another. Conspicuously missing is the notion of government initiating action against citizens. One explanation for this is the Torah's strong enthusiasm for private and relatively free transactions between individuals. In Judaism, ecclesiastical authority is also civil authority. Thus, in an ultimate sense, our "central government" is God and the moral law. The Jewish king is instructed to write his own copy of the Torah personally, meticulously copying it from the official texts. He is further instructed to always carry it with him to indicate that he, too, is subservient to its rules and laws. The prototypical Jewish model of a king is King David, whose closeness to God resulted in his writing the Book of Psalms. He also worked closely with the high priest and the Sanhedrin, a supreme court made up of seventy-two rabbis. This model of a religious scholar-king is hardly the picture of a strongly centralized government.

There is thus great dependency upon the local court of law known as the Beth Din, or house of law. One enormous benefit derived from retaining a strong local flavor to law is that there is far less likelihood of cases arising in which an individual is charged with harming all of nature, all of the world, or all of the air and water. Cases brought before the Beth Din must be brought by the individual being harmed. Certain problems are simply too large for mere mortals to solve and are regarded as being God's problems; we

turn to him in perfect faith to solve them. It would be considered an act of spiritual arrogance to usurp responsibility for problems of a cosmic scale. Is this the same as doing absolutely nothing about real pollution problems? No, not at all. By far, the majority of real pollution problems do indeed have local parties as litigants, and they are subject to local solutions and are addressed in Jewish law.

Jewish thought traditionally views these problems through the lens of religious faith. There is no certain way to answer the question of what will be the end of the human story. However, the question clearly has only two possible answers: either oblivion or deliverance. Perhaps we are all ultimately doomed by carbon monoxide, global warming, a rising tide of disposable diapers, melting polar ice caps, ultra-violet radiation penetrating a hole in the ozone layer, a rogue meteorite, nuclear winter, some combination of all the above, or some entirely new and unknown threat. The details are not important, but the conclusion is. One way or another, humanity is doomed. The only alternative is that through some grand program of divine redemption, all of humanity will be delivered into a new and better tomorrow.

There is no way to predict which will ultimately come to pass. We can, however, solve those problems that affect some real individual persons here and now. Is someone being harmed by the polluted rainwater run-off from his neighbor's industrial enterprise? Is someone's property value being adversely impacted by bad smells or noxious fumes (air pollution) emanating from his neighbor's activities? Is a landowner along a river bank polluting the water, thus harming those downstream? All these are examples of legitimate pollution problems addressed by Torah law.

There is, however, little Torah justification for exploiting human fears about the future to expand the role of government. Judaism would clearly resist the notion that we must tackle those problems that are too big for any human to solve by making a government big enough to try to solve them. Consider the prophetic warnings about the dreadful consequences of appointing a king. Absolutely no Torah precedent or theological justification exists for government imposing restrictions upon individuals for the benefit of "nature" or "the environment." Not only is this not an explicitly Jewish religious imperative, but the exercise of government authority for possibly dubious ends represents a clear rejection of traditional Judaism, which has always stood rock-solid against allying itself with the changing fads and fascinations of the moment. Orthodox Judaism criticizes those who attempt to keep Judaism up-to-date by importing the doctrines and movements of secularism. A few generations ago, Russian rabbis castigated those well-intentioned Jews who established Jewish communist groups with the goal of retaining the involvement of young people in Judaism. Today, similar misguided efforts establish Jewish branches of feminism, homosexuality, and radical environmentalism for the purpose of "keeping Judaism relevant." The core of Judaism has always been relevant precisely because of its commitment to unchanging values and its indifference to the philosophical fads of the day. According to Maimonides, the eleventh-century Jewish sage, "It is clear and explicit in the Torah that it is God's commandment, remaining forever without change, addition, or diminishment, that we are commanded to fulfill all the Torah's directives forever." Thus, large-scale fears such as the threat of world

annihilation are best responded to by the Jew with faith that God will solve them. Meanwhile, we should each concern ourselves with acting in accordance with the covenantal rules. We may not damage our neighbor's property, but neither does our neighbor have the right to interfere with our activities of fishing, hunting, manufacture, mining, or agriculture, if these activities do not directly harm him or his property.

Judaism also resists the government taking control over more and more of a society because of its commitment to people owning property rather than a society owning property. One of the very few exceptions to this rule was the Jerusalem Temple that was, of course, owned by no individual Jew. Otherwise, much religious emphasis is placed upon people owning property, and much care is exercised to protect people from threats to that ownership.

It should be understood that the Jewish emphasis on private property is a religious manifestation of a people's relationship with their God and the moral law. Along with so many other aspects of Jewish life, this one also is intended to affirm the Genesis account of Creation, whose central thesis is that we humans are qualitatively different from animals. No animal owns property. To be sure, many animals exhibit a territorial imperative. For instance, lions and elephants both mark their territories to let others know they claim dominance over that area. However, this is not ownership. Lions do not object to elephants in their territory, and they depend on deer ignoring those border markings. If all animals respected lions' "ownership" of an area and kept out, lunch with the lions would be an unusual event.

The Book of Genesis, however, details the mechanism by which humans can own land. Abraham's purchase of a burial site for Sarah is presented in such detail precisely to familiarize Abraham's descendants with the methodology by which humans can own land. This methodology turned out to be a startlingly novel concept, not only to Ephron and the men of Chet, but also to far more recent nations and races that knew nothing of land ownership by people. Yet Judaism is clear that God's plan for humanity calls for people to own land. This is partially on account of God's desire for us to recognize ourselves to be different creatures from animals, and partially on account of God's desire that we live among one another and interact with one another. Economic interaction and its attendant rewards of wealth are part of God's plan to ensure that the children of God do constantly interact with one another for mutual benefit. Land ownership helps to ensure this dynamic.

It is worthwhile to note that God promises Israel very specific benefits to following the covenant, and these promises are very much benefits of this world. God ensures rain in its time, bountiful crops, happy homes, well-behaved children, and wealth—wealth like that which the faithful Job lost and then recovered. God safely makes these promises, as it were, because the covenant is more than mere ritual. It is far more than prayer and good deeds. Major parts of the covenant are focused on how to organize human society and its economic interactions. There are far more rules about human economic interaction in the Bible than about all the prayer and the dietary rules combined. These rules promote human interaction, mutual dependency, and wealth creation. Besides prohibiting each and

every one of us from destroying things purposelessly, these rules further God's plans for humanity.

Conclusion: Theocentrism or Secularism?

Perhaps the most fundamental question that shapes almost every facet of the environmental debate is how humans arrived on this planet. There are clearly only two possible answers to this question. Either a benevolent and loving God created us in his image and placed us here, or, alternatively, we are here as a result of an interminably long process of unaided materialistic evolution that converted primitive protoplasm into each of us. Needless to say, the approach that claims that God used evolution to place us here merely attempts an answer to the question. Of course God could have used evolution. That is not the issue. The issue is only whether we were put here by a creator, or whether we arrived here by a random and unaided materialistic process.

If it is the former, then the Creator's views and wishes as expressed in his instruction manual on life, the Torah, need to be taken into account as we organize ourselves. If it is the latter, then there is no Creator and no instruction manual, and we are free—no, obliged—to follow our own best instincts. And the harrowing aspect of all this is that it cannot be settled in time to determine the best course of action. We have no recourse but to believe one way or the other. This is only a matter of belief, not facts. If it were a matter of fact, there would likely be no believers either in God or in materialistic evolution left, just as there are no true believers in the flat-earth theory or in old theories about heat being an extruded liquid. Facts tend to sort themselves out. Beliefs can be debated forever. Yet most of the genuinely meaningful decisions we make in life depend on beliefs, not facts. When people get married, it is with the belief that they are acting wisely and that they will live happily ever after. They act on the basis of belief rather than on the basis of any real and reliable facts.

Similarly, most of us lack the ability to determine, beyond any doubt, the facts concerning human arrival on this planet. Rather, we tend to intuitively recognize the subtle social consequences of either belief, and we then adopt the one that offers our souls the least dissonance. Those of us comfortable with the implications of divine rules and laws feel comfortable with God having put us here. Those of us committed to a life with no externally imposed rules and laws feel more comfortable with a belief that rules out a Creator. Not surprisingly, all our presumptions about environmentalism fall into place according to this simple schematic.

If there is no God, then indeed there is nobody to take care of future generations—nobody to care for cosmic threats to earth, nobody to solve the really big problems that will possibly face the distant future. It then becomes not only wise but also noble and moral to make that selfless worry for the future our own concern. If there is no God, then we humans are no better than any animal, and we only practice an evil form of "speciesism" by eating, using, being entertained by, or riding on animals. If there is no God, then any human conceit that we may change the face of the planet in a way that no animal would dream of doing, is just that—a conceit.

If, on the other hand, there is a God, then everything changes. If there is a God who has created us, then each and every human person has infinite value, and none can be sacrificed for the sake of nature or some abstract cause. It is God's definition of morality that we must follow. Recognizing that life is indescribably complex, Judaism disdains moral governance by aphorism. A Jewish judge is not someone who has exhibited compassion, intelligence, or popularity. Instead, an appointed arbiter of communal morals is someone who has been sufficiently familiarized with God's view of the extended order of human cooperation that we call society. This person would have done this by mastering not only the several hundred chapters of the Five Books of Moses, but also the thousands of pages of the Talmud and the thousands of responsa, which constitute the establishment of legal precedent during two millennia of Jewish jurisprudence. Spurning spurious simplicity, Jewish law even lacks a term for nature. While the Hebrew word *teva* does mean nature, it is not a word that can be found in the Torah, the Five Books of Moses. The omission is particularly noticeable in the first few chapters of Genesis, wherein God does not create nature. Instead, God creates each element separately. God creates mineral, vegetable, and animal, with all the subspecies and variations within that category. Traditional teaching insists that this understanding of Creation is to discourage worship of nature.

It is not possible to have it both ways. We must choose between two incompatible beliefs. One is the God-centered or theocentric view of reality to which each and every Jew is surely obliged to cling. The other, environmentalism, particularly in its more radical and virulent forms, is fundamentalist secularism. Those of us who consider ourselves persons of faith allow the environmental movement to set the terms of the debate at our own peril. The question is not how we should tackle and ultimately solve the problems about which environmentalists warn us. The question is how we should cope with more and more of our fellow citizens adopting a faith that inspires its believers to act in ways that sacrifice the multitude of human values to an environmental cause.

Clearly, to begin with, we need to demonstrate that we see the dogs in the dark room. We need to familiarize ourselves with the spurious science that produces terrifying scenarios on demand. But, in the final analysis, the child will be cured only when he no longer sees imaginary dogs, and when he walks confidently with his own dog at his side. The problem is not threats to the environment; it is really the threats to our souls. And as in countless earlier instances of history, imprudent beliefs can cause well-intentioned people to do terrible things.

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The Catholic Church and Stewardship of Creation

Introduction

As Roman Catholics seeking to be faithful to the fullness of God's truth, we offer the following reflections in the hope that they will shed some much-needed light upon the environmental issues that are currently facing our world. We do not speak here as authoritative representatives of the Church's Magisterium, but only for ourselves as members of Christ's Mystical Body, reflecting upon environmental questions with the aid of Church teaching. This teaching derives its authenticity from its origin, which is Christ himself, and has been passed down to us by the Scriptures, Sacred Tradition, and the teaching office of the Magisterium. By the very nature of the Church's "catholicity," this teaching is intended to be universal in its scope, and, as such, has much to contribute to a proper understanding of environmental stewardship.

Because this teaching represents a two-thousand-year history of reasoned reflection upon divine revelation, it serves as an indispensable point of departure for establishing a deeper understanding of the created order, the nature and ontological value of God's creatures, and, in particular, humanity's value and place in that created order. An authentically Catholic understanding of the environment must be informed by a knowledge of these truths so that we can appropriately respond to environmental questions in a manner that respects the order that God has established. At the same time, a genuinely Catholic approach to environmental stewardship must constantly bring the moral authority of Church teaching to bear on all environmental questions. Thus, in addition to authentic scientific and reasoned analysis, even the most simple choices regarding the environment must be properly ordered to the truth about man and the world that is his home.

I. The Goodness and Order of God's Creation

If one takes the time to study the religious views of many ancient cultures outside the influence of revelation, one will notice how deeply our Western understanding of creation, God, and man has been shaped by the Judeo-Christian tradition. What ancient cultures provide for us are examples of the insufficiency of human reason in trying to penetrate the deepest mysteries of life. Though the religious views of ancient cultures varied, what we see, beginning principally with Abraham, is a radical departure from what we now refer to as paganism. Of the beliefs common among ancient peoples, a number of fundamental presuppositions seemed to figure prominently in their religious belief. For the sake of space, we will list them below:

Polytheism:

Asserted the existence of many gods.

Denied that human life has intrinsic value.

Saw time as cyclical as opposed to linear.

Lacked the understanding that objective moral norms emanate from the divine and are an essential component of proper worship.

Pantheism:

Maintained that all of creation is divine.

Saw time as cyclical as opposed to linear.

Denied that God is a single, unchanging, perfect, transcendent, and necessary being who is totally above the created order.

Gnosticism:

Maintained that creation developed out of a supernatural conflict between good and evil.

Held that matter is evil, while the spirit is good.

Sought to escape evil by transcending both time and matter.

As Catholics concerned about the environment, we believe it is important to establish the radical difference between a worldview informed by revelation and one that is not. One of the greatest concerns for the Church today in terms of environmental stewardship is the surprising emergence, among some religious and secular environmentalists, of what might be called "neo-paganism." Though the articulation of this new paganism may be far more nuanced and refined than that of ancient cultures, many of the fundamental philosophical and theological errors remain the same. The distinction between God and his creation has been blurred; man's place in the created order has been obscured, while creation is garnished with characteristics unique to persons alone. Consequently, much of the environmental agenda currently being advanced reflects an environmental ethic that stands in contradiction to the Church's doctrines of God and creation. It is our intention, therefore, to establish an environmental ethic that rests firmly upon the foundation of both sound reasoning and divine revelation.

At the very beginning of the Creed, the Catholic Church professes its belief in one God who created heaven and earth. That Creator, unlike those described in the pagan cosmologies of antiquity, is described as good—indeed, as the only good that is whole and perfect.¹ The opening pages of Scripture also repeatedly emphasize that the Creator looked upon his creation and "saw that it was good" (Gen. 1:4; 1:10; 1:12; 1:18; 1:21; 1:25). Of all his good creation, it is God's creation of mankind that completes the created order in such a way that he pronounces it to be "very good" (Gen. 1:31). The Catechism of the Catholic Church reinforces this fact: "Man is the summit of the Creator's work, as the inspired account expresses by clearly distinguishing the creation of man from that of the other creatures."² Human beings are described as part of that creation, as specially created in God's image and likeness, and as endowed with the unique powers of reason and will.

The order that is inscribed into the very fabric of creation reveals to us that not only is everything God created good, but also that creation itself reflects the grandeur of God. In the ancient tradition, the Church Fathers often spoke of nature and Scripture as two divine books. The first shows us some of God's attributes through traces and images of

the Creator imprinted on material things. Among these attributes are his transcendence, sovereignty, and marvelous creative power that appear to us in the vast cosmos and the fertile earth with its wonderful assortment of creatures. Even some peoples prior to or outside the influence of revelation were moved by the wonder of the world to intuitions about its origin and how everything had been brought into being. The sheer variety of things led them to speculate about the plenitude of their source. The order and intelligibility they found everywhere seemed a trace of some divine reason or unitive principle operating in all creatures. The world's beauty and majesty spoke of some perfect spirit at work. Stars, seas, mountains, animals, and plants visibly pointed beyond themselves to some invisible reality hidden to mortal eyes.³

The biblical revelation deepened these intuitions still further, placing them on a firmer foundation, and encouraging believers to observe ever more closely the world God had made. The Wisdom Literature and the prophets testified to a profound experience of God's creative power and guidance over the world, and a sense of the awesome responsibility of the human creature. Or, as the Psalmist eloquently describes it:

When I see the heavens, the work of your hands,
 the moon and the stars which you arranged,
 what is man that you should keep him in mind,
 mortal man that you care for him?
 Yet you have made him little less than a god,
 with glory and honor you crowned him,
 gave him power over the works of your hand,
 put all things under his feet.
 All of them, sheep and cattle,
 yes, even the savage beasts—
 birds of the air, and fish
 that make their way through the waters. (Ps. 8:3—8)

This vision combines the two basic dimensions of Scripture's view of creation: the glory and majesty we may contemplate in what God has made, and our surprising dignity as active stewards of the world, despite our mere creatureliness. This realization has echoed throughout Christian history. Saint Francis of Assisi best expressed the concrete implications of this insight in encouraging his followers to contemplate creation and to praise God "in all creatures and from all creatures."⁴ It is no accident that the Franciscans, who loved and rejoiced in creation more than other religious orders, shaped individuals such as Roger Bacon. Bacon paid careful attention to nature and, as a consequence, figured prominently after the medieval period in the development of early experimental science.⁵ Thus, in echoing a long-standing tradition, the Second Vatican Council declared that Scripture enables us to "recognize the inner nature, the value, and the ordering of the whole of creation to the praise of God."⁶

II. Christian Anthropology

As the summit of God's creation, man reflects the divine image in a most excellent way. Essential to this divine image is our capacity for reason, which enables us to know God,

the world, and ourselves. We are also endowed with the powers of freedom and imagination that allow us to reflect upon our experiences, choose a course of action, and thus become cooperators in the opus of creation. It might be said that we ourselves are co-creators with God, and are consequently privileged in our ability to take what God has created and make new things, which creation, on its own, could not produce. This privilege bestows on us a dignity that surpasses other creatures precisely because we can participate spiritually in God's creativity in a manner that far exceeds the merely physical capabilities of other creatures. Furthermore, because the nature of human action is free and self-determining, these actions have moral value.

It follows, then, that with such capabilities, and by virtue of our dignity, God placed human beings in governance over his creation: "Let them have dominion over the fish of the sea, and over the birds of the air, and over the cattle, and over all the earth" (Gen. 1:26). This dominion was specified as a command to "till and keep" the garden, and was first manifested in the naming of the animals (Gen. 2:15—20). Since naming something is to know that thing's nature, we see the first manifestation of man's rational nature. Moreover, by the command of the Lord to till and keep the garden, we can assume that man was commanded to use his rationality in the governance of creation for the sake of bringing forth fruit from the earth. As is evidenced by man's original "nakedness," we can conclude that man's dominion over creation was intended to provide us with the means for sustaining and enhancing our existence. This stands in stark contrast to the animals and plants for which God's eternal law has provided physical attributes that sustain their existence. All of this occurred before the Fall, and it constitutes the originating Catholic vision of man's place within the created order.

Alongside these divinely and humanly acknowledged goods, revelation also warns, of course, about profound evils. The story of the Fall in the Book of Genesis explains why evil came into human hearts and societies. As the Catechism of the Catholic Church explains,

man, tempted by the devil, let his trust in his Creator die in his heart and, abusing his freedom, disobeyed God's command... In that sin, man preferred himself to God and by that very act scorned him. He chose himself over and against God, against the requirements of his creaturely status and therefore against his own good. Created in a state of holiness, man was destined to be fully "divinized" by God in glory. Seduced by the devil, he wanted to "be like God," but "without God, before God, and not in accordance with God."⁷

The original sin affected every dimension of human life. One of its results is that "visible creation has become alien and hostile to man."⁸ Just as there have been, since Cain and Abel, unjust and immoral relations between persons, so, too, have actions been taken against creation. However, evil is not the dominant force of action in salvation history. God himself entered our world to redeem us through the Incarnation of Jesus Christ. By taking on human nature and restoring its original relationship to God, so began a process of recapitulation for us and the whole cosmos, which is "groaning in labor pains even until now" (Rom. 8:22). This has been accomplished so that we may hope that by Christ's

ultimate action, "creation itself would be set free from slavery to corruption and share in the glorious freedom of the children of God" (Rom. 8:21).

We must be clear, therefore, about what dominion does and does not mean. While all things have been subordinated to human beings, we should rule over them as God himself does. This dominion does not grant to us the right to "lord over" creation in a manner incongruous with God's own manner of governance. Since the first moment of creation, God has provided for the needs of his creatures, and, likewise, has ordered all of creation to its perfection. Hence, man's dominion over creation must serve the good of human beings and all of creation as well. Thus, dominion requires responsible stewardship. Such stewardship must uphold the common good of humanity, while also respecting the end for which each creature was intended, and the means necessary to achieve that end. If man exercises dominion in a way that ultimately destroys nature's creative potential or denies the human family the fruits of creation, such action constitutes an offense against God's original plan for creation.

In thinking about our relationship with the environment, then, we must distinguish carefully between disordered human action, which harms creation and—by extension—human life and property, and responsible action, which the Creator intends for the good of the human family and creation. According to a pastoral statement by the United States Catholic Conference, "As faithful stewards, fullness of life comes from living responsibly within God's creation."⁹ Nowhere does revelation suggest (as do some contemporary religious and secular environmentalists) that creation, undisturbed by human intervention, is the final order God intended. To the contrary, human beings, with all the glory and tragedy of which we are capable, are central actors in God's drama. Indeed, in the history of salvation, the human person and the natural world are never ascribed the same dignity. In the Sermon on the Mount, our Lord himself, while counseling his disciples not to be anxious and to trust in God's providence, assures them that God even takes care of the birds of the air, and adds, "Are not you of more value than they?" (Matt. 6:26).¹⁰ The Scriptures frankly present an ordered hierarchy of being: God rules over all, and human beings serve as his stewards, exercising an instrumental dominion over everything, while also being accountable to him for our exalted position as the rulers of the earth.

Thus, we do rule—and are justified in subordinating and using nature for human purposes, so long as that governance is in accord with the truth about God's creation. As the United States Catholic Conference explains, humans bear "a unique responsibility under God: to safeguard the created world and by their creative labor even to enhance it."¹¹ Hence, the good steward does not allow the resources entrusted to him to lie fallow or to fail to produce their proper fruit. Nor does he destroy them irrevocably. Rather, he uses them, develops them, and, to the best of his ability, strives to realize their increase so that he may enjoy his livelihood and provide for the good of his family and his descendants.

Some would argue that if man refrains from exercising dominion over nature, nature would be better off. Yet the issue bearing the greatest importance is whether man would be better off. When man does not exercise dominion over nature, nature will exercise dominion over man and cause tremendous suffering for the human family. If we were to

choose to refrain from exercising our dominion over creation, nature on its own would not necessarily produce the most advantageous outcomes for human well-being. Droughts occur, rivers flood, earthquakes strike, volcanoes erupt, fires start, and diseases infirm, causing harm to humans and other creatures of the earth as well. Why God in his providence allows such things to occur is a mystery bound up with the fact of original sin. The destructive consequences, however, are not so mysterious. Consequently, as rational beings, we have a primary responsibility to protect human life as a duty that acknowledges the dignity of the human person who is created in God's image. Our responsibility to care for the earth follows secondarily from this dignity, and, as such, presupposes it. We alone, of all God's earthly creatures, have the power, intelligence, and responsibility to help order the world in accord with divine providence and thus minimize the effects of natural evil.

III. The Lord of History

In part, man's prominence in creation derives from another dimension of reality revealed to us by God—that time does not exist as what might appear to be a never-ending circle of life. Time is not static or circular. We move through a history that had a beginning and will have an end. In fact, as Scripture indicates, the entire universe progresses along a linear trajectory that moves us closer and closer to some final end when the last chapter of history will be closed. What this might suggest to us is that creation is developing toward a final state of perfection. This is not to say that God's creation was imperfect at the beginning, but that creation is not finished and will achieve its final perfection as it progresses through stages of development until it reaches that end for which creation was intended.

Even recent science suggests that creation began with the "Big Bang," that the universe is perhaps fifteen billion years into its development, and that after billions more, our universe may simply dissipate. Even in secular terms, there is strong evidence for us to believe that nature and human civilization are intended to develop through time. Geology and biology have discovered that the very planet on which we exist is the product of long developmental processes. Almost all the elements on earth were manufactured in earlier generations of stars that burned out, exploded, and distributed their material into the universe. The great diversity of plant and animal species in our biosphere reflects the slow rise of more and more complex and varied organisms. In the human realm, the growth of civilization, with its patient advances in science, technology, social institutions, and religion, mirror, albeit at a quicker pace, what seems to be one of the central laws of creation—that greater and greater complexity or degrees of perfection take time. What should be noted, however, is just how much faster human civilization has developed by comparison to the rest of creation.

God has revealed that this historic character of creation is, for man, infused with religious significance. Scripture tells us that God, through his word, first created time and space, and then proceeded to make creatures to rule over these realms. Yet he placed man, at the climax, as ruler over the entire order (Gen. 1:3—26). Thus, God was the beginning, and the first cause, of creation, and the principle of authority from whom man receives his vocation to exercise his earthly dominion. Scripture also indicates that we are passing

through time from our origin to some final end for which we were created—a final consummation in Christ (Rev. 21: 5—6). Human history, in a sublime way, is unfolding and developing toward a final perfection in God himself. We also know from Saint Paul that Christ came "in the fullness of time" to redeem us (Gal. 4:4), and that he will come again at the end of history to judge the living and the dead (2 Pet. 3:1—10). In Christ, the fullness of God dwells, and in him all things find their fulfillment (Col. 1:15—20). Therefore, linear time and the development it entails are undeniable components of God's plan for us because they place a moral imperative upon man's temporal existence, and thus infuse human life with a more noble purpose. The fact that man was given dominion over the earth suggests that this final state of perfection, both for man and creation, will be achieved, in part, by the free employment of man's creative intelligence and labor upon the created order. In other words, God has commanded that we participate freely and intelligently in furthering the development of his creation. Because God has revealed to us that time has a beginning and an end, we must acknowledge the truth that human dominion over creation is infused with spiritual meaning and religious significance.

In contrast, many of the cultures outside the influence of divine revelation believed that time was cyclical. Such a view followed naturally from simply observing the life cycles of nature. Thus, ancient peoples often viewed creation as an eternal, self-perpetuating, self-sufficient, and self-contained reality. In short, creation was its own perfection. It was man alone who somehow existed outside that perfection and longed to embrace it. One can see a glimmer of truth in such a view. It certainly appears to be that way. Thus, the regularity of the seasons and the recurrence of certain life patterns were the most prominent features of existence.

God's revelation has elevated and perfected that view by situating the cycles of nature within the proper religious context of man's vocation. Thus, the wonderfully rhythmic cycles of creation, in addition to providing for God's creatures, are best understood and respected in reference to man's relationship to God. The cycles of nature and the regularity with which they present themselves reveal a principle of intelligence that draws man's attention to their source. The logic of creation, which can be discerned by man's rationality, helps us to transcend the merely material and guides us on our journey toward ultimate meaning. The ebb-and-flow, life-and-death cadence of nature is a sacrament of the living God that points to an absolute perfection that stands both above and under all things. Were it not for the splendor of creation, man would have nothing to contemplate, and thus, nothing to direct his glance toward God, nor any way of discerning the meaning of his existence.

Therefore, we will not fully understand God's revelation, human nature, or the integrity of creation if we limit ourselves to a cyclical view of time and nature. Just as the marvelous world in which we live came to its present state of development over time, so, too, must our religious and secular knowledge develop toward the fullest understanding of God's plan for us. Noah, Abraham, Moses, and Jesus represent crucial stages in this history of salvation, which unfolds in time. Thus, Sacred Tradition reveals to us that God is not only the Lord of creation, but the Lord of history as well.

Many persons who are concerned about our impact on the environment believe that linear thinking and action violate the Creator's intention of a permanent and stable natural order. However, this is a point where both revelation and man's achievements—particularly in the arena of good science—will correct this misperception. Nature and human society are dynamic systems that depend on both change and continuity for their existence. In any faithful reading of either the book of nature or Scripture, we can see that, despite our concerns about what the short-term environmental effects of development might be, we must continually raise our eyes to the larger perspectives of God's providence and his intentions for humanity. Environmental stewardship consists in discovering how to properly understand the relationship between cyclical processes and linear developments, present in both nature and human civilization, so that they coexist harmoniously, and direct us toward the ultimate good, which is God himself.

Basing our existence upon cycles alone would be a great limitation on human civilization. The great Christian theologian, Saint Augustine, who was familiar with the cyclical views of antiquity, saw in the Christian vision a great liberation of the human race. He states, "Let us therefore keep to the straight path, which is Christ, and with Him as our Guide and Savior, let us turn away in heart and mind from the unreal and futile cycles of the godless."¹² Elsewhere, Augustine speaks of God as marvelously creating, ordering, guiding, and arranging all things, "like the great melody of some ineffable composer."¹³ As a reflection of this, the human person, who is made in the image and likeness of God, composes, writes, paints, dances, grows food, makes tools, manufactures, and brings forth many new things from the intelligibility inscribed into the very order of creation. Because man cannot create *ex nihilo* as God does, it is precisely the cycles and logic of nature that assist man in exercising his creative inclinations. In other words, while we depend upon the cyclical dimensions of nature for how we develop in our own earthly existence, we have within us the same creative thrust that set in motion the whole history of the universe. In effect, our creativity can bring nature to a higher degree of perfection. Thus, we are faithful to the potential God has placed within us when we affirm what is intrinsically good in nature by developing new and previously unrealized goods.

Interestingly, the Church acknowledges this truth through its liturgy. The very unfolding of the liturgical calendar itself and the celebration of liturgy reflect the times and seasons of the earth, celebrate the products of man's ingenuity, and then suffuse them with spiritual meaning. Every sacrament of the Church affirms God's blessing upon man's dominion over nature by the mere fact that God chose to communicate his grace to us not through the fruits of nature alone, but through those fruits that have been further developed by human intelligence. Thus, even in our worship, we affirm both the value of creation, and the value of man's creativity, which gradually brings all of creation closer to its final perfection.

IV. Human Labor and Human Progress

Not surprisingly, the imperative for human work to meet human needs and restore our fallen world, which is implied by the process of development, appears throughout Scripture. Adam and Eve were given stewardship over the Garden. Cain practiced agriculture, and Abel tended flocks, as did many of the Hebrew patriarchs; and David, the

Lord's anointed, was a shepherd before he became king of Israel. In the New Testament, our Lord himself learned carpentry in Joseph's shop, which means that even the holy family had to support itself by humbly shaping wood into useful products. Several of the apostles earned their living as fishermen, and Saint Paul made tents so as not to be a burden to others. Even the holiest of Catholic sacraments, the Eucharist, makes use not of wheat and grapes, but of bread and wine, "which earth has given and human hands have made," thus reflecting the cooperation between God's grace and our labor in the work of salvation.

As necessitated by this tradition, the Church has subsequently placed great value on human labor as perhaps no other religion in history. Though this world is passing, for Christians the material world is not an illusion, as other religions have sometimes maintained. Thus, work and discovery are essential to God's plan for human fulfillment. The very work of salvation history itself has been unfolding here, in time, in space, and in the flesh. Likewise, the world for the Christian is not, as modern science suggests, a mere repository of raw materials and energy to be harnessed toward whatever purposes we feel inclined. To the greatest extent, the value of human labor finds its fulfillment in the discovery of those ways in which nature can be most responsibly and effectively placed at the service of the human family. This is the most authentic definition of human progress.

Christianity's affirmation of human progress is demonstrated throughout history. For example, out of loving attention to God's world, and the value placed on manual labor in the Benedictine monastic tradition, the Western impulse toward material improvements, and the later development of science, partly find their origin.¹⁴ Some of the greatest early modern scientists, such as Galileo and Newton, were Christians who thought of their work as faithfully discovering the nature of the world that God actually made. These observations of the physical world were, in part, made possible by medieval scholastic philosophy and its Aristotelian metaphysics. Had it not been for the work of people such as Saint Thomas Aquinas, the Scientific Revolution of the fifteenth century may have occurred much later or not at all. From the careful attention and desire to better the human condition that developed within the monastic tradition, eventually spreading into the universities throughout Europe, many valuable developments emerged, and human beings began more fully to understand and express their own God-given role in creation. In our own times, Pope John Paul II has stated,

the earth, by reason of its fruitfulness and its capacity to satisfy human needs, is God's first gift for the sustenance of human life. But the earth does not yield its fruits without a particular human response to God's gift, that is to say, without working. It is through work that man, using his intelligence and exercising his freedom, succeeds in dominating the earth and making it a fitting home.¹⁵

However, a genuine concern has recently arisen that our very God-given capacities may, in fact, be endangering creation. Though man is the summit of creation, our burgeoning powers have made us acutely aware of the particular goodness, vulnerability, and interdependence of all creatures.¹⁶ As Pope Paul VI observed, "The Christian must turn

to these new perceptions in order to take on responsibility, together with the rest of men, for a destiny which from now on is shared by all."¹⁷ This new situation, with its new perceptions, calls for a new ethical effort, and further broadening of the Catholic moral vision. The primary Catholic approach to the moral life focuses upon the development and habituation of virtue. Clearly, human action toward the environment must be guided by something more than utilitarian calculations and human wants, especially since those have been distorted by the Fall. How to apply a knowledge of virtue to environmental questions is complex and has only recently begun to be addressed. A full treatment cannot be offered here. However, a few brief suggestions are in order.

At the center of the moral life the Church identifies four cardinal virtues: prudence, temperance, fortitude, and justice. Briefly, these virtues are pivotal for establishing a norm of behavior for human action, and, for our purposes here, those actions which adversely affect the environment:

Prudence: As the mother of all virtue, prudence demands that we reflect deeply upon the highly complex particulars that are involved in environmental stewardship, along with those moral norms articulated in Church teaching. The most diligent application of prudence, however, will not solve all our dilemmas. Nonetheless, by prudently acknowledging the limits of our human knowledge and judgments, we will prevent ourselves from pursuing impossible utopias, and thus proceed cautiously toward the best possible solutions for both the good of the human family and the good of nature. Prudence necessitates humility in the face of complexity.

Temperance: As the virtue that restrains and directs our disordered appetites, temperance has obvious applications for environmental stewardship. It suggests that simplicity of life, self-discipline, and self-sacrifice, as Pope John Paul II has reminded us, "must inform everyday life."¹⁸ Temperance is the virtue required for a proper ordering of consumption.

Fortitude: In earlier times, we needed great courage to face the challenges that the material world posed to our existence. Many of the discoveries that have benefited the human family required individuals to courageously discover the powers and potentials of nature. This tradition continues still, but with little regard for moral norms. While fortitude has often been of tremendous value, it requires that we avoid pursuing technologies that violate the natural law or could result in the mass destruction of nature and the human family.

Justice: As all people are impacted by ecological concerns, justice requires that each creature be given its due in accord with its own particular goodness. Consequently, where tradeoffs are necessary, human need must always be given priority. Wealthy societies are better able to absorb environmental costs, and, therefore, they should bear them; but they should also assist poorer nations in the process of economic development so as to help them secure their own dignity and will. In the long run, such efforts benefit both man and nature.

Some of these points will be touched on later in this essay. Nonetheless, it is clear that, for the Catholic tradition, virtue is an indispensable foundation to understanding how human beings are called upon by God to play their proper role in restoring and developing God's creation in accordance with his original plan.

V. Human Power and Nature's Ways: Some Prudential Considerations

The ongoing process of discovering potentiality in nature and choosing which portions of that potential to actualize, leads us into many complicated prudential judgments. The judgments we make here are not the only prudent conclusions from Catholic principles, but they seem to us the best reflection of sound theology and sound science.

For much of history, human interaction with the environment had few lasting effects. Nature was immensely powerful, compared with the limited capacities of mortal man. It is only the immense growth in human powers in the past few centuries that has made human activity a potential threat to the integrity of creation. Prior to that expansion, people in every part of the world over-fished, over-hunted, over-harvested, polluted, and, sometimes, harmed themselves and their fellow creatures in the process. However, the relative weakness of the human animal in the face of nature's immense power and fecundity made such damage local and transitory. Nature itself has produced much larger disruptions. During the last Ice Age, for instance, which ended only about fourteen thousand years ago, a large portion of the northern half of the globe was covered in ice thousands of feet thick. Forests were scraped clean from the land; few plants or animals survived. Yet the reproductive powers of life on this planet are such that the splendid northern forests we now enjoy reappeared in a relatively short time. Creation itself has a wide range of states as well as enormous regenerative powers when it is allowed to use them.

Some changes push the world into greater complexity and proliferating forms of life; others kill off species—and sometimes even whole ecosystems—without the slightest human intervention. What is often spoken of as the "balance of nature," therefore, is a dynamic balance. Nature changes all the time. In the past, for instance, the earth's climate naturally underwent fluctuations that were faster and larger than even the worst scenarios for manmade climate change. The course of rivers, as well as the locations of forests and of deserts, shifted without ceasing. These forces, which destroy only to create anew, seem to be part of the way that the Creator intended to bring about the intricate and varied forms of life we see around us today. If we think of the balance of nature as static, we will not only have a false impression of the world God has given to us, but we will work against the dynamism of nature and human nature, even as we seek to help both to flourish.

Nature is also sometimes described as a self-regulating system. Again, this is only partly true, and needs to be rightly understood; nature's way of self-regulation raises hard questions for responsible stewardship. Nature achieves balance when one portion takes advantage of opportunities presented by another portion. Big fish eat little fish. Weaker species reproduce in large numbers to offset the losses to predators. None of this, of course, is an ideal model for human individuals and societies to follow. We have

concerns that no other earthly creature manifests. Very few of us, for instance, would wish to obliterate the natural beauty and varieties of plant and animal life around us, even if it would entail no physical harm to our own species. A healthy and beautiful environment is one of the goods man values, and, therefore, seeks to promote. By contrast, the hiv virus that causes aids does not care if it wipes out all potential animal hosts because the only thing it appears to know is how to reproduce to the limit of available biological niches. Other species seem to behave in essentially the same way.

Despite our natural affection for our fellow creatures on this planet, we need to see them as they are in themselves, and in terms of what they mean for human life. Elephants and tigers, for instance, are marvelous creatures that should be preserved; they tell us something irreplaceable about God's "infinite wisdom and goodness."¹⁹ However, wild elephants and tigers have also been the bane of human existence, as have been viruses, mosquitoes, wolves, bears, sharks, and a menagerie of other creatures. To recognize this is not to license any and every human action over nature. Man's dominion over nature is "not absolute; it is limited by concern for the quality of life of his neighbor, including generations to come."²⁰ Still, persons who live in close contact with nature have a very different sense of its relative mix of threat and glory than do persons who observe beautiful rain forests or wild animals only at a safe distance through television, movies, or with the advantages of civilization to which to return. Nature contains many dangers for the human race, as well as much beauty and benefit. Some religious and secular environmentalists give the impression that it would be better for man and nature if we returned to some previous state, certainly before industrialization, and perhaps nearer to prehistoric conditions prior to settled agriculture. These aims are both wrong-headed and dangerous. Creation becomes benign for man and realizes potentialities built into it by the Creator to the degree that, through developing his own creative powers, man takes dominion over creation. Left on its own, nature is limited in what it can achieve by its own natural processes. Thus, nature would fail to release the potential God intended for it if not for the instrumentality of human creativity and labor. Furthermore, untamed nature would continue to inflict tremendous suffering on the human family.

VI. A Better Sense of Perspective

The modern concern about the environment, and the very development of the science of ecology, began in the middle of the nineteenth century when human power over creation began to expand rapidly. As we might expect, good and evil were inextricably mixed in this development. On the one hand, industrialization and modern agriculture have enabled more people to live—and live a more fully human life—than ever before. After a difficult transition period, for instance, manual laborers in advanced economies achieved a security and sense of dignity never before seen in any society. Advances in technology have made famine—which was a regular scourge to humanity around the globe before modern times—a thing of the past, except in places where political tyranny or turmoil prevent intelligent development. Advances in medicine have all but eliminated diseases such as smallpox, tuberculosis, and malaria, and have made formerly life-threatening maladies such as measles, mumps, and others, relatively minor nuisances. All of this was achieved by the slow and patient accumulation of human knowledge and the creation of

free institutions that enabled the fruits of that knowledge to be shared by even larger numbers of people.

On the other hand, industrialization also had its negative effects. Early industrialization polluted cities, disrupted agricultural communities, and challenged modern nations to find ways to integrate growing urban masses. However, these were largely transitional problems. Today, it is precisely industrialization, new forms of agriculture, and other human advances that are making it possible for humans to increasingly live well and in proper relation to the earth. Even in difficult cases, such as the increase in greenhouse gases, we want to be wary of taking too narrow a view of the matter that neglects a broader perspective on the goods of development. Fossil fuels, which come from beneath the earth, have made it possible for us to forego the far more destructive, inefficient, and polluting use of wood and other so-called natural fuels that must be harvested from the earth's surface. Paradoxically, fossil fuels may have even helped save whales from extinction. Prior to learning how to use petroleum, humans had few alternatives to whale oil for generating heat and light.

Moreover, fossil fuels, such as coal and oil, have also had far-reaching positive environmental effects that a good steward should wish to consider in drawing up the global balance sheet. The first effect is to make it possible for farmers to replace beasts of burden with machines and, therefore, to cultivate land more efficiently. (Much of the developing world is now beginning to undergo this process of agricultural modernization today.) Second, fossil fuels have been turned into fertilizers that, together with new pesticides, other means of preventing spoilage, and advances in new plant species—the so-called Green Revolution—have produced so much more food per acre that large amounts of land have now been spared from cultivation altogether. For example, America's forests, contrary to popular perception, have been growing steadily for the past fifty years and are actually larger than they were one hundred years ago.²¹ Even in the heavily populated coastal areas, small farms have returned to forestland. The result of all this is that despite its vast fossil-fuel consumption, North America currently shows a net minus in the amount of carbon dioxide it puts into the atmosphere. In other words, North America absorbs more carbon dioxide through plants and forests than it emits through industry.²² No one intentionally set out to produce these consequences, but human ingenuity, aimed at doing better with greater cost efficiency and lower amounts of raw materials, seems here to reflect a providential convergence of man and nature. Now that we are conscious of the effects of our activity on nature, we can set out to do even better.

If other countries in the world could imitate such ingenuity and efficiency, we would not see an exhaustion and despoliation of natural resources. Instead, we would see their enhancement and protection. Agricultural scientists have estimated that if the rest of the world could achieve the level of efficiency and care for the land exhibited by the average farmer in the developed world, then ten billion people—which is almost twice the current world population, and is a larger figure than is now expected when the population levels off in the middle of the century—could be fed on half the land. Put into concrete terms, this means that an area the size of India could simply be left untouched worldwide in spite of population growth.²³ It is a modern scandal, then, that out of a misguided

concern for the earth, some philanthropic foundations and environmental groups from developed countries, and some international agencies as well, have discouraged, or even refused to support so-called "unsustainable" agricultural practices. These practices are, in fact, necessary for saving and improving the lives of the world's poor and hungry.

Such a position severely clashes with the moral imperative outlined above that human needs must be given first priority in environmental policy and practice. There is room for well-meaning people to disagree about the best set of stewardship policies; and it is rarely the place of the Catholic Church to endorse particular policy proposals. However, we should not indulge ourselves in a strongly negative, almost anti-human view of human population. Unfortunately, environmental policy is often guided by this view—a view that ultimately deplores the appearance of billions of new people on the planet, each of whom, by God's providence, is created to enjoy eternal life with him. Many environmentalists seem to believe that human beings are a kind of scar or cancer on the land, an immoral intrusion on an otherwise perfect natural order. No basis for this view can be found in revelation; indeed, quite the opposite is true. Man was placed here by God and was commanded to be fertile and multiply, to fill the earth and subdue it (Gen. 1:28). Thinking of the existence of other people as unfortunate and perhaps even as a violation of nature is a radical departure from the Judeo-Christian ethic. We are made in God's image and likeness, and that means, in part, that every person conceived is sacred, *per se*, because he or she adds to creation an incommunicable value that did not previously exist. The view that people are merely a drain on resources not only contradicts our faith, but denies the real contributions of human beings to the common good of human society and the integrity of the environment. God has decided to allow these new persons into the cosmic community of spirits. Any view that does not welcome human beings both in themselves, and for what they may providentially bring into the world, is at fundamental odds with the Catholic ethos.

In addition, the best evidence appears to suggest that no population crisis, as such, exists. Some countries with high population densities are poor because their economic development has not, in fact, matched growth in human numbers. However, countries such as Japan and Hong Kong show that such poverty is an economic rather than a population problem. We have already seen that there is no shortage of food on the planet. There is equally no "population bomb" ready to go off. The predictions of alarmists on this score in the 1960s and 1970s proved false. Only nature or the disregard for human life has produced large numbers of human deaths in recent decades. Globally, food production has outstripped population growth, thanks to human innovation.

However, many human beings still suffer from a lack of basic necessities. Thus, if there does exist an imbalance between population and the amount of arable land, observes Pope John XXIII, "necessity demands a cooperative effort on the part of the people to bring about a quicker exchange of goods, or of capital, or the migration of people themselves."²⁴ Thus, an approach that favors economic development and international cooperation should be promoted as an alternative to programs intended to reduce human population.

Another side effect of development—albeit an unintended one—has appeared as well. As food becomes more plentiful and medicine more widely available, population growth naturally slows. Many developed countries in North America, Europe, and Asia are actually facing precipitous population collapse, absent immigration.²⁵ In developing countries, population growth slows as people become confident that, thanks to material improvements, more of their children will survive into adulthood. Whereas a half century ago, women in developing countries had to bear, on average, six children to keep the population steady, today's lowered infant mortality rate has cut the number of births in half.²⁶ Developing countries today are at the stage of many developed countries more than fifty years ago, with the added advantage of developed technologies and practices already discovered and in use. Thus, addressing the needs of developing nations is well within our potential.

What may block the path to development, however, is mistrust of human innovation, and the inevitable drags on progress that government management of the economy, weak protection of private property rights, and barriers to trade introduce. We know from hard historical experience, for instance, that the centralized, planned systems of the former Communist countries were poor stewards of lands with remarkable natural resources. These countries were not only terribly inept at producing and distributing goods to their own people, they were also among the worst polluters and most reckless environmental regimes in history.²⁷ Despite many laws stipulating production targets and pollution controls, scarcity and environmental degradation were the result. Command economies and the rigidity they introduce into social relations make the environment a marginal concern. Most government planning tends to produce exactly the opposite of what is intended by hampering or penalizing needed innovations and the dynamic spontaneity to solve problems in both the economic and environmental spheres.

It is a normative Catholic principle that God intended the goods of the earth for the benefit of all.²⁸ In other words, while private property, as Saint Thomas Aquinas notes, is a right, it is not an absolute right.²⁹ Unfortunately, recent attempts to promote the common good by overly centralized planning remind us that, other things being equal, the right to economic initiative and the natural interest we take in our own property play an important social function in both the economy and the environment.

VII. A Proper Understanding of Environmental Stewardship

What becomes clear to us in this analysis is that we need a very sophisticated grasp of our situation that will take into account everything that the sciences—which are a product of human reason—are able to tell us about our world. Yet this is not all; we must also integrate our scientific knowledge with the normative principles of the moral order.

The moral teaching of the Church, as manifested in the various saintly lives of Christians throughout history, remains a key component in our understanding of how we should live in relationship to the material world. These individuals have challenged us to see that it is prudent for us—as both bodies and spirits—to refrain from consuming more than we need, or to coarsen ourselves by the endless pursuit of luxuries. Our tradition challenges us to be very careful in our personal lives about the temptations of worldly goods. Yet what is

helpful, and even a religious necessity, in one's personal life cannot be translated directly into a social ethic without some caveats.

The human species as a whole will do better for itself and for creation if we vigorously cultivate the intelligence and creativity with which we have been endowed. This can be accomplished when each person is allowed the economic freedom to seek material improvements, and to make them economically viable within a system that is circumscribed by a strong juridical framework.³⁰ A more expansive social ethic that allows for economic prosperity does not contradict personal austerity, as it may appear at first glance. Large-scale innovation and productivity actually allow for greater efficiency, thus saving raw materials and energy in the long run. As the Catholic tradition acknowledges, proper distinctions are an imperative for moral analysis. Thus, it may be important to generate a lot of wealth; however, what one does with that wealth is quite another matter.

Moreover, while we ought to desire a certain simplicity in our personal lives, returning to some pre-industrial agrarian arrangement would result in the loss of such goods as profitable employment, modern medicine, and a resilient infrastructure, as well as in reduced food production, thus creating an empty well of human need. In times past, human existence was marked by a constant struggle for survival. Only since industrialization has man acquired the means necessary for protecting himself against the forces of nature. Putting the billions of people now alive back on the land would, paradoxically, have even worse environmental effects than intelligent development. Consequently, economic development must progress hand in hand with individual commitment to the virtue of temperance.

Similarly, no responsible person believes that the relatively simpler but dirty old path of early industrialization should be continued in the future. Many environmental problems are already well on their way to technical solutions. Water and air are vastly cleaner than they were only two decades ago, largely due to advances in technology. Manufacturing processes and automobiles may soon have no environmental effects whatsoever. Thus, in addition to the great advances we have seen in agriculture and medicine, we can anticipate that, in the very near future, technologies will continue to provide ways to solve many other problems we currently face.³¹ However, to achieve a reduction in environmental impact, human societies require greater development and more innovation, not less.

Since questions of stewardship, by their nature, reflect great human as well as natural complexity, public policy must reflect the greatest technical skill, practical wisdom, and widest human experience possible. Experience has shown that democratic political systems and market economies, by and large, do exactly that, particularly when moral values and the practice of virtue inform them. Neither of these systems is perfect, and neither will deal with the environment perfectly. Both are subject to the pitfalls of human vice, fallibility, and original sin—as well as simple error. However, as Thomas Jefferson observed, there is "no safe depository of the ultimate powers of the society but the people themselves." Time has proven the practical wisdom of that principle, and we might

observe that it is consistent with the Catholic view that every human person has been endowed by God with gifts intended to be used for the glory of the Creator and of his creation. Democracy and a free economy provide a space for those gifts to be effectively utilized in the stewardship of the earth. It is often argued that environmental questions are so urgent that they cannot wait for a popular consensus to form or cannot depend upon market incentives—which are often focused on short-term gains—for solutions. In a very few cases of demonstrated emergency, that may be true. In almost every other instance, however, far from being inconvenient obstacles to realizing environmental goals, democracy and markets are the most effective social embodiments of our God-given intelligence, and are the best mechanisms for the responsible handling of the environment.

It is no mere coincidence that the words ecology and economics have related etymologies. Economics, referring to the laws of the household (oikos in Greek), is the science of how we produce, sell, buy, trade, and use goods and employ services to meet human needs. Ecology, a word that came into existence in the nineteenth century as environmental questions became more evident, is the science of the laws that govern the interactions of the earth's biosphere with the earth's inhabitants, specifically as the home (oikos) for all life (bios). The two terms are deeply related in reality as well as in their origins. Too often, however, they are set in opposition to each other. The usual way this relationship is characterized is by arguing that greed, expressed in economic activity, is the driving force behind ecological problems. Even historically, this is false. The economic actions intended to fulfill human needs have often damaged ecological systems, but to portray these actions simply as greed or excessive consumption assumes that nature is far more benign than the witness of human history seems to suggest. Much of the environmental harm inflicted on nature in the past few centuries has stemmed from human ignorance, not malice or even greed, as we have tried to gain advantage over the nemesis of material scarcity. Yet now that we are beginning to discern the value of our stewardship over nature, we are in a new situation. Thus, we need to reaffirm our commitment to the tools that allow us to respond effectively to the multifaceted problems we face.

First, we need the very best and dispassionate environmental science to help us sort out the immensely complicated series of interconnected effects of our actions on the biosphere. Simple emotional appeals or alarmist claims are of little use here. As Pope John Paul II has pointed out, "Reverence for nature must be combined with scientific learning."³² Global warming, for instance, which remains speculative and based on incomplete computer models rather than on demonstrated science, might cost man and nature a great deal if we rush to impose dramatic limits on fossil-fuel use in a misguided attempt to solve a problem that may not even exist. Just twenty-five years ago, some of the current proponents of global warming were warning us about global cooling.³³ Because ecology is still in its infancy, we need to utilize all that we know to help us find prudent solutions for these complex problems. We must also recognize that science alone is insufficient for resolving these matters, especially since these issues have moral implications. Thus, in recognizing that we will have to make unavoidable tradeoffs in

striking a balance between human need and a clean environment, we must exercise prudence in addressing environmental concerns.

Finding ways for nature and man to coexist for the benefit of all of creation will demand great human ingenuity and effort in the coming years. At the moment, the simplest solution for many environmental problems is to set aside land for conservation and wildlife habitat. Around the world, the countries that enjoy the greatest prosperity are able, through both public and private means, to set aside land for wildlife preservation. Development and wealth make environmental care much easier, as can be inferred from the fact that intelligent development, which leads to a surplus of wealth, provides the greatest possibility for man to address concerns beyond the scope of his immediate material needs. This fact is rooted in the very logic of man's dominion over nature.³⁴ Despite some continuing environmental problems, developed countries are the ones most dedicated to and successful in treating their own environmental situations.

For the most part, it is not the entrepreneur or the corporation in developed societies, as is often claimed, who acquires disastrous and short-term profit at the expense of the environment. Entrepreneurs usually have a vested interest in their own kind of sustainability, as well as incentives to innovate and to make products more efficiently and with less waste. By contrast, the poorest and least-developed countries frequently have few real options as their often-growing populations, with little or no incentive to prudent stewardship of their natural resources, exploit every available resource in the search for short-term survival.

The poorer countries of the world are those most in need of good science and development, for both economic and environmental reasons. The traditional forms of agriculture and manufacturing, often romantically thought to be ideal models of how to live on the land, are actually a much heavier burden upon earth and upon man than modern developments. For example, developing countries would benefit both environmentally and economically from electricity. Electricity generated by fossil fuels is frequently portrayed as a clumsy and centralized means of power generation that would best be replaced by wind, solar, or wave-powered generators. If these alternative energy sources were successfully developed and made affordable, perhaps this would be true. However, in the meantime, millions of children and adults die every year in developing countries because of the smoke they inhale from wood and dung fires, or because of the impure water that they must drink for lack of proper sanitation. Thus, their basic needs would be met with far less local and atmospheric pollution by the construction of the most up-to-date electrical power generators around the world. Even if this source of energy is not perfect, it represents an improvement toward both meeting human need and a cleaner environment. Science and development should work in tandem to aid the most hard-pressed of our human neighbors, while taking prudential steps toward a fuller realization of environmental stewardship.

In addition to proper science, however, we desperately need an authentic democratic deliberation on the environment. Every recent survey of the American people confirms that they place high value on a clean and safe environment. Yet in human life there are

few indisputable absolutes. Thus, we see that most often these same people do not endorse the proposals recommended by many environmental organizations for achieving this seemingly desired end. Real environmental decisions, as we have seen, always involve choices between different and sometimes competing values, therefore suggesting that we must proceed with great caution and prudence.

For example, air quality in the United States is better than it has been in decades. Soon, smog is likely to be a thing of the past. Pollutants are still put into the atmosphere by human activity, but, at a certain point, a moral calculation must be made. Do we want to spend enormous amounts of human and material capital on removing, say, the last 5 percent of an air pollutant at the cost of being unable to deal with other more serious problems? If so, what if the last 2 percent is ten times as expensive? Or a hundred times? Prudence dictates that we need a moral and political calculus that will weigh several competing values as they come to bear upon the common good. Though all of them are perhaps laudable enough in themselves, we must always consider the fact of scarcity when seeking to resolve these conflicts of interest. By virtue of the limits placed on our material existence, we must be modest in our assessment of what we can reasonably achieve environmentally without placing an undue hardship on others. True democratic processes, then, will allow for the real cost and benefits of environmental stewardship to emerge, and thus a policy can be advanced that truly upholds the common good.

Third, in much of the literature on the environment, entrepreneurs and the technologies they employ are pitted against ecologists and the "rights" of nature. There is a kernel of truth in such arguments, because all human activity alters the natural world to a greater or lesser degree. Far from being locked in inevitable conflict, however, entrepreneurs and environmentalists need increasingly to cooperate with one another to the benefit of both. Many environmentalists have demonized entrepreneurs. Without going to the opposite extreme of idealizing entrepreneurs—some of whom provide great service, others of whom, in fact, are irresponsible—it is clear that there are several ways in which entrepreneurial activity, at its best, will be crucial to the solution of environmental problems. First, scientific research, both in nonprofit and in corporate settings, depends largely on the excess capital generated by successful entrepreneurs. Entrepreneurs also have a market incentive in developing innovations favorable to the environment, such as new technologies that replace older, dirtier, and less efficient technologies. Only the freedom and responsiveness of markets, as has been demonstrated around the world, will succeed in distributing those goods to the widest number of people. As Pope John Paul II has argued, "the free market is the most efficient instrument for utilizing resources and effectively responding to needs."³⁵ Environmentalists can play a useful role in identifying problems and threats. However, as it stands today, their critiques are often insufficient for addressing the vast array of needs confronting society as a whole. Therefore, embracing a broader view of creation that credits economic activity as being an extension of God's own wisdom for how man is to relate to his physical surroundings is becoming increasingly important.

Fourth, many environmentalists deplore the right to private property. In contrast, property is upheld in the Catholic tradition, not only as a fundamental right by virtue of man's

labor, but also as the means by which God intends man to develop the earth for the benefit of all people. Property that is held in common is most often neglected. In general, he who owns his property will care for it and produce something from it. Therefore, an owner is typically the best steward of a resource. However, the right to private property, in Catholic social thought, can never be understood authentically apart from the universal destination of all material goods. Man is entitled to the fruits of his labor, only inasmuch as he has a right to provide for himself and his family, and the duty to help others in need. Saint Thomas Aquinas provides several arguments for why privately owned property is better cared for than common property or property that is owned by no one in particular.³⁶ In short, he argues that property is temporary and relative in this world. Since its possession requires moral as well as legal limitations, where private property rights have been respected, the whole created order has generally fared better.

Some environmental problems may be best treated, in fact, by creating new forms of property rights defensible by law. The law has recognized that pollution damages the common environment and may, therefore, be curtailed in respect to others' property rights. Recently, pollution credits, which are currently being actively traded, have provided successful market incentives to reduce emissions. However, we have not yet experimented extensively with ways to use private-property rights to solve ecological questions. Nonetheless, limited experimentation in this area has yielded positive results. For some places in Africa, for example, establishing property rights over land and animals, and allowing local peoples to benefit from controlled hunting and harvesting policies, have paradoxically lessened poaching and made hunting both economically valuable and sustainable. Previously, people in such areas had immediate incentives to destroy large beasts and their habitats in order to enlarge simple agricultural activities. Innovation that takes advantage of new markets has enabled them to avoid harming nature, to a greater degree, while also benefiting themselves. Whenever possible, as this example illustrates, economic and ecological interests must everywhere be made to coincide as closely as possible with one another.

VIII. Recommendations

In conclusion, we would like to recommend some general principles as guides to future reflection on environmental questions:

1. Nature reveals God as the Creator. Thus, we human beings learn things about God and ourselves from contemplating the earth's power, intelligibility, and beauty. We would do well to know nature better in its immediacy and to cultivate the ancient practice of meditating on nature in order to increase our spiritual understanding and love for God's world. As Pope John Paul II rightly reminds us, "Our very contact with nature has a deep restorative power."³⁷

2. Even natural contemplation, however, will lead us, as it did many early civilizations, to see that nature points to something beyond itself and draws man to the ultimate source of well-being. We care for creation as a God-given responsibility, but the love of neighbor as a being with an eternal destiny is a still higher demand. We should welcome new additions to our numbers by protecting the sanctity of human life—from conception to

natural death—and taking all possible steps to see that each person's basic needs are met. The United States Catholic Conference has posed this question: If we do not respect human life, "can we truly expect that nature will receive respectful treatment at our hands?"³⁸

3. Meeting human needs should not be thought of as a zero-sum process that inevitably entails further deterioration of nature or exploitation of neighbor. Creative minds and ready hands can quite easily offset and even reduce the current human impact on creation and can expand man's capacity to meet the needs of his neighbor through voluntary exchange.

4. Ecology and economics must go hand in hand. (Sound environmental stewardship is the joining of the two.) There is an economy of salvation, an economy of human existence, and an economy of the environment. Greater prosperity generally correlates with greater concern for—and better means for dealing with—environmental questions. It also leads to voluntary, non-coercive decisions about having children—decisions that avoid morally illicit means of reducing perceived population pressures.

5. Political and economic liberty best reflect the human freedom and intelligence with which we have been endowed by God. Democratic political systems and free economies, therefore, are most likely to respond to our environmental concerns in the most fully human way. In many cases, this means that finding market solutions to perceived problems will benefit both people and the environment.

6. We should resist the tendency to believe that centralized planning is more environmentally responsible than free institutions. The countries that have had the most centralized systems in the past century have also been the most harmful to the environment. Catholics are not opposed to properly constituted state power, but the issues where clumsy and rigid regulation can help are far fewer than is generally believed. Agile and flexible markets can respond, and with great efficiency, to problems unsolvable in any other way.

7. Entrepreneurship is one dimension of human nature. Portraying all entrepreneurs as people driven merely by greed is both unfair and disrespectful to one of the means God has given us to handle our ever-changing needs. Properly understood, responsible entrepreneurship is a vehicle for realizing what the United States Catholic Conference has called a "common and workable environmental ethic."³⁹ As Pope John II has stated, "Placing human well-being at the center of concern for the environment is actually the surest way of safeguarding creation; this in fact stimulates the responsibility of the individual with regard to natural resources and their judicious use."⁴⁰

Conclusion

The revelation of God both in nature and in salvation history does not lead us to believe that we should return to some prelapsarian garden in the earth's distant past. Angels with flaming swords block that way forever (Gen. 3:24). As Pope John Paul II has pointed out, ecological responsibility "cannot base itself on the rejection of the modern world or on

the vague wish for a return to a 'lost paradise.' "41 Human dominion over nature is not necessarily evil; yet our task lies before us. We must always be on guard against a two-fold temptation that is repeatedly denounced by God: first, making idols of nature or creatures that, in so doing, exalts them above our primary duties toward God; and, second, neglecting the needs of our human neighbor. We are awaiting the New Jerusalem, a city to be given to us at the end of time out of God's free bounty, which will descend upon a New Heaven and a New Earth. In the meantime, we must combat the evil in ourselves and in our world. We must seek better ways to love God by keeping his commandments and loving our neighbor as ourselves. In a sense, the love for our neighbor can be extended to the non-human world. However, we will have to make prudential judgments about many complex questions and expect inescapable tradeoffs along the way. Since "one can love animals" but should not "direct to them the affection due only to persons,"42 whenever there is an unavoidable choice between people and nature, we must, like God, put people, the summit of his creation, first.

Finally, we should always have faith that God never abandons his people. Our talents were given to us for a reason: to enable us to love God and our neighbor in Christian freedom. We may be confident that God will also provide us with the gifts and graces that are needed to care for both nature and ourselves. Nonetheless, we should still not expect that any of our many pursuits in the coming years—let alone complex activities such as environmental stewardship—will be without new problems of their own. As the great Catholic theologian Hans Urs von Balthasar has recently reminded us, Jesus said that the wheat and the tares grow together. Believing that we can uproot all evil may threaten the goods on which we all depend.⁴³ Catholic teaching about the Fall is a realistic, not a pessimistic view, in this perspective. There is much bad and much good in our world, but the persistence of evil should not discourage us. Until the Lord comes in glory, total perfection for us as a species and perfect harmony within nature are beyond our reach, but we know that someday he will come. In the meantime, we seek salvation and our human future amid great uncertainties, but also in joyful hope that the Creator who brought this world and the human race into being is certainly still at work in it—and in us.

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Notes

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8. *Ibid.*, 400.
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13. Saint Augustine, *Epistles* 138.1.
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A Biblical Perspective on Environmental Stewardship

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Introduction

A Biblical Perspective on Environmental Stewardship

In the last three centuries, life expectancy in advanced economies has risen from about thirty years to nearly eighty. Cures have been found to once-fatal diseases, and some diseases have been eliminated entirely. Famine, which once occurred, on average, seven times per century in Western Europe and lasted a cumulative ten years per century, is now unheard of there. While the average Western European family in A.D. 1700 lived in a hovel with little or no furniture, no change of clothing, and barely enough food to sustain a few hours' agricultural labor per day¹—and, of course, they also lacked electricity, plumbing, water and sewage treatment, and all the appliances we often take for granted—today the average family lives in a well-built home with all those amenities, along with enough food to make obesity, not hunger, the most common nutritional problem even among the "poor."² Such advances in the West have been the fruits of

freedom, knowledge, and hard work—all resting substantially on the foundation of biblical Christianity's worldview and ethic of service to God and neighbor.³ These advances have also given rise to a laudable expansion in people's focus on the need for environmental stewardship. For as people come to feel more secure about their basic needs, they begin to allocate more of their scarce time, energy, and resources to attaining formerly less urgent ends. Consequently, the movement for environmental protection has grown as Western wealth has grown, giving rise to a strong environmental consciousness and to protective environmental legislation.

The world's less developed countries, where material progress began much later, have been catching up in the past century, as shown especially by rapidly rising life expectancy (from about thirty years in 1900 to about sixty-three years today).⁴ Nonetheless, in many developing countries, the basics of sufficient and pure water and food, along with clothing, shelter, transportation, health care, communication, and so forth, still remain elusive for many people. For them, continued economic advance is crucial for health and even for life itself: It is small wonder that their attention focuses more on immediate consumption needs than on environmental protection. Tragically, however, people with a strong environmental consciousness who live predominantly in Western countries sometimes seek to impose their own environmental sensibilities on people still struggling to survive. In fact, further advances in human welfare for the poor are now often threatened by a belief in the West that human enterprise and development are fundamentally incompatible with environmental protection, which is seen by some as the quintessential value in evaluating progress. This false choice not only threatens to prolong widespread poverty, disease, and early death in the developing world, but also undermines the very conditions essential to achieving genuine environmental stewardship.

In this essay, we shall present theological and ethical foundations we believe are essential to sound environmental stewardship; briefly review the human progress erected on those foundations; and discuss some of the more important environmental concerns—some quite serious, others less so—that require attention from this Christian perspective. We shall also set forth a vision for environmental stewardship that is wiser and more biblical than that of mainstream environmentalism, one that puts faith and reason to work simultaneously for people and ecology, that attends to the demands of human well-being and the integrity of creation.

Such an approach to environmental stewardship will, we believe, promote human justice and shalom, as well as the well-being of the rest of God's creation, which his image-bearers have been entrusted to steward for his glory.

I. Theological and Ethical Foundations of Stewardship

God, the Creator of all things, rules over all and deserves our worship and adoration (Ps. 103:19—22). The earth, and, with it, all the cosmos, reveals its Creator's wisdom and goodness (Ps. 19:1—6) and is sustained and governed by his power and lovingkindness (Ps. 102:25—27; Ps. 104; Col. 1:17; Heb. 1:3, 10—12). Men and women were created in the image of God, given a privileged place among creatures, and commanded to exercise

stewardship over the earth (Gen. 1:26—28; Ps. 8:5). Fundamental to a properly Christian environmental ethic, then, are the Creator/creature distinction and the doctrine of humankind's creation in the image of God. Some environmentalists, especially those in the "Deep Ecology" movement, divinize the earth and insist on "biological egalitarianism," the equal value and rights of all life forms, in the mistaken notion that this will raise human respect for the earth. Instead, this philosophy negates the biblical affirmation of the human person's unique role as steward and eliminates the very rationale for human care for creation. The quest for the humane treatment of beasts by lowering people to the level of animals leads only to the beastly treatment of humans.⁵

The image of God consists of knowledge and righteousness, and expresses itself in creative human stewardship and dominion over the earth (Gen. 1:26—28; 2:8—20; 9:6; Eph. 4:24; Col. 3:10). Our stewardship under God implies that we are morally accountable to him for treating creation in a manner that best serves the objectives of the kingdom of God; but both moral accountability and dominion over the earth depend on the freedom to choose. The exercise of these virtues and this calling, therefore, require that we act in an arena of considerable freedom—not unrestricted license, but freedom exercised within the boundaries of God's moral law revealed in Scripture and in the human conscience (Exod. 20:1—17; Deut. 5:6—21; Rom. 2:14—15). These facts are not vitiated by the fact that humankind fell into sin (Gen. 3). Rather, our sinfulness has brought God's responses, first in judgment, subjecting humankind to death and separation from God (Gen. 2:17; 3:22—24; Rom. 5:12—14; 6:23) and subjecting creation to the curse of futility and corruption (Gen. 3:17—19; Rom. 8:20—21); and then in restoration, through Christ's atoning, redeeming death for his people, reconciling them to God (Rom. 5:10—11, 15—21; 2 Cor. 5:17—21; Eph. 2:14—17; Col. 1:19—22), and through his wider work of delivering the earthly creation from its bondage to corruption (Rom. 8:19—23). Indeed, Christ even involves fallen humans in this work of restoring creation (Rom. 8:21). As Francis Bacon put it in *Novum Organum Scientiarum* (New Method of Science), "Man by the Fall fell at the same time from his state of innocence and from his dominion over creation. Both of these losses, however, can even in this life be in some parts repaired; the former by religion and faith, the latter by the arts and sciences."⁶ Sin, then, makes it difficult for humans to exercise godly stewardship, but the work of Christ in, on, and through his people and the creation makes it possible nonetheless.

When he created the world, God set aside a unique place, the Garden of Eden, and placed in it the first man, Adam (Gen. 2:8—15). God instructed Adam to cultivate and guard the Garden (Gen. 2:15)—to enhance its already great fruitfulness and to protect it against the encroachment of the surrounding wilderness that made up the rest of the earth. Having also created the first woman and having joined her to Adam (Gen. 2:18—25), God commanded them and their descendants to multiply, to spread out beyond the boundaries of the Garden of Eden, and to fill, subdue, and rule the whole earth and everything in it (Gen. 1:26, 28). Both by endowing them with his image and by placing them in authority over the earth, God gave men and women superiority and priority over all other earthly creatures. This implies that proper environmental stewardship, while it seeks to harmonize the fulfillment of the needs of all creatures, nonetheless puts human needs above non-human needs when the two are in conflict.

Some environmentalists reject this vision as "anthropocentric" or "speciesist," and instead promote a "biocentric" alternative. But the alternative, however attractively humble it might sound, is really untenable. People, alone among creatures on earth, have both the rationality and the moral capacity to exercise stewardship, to be accountable for their choices, to take responsibility for caring not only for themselves but also for other creatures. To reject human stewardship is to embrace, by default, no stewardship. The only proper alternative to selfish anthropocentrism is not biocentrism but theocentrism: a vision of earth care with God and his perfect moral law at the center and human beings acting as his accountable stewards.⁷

Two groups of interrelated conditions are necessary for responsible stewardship. In one group are conditions related to the freedom that allows people to use and exchange the fruits of their labor for mutual benefit (Matt. 20:13—15). These conditions—knowledge, righteousness, and dominion—provide an arena for the working out of the image of God in the human person. In another group are conditions related to responsibility, especially to the existence of a legal framework that holds people accountable for harm they may cause to others (Rom. 13:1—7; Exod. 21:28—36; 22:5—6). These two sets of conditions provide the safeguards necessitated by human sinfulness. Both sets are essential to responsible stewardship; neither may be permitted to crowd out the other, and each must be understood in light of both the image of God and the sinfulness of man.

Freedom, the expression of the image of God, may be abused by sin and, therefore, needs restrictions (1 Pet. 2:16); but governmental power, necessary to subdue sin and reduce its harm, must be exercised by sinful humans, who may also abuse it (Ps. 94:20; 1 Sam. 8). This means that it, too, needs restrictions (Acts 4:19—20; 5:29). Such restrictions are reflected not only in specific limits on governmental powers (Deut. 17:14—20), but also in the division of powers into judicial, legislative, and executive (reflecting God as Judge, Lawgiver, and King [Isa. 33:22]); the separation of powers into local and central (exemplified in the distinct rulers in the tribes of Israel and the prophets or kings over all Israel [Deut. 1:15—16]); the gradation of powers from lesser to greater (Exod. 18; Deut. 16:8—11); and the vesting of power in a people to elect their rulers (Deut. 1:9—15; 17:15). All of these principles are reflected in the Constitution of the United States. Also crucial to the Christian understanding of government is the fact that God has ordained government to do justice by punishing those who do wrong and praising those who do right (Rom. 13:1—4; 1 Pet. 2:13—14).⁸

These principles indicate that a biblically sound environmental stewardship is fully compatible with private-property rights and a free economy, as long as people are held accountable for their actions. Stewardship can best be accomplished, we believe, by a carefully limited government (in which collective action takes place at the most local level possible so as to minimize the breadth of harm done in case of government failure) and through a rigorous commitment to virtuous human action in the marketplace and in government.

These principles, when applied, promote both economic growth and environmental quality. On the one hand, there is a direct and positive correlation between the degree of political and economic freedom and both the level of economic attainment and the rapidity of economic growth in countries around the world. The 20 percent of the world's countries with the greatest economic freedom produce, on average, over ten times as much wealth per capita as the 20 percent with the least economic freedom, and while the freest countries enjoyed an average 2.27 percent annual rate of growth in real gross national product per capita through the 1990s, the least-free countries experienced a decline of 1.32 percent per year.⁹ On the other hand, there is also a direct and positive correlation between economic advance and environmental quality.¹⁰ The freer, wealthier countries have experienced consistent reductions in pollution and improvements in their environments, while the less free, poorer countries have experienced either increasing environmental degradation or much slower environmental improvement. We shall return to this correlation shortly; first, however, it behooves us to know something of the changes in our material condition over the last few centuries.

II. The Marvels of Human Achievement

Until about 250 years ago, everywhere in the world, the death rate was normally so close to the birth rate that population grew at only about 0.17 percent per year,¹¹ doubling approximately every 425 years, instead of every forty-two years at the world's average growth rate in the 1980s, or every fifty-one years at the average rate for the 1990s.¹² Infant and child mortality rates (around 40 percent overall) were little better for the very rich—royalty and nobility—than they were for farmers and peasants, even into the eighteenth century. Britain's Queen Anne (1665—1714), for instance, was pregnant eighteen times; five of her children survived birth; none survived childhood.

Eighteenth-century French farming—the best in Europe—produced only about 345 pounds of wheat per acre; modern American farmers produce 2,150 pounds per acre, about 6.2 times as much.¹³ Early-fifteenth-century French farmers produced about 2.75 to 3.7 pounds of wheat per man-hour, and the rate fell by about half over the next two centuries;¹⁴ modern American farmers produce about 857 pounds per man-hour¹⁵ — about 230 to 310 times as much as their French counterparts around 1400, and 460 to 620 times as much as French farmers around 1600. (This means that modern farmers also manage to farm from 37 to 100 times as many acres, thanks largely to mechanized equipment and advanced farming techniques.) As the great French historian Fernand Braudel pointed out, it became very difficult to sustain life when productivity in wheat fell below 2.2 pounds per man-hour. But for most of the 350 years from 1540 to 1890, productivity in France (which, as was fairly typical of Western Europe, suffered a serious decline in productivity at the start of that period) was well below that.¹⁶

Such facts help to explain why earlier generations spent a major part of each day working to earn enough income just to pay for food (excluding its preparation, packaging, transport, and serving), while we spend far less today (under 6 percent of total consumer expenditures in the United States in the 1980s went to food). These developments—along with the advent of glass window panes (to admit light and heat but exclude cold and pests) and screens (to admit fresh air and exclude disease-bearing insects); treatment of

drinking water and sewage; mechanical refrigeration (to prevent food spoilage and consequent waste and disease); adoption of safer methods of work, travel, and recreation; and the advent of sanitary medical practices, to say nothing of antibiotics and modern surgical techniques—also help to explain why people live about three times as long now. While "man is destined to die once" (Heb. 9:27), the Bible recognizes death as punishment for sin and, consequently, as man's enemy (1 Cor. 15:26), and it associates long life with the blessing of God (Exod. 20:12; Deut. 11:8—9; Eph. 6:1—3) and with the reign of the Messiah (Isa. 65:20).

Economic development is a good to be sought not as an end in itself but as a means toward genuine human benefit. For instance, consider a few of the things absolutely no one—not even royalty—could enjoy before the last two centuries of economic advance:

Electricity and all that it powers: lights, telephones, radios, televisions, refrigerators, air conditioners, fans, video cassette recorders, x-rays, mris, computers, the Internet, high-speed printing presses, and all other industrial automation.
Internal combustion engines and all that they power: cars, trucks, planes, farm and construction equipment, and most trains and ships.
Hundreds of synthetic materials such as plastic, nylon, orlon, rayon, vinyl, and the thousands of products—from grocery bags and pantyhose to compact discs and artificial body joints and organ parts—made from them.

No matter how rich people might have been a millennium—or even 150 years—ago, if they contracted a bacterial disease, they could not have been treated with antibiotics. This development was prompted by the work of the French Christian and scientist, Louis Pasteur, only in the latter half of the nineteenth century. Also, there were no more effective anesthetics than alcohol and cloves. So when limbs gone gangrenous from infections that today could be cured or, more likely, easily prevented, had to be amputated, patients gritted their teeth and hoped they would pass out from the pain of the crude saw. The germ theory of disease did not become current until the late eighteenth century, and the use of antiseptics did not begin until half a century later, with the work of the British Christian and chemist, Joseph Lister. Someone with a fever was likely to be bled to death by a doctor trying to cure it.¹⁷

Education was the province of the rich. Before the Reformation, few countries had widespread education, and even afterward, schooling was available principally to the rich. Two major exceptions were Germany and Scotland. In Germany, Martin Luther insisted that widespread schooling was important so that people could read the Scripture—which he had translated into the vernacular—for themselves. Similarly, in Scotland, John Knox's followers, convinced that personal knowledge of God and his Word was essential to the maintenance of civil as well as religious liberty (Ps. 119:45; Isa. 61:1; Jer. 34:15; Luke 4:18; 2 Cor. 3:17; Gal. 5:1,13; James 1:25; 1 Pet. 2:16),¹⁸ arranged a parish-by-parish system of church-run grammar schools that ensured that practically every child could at least become literate. Scotland's high literacy rate and its Calvinist ethics of work and saving were important factors in its making contributions to the Industrial Revolution far out of proportion to its small population and earlier economic

disadvantages. But even there, few were schooled for more than five or six years, and only a tiny percentage attended college, let alone graduated. Today, by contrast, in the United States, 81 percent of people twenty-five years old and over are high school graduates, and 23 percent are college graduates, and the growth in availability of education is worldwide. That is a particularly crucial factor in predicting the world's material future, because both the creation of wealth and the protection of the environment depend primarily not on brawn but on brain.¹⁹

The most effective measures of material welfare are mortality rates and life expectancy, because they take into account every conceivable variable that can add to or detract from a long and healthy life. A thousand years ago, human life expectancy everywhere was well under thirty years—perhaps even as low as twenty-four; today, worldwide, it is over sixty-five years, and in high-income economies, it is over seventy-six years. The under-five mortality rate has plummeted from about 40 percent everywhere as late as the nineteenth century to under 7 percent worldwide today and under 1 percent in high-income countries. And improved life expectancy comes not just from declining child mortality but from declining mortality rates at every stage of life.²⁰

Materially, the world is a far, far better place today than it was not only one millennium ago, but even one century ago. Every raw material—mineral, plant, and vegetable—that plays a significant role in the human economy is more affordable (which economists recognize as meaning more abundant), in terms of labor costs, today than at any time in the past. Every manufactured product is more affordable than it has ever been.²¹ And in producing all this great abundance, we have also reduced much health-threatening pollution, especially in the developed world.²² Put simply, the world is both a wealthier and a healthier place today than ever before.

This rosy picture, however, must not generate uncritical applause for economic development, per se. Development can be positive or negative. While the fact that life expectancy keeps rising suggests that the net effect of development on human life has been positive, this does not imply that every instance of development is unmixedly beneficial, either to people or to creation. A biblical worldview and an institutional framework for prudent decision making, which we shall set forth below, are essential to ensuring that positive, rather than negative, development takes place.

We support appropriate development not for its own sake but, for example, because it uplifts the human person through work and the fruits of that labor, empowering us to serve the poor better, to uphold human dignity more, and to promote values (environmental, aesthetic, etc.) that we otherwise could not afford to promote.

The Christian tradition clearly affirms that the accumulation of material wealth should not be the central aim of life; yet people are to use wisely the gifts of creation to yield ample food, clothing, health, and other benefits. It is obvious that the great advance in wealth over the past century has taken place only in a small proportion of countries, namely, the liberal democracies and free economies of the West. Enough is now known about the administration of national economies to conclude safely that free-market

systems minimize the waste of resources, and allow humans to be free and to flourish. All other systems that humans have tried lead to endless and unnecessary poverty, hunger, and oppression. For this reason, the religious communities of the Protestant tradition must take very seriously the claim that free markets and liberal democracy are essential to human welfare and therefore have a moral priority on our thinking about how society ought to be ordered.

But an ideological difficulty at present is that Western Protestant churches take too much of the present affluence for granted, misunderstand its origins, and overstate the value of the environmental amenities that have been given up to attain it. Today, this is leading many to embrace policy platforms that are explicitly against economic growth, and that give undue privilege to the preservation of the environmental status quo. This agenda threatens to deny those outside the West the very benefits that we ourselves have attained, and, ironically, it may burden the developing world with even worse environmental problems down the road. This essay challenges the arguments behind the anti-growth environmentalist agenda that is ubiquitous in today's mainstream churches, and argues that a biblical stance is entirely coherent with free-market democracy oriented toward sustainable economic growth.

III. How Economic and Environmental Trends Relate

We noted earlier that there is a direct and positive correlation between freedom and economic development and between economic development and environmental improvement. Necessarily, then, there is also a positive correlation between freedom and environmental quality. Economists find that free economies outperform planned and controlled economies not only in the production and distribution of wealth but also in environmental protection. Freer economies use fewer resources and emit less pollution while producing more goods per man-hour than less free economies. Economic demographer Mikhail Bernstam explains:

Trends in pollution basically derive from trends in resource use and, more broadly, trends in production practices under different economic systems. In market economies, competition encourages minimization of production costs and thus reduces the use of resources per unit of output. Over time, resource use per capita and the total amounts of resource inputs also decline and this, in turn, reduces pollution....

By contrast, regulated state monopolies in socialist economies maximize the use of resources and other production costs. This is because under a regulated monopoly setting, prices are cost-based, and profits are proportional to costs. Accordingly, the higher costs justify higher prices and higher profits. This high and ever-growing use of resources per unit of output explains the high extent of environmental disruption in socialist countries.²³

It is not only competition in free economies that encourages better stewardship of natural resources, it is also the incentive people have to protect property in which they have a financial stake. On the one hand, people naturally want their own homes and workplaces, and, by extension, their neighborhoods, to be clean and healthful, so they seek to

minimize pollution. On the other hand, in a legal framework in which polluters are made liable for damage done to others' person or property, people also seek to minimize pollution that falls upon others. Moreover, a dynamic economy works to reduce pollution by finding the most efficient means of doing so. This contrasts with a command-and-control approach, in which regulators are likely to mandate particular technologies and methods for pollution control with little regard for overall social efficiency.

What we can infer from all these considerations—and what we find confirmed in empirical studies of the real world—is that free economies improve human health, raise living standards and life expectancy, and positively affect environmental conditions, doing all these things better than less free economies do. Further, the wealthier that economies become, the better they foster environmental protection. "If pollution is the brother of affluence," it has been written, then "concern about pollution is affluence's child."²⁴ Even if some pollution emissions rise during early economic development, the beneficial effects to human life of increased production far outweigh the harmful effects of the resulting pollution, as demonstrated in declining disease and mortality rates and in rising health and life expectancy, even during that early stage. But soon, increasing wealth enables citizens to invest more resources on environmental protection, and emission rates fall. The result has been termed the "environmental transition," which mirrors the more widely known "demographic transition."

The demographic transition is demographers' way of depicting the tendency for population growth rates to rise dramatically during early stages of economic growth and then decline back to little or no growth later. It occurs because initial increases in wealth rapidly force death rates downward in every age group, especially for infants and children, but fertility habits change only very slowly. Consequently, for a generation or two, couples continue having as many children as their forebears did, both because they expect one or two out of four children to die before maturity and also because in a primitive agricultural economy they rely upon having many young children to boost production. Then, when they become accustomed to the higher survival rates, and when the cost of raising children rises and the delay before those children become net producers rather than consumers grows, couples begin having fewer children. The result is a short-term high population growth rate preceded and followed by a long-term low (or zero) population growth rate.

Similarly, the environmental transition is a way of depicting the tendency for some pollution emissions to rise in early economic growth and then decline. Environmental economist Indur Goklany notes,

The level of affluence at which a pollutant level peaks (or environmental transition occurs) varies. A World Bank analysis concluded that urban [particulate matter] and [sulphur dioxide] concentrations peaked at per capita incomes of \$3,280 and \$3,670, respectively. Fecal coliform in river water increased with affluence until income reached \$1,375 per capita.

Other environmental quality indicators (e.g., access to safe water and the availability of sanitation services) improve almost immediately as the level of affluence increases above subsistence. For these indicators the environmental transition is at, or close to, zero. In effect, the environmental transition has already occurred in most countries with respect to these environmental amenities because most people and governments are convinced of the public health benefits stemming from investments for safe water and sanitation. In fact, the vast majority of the three million to five million deaths each year due to poor sanitation and unsafe drinking water occur in the developing world.

Other indicators apparently continue to increase, regardless of gross domestic product (gdp) per capita. Carbon dioxide and nox emissions and perhaps dissolved oxygen levels in rivers are in this third category. On the surface, these indicators seem not to improve at higher levels of affluence, but their behavior is quite consistent with the notion of an environmental transition. The transition is delayed in these cases because decision makers have only recently realized the importance of these indicators, or the social and economic consequences of controlling them are inordinately high relative to the known benefits, or both.

All the evidence indicates that, ultimately, richer is cleaner, and affluence and knowledge are the best antidotes to pollution.²⁵

Understanding the environmental transition, we should not be surprised to find that air, water, and solid waste pollution emissions and concentrations have been falling across the board in advanced economies around the world for the last thirty to forty years. Thus, for example, in the United States, national ambient airborne particulate emissions fell by about 80 percent from 1940 to 1994, and total suspended particulates fell by about 84 percent from 1957 to 1996; sulfur dioxide (so₂) emissions fell by about 34 percent from 1973 to 1994, and so₂ concentrations fell by about 80 percent from 1962 to 1996; carbon monoxide emissions fell by about 24 percent from 1970 to 1994; nitrogen oxide emissions peaked around 1972 and have declined slightly since then, while concentrations have fallen by about a third since 1974; volatile organic compounds emissions peaked in the late 1960s and by 1994 had fallen by about 30 percent; ozone concentrations fell by about 30 percent from the early 1970s to 1996; lead emissions (probably the most hazardous air pollutant) fell over 98 percent from 1970 to 1994, and concentrations also fell by about 98 percent.²⁶

It is tempting to object, "This may be the case for advanced economies, but just look at the horrendous pollution in the world's poor countries!" Pollution in many of these countries is indeed horrendous. But there is no reason to think this must continue to be the case. As developing countries become wealthier—which they will do if their economic growth is not stifled by excessive government planning and by unreasonable environmental policies that suppress energy use and agricultural and industrial productivity—they have the opportunity to develop in a similar way. The environmental transition, as a concept, simply generalizes a common-sense insight: People tend to prioritize their spending in terms of their most urgent needs. Generally speaking, the most urgent material needs of the poor are for basic water, food, clothing, and shelter; in a

second tier come basic health care, education, transportation, and communication; and in successive tiers come other, less urgent needs. People worried about putting food on the table today understandably consider that to be more urgent than reducing smog next year or minimizing global warming one hundred years from now. But when people are confident that their most urgent needs will be met, they begin allocating more of their resources to needs deemed by them less urgent—including increasingly rigorous environmental protection.

The rapid decline in pollution in advanced economies over the last thirty to fifty years—a decline that is continuing today—is not matched in very poor countries in early stages of economic development. But there is reason to be confident that the environmental transition not only will occur in the latter countries as surely as it has in the former, but also that it can and will occur more rapidly, with lower pollution peaks and more rapid improvements following them. Why? Because today's developing countries can cheaply import ready-made environmental protection technologies and technical know-how developed by others elsewhere at a much higher cost. That is, pollution abatement will become affordable in developing countries at much lower levels of economic development than it did in countries that progressed earlier. This is one reason trade and open dialogue between peoples are so important; they allow for the diffusion of environmentally friendly technologies and methods. The result, as illustrated in Figure 1, is a series of pollution transitions. Just as some countries went through the demographic transition long ago and others more recently, while some are in the midst of it now and others have yet to begin it, so some countries are long past the peak in the pollution transition, while others are at or just approaching it, and still others are just beginning the uptrend in pollution.

While we celebrate the decline in pollution as economies advance, however, we must not be distracted from the need to accelerate that decline in presently developing countries. Some three to five million children under the age of five die each year from diseases contracted from impure drinking water. Perhaps another three to five million die from diseases related to the widespread use of dried dung and wood for cooking and heating in the hovels of the poor, causing toxic indoor air pollution. Urban smog, largely defeated in the advanced countries of the West, remains a serious problem in many poorer cities of the world. We know how to solve these problems, as we have already done so ourselves. What the poor lack is sufficient income to afford the solutions; that is part of why economic growth in developing countries and trade between nations (which can speed the adoption of environmentally friendly technologies, management techniques, and regulatory regimes in developing countries) are so critically important—and why it is so tragic that many environmentalists embrace policies inimical to these ends. Such policies not only delay the achievement of the affluence that makes environmental protection affordable but also condemn millions of people to more years in poverty.

Thinking, for instance, that reducing carbon dioxide (CO₂) emissions will prevent destructive global warming, some Western environmentalists are lobbying for severe restrictions on energy use, and are opposing the introduction of modern sources of energy

into less developed nations.²⁷ But because human enterprise is largely dependent upon access to energy, restrictions on energy use are likely to further prolong the time it takes for people to achieve the wealth that makes possible the longer, healthier lives that we in the West sometimes take for granted. Similarly, opposition to "unsustainable" agricultural practices used in the developing world—practices that serve as a take-off point for substantially more productive and environmentally sound agricultural methods down the road—threatens to condemn large numbers in the developing world to perpetual poverty and hunger.

One clear implication of all of this is that an important assumption among many in the environmental movement is simply false. The assumption is that as people grow in numbers, wealth, and technology, the environment is always negatively affected. This idea has been given formulaic expression in Paul Ehrlich's famous equation, $i = pat$, where i is environmental damage, p is population, a is affluence, and t is technology. According to this formula, every increase in population, affluence, or technology must result in increased damage to the environment—and even more so when two or all three of these factors increase together. The damage to the environment affirmed in this vision is twofold: depletion of resources and emission of pollution. The trouble with the assumption—even though it seems intuitively sensible and certainly is a widespread belief—is that it ignores the stewardship role of the human person, and, consequently, is falsified by hard empirical data.

That pollution declines when economies grow wealthier has already been seen. The fact is illustrated well by the situation in the United States. While population grew by 19 percent from 1976 to 1994, the index of air pollution fell by 53 percent. During the same time, affluence tripled, and technology also increased dramatically, with more and more computerization and automation not only in industry and commerce but even in private homes. This is precisely the opposite of what Ehrlich's formula predicts. (See Figure 2.)

That we are not running out of resources is also clear. Since rising prices reflect increasing scarcity and falling prices reflect decreasing scarcity, we can learn long-term resource supply trends from long-term price trends. And the long-term, inflation-adjusted price trend of every significant resource we extract from the earth—mineral, vegetable, and animal—is downward. Even more significant, the price of resources divided by wages is even more sharply downward, because while resource prices have been falling, wages have been rising. Together, these things mean that all resources are far more affordable, because they are far more abundant today than at any time in the past.²⁸

Why have people so often been mistaken about the impact of growing human population and growing economies? Fundamentally, it is because they have not understood the full potential of the human person. They have considered people basically as consumers and polluters. They have not seen them—as they are presented in Scripture—as made in God's image, to be creative and productive, as he is (Gen. 1:26—28; 2:15), and as given a role in the restoration of earth from the effects of God's curse because of human sin (Rom. 8:15—25). But that biblical understanding of human nature leads Christians to expect precisely what we have seen: that, particularly when accompanied by properly formed

human institutions and scientific understanding built on a biblical worldview, people can produce more than they consume and can actually improve the natural world around them.

IV. Some Human and Environmental Concerns for Present and Future

Despite the reassuring picture painted by all these general observations, many people continue to fear that we face serious threats to human well-being and to the environment as a whole. How realistic are these fears, and, to the extent that there are real dangers, what can we do about them? Let's look at three important examples: population growth, global warming, and rampant species extinction.

Population Growth

"The population crisis," writes cultural historian and evolutionary theorist Riane Eisler,

lies at the heart of the seemingly insoluble complex of problems futurists call the world problematique. For behind soil erosion, desertification, air and water pollution, and all the other ecological, social, and political stresses of our time lies the pressure of more and more people on finite land and other resources, of increasing numbers of factories, cars, trucks, and other sources of pollution required to provide all these people with goods, and the worsening tensions that their needs and aspirations fuel.²⁹

Eisler's words represent a common understanding of population growth among environmentalists: It threatens the earth with resource depletion and pollution. As we have seen, however, empirical observation, as well as biblical understanding of the implications of the image of God in the human person, suggests the opposite conclusion.

Nonetheless, many people still fear population growth because they believe it leads to overpopulation. When asked what they mean by overpopulation, they usually speak of crowding and poverty. Yet the assumption that high population density begets those things is mistaken. Some of the most desirable places to live in the world are also among the most densely populated. Manhattan, for instance, with its density of over 55,000 people per square mile, also has very high rents—a sure sign that plenty of people really want to live there, despite its high density. Or maybe, instead, they want to live there precisely because of its high density. The teeming population of Manhattan brings together a magnificent mix of human talent that makes life there fascinating, challenging, and rewarding for its millions. Similar things are true of all the world's great cities. With all their problems, they clearly attract more people than they drive away. Why should we question people's judgments about where they choose to live?

Some people think high population density lies at the root of poverty in developing nations such as China and those in sub-Saharan Africa. Yet China's population density is less than one-fifth of Taiwan's, and, aside from their forms of government, the two countries have very similar cultures. Taiwan, however, produces about five times as much wealth per capita as China. And the Netherlands, with population density nearly four times China's, produces more than ten times as much wealth per capita. And sub-Saharan Africa? Despite the common belief that it is overpopulated, it actually suffers

instead from such low population density (just over half that of the world as a whole and lower than the average densities of the high-, middle-, and low-income economies of the world) that it cannot afford to build the infrastructure needed to support a strong economy.³⁰

In reality, overpopulation is an empty word. As demographer Nicholas Eberstadt puts it, "the concept cannot be described consistently and unambiguously by demographic indicators." Eberstadt asks,

What are the criteria by which to judge a country "overpopulated"? Population density is one possibility that comes to mind. By this measure, Bangladesh would be one of the contemporary world's most "overpopulated" countries—but it would not be as "overpopulated" as Bermuda. By the same token, the United States would be more "overpopulated" than the continent of Africa, West Germany would be every bit as "overpopulated" as India, Italy would be more "overpopulated" than Pakistan, and virtually the most "overpopulated" spot on the globe would be the kingdom of Monaco.

Rates of population growth offer scarcely more reliable guidance for the concept of "overpopulation." In the contemporary world, Africa's rates of increase are the very highest, yet rates of population growth were even higher in North America in the second half of the eighteenth century. Would anyone seriously suggest that frontier America suffered from "overpopulation"?

What holds for density and rates of growth obtains for other demographic variables as well: birthrates, "dependency ratios" (the proportion of children and elderly in relation to working age groups), and the like. If "overpopulation" is a demographic problem, why can't it be described unambiguously in terms of population characteristics? The reason is that "overpopulation" is a problem that has been misidentified and misdefined.

The images evoked by the term overpopulation—hungry families; squalid, overcrowded living conditions; early death—are real enough in the modern world, but these are properly described as problems of poverty.³¹

Despite all this, some people still fear population growth. Their fears, however, lack both biblical and empirical bases. First, the Bible presents human multiplication as a blessing, not a curse (Gen. 1:28; 8:17; 9:1, 6—7; 12:2; 15:5; 17:1—6; 26:4, 24; Deut. 7:13—14, cf. 30:5; 10:22, cf. 1:10; Ps. 127:3—5; 128:1, 3; Prov. 14:28); in contrast, a decline in population was one form of curse God might bring on a rebellious people (Lev. 26:22; Deut. 28:62—63). Second, although some people continue to believe projections made thirty and forty years ago of the world population topping twenty, thirty, or even forty billion in the next century or so, demographic trends indicate that the reality will be quite otherwise. Those projections were made based on the highest population growth rate the world has ever seen—about 2.2 percent per year in the 1960s, the peak of the global demographic transition. But by the year 2000, the worldwide population growth rate had dropped to about 1.3 percent per year, and it is expected to drop even further as the demographic transition plays itself out. Eberstadt explains:

Today, almost one-half of the world's population lives in 79 countries where the total fertility rates [trfs] are below replacement (an average of 2.1 children per woman over her lifetime)... The trfs in countries with above-replacement rates are beginning to fall. For all Asia, trfs have dropped by over one-half from 5.7 children per woman in the 1960s to 2.8 today. Similarly, Latin America's average trfs fell from 5.6 in the 1960s to 2.7 today. If U.N. median-variant projections of world population turn out to be correct, world population will be 7.5 billion in 2025 and 8.9 billion in 2050.

But even that might be overstating likely future population. "If present global demographic trends continue, the U.N. low-variant projections are likely. That would mean that world population would top out at 7.5 billion in 2040 and begin to decline."³²

There is no good reason to believe that overpopulation will become a serious problem for the world. On the contrary, the more likely problem is that an aging world population will put greater stress on younger workers to provide for older, disabled persons.³³ Such a prospect, coupled with the sanctity of human life, makes all the more tragic the support in many quarters for morally illicit means of population control. Only genuine barriers to human flourishing create the problems associated with "overpopulation"; attacking problems such as poverty head-on is a far better way of improving human welfare and upholding human dignity than simply deeming certain lives unworthy of living and so, in the name of fighting "overpopulation," embracing abortion, euthanasia, and other actions that undermine the sanctity and dignity of human life.

Global Warming

Global warming is the biggest of all environmental dangers at present, maintain many environmentalists. Ironically, the great fear thirty years ago was of global cooling, for scientists recognized then that the earth is nearing a downward turn in its millennia-long cycle of rising and falling temperatures, correlated with cycles in solar energy output. But no more. Now people fear that rising atmospheric carbon dioxide, called a "greenhouse gas" because it traps solar heat in the atmosphere rather than allowing it to radiate back into space, will cause global average temperatures to rise. The rising temperatures, they fear, will melt polar ice caps, raise sea levels, cause deserts to expand, and generate more and stronger hurricanes and other storms. Are there good reasons for these fears?

While atmospheric carbon dioxide (co₂) is certainly on the rise, and global average temperature has almost certainly risen slightly in the last 120 years or so, it is by no means certain that the rising temperature stems from the rising co₂. The most important contrary indicator is that the sequence is the reverse of what the theory would predict. Almost all of the approximately 0.45°C increase in global average temperature from 1880 to 1990 occurred before 1940, but about 70 percent of the increase in co₂ occurred after 1940. If the rising co₂ was responsible for the rising average temperature, the reverse should have been the case. In addition, roughly two-thirds of the overall increase is attributable to natural, not manmade, causes (primarily changes in solar energy output).³⁴

Highly speculative computer climate models drove the great fears of global warming that arose in the 1980s and endured through the 1990s. Early versions of those models predicted that a doubling of atmospheric CO_2 would cause global average temperature to increase by 5°C or more (nearly 10°F). As the models have been refined through the years, however, their warming predictions have moderated considerably. In 1990, the Intergovernmental Panel on Climate Change (ipcc) predicted, on the basis of the computer models, global average temperature increase of 3.3°C by a.d. 2100; by 1992, it had lowered its prediction to 2.6°C , and, by 1995, to 2.2°C (less than half the amount of warming predicted by the early computer models). Even that latest prediction is likely to turn out much too high, for it still is based on models that, had they been applied to the past century, would have predicted twice as much warming as actually occurred. As Roy W. Spencer, senior scientist at nasa's Marshall Space Flight Center, points out:

All measurement systems agree that 1998 was the warmest year on record. The most recent satellite measurements, through 1998, give an average warming trend of $+0.06^\circ\text{C}/\text{decade}$ for the 20-year period 1979 through 1998. Even though this period ends with a very warm El Niño event [which would exaggerate its high-temperature end], the resulting trend is still only one-fourth of model-predicted average global warming for the next 100 years for the layer measured by the satellite.³⁵

Additional uncertainties arise from significant discrepancies between temperature measurements obtained from instruments at the earth's surface and those obtained from instruments on satellites (which are substantially confirmed by instruments on weather balloons), which measure atmospheric temperature not at the surface but in the lower troposphere. These discrepancies were reported in a study prepared by the National Research Council of the National Academy of Sciences and published in January 2000.³⁶ For the period 1979 through 1998, the surface data appear to indicate an average warming trend per decade of about 0.196°C (or about 1.96°C per century), while the satellite data³⁷ indicate a trend of only 0.057°C per decade (or about 0.57°C per century). After correcting the surface data for a variety of contaminating factors, a team of researchers produced new estimates of surface temperatures that yielded apparent decadal trends that were 0.097°C to 0.106°C larger than the satellite data trends for the lower troposphere. The differences, however, are still highly significant, since the corrected surface data trends are still 170 percent to 185 percent higher than the satellite-recorded lower troposphere trends.³⁸ The trouble does not end there, however. By making 1998 the final year of the study, the researchers chose a year in which global average temperatures were pushed markedly higher by an unusually strong El Niño; had the series ended with 1997 instead, the satellite data would have shown no statistically significant decadal trend, and the differential between them and the surface data would have been larger. Also, while the researchers corrected the surface data in part by accounting for the cooling effect of the eruption of Mount Pinatubo in 1991, they chose to ignore the cooling effect (about half that of Mount Pinatubo's eruption) of the eruption of Mount Chichon in 1982, further exaggerating the apparent uptrend in the satellite data.³⁹ The most significant problem for global warming theorists is that the computer models predicted that greenhouse warming would be faster in the lower troposphere than at the surface. But the data—to the extent that both sets are to be trusted—now show the

opposite to be true. The significance of this is that the computer models clearly remain far from accurate enough in their depiction of atmospheric temperatures, which suggests that policy makers should be very slow to base their decisions on model predictions.

Not only is the actual global warming that is to be expected far from what the ipcc and other climate modelers originally predicted, but it is also questionable whether global warming is likely to bring many harmful effects. There are several reasons for this. Most important, increasingly refined models now indicate—and empirical observation has confirmed—that the majority of the warming will occur in the winter, at night, and in polar latitudes.⁴⁰ This warming is far from sufficient to cause the polar ice caps to melt, which means it is also unlikely to result in significant rises in sea level—one of the most feared results of global warming because it was thought likely to inundate many coastal cities in which millions of the world's poorest people live. Instead, nighttime warming during the winter, to the extent that it affects populated areas at all, should result in a slight decrease in energy consumption for heating (and, therefore, some reduction in future emissions) and a slight lengthening of the growing season in spring and autumn.

Further, whatever rise in global average temperature occurs will likely result not in expanding but in contracting deserts, and not in contracting but in expanding polar ice caps. Why? More water evaporates in warmer temperatures. While one might think this is bad news for deserts, the opposite is true, for deserts make up only a tiny fraction of the earth's surface; over three-fourths of it is water, and most of the remainder is moist land. But air circulates over all of it. This means that enhanced evaporation everywhere will result in enhanced rainfall, even on desert areas, which, because those areas are so dwarfed by the rest of the earth's surface, will likely receive more water by enhanced precipitation than they lose by enhanced evaporation. But the enhanced precipitation at the poles is likely to enlarge polar ice caps, offsetting a long-term natural rise in sea level. As environmental scientist S. Fred Singer points out in reviewing a variety of studies of sea level trends,

Global sea level (sl) has undergone a rising trend for at least a century; its cause is believed to be unrelated to climate change [1]. We observe, however, that fluctuations (anomalies) from a linear sl rise show a pronounced anti-correlation with global average temperature—and even more so with tropical average sea surface temperature. We also find a suggestive correlation between negative sea-level rise anomalies and the occurrence of El Niño events. These findings suggest that—under current conditions—evaporation from the ocean with subsequent deposition on the ice caps, principally in the Antarctic, is more important in determining sea-level changes than the melting of glaciers and thermal expansion of ocean water. It also suggests that any future moderate warming, from whatever cause, will slow down the ongoing sea-level rise, rather than speed it up. Support for this conclusion comes from theoretical studies of precipitation increases [2] and from results of General Circulation Models (gcms) [3,4]. Further support comes from the (albeit limited) record of annual ice accumulation in polar ice sheets [5].⁴¹

While only mild harm is to be anticipated from the small temperature increases that are most likely to come, some benefit is to be expected—indeed, has already occurred—

because of enhanced atmospheric co₂. Carbon dioxide is crucial to plant growth, and recent studies show that a doubling of atmospheric co₂ results in an average 35 percent increase in plant growth efficiency.⁴² Plants of all kinds grown in doubled-co₂ settings become more efficient in water use, more efficient in taking up minerals from the soil, and more resistant to disease, pests, excessive heat and cold, and both floods and droughts.⁴³ Consequently, a portion of the great gains in agricultural productivity in the past century has been due not to intentional improvements in farming techniques but to enhanced atmospheric co₂ caused by the burning of fossil fuels for energy to drive modern human economic activity.⁴⁴ This means that rising co₂ has made it easier to feed the world's growing population. In addition, greater plant growth efficiency should mean—and empirical observations confirm—that plants' growth ranges will increase to higher and lower altitudes, into warmer and colder climates, and into drier and wetter climates.⁴⁵

Some people have asserted that global warming poses a serious threat to human health through increased incidence of tropical diseases and heat-related ailments. However, the Program on Health Effects of Global Environmental Change at Johns Hopkins University, in a congressionally mandated study, "found no conclusive evidence to justify such fears"⁴⁶ but instead concluded that "the levels of uncertainty preclude any definitive statement on the direction of potential future change for each of [five categories of] health outcomes," adding, "Although we mainly addressed adverse health outcomes, we identified some positive health outcomes, notably reduced cold-weather mortality...."⁴⁷ As the report exemplifies, it is easy for researchers to focus only on anticipated negative health effects from changes in global atmospheric chemistry and climate. However, not only must such anticipated effects be carefully justified and quantified in themselves, but they must also be studied in balance with anticipated benefits. For example, the reduction in hunger and malnutrition attributable to rising agricultural yields from increased atmospheric carbon dioxide, however difficult to quantify, must certainly be considered. Thomas Gale Moore concluded his careful evaluation of various studies of anticipated health effects of global warming by writing, "... a warmer climate should improve health and extend life, at least for Americans and probably for Europeans, the Japanese, and people living in high latitudes. High death rates in the tropics appear to be more a function of poverty than of climate. Thus global warming is likely to prove positive for human health."⁴⁸ What is clear is the need for added study before long-term, difficult-to-change policies are adopted.

Despite all this, some people still want to greatly curtail fossil fuel use to reduce co₂ emissions. They are promoting a number of measures to do so, such as the Kyoto Protocol, an international treaty to force reductions in energy consumption. But since every form of economic production requires energy, reducing energy use entails reducing economic production. Some will reply that the losses in production can be offset by improved energy efficiency. To some extent they might be, but it is very unlikely that the reductions in emissions could be achieved through government-mandated efficiency measures alone; almost certainly, some actual loss of production would result. Because individuals seek to reduce their cost of living and businesses seek to maximize their profits in a free and competitive economy, they have a natural incentive to minimize

waste, that is, to eliminate inefficient behavior and adopt the most economically efficient technologies they can (though these are not always the most technically efficient). The apparent need for government to mandate further emission reductions therefore suggests that these reductions must cause a net loss in production and, ultimately, diminish human welfare.

The independent economic forecasting firm wefa, even after accounting for likely improvements in energy efficiency, estimates that meeting the United States targets under the Kyoto accords would cut annual economic output by about \$300 billion (or about 3.5 percent of the roughly \$8.4 trillion in 1998 gross domestic product [gdp]) and, by 2010, destroy more than 2.4 million jobs and reduce average annual family income by about \$2,700. Another economic forecasting firm, Charles River Associates, projects lower costs—about 2.3 percent (or, currently, about \$193 billion) of gdp per year. Whether higher or lower, these economic costs translate into very human costs. Specialists in risk assessment estimate that in the United States, every \$5 to \$10 million drop in economic output results in one additional statistical death per year.⁴⁹ At that rate, the loss of \$193 to \$300 billion in annual economic output entails at least 19,300 to 30,000 additional premature deaths per year in the United States alone.

But the United States is a rich country, far better able to cope with the costs of Kyoto than the vast majority of the world. The lost economic growth in any developing countries that are forced to comply with Kyoto emission restrictions spells added decades of suffering and premature deaths for their people, for whom the affordability of basic water and sewage sanitation, health care, and safe transportation will be long postponed.

Thus, says Frederic Seitz, past president of the National Academy of Sciences, in a letter accompanying a petition against the treaty signed by over seventeen thousand scientists,⁵⁰

This treaty is, in our opinion, based upon flawed ideas. Research data on climate change do not show that human use of hydrocarbons is harmful. To the contrary, there is good evidence that increased atmospheric carbon dioxide is environmentally helpful. The proposed agreement would have very negative effects upon the technology of nations throughout the world, especially those that are currently attempting to lift from poverty and provide opportunities to the over 4 billion people in technologically underdeveloped countries.⁵¹

Even assuming that the popular global warming scenario were true, what benefit would come from all the costs—not just in the United States but all over the world—of complying with the Kyoto accords? Proponents of the accords estimate that without the Kyoto limits, hydrocarbon emissions will increase at about 0.7 percent per year and that this will raise effective atmospheric carbon dioxide concentration from the present level of about 470 parts per million (ppm) to about 655 ppm in the year 2047. The Kyoto Protocol calls for reduction of emissions to 7 percent below 1990 levels during the years 2008 to 2012 and no increase thereafter, with effective carbon dioxide concentration in 2047 of 602 ppm. How much warming would be prevented by then? About 0.19°C out of a potential

0.50C.52 At a cost to the United States alone of about \$200 billion per year (slightly above the Charles River Associates estimate but only two-thirds of the wefa estimate), this would mean a total cost of roughly ten trillion dollars and one million premature deaths. Such a price is too much to pay for so small and doubtful a benefit.

Not only the highly uncertain nature of both the theory and the evidence of global warming but also the unresolved question of whether global warming's net effects will be negative or positive point to one sure policy for the present: to delay action—especially highly costly action such as mandatory reductions in energy consumption—until the matter is much better understood.

It is tempting to say that we must not politicize this (or any other) environmental issue, and we do not intend to do so; our focus is on sound science rooted in a value structure that emphasizes honesty and openness to debate and evidence. But the issue has already been heavily politicized. Starting in the early 1990s, advocates of the Kyoto Protocol frequently spoke of a "scientific consensus" about global warming and derided the motives of scientists and others who questioned that conclusion. More recently, Rev. Dr. Joan Brown Campbell, general secretary of the National Council of Churches, went so far as to say that belief in global warming and support for the Kyoto Protocol should be "a litmus test for the faith community."⁵³ Clearly, as a result of such thinking, the quality of public knowledge and, hence, the ability to make wise public policy decisions, have been badly compromised with regard to global warming. Massachusetts Institute of Technology meteorology professor Richard Lindzen, one of the leading researchers in greenhouse effect and climate change science, pointed out in the early 1990s that "the existence of large cadres of professional planners looking for work, the existence of advocacy groups looking for profitable causes, the existence of agendas in search of saleable rationales, and the ability of many industries to profit from regulation, coupled with an effective neutralization of opposition" have undermined the quality of debate over both science and public policy, and that

the dangers and costs of those economic and social consequences may be far greater than the original environmental danger. That becomes especially true when the benefits of additional knowledge are rejected and when it is forgotten that improved technology and increased societal wealth are what allow society to deal with environmental threats most effectively. The control of societal instability [brought on by the politicization of science in the global warming debate] may very well be the real challenge facing us.⁵⁴

Contrary to earlier claims, it turned out that there was no consensus in favor of the popular global warming scenario. Even in the early 1990s, when the National Research Council appointed a panel dominated by environmental advocates—a panel that included Stephen Schneider, who is an ardent proponent of the catastrophic hypothesis—the panel concluded that there was no scientific basis for any costly action.⁵⁵ If any scientific consensus has grown since then, it has been critical of the catastrophic vision and the policies based on it. First, like a warning shot across the bow, came the Statement by Atmospheric Scientists on Greenhouse Warming, released February 27, 1992. Signed by forty-seven atmospheric scientists, many of whom specialized in global climate studies, it

warned that plans to promote a carbon emissions reduction treaty to fight global warming at the upcoming Earth Summit in Rio de Janeiro in June 1992 were "based on the unsupported assumption that catastrophic global warming follows from the burning of fossil fuels and requires immediate action," adding, "We do not agree." It cited a 1992 survey of United States atmospheric scientists, conducted by the Gallup organization, demonstrating that "there is no consensus about the cause of the slight warming observed during the past century." Further, the statement cited "a recently published paper [that] suggests that sunspot variability, rather than a rise in greenhouse gases, is responsible for the global temperature increases and decreases recorded since about 1880." It continued, "Furthermore, the majority of scientific participants in the [Gallup] survey agreed that the theoretical climate models used to predict a future warming cannot be relied upon and are not validated by the existing climate record," and it pointed out that "agriculturalists generally agree that any increase in carbon dioxide levels from fossil fuel burning has beneficial effects on most crops and on world food supply."⁵⁶ This was followed by the Heidelberg Appeal, released at the Earth Summit. Although it did not specifically name global warming, the Heidelberg Appeal warned against "the emergence of an irrational ideology which is opposed to scientific and industrial progress and impedes economic and social development." Over three thousand scientists, including seventy-two Nobel Prize winners, signed it.⁵⁷

Three years later came the Leipzig Declaration on Global Climate Change, developed at the International Symposium on the Greenhouse Controversy held in Leipzig, Germany, in November 1995, and revised and updated after a second symposium there in November 1997. Signed by eighty leading scientists in the field of global climate research and twenty-five meteorologists, the document declared "the scientific basis of the 1992 Global Climate Treaty to be flawed and its goal to be unrealistic," saying it was "based solely on unproven scientific theories, imperfect climate models—and the unsupported assumption that catastrophic global warming follows from an increase in greenhouse gases." It added, "As the debate unfolds, it has become increasingly clear that—contrary to conventional wisdom—there does not exist today a general scientific consensus about the importance of greenhouse warming from rising levels of carbon dioxide. In fact, most climate specialists now agree that actual observations from both satellite and balloon-borne radiosondes show no current warming whatsoever—in direct contradiction to computer model results." And it concluded, "based on all the evidence available to us, we cannot subscribe to the politically inspired world view that envisages climate catastrophes and calls for hasty actions. For this reason, we consider the drastic emission control policies deriving from the Kyoto conference—lacking credible support from the underlying science—to be ill-advised and premature."⁵⁸

But those early signs of consensus against the popular vision were dwarfed by the release in 1997 of a Global Warming Petition developed by the Oregon Institute of Science and Medicine and accompanied by a thoroughly documented review monograph on global warming science. The petition urged the rejection of the Kyoto Protocol "and any other similar proposals," saying boldly, "The proposed limits on greenhouse gases would harm the environment, hinder the advance of science and technology, and damage the health and welfare of mankind." It added,

There is no convincing evidence that human release of carbon dioxide, methane, or other greenhouse gases is causing or will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere and disruption of the Earth's climate. Moreover, there is substantial scientific evidence that increases in atmospheric carbon dioxide produce many beneficial effects upon the natural plant and animal environments of the Earth.⁵⁹

The Global Warming Petition was signed by more than 17,000 basic and applied American scientists, including over 2,500 physicists, geophysicists, climatologists, meteorologists, oceanographers, and environmental scientists well qualified to evaluate the effects of carbon dioxide on the earth's atmosphere and climate, and over 5,000 chemists, biochemists, biologists, and other life scientists well qualified to evaluate the effects of carbon dioxide on plant and animal life. The consensus of scientists on global warming has turned out to be quite the opposite of what the apocalyptic vision proponents claimed.

Species Extinction

The Bible clearly indicates that God takes delight in his many creatures (Job 38:39—39:30; 40:15—41:34; Ps. 104:14—23). This entails the importance of stewardship of life itself. Confronted with claims that anywhere from 1,000 to 100,000 species are going extinct per year and that many or most of the extinction is caused by human action,⁶⁰ Christians must wonder whether they have failed in their stewardship obligation. However, in the spirit of 1 Thessalonians 5:21 ("Test all things; hold fast to what is good"), we can insist that claims of species extinction rates be tested empirically and that the significance of these numbers be carefully evaluated in the proper context.

When the claims are tested, they are found to be highly dubious. When two eminent statisticians challenged the claims, asserting that no empirical field data existed to support them,⁶¹ the International Union for the Conservation of Nature (iucn) responded by commissioning a major worldwide field study. The result was a book⁶² in which author after author admits that, despite expectations to the contrary based on theoretical models, field research yields little or no evidence of species extinction, even in locales—such as heavily depleted rain forests—in which the highest rates were anticipated. In that volume, V. H. Heywood, former director of the scientific team that produced the *Flora Europea*, the definitive taxonomic compilation of European plants, and S. N. Stuart, executive officer of the Species Survival Commission at the iucn, wrote, "iucn, together with the World Conservation Monitoring Centre, has amassed large volumes of data from specialists around the world relating to species decline [worldwide], and it would seem sensible to compare these more empirical data with the global extinction estimates. In fact, these and other data indicate that the number of recorded extinctions for both plants and animals is very small." They add,

Known extinction rates [worldwide] are very low. Reasonably good data exist only for mammals and birds, and the current rate of extinction is about one species per year.... If other taxa were to exhibit the same liability to extinction as mammals and birds (as some authors suggest, although others would dispute this), then, if the total number of species

in the world is, say, 30 million, the annual rate of extinction would be some 2,300 species per year. This is a very significant and disturbing number, but it is much less than most estimates given over the last decade.⁶³

Note, however, that this hypothesis of 2,300 extinctions per year is not based on empirical evidence; it is instead derived from a theoretical model of extinctions as a percentage of total species and a high guess of total species. A more likely estimate of total species might be five to ten million, which, inserted into the model, would yield about 380 to 770 extinctions per year. If those numbers still sound alarming, keep in mind, first, that they represent only about 0.008 percent of species per year and, second, that they are probably significantly exaggerated. Even at that rate, it would take over five hundred years to eliminate 4 percent of all species on earth. What is more, as already noted, the same book contains repeated admissions that the model predictions of high extinction rates were repeatedly falsified by field investigation.

That is not surprising to those familiar with the serious weaknesses in the species-area curve and island biogeography theories from which the hypothetical extinction rates are derived. Subjected to careful critique, they turn out to vastly overestimate real extinction rates. In part, this is because they fail to describe ecosystems as they really are, and they unrealistically attribute to large, connected regions (e.g., the Amazon rain forest) the characteristics of isolated islands.⁶⁴ This means it is likely that the real extinction rate is much lower than 0.008 percent of species lost per year.

In short, the lack of sound data to support claims of species extinction rates continues.⁶⁵ Instead, the observational data indicate very low rates of extinction. A World Conservation Union report in 1994 found extinctions since 1600 to include 258 animal species, 368 insect species, and 384 vascular plants—about 2.5 species lost per year.⁶⁶ Consider the loss of species in the United States:

Of the first group of species listed in 1973 under the Endangered Species Act, today [1995] 44 are stable or improving, 20 are in decline, and only seven, including the ivory-billed woodpecker and dusky seaside sparrow, are gone. This adds up to seven species lost over 20 years from the very group considered most sharply imperiled.... Under [conservation biologist E. O.] Wilson's loss estimate of 137 species per day, about 1.1 million extinctions should have occurred globally since 1973. As America contains six percent of the world's landmass, a rough proration would assign six percent of that loss, or 60,000 extinctions, to the United States. Yet in the period only seven actual U.S. extinctions have been logged.... And the United States is the most carefully studied biosphere in the world, making U.S. extinctions likely to be detected.

If plants and insects are included in the calculation, 34 organisms fell extinct in the United States during the 1980s, according to a study by the Department of the Interior. This is clearly worrisome, but at an average of 3.4 extinctions per year, nothing like the rate of loss claimed by pessimists.⁶⁷

The significance even of these small numbers is open to debate because, while most people think of a species as genetically defined, the Endangered Species Act (esa) defines species very differently. The Act says, "The term 'species' includes any subspecies of fish or wildlife or plant, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature" (emphasis added).⁶⁸ The trouble with this definition is that when most people unfamiliar with the esa think of a species as being in danger of becoming extinct, they think this means no individual organism of that genetic definition will be left anywhere—or, since the esa applies to the United States, at least there. (This popular perception certainly lies behind the fear that "species" extinction forever removes elements from the global gene pool.) But in reality, it may only mean that a given population segment of that genetically defined species is endangered; it is entirely possible that plenty of other specimens may thrive in other locations. Many citizens who support expensive policies to prevent species extinctions might reconsider if they knew that rather than preventing real extinctions, they were only preventing the removal of a geographically defined segment of an otherwise thriving species.

None of this means that there are not particular species that are, in fact, endangered and that can benefit from careful conservation efforts. But as field ecologist Rowan B. Martin points out, when monetary values are more fully aligned with other human values, the institutional arrangement allows for the maximization of both values:

Western scientists, activists, and agencies favor the creation of reserves in developing nations to preserve biological diversity. However, this strategy is often an unworkable form of "eco-imperialism." Recent studies show that the majority of reserves are failing to conserve biodiversity, are financially unsustainable, and were irrelevant to 95 percent of the people in the countries where they were located. An alternative strategy, which has had considerable success, is empowering local people to control the wildlife resources in their area. In many parts of Southern Africa, where full rights of access and control over wildlife have been granted to landholders (of both private and communal land), biodiversity is better conserved in the areas surrounding national parks than in the parks themselves. Additionally, the areas surrounding the parks are economically more productive than the state-protected areas. In Southern Africa and other parts of the world, conservation of biological resources would be a profitable activity and not a cost if the correct institutional arrangements were developed, including a stronger reliance on private property and communal tenure systems.⁶⁹

V. Environmental Market Virtues⁷⁰

We have already argued that economic growth itself is an important step toward environmental protection. It makes good stewardship affordable and technically possible. Nonetheless, economic growth by itself is not enough. Human initiative needs to take place within an institutional framework that promotes environmental stewardship. Therefore, we need to examine more closely what is institutionally necessary to help further the goal of environmental protection.

While some concerns about the environment are overstated, others are quite real and need our attention. The fact that the world is not experiencing overpopulation or destructive, manmade global warming or rampant species loss does not mean that a change in policies or practices is not needed to address other issues.

Christians have every reason to embrace an appropriate environmental ethic, one that honors creation but distinguishes it from the Creator. However, simply recommending reformation of our worldview is not sufficient. Our ability to act responsibly toward nature has been hindered by our alienation from God. The original Fall and our continued rebellion mean that we act selfishly, that we have limited knowledge, and that we often fail to recognize the full potential in the created order. In view of these failings, we must not rely on worldview alone to lead us to good decisions about creation but must also examine the other influences of decision making, namely, information and incentives.

Environmental problems are traditionally seen as a result of market failure and as ample justification for the government to involve itself in the economy much more directly and forcefully to solve these problems. But it is an error to assume that, just because the market does not presently solve certain problems, government can effectively intercede to do so. Information and incentives are very much affected by the institutional order of a society. The social institutions pertinent to environmental and resource issues are the rules that assign responsibility—that is, property rights that determine who can take what actions and who gets a hearing with regard to those actions. These rules are crucial determinants of what information is generated and what incentives the decision makers face.

Property rights generate appropriate information and incentives to the extent that they embody three characteristics: exclusivity, liability, and transferability. Exclusivity means that the owner of a resource is able to capture a return from using the property in a way that is advantageous to other people, and it also means that an owner can exclude others from benefiting from the use of the property unless they have secured the owner's permission. If exclusivity does not exist, a resource will be overused. For instance, on the American frontier there were no exclusive rights to North American buffalo. If a buffalo hunter decided to postpone the shooting of any particular animal, he had no assurance that he would have the option to exercise that right in the future. The only way he could be assured of an exclusive right to a buffalo was to shoot it. Live buffalo were owned by everyone; dead ones belonged to the person who killed them. Is it any wonder that such a property rights system led to the near-extinction of the species?⁷¹

Liability forces a resource owner to bear the costs of actions that harm others. If property rights fully embody liability, costs are not imposed on others without their willing consent. For instance, if a person allows another person to impose harm on him—that is, to use up some of the grass on his cattle ranch to feed his livestock—that person must receive what he believes to be adequate compensation for the harm. If liability were not fully attached to one's property—that is, one's cattle—a person could drive cattle across someone else's land, allowing them to remove some of the grass without providing compensation. Pollution is a notable example of an incomplete property right, of liability

not being present. It is exactly analogous to the cattle example; individuals can use up some of another's resource—clean air—without appropriate compensation.

Transferability encourages owners to look for ways of using property that benefit others, a central obligation of the Christian faith. The fact that a piece of property can be bought or sold means that a resource owner who ignores the wishes of other people does so at a cost to himself, a reduction of wealth. If rights are not transferable, no such wealth loss is associated with ignoring the wishes of others. In other words, transferability encourages people to seek out and engage in the most mutually beneficial property arrangements possible.

Thus, the attributes of exclusivity, liability, and transferability are essential for a well-functioning property rights system, one that fulfills the biblical mandate of holding individuals accountable for their decisions. If any one of those attributes is missing, people can act irresponsibly with regard to creation, at least in part because they do not have adequate information or appropriate incentives to make sound decisions.⁷²

The information available to a decision maker is very much a function of property rights because people, in the process of trading, generate indexes of value for various uses of property. For instance, a landowner who knows there is coal on his land can readily obtain information through the price system about how others in society value that coal. If that individual also holds rights to the coal, that same information contains incentives for the owner to take actions that satisfy other people, namely, to make coal available to them. Since part of the biblical mandate with regard to creation is to use it for humankind, it would seem to be appropriate to be aware of and respond to people who desire to use coal as a fuel source.

But is mining the coal the only use for that land? What if mining leaves ugly scars on the earth's surface, permanently reducing certain individuals' aesthetic enjoyment of that land? How does a price system take those desires into account? Will coal be mined while aesthetics are ignored? The price system does not adequately represent all desires, and its failure to do so is caused by a lack of appropriate property rights. If the landowner had exclusive control over view rights to her land, she could charge an appropriate fee, and the price system would communicate to her whether the land was more valuable left in its pristine state or mined for coal.

The fact that property rights are sometimes not well defined and enforced is at the heart of environmental despoilment. The lack of a full rights structure means decision makers do not have appropriate incentives and information. Therefore, it is not surprising that resource misuse occurs when property rights are incomplete. Of course, simply pointing out the lack of adequate property rights is not a solution to the environmental problem, but it provides some general guidance. We do not necessarily want to fully define rights to all resources; in some cases, the transaction costs of doing so are too high. But many property rights problems are not intractable, and the property rights framework is a useful way of looking at environmental issues.

For instance, air and water are the major resources suffering from pollution in certain places because they are usually treated as common property, that is, property where no one has exclusivity. Any individual who uses a particular airshed or watershed to dispose of waste does not face the full cost of his action; instead, the costs are spread over all the potential users of that resource, resulting in what has been called the "tragedy of the commons."⁷³ The answer to this problem is to attempt to restructure property rights so that exclusivity, liability, and transferability exist. Sometimes there are legal barriers to property rights' definition and transfer, as in the case of water law in many states, and those barriers can be removed. In others, the government must take positive steps to force decision makers to bear the full costs of their actions. For instance, a tax per unit of air or water pollution increases the costs of using the air or water as a waste disposal mechanism. If the tax is set at the correct level (if it accurately represents the cost of pollution—a difficult proposition when set outside of a market framework), the decision maker faces the correct incentive structure. He can continue to pollute if he is willing to pay the cost, and, if he does, the additional benefits to society from the polluting activity exceed the additional costs. In all likelihood, under such a tax the polluter will decide to reduce emissions—but not to zero.

Another way of altering property rights in air is through "the bubble concept." Under such a structure, people residing in a particular airshed, through some government entity, would decide how much pollution they are willing to tolerate. Rights to the pollution would then be available to producers in the area. The rights could be either handed out on the basis of historical production or auctioned off to the highest bidder. An important element of such a system would be transferability; for the rights to result in the greatest production at the lowest cost, each pollution right would need to be fully transferable within the airshed. Then each producer would face an appropriate incentive structure and could decide if it would be cheaper to purchase pollution rights and continue polluting at the company's historical rate, or to adopt pollutant-reducing technology, or to shut down.

Each of these proposals involves government action of some sort. Because the definition and the enforcement of property rights are at least, in part, a function of government, an alteration of those rights will probably involve government. However, one must carefully specify the type of action appropriate when suggesting that government is the answer to environmental problems. Seeing the problem as one of inadequate property rights gives positive guidance about how government can be most effective—through the clear specification of rights and the fuller defense of them. Unfortunately, too often, government's involvement in resource issues has not been framed in a property rights context and hence has not been as effective as possible.

For instance, in terms of air and water pollution, the common governmental response has been through a command-and-control approach. Under such a system, government specifies the amount of pollution that can occur from each source and, in many cases, also specifies the technology to be used in reducing emissions. Numerous studies have shown that for any goal achieved through command-and-control, a bubble concept with transferable rights could achieve the same level of pollution reduction much more cheaply. ⁷⁴

The oft-repeated suggestion that government ownership and management of resources are solutions to environmental problems might seem to be appropriate when private property rights and markets have failed to lead to sound resource management. However, this suggestion ignores the fact that under government ownership, it is very difficult to construct property rights so that decision makers face appropriate incentives and receive correct information.

An excellent example of how governmental attempts at stewardship can create perverse incentives involves the Endangered Species Act (esa). This legislation, rather than creating incentives for people to act as good stewards of their own land and of its plant and animal inhabitants, often has exactly the opposite effect by making people fearful of losing use of that land. Richard Stroup, one of the originators of the New Resource Economics, describes the incentives of the esa in this way:

Under the Endangered Species Act, the owner must sacrifice any use of the property that federal agents believe might impair the habitat of the species—at the owner's expense. Furthermore, if the owner either harms the species or impairs its habitat, severe penalties are imposed. The perverse incentives created by the law may well lead an owner to surreptitiously destroy that animal or plant—or any habitat that might attract it.⁷⁵

Utah State University political science professor Randy Simmons observes that "the Supreme Court declared in its Tellico Dam decision that the act defines 'the value of endangered species as incalculable,' that endangered species must 'be afforded the highest of priority,' and that 'whatever the cost' species loss must be stopped (tva v. Hill, 437 U.S. 187, 174, 184 [1978])."⁷⁶ Such a zealous legislative commitment ignores the full scale of human values that a free economy otherwise allows to show through in the pricing system. But such a commitment by government turns the real value of a species from an asset into a liability—for instance, from the satisfaction one feels from having a rare species live on one's land to the fear of losing the use of land essential to one's livelihood. As field ecologist Rowan Martin argued earlier about wildlife resource preserves in southern Africa, empirical observation confirms that, when monetary values are more fully aligned with other (such as environmental) values, the institutional arrangement allows for the maximization of both values.

How do we know that the desires represented through property rights and the markets are truly scriptural? Is it not possible to have a well-functioning market system and still have resources put to ungodly uses? At this point, the biblical environmental ethic must inform the private-property system. An institutional structure that embodies exclusivity, liability, and transferability in its property rights will accurately represent the desires of members of society and will also encourage resource owners to respond to those desires. Full accountability—a biblical concept—will be in place. However, one must remember that Scripture most often discusses accountability in the context of responsibility to God, and the accountability being discussed here is accountability to other people, which is an entirely different concept.

All of this reaffirms the need for a biblically based view of nature and of man so that the desires represented in the marketplace will come closer to God's desires. At the same time, however, it is not clear that any alternative democratic institutional structure would lead to a more godly environmental policy. The biblical mandate of valuing nature but making use of it does not offer much guidance as to the particulars of resource use. Evidently, God has allowed man to work out those details on the basis of his own perceptions of needs—with those needs appropriately informed by an awareness of God and his principles.

We are limited by human desires, as imperfect as they might be, as our standard to measure how resources should be used. God has given us the opportunity and responsibility to manage his creation, and it therefore seems appropriate to have an institutional structure that reflects human desires and holds individuals accountable as to whether they use their resources according to those desires. Such a structure is the system of property rights described earlier. If this seems a weak defense of property rights, that may be because it is. One can conceive of many cases where a system of well-defined and enforced property rights results in resource use that seems to violate God's standards. However, it is difficult to conceive of another property rights structure that does better at making sure God's standards are not violated. The two most obvious alternatives—common property and government ownership—both suffer from such obvious faults, such as the tragedy of the commons, that they are clearly inferior choices.

Despite this rather lukewarm endorsement of private-property rights as the correct mechanism for controlling resource use, several facets of such a system deserve some approbation. Such a rights structure allows for expression of certain aspects of the biblical principles outlined in the first section of this paper.

First, a private-property system will not produce zero pollution in the sense of stopping all alteration of the environment; but neither will it allow economic growth at all costs with material desires superseding all others. If property rights are fully defined and enforced, some emissions will still foul our air, not all water will be of pristine quality, and the use of nonrenewable resources will not drop to zero. However, the significant difference between this potential system of private-property rights and the one that currently exists is that actions altering the environment would take place only if all users of the environment were convinced that those actions were to everybody's mutual advantage. In other words, there would be no uncompensated losers. A person who valued an unspoiled view more than someone else valued a factory smokestack in the middle of that view would win out. The factory smokestack would not exist, at least not at that location. Such a property rights system would not stop economic growth but would allow it to occur only if the benefits were valued more highly than what was given up to get that growth. Such an approach to resource use seems appropriate, as we are to appreciate and value God's creation, but also see it as usable for human purposes.

Another component of a private-property rights system is that it does not depend on complete social agreement for action to take place. Diversity is permitted by virtue of the fact that a person who has strong feelings about resource use that differ from the group

consensus can, under such a system, express those feelings through prices and markets. This can be of particular importance to Christians or environmentalists who find themselves at odds with prevailing wisdom about the environment. If such beliefs represent a minority position, they are much more likely to find expression in a system of private-property rights than under alternative rights arrangements.

Finally, a private-property rights system permits the fullest realization of the image of God in the human person. Genuine problems require genuinely creative solutions, and property harnesses human creativity to the realization of human needs. As history has repeatedly shown, it is the creative spirit of the human person that permits wise stewardship, and institutions that encourage this spirit are more likely to also facilitate environmentally sound ends.

But can we be assured that future generations will have a place in a free economy? What of God's concern for all people of all times? Is there not a chance that a system based on private-property rights will cater exclusively to the desires of the present generation compared to the needs of future ones? Again, the appropriate question to ask is, Compared to what? What alternative institutional arrangement will do a better job than one that embodies transferable property rights? It would be nice to posit a theocracy headed by an omniscient saint, and if that were a realistic alternative, markets would come out second-best. However, if we stick to real-world possibilities, well-defined rights that can be bought and sold look quite good indeed.

Contrast, for a moment, a resource being managed under two alternative regimes. Let us say that a resource is exhaustible; hence, it is important to give future generations some voice in the choice about the appropriate rate of use. Under the first regime, a pure democracy controls the use of the resource. With different expectations by members of the population about the resource's future value, the average perception will dominate. In other words, if the present generation thinks that, on average, the resource has a future value (discounted to the present) greater than its value in present consumption, it will be preserved. On the other hand, if the average expectation of the resource's future value is less than its value in present consumption, it will be consumed.

Now take the same resource, and the same population with the same set of preferences and expectations, but make the present/future allocation on the basis of transferable property rights. In this case, the resource is more likely to be preserved for the future because it is not the average perception about the future value of the resource that counts, but instead the perception of those most optimistic about its future value who express themselves in the marketplace. These individuals will purchase the resource in the expectation of a high future value, hold it out of consumption, and, in the process, preserve it for future generations. In fact, for any resource to be used in the present, all who believe it has some value in the future must be outbid.

All of this is not to say that altruistic feelings for future generations are unimportant. Under either system, such sentiments can result in greater preservation for future generations. Notice, however, that the political approach depends entirely on altruism, or

people caring for future generations, while the market order allows those preferences to be expressed but also rewards individuals who, for selfish reasons, decide to withhold resources from present consumption.

Giving future generations a voice is a bit awkward. Their preferences will be expressed only in people who exist presently, so it is useful to have someone stand in for them today; they need agents to represent them. These agents cannot know perfectly the desires of people not yet born, but they can make educated guesses about these desires. In the market arena, these agents are either unselfish contributors to the future or speculators acting on their perception of future demands for resources. If their perceptions are correct, their wealth increases; if they guess incorrectly, they suffer a wealth loss. Thus, these agents have strong incentives to be well informed and to predict correctly the needs of future generations.

In a world where Christian charity and concern for others are sometimes in short supply, it is useful to have a mechanism that allows for future needs to be met, by those acting charitably and those pursuing profit. Again, institutional design is a fundamental component of a system that satisfies God's desire that we think not only of this generation.

Thus, freedom, property rights, and a legal framework that ensures that accountability attaches to freedom and property, work together to minimize pollution and improve human welfare. As Carl Pope, president of the Sierra Club, has noted, this sort of approach "would yield restrictions on pollution more stringent than those embodied in any current federal and state pollution laws,"⁷⁷ without necessarily sacrificing human welfare in the process.

The more fully, then, a society embodies a Christian worldview, and the more its decision makers—private and public—embrace that value framework and operate with the information and incentives provided by a private-property legal regime with exclusivity, liability, and transferability, the more decisions with environmental impact are likely to be responsible and to minimize harm to people and the larger environment. The Christian worldview can be promoted by preaching, teaching, writing, and the like. But the information and incentives essential to proper decision making, even assuming a Christian worldview, are best generated by the price system of the free economy.

Conclusion

Patrick Moore, one of the founders of Greenpeace International, said in an interview in the *New Scientist* in December 1999, "The environmental movement abandoned science and logic somewhere in the mid-1980s ... political activists were using environmental rhetoric to cover up agendas that had more to do with class warfare and anti-corporatism than with the actual science...." What we have said above indicates that Moore was right in his critique of the movement to which he made such an important early contribution. Too often, modern environmentalism has become anti-human, anti-freedom, anti-economic development, and anti-reason. It is time to reverse this trend.

On the basis of a biblical worldview and ethics, as well as of sound science, economics, and public policy principles, we believe sound environmental stewardship celebrates and promotes human life, freedom, and economic development as compatible with, even essential for, the good of the whole environment. While we do not rule out all collective action, we believe market mechanisms are frequently better means, in both principle and practice, to environmental protection. They are less likely to erode important human freedoms and more likely to be cost-effective and successful in achieving their aims. While we understand that passions may energize in the pursuit of sound environmental policy, we also believe that reason, coupled with a commitment to "do justly, to love mercy, and to walk humbly with ... God" (Mic. 6:8), must ultimately guide environmental policy.

Editorial Board

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Notes

1. Robert William Fogel, "The Contribution of Improved Nutrition to the Decline in Mortality Rates in Europe and America," in *The State of Humanity*, ed. Julian L. Simon (New York: Blackwell, 1995), 61—71.
2. E. Calvin Beisner, "Sixpence None the Richer: Economics—A Millennium of Human Progress," *World* 14 (July 31, 1999): 20—25. For voluminous statistics and able discussions on these and dozens of other elements of material progress, see Julian L. Simon, ed., *The State of Humanity* (New York: Blackwell, 1995).
3. See E. Calvin Beisner, *Prosperity and Poverty: The Compassionate Use of Resources in a World of Scarcity* (Wheaton, Ill.: Crossway Books, 1988), and *Prospects for Growth: A Biblical View of Population, Resources, and the Future* (Wheaton, Ill.: Crossway Books, 1990); and Nathan Rosenberg and L. E. Birdzell, Jr., *How the West Grew Rich: The Economic Transformation of the Industrial World* (New York: Basic Books, 1986).
4. Nicholas Eberstadt, "World Depopulation: Last One Out Turn Off the Lights," *Milken Institute Review* 2 (first quarter 2000): 38.
5. The classic work leading to biological egalitarianism is Peter Singer's *Animal Liberation: A New Ethics for Our Treatment of Animals* (New York: Random House/New York Review of Books, 1975). See also John Harris, Stanley Godlovitch, and Roslind Godlovitch, *Animals, Men, and Morals* (New York: Taplinger Publishing, 1972); and Arne Naess, *Ecology, Community, and Lifestyle: Outline of an Ecosophy*, trans. and rev. David Rothenberg (Cambridge and New York: Cambridge University Press, 1989). For critique, see E. Calvin Beisner, *Where Garden Meets Wilderness: Evangelical Entry into the Environmental Debate* (Grand Rapids, Mich.: Eerdmans Publishing/Acton

Institute, 1997), appendix 2; Thomas Sieger Derr, *Environmental Ethics and Christian Humanism* (Nashville, Tenn.: Abingdon Press, 1996), chapter 1, and "Human Rights and the Rights of Nature," *Journal of Markets and Morality* (forthcoming); Robert Royal, *The Virgin and the Dynamo: Use and Abuse of Religion in Environmental Debates* (Grand Rapids, Mich.: Eerdmans Publishing, 1999), chapter 4; and Charles T. Rubin, *The Green Crusade: Rethinking the Roots of Environmentalism* (New York: Free Press, 1994), chapter 4.

6. Quoted in Francis A. Schaeffer, "How Should We Then Live?" in *The Complete Works of Francis A. Schaeffer: A Christian Worldview* (Westchester, Ill.: Crossway Books, 1982), 5:159.

7. See Michael B. Barkey, "A Framework for Translating Environmental Ethics into Public Policy," *Journal of Markets and Morality* (forthcoming); E. Calvin Beisner, "Stewardship in a Free Market," in *The Christian Vision: Morality and the Marketplace*, ed. Michael Bauman et al. (Hillsdale, Mich.: Hillsdale College Press, 1994), and *Where Garden Meets Wilderness: Evangelical Entry into the Environmental Debate* (Grand Rapids, Mich.: Eerdmans Publishing/Acton Institute, 1997), appendix 2; Thomas Sieger Derr, *Environmental Ethics and Christian Humanism* (Nashville, Tenn.: Abingdon Press, 1996), chapter 1, and "Human Rights and the Rights of Nature," *Journal of Markets and Morality* (forthcoming); and Peter J. Hill, "Biblical Principles Applied to a Natural Resources/Environment Policy," in *Biblical Principles and Public Policy: The Practice*, ed. Richard Chewning (Colorado Springs: NavPress, 1991), 169—182.

8. Scripture frequently defines justice procedurally as rendering impartially and proportionally to everyone his due in accord with the standards of God's moral law. Elements of this definition are found throughout Scripture: impartiality (Lev. 19:15; Deut. 16:19; 1 Tim. 5:21; James 2:1—9); moral desert (Prov. 24:12, cf. Matt. 16:27; Rom. 2:6; 13:7; 1 Cor. 3:8; Gal. 6:7—8); proportionality (Exod. 21:35—36; 22:1, 6; Lev. 24:17—21; Deut. 19:4—6); and conformity to a standard (Lev. 19:35—37; Deut. 25:13—16, cf. Job 31:6, Ezek. 45:10, and Mic. 6:8.). For a discussion of recent debates among evangelicals over the meaning and nature of justice and the implications this has for political economy, see Craig M. Gay, *With Liberty and Justice for Whom? The Recent Evangelical Debate over Capitalism* (Grand Rapids, Mich.: Eerdmans Publishing, 1991).

9. James Gwartney and Robert Lawson, with Dexter Samida, *Economic Freedom of the World, 2000 Annual Report* (Vancouver: Fraser Institute, 2000), 15.

10. See, for example, Indur M. Goklany, "Richer Is Cleaner: Long-Term Trends in Global Air Quality," in *The True State of the Planet*, ed. Ronald Bailey (New York: Free Press, 1995), and "Richer Is More Resilient: Dealing with Climate Change and More Urgent Environmental Problems," in *Earth Report 2000: Revisiting the True State of the Planet*, ed. Ronald Bailey (New York: McGraw-Hill, 2000); Don Coursey, "The Demand for Environmental Quality" (St. Louis: John M. Olin School of Business/Washington University, 1992); Seth W. Norton, "Property Rights, the Environment, and Economic Well-Being," in *Who Owns the Environment?* ed. Peter J. Hill and Roger E. Meinert (Lanham, Md.: Rowman and Littlefield, 1998), 37—54; Gene M. Grossman and Alan B. Krueger, "Economic Growth and the Environment," *Quarterly Journal of Economics* 110 (May 1995): 353—377; and John M. Antle and Gregg Heidebrink, "Environment and Development: Theory and International Evidence," *Economic Development and Cultural*

Change 43 (April 1995): 603—625.

11. Fernand Braudel, *The Structures of Everyday Life*, vol. 1 of *Civilization and Capitalism: Fifteenth through Eighteenth Century*, trans. Sian Reynolds (New York: Harper and Row, 1985), 41.
12. The rapid population growth is attributable almost entirely to declining death rates (i.e., rising life expectancy), not to rising birth rates. See Nicholas Eberstadt, "World Depopulation: Last One Out Turn Off the Lights," *Milken Institute Review* 2 (first quarter 2000), 37—48.
13. Computed from Fernand Braudel, *The Structures of Everyday Life*, vol. 1 of *Civilization and Capitalism: Fifteenth through Eighteenth Century*, trans. Sian Reynolds (New York: Harper and Row, 1985), 121; and *Statistical Abstract of the United States*, 1996, table 1105.
14. Computed from Braudel, 1:135.
15. Computed from E. Calvin Beisner, *Prospects for Growth: A Biblical View of Population, Resources, and the Future* (Wheaton, Ill.: Crossway Books, 1990), 127.
16. Computed from Braudel, 1:135. See also Richard J. Sullivan, "Trends in the Agricultural Labor Force"; George W. Grantham, "Agricultural Productivity Before the Green Revolution"; Dennis Avery, "The World's Rising Food Productivity"; and Thomas T. Poleman, "Recent Trends in Food Availability and Nutritional Well-Being," in *The State of Humanity*, ed. Julian L. Simon (New York: Blackwell, 1995).
17. See Michael R. Haines, "Disease and Health through the Ages," in *The State of Humanity*, ed. Julian L. Simon (New York: Blackwell, 1995).
18. Both religious and civil liberty were important themes in the political thought of the seventeenth-century Scottish Covenanters, who carried on Knox's tradition. See John Knox, *On Rebellion*, ed. Roger A. Mason (Cambridge: Cambridge University Press, 1994); George Buchanan, *De Jure Regni Apud Scotos* (1579); Samuel Rutherford, *Lex, Rex* (1644); and Sir James Stewart of Goodtrees, *Jus Populi Vindicatum, or, The Right of the People to Defend Their Lives, Liberty, and Covenanted Religion, Vindicated* (1669).
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20. See Samuel H. Preston, "Human Mortality throughout History and Prehistory"; and Kenneth Hill, "The Decline of Childhood Mortality," in *The State of Humanity*, ed. Julian L. Simon (New York: Blackwell, 1995).
21. See William J. Hausman, "Long-Term Trends in Energy Prices"; Morris A. Adelman, "Trends in the Price and Supply of Oil"; Bernard L. Cohen, "The Costs of Nuclear Power"; John G. Myers, Stephen Moore, and Julian L. Simon, "Trends in Availability of Non-Fuel Minerals"; H. E. Goeller, "Trends in Nonrenewable Resources"; and Roger A. Sedjo and Marion Clawson, "Global Forests Revisited," in *The State of Humanity*, ed. Julian L. Simon (New York: Blackwell, 1995).
22. See William J. Baumol and Wallace E. Oates, "Long-Run Trends in Environmental Quality"; Derek M. Elsom, "Atmospheric Pollution Trends in the United Kingdom"; and Hugh W. Ellsaesser, "Trends in Air Pollution in the United States," in *The State of Humanity*, ed. Julian L. Simon (New York: Blackwell, 1995).

23. Mikhail Bernstam, "Comparative Trends in Resource Use and Pollution in Market and Socialist Economies," in *The State of Humanity*, ed. Julian L. Simon (New York: Blackwell, 1995), 520.
24. See Ronald Bailey, "Earth Day: Then and Now," *Reason* 31 (May 2000): 23.
25. Indur M. Goklany, "Richer is Cleaner: Long-Term Trends in Global Air Quality," in *The True State of the Planet*, ed. Ronald Bailey (New York: Free Press, 1995), 342—343.
26. Calculated from statistics in *Earth Report 2000: Revisiting the True State of the Planet*, ed. Ronald Bailey (New York: McGraw-Hill, 2000), 291—310.
27. Gregg Easterbrook, *A Moment on the Earth: The Coming Age of Environmental Optimism* (New York: Viking, 1995), 582—585.
28. See Stephen Moore, "The Coming Age of Abundance," in *The True State of the Planet*, ed. Ronald Bailey (New York: Free Press, 1995); Lynn Scarlett, "Doing More with Less: Dematerialization—Unsung Environmental Triumph?" in *Earth Report 2000: Revisiting the True State of the Planet*, ed. Ronald Bailey (New York: McGraw-Hill, 2000); William J. Hausman, "Long-Term Trends in Energy Prices"; Morris A. Adelman, "Trends in the Price and Supply of Oil"; Bernard L. Cohen, "The Costs of Nuclear Power"; John G. Myers, Stephen Moore, and Julian L. Simon, "Trends in Availability of Non-Fuel Minerals"; and H. E. Goeller, "Trends in Nonrenewable Resources," in *The State of Humanity*, ed. Julian L. Simon (New York: Blackwell, 1995).
29. Riane Eisler, *The Chalice and the Blade: Our History, Our Future* (Cambridge, Mass.: Harper and Row, 1987), 174—175.
30. E. Calvin Beisner, "Anomalies, the Good News, and the Debate over Population and Development: A Review of Susan Power Bratton's Six Billion and More," *Stewardship Journal* 3 (summer 1993): 44—53.
31. Nicholas Eberstadt, "Population, Food, and Income: Global Trends in the Twentieth Century," in *The True State of the Planet*, ed. Ronald Bailey (New York: Free Press, 1995), 14—15.
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33. On population in general, see E. Calvin Beisner, *Prospects for Growth: A Biblical View of Population, Resources, and the Future* (Wheaton, Ill.: Crossway Books, 1990), and "Imago Dei and the Population Debate," in *Where Garden Meets Wilderness: Evangelical Entry into the Environmental Debate* (Grand Rapids, Mich.: Eerdmans Publishing/Acton Institute, 1997); Julian L. Simon, *The Economics of Population Growth* (Princeton: Princeton University Press, 1977), *Population Matters: People, Resources, Environment, and Immigration* (New Brunswick, N.J.: Transaction, 1990), and *The Ultimate Resource 2*, rev. ed. (Princeton: Princeton University Press, 1996); Max Singer, *Passage to a Human World: The Dynamics of Creating Global Wealth* (Indianapolis: Hudson Institute, 1987); Michael Cromartie, ed., *The Nine Lives of Population Control* (Washington, D.C., and Grand Rapids, Mich.: Ethics and Public Policy Center/Eerdmans Publishing, 1995); and Michael B. Barkey, Paul Cleveland, and Gregory M. A. Gronbacher, "Population, the Environment, and Human Capital" (forthcoming).

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70. This section is drawn largely from the work of Peter J. Hill, with his permission, especially from his "Biblical Principles Applied to a Natural Resources/Environment Policy," in *Biblical Principles and Public Policy: The Practice*, ed. Richard Chewning (Colorado Springs: NavPress, 1991), 169—182; "Can Markets or Government Do More for the Environment?" in *Creation at Risk? Religion, Science, and Environmentalism*, ed. Michael Cromartie (Washington, D.C.: Ethics and Public Policy Center/Eerdmans Publishing, 1995); and "Takings and the Judeo-Christian Land Ethic: A Response," *Religion and Liberty* 9 (March/April 1999): 5—7. Other studies indicating the importance of private property and free markets to environmental protection include

Bernard J. Frieden, *The Environmental Protection Hustle* (Cambridge, Mass.: MIT Press, 1979); Terry L. Anderson and Donald R. Leal, *Free Market Environmentalism* (San Francisco: Pacific Research Institute, 1991); Terry L. Anderson, ed., *Multiple Conflicts over Multiple Uses* (Bozeman, Mont.: Political Economy Research Center, 1994); Elizabeth Brubaker, *Property Rights in the Defense of Nature* (London and Toronto: Earthscan/Environment Probe, 1995); John A. Baden and Douglas S. Noonan, ed., *Managing the Commons*, 2nd ed. (Bloomington: Indiana University Press, 1998); Timothy D. Terrell, "Property Rights and Externality: The Ethics of the Austrian School," *Journal of Markets and Morality* 2 (fall 1999): 197—207; and Michael B. Barkey, "Translating Environmental Ethics into Public Policy," *Journal of Markets and Morality* (forthcoming).

71. For a discussion of the American West and how different property rights systems affected stewardship practices, especially as these practices pertained to species preservation, see Terry L. Anderson and Donald R. Leal, *Free Market Environmentalism* (San Francisco: Pacific Research Institute, 1991), chapter 3.

72. The argument that an adequate information and incentive structure is necessary for good choices to result does not imply that only external incentives and information are all that matter in acting responsibly. As discussed earlier, the value structure of the individual is also crucial, and it is difficult to imagine a well-functioning property rights system without an adequate moral base.

73. In some cases, moral constraints are so strong that they override the badly structured incentives of common property. This usually occurs when the group is small and there is a deep level of commitment to one another and to a shared ideology. For instance, families, local churches, and certain clubs have elements of common property and yet are quite stable over long periods of time. Thus, not all common property arrangements are doomed to failure.

74. See, for instance, Michael Maloney and Bruce Yandle, "Bubbles and Efficiency: Cleaner Air at Lower Cost," *Regulation* 4 (May/June 1980): 49—52; and Michael Levin, "Statutes and Stopping Points; Building a Better Bubble at EPA," *Regulation* 9 (March/April 1985): 33—42.

75. Richard L. Stroup, "The Endangered Species Act: A Perverse Way to Protect Biodiversity," *PERC Viewpoints*, April 1992, page 1. See also Richard L. Stroup, "Endangered Species Act: Making Innocent Species the Enemy," *PERC Policy Series*, April 1995.

76. Randy T. Simmons, "Fixing the Endangered Species Act," in *Breaking the Environmental Policy Gridlock*, ed. Terry L. Anderson (Stanford, Calif.: Hoover Institution Press, 1997), 82.

77. Excerpt from a speech by Jerry Taylor delivered on February 4, 1997, to the Environmental Grantmakers Association: "Environmentalism in a Market Society: Creative Ideas." Mr. Taylor adds, "That's certainly true if a pollutant is truly harmful or a significant nuisance, since individuals—not government authorities—would have the final say over how much pollution they were willing to tolerate on their property or person. That approval would also have the benefit of allowing an array of voluntary contractual relationships between polluter and polluted, internalize the cost of pollution (the holy grail of environmental economics), and minimize the transaction costs and inefficiencies caused by politicized rulemaking."

Notable Signers:

Jewish:

Catholic:

Rabbi Ron Aigen, Congregation Dorshei Emet, Hamstead

Rabbi Haim Dov Beliak, Executive Director, HaMitgash

Rabbi Dr. Kenneth Fradkin, Jewish Center of Sussex County, NJ

Rabbi Jonathan Ginsburg, Temple of Aaron Congregation, St. Paul, MN

Rabbi Daniel Lapin, President, Toward Tradition

Rabbi Clifford E. Librach, Temple Sinai, Sharon, MA

Dr. Herbert I. London, Professor of Social Studies at New York University

Joseph A. Morris, J.D., President, B'nai B'rith Midwest Region

Rabbi David Novak, founder of the Union for Traditional Judaism and Director of the Jewish Studies Program, University of Toronto

Dr. David A. Patterson, Bornblum Chair in Judaic Studies, University of Memphis

Rabbi Gary Perras, Senior Rabbi, Beth Shalom Congregation, Jacksonville, FL

Dennis Prager, Nationally Syndicated Radio Talk Show Host

Rabbi Samuel B. Press, D.D., Beth Abraham Synagogue, Dayton, OH

Dr. Malcolm J. Sherman, Professor of Mathematics at SUNY, Albany

Rabbi Pesach Wolicki, Congregation Adath Jeshurun, Newport News, VA
Father Kevin S. Barrett, Chaplain, Apostolate for Family Consecration

Father J. Michael Beers, Professor of Dogma, Pontifical College Josephinum

Rev. Dr. Alexander A. Di Lella, O.F.M., Professor of Biblical Studies, Catholic University of America

Dr. Eduardo J. Echeverria, Associate Professor and Chair, Department of Philosophy, Conception Seminary College

Dr. Gregory M. A. Gronbacher, Director, Center for Economic Personalism

Paul V. Harberger, Foundation Francisco Marroquín

The Rev. Paul Hartmann, Metropolitan Tribunal, Archdiocese of Milwaukee

Dr. Margaret Maxey, Professor of Ethics, University of Texas, Austin

Dr. John Mathys, Associate Professor of Finance, De Paul University

Dr. Andrew L. Minto, Associate Professor of Biblical Studies and Theology, Franciscan University of Steubenville

Father Richard John Neuhaus, President, Institute on Religion & Public Life

Father Frank A. Pavone, National Director, Priests for Life, and Member, Pontifical Council for the Family

Dr. Robert Royal, President, Faith and Reason Institute

Father Robert A. Sirico, President, Acton Institute for the Study of Religion and Liberty

Dr. David Walsh, Professor of Politics, The Catholic University of America

Dr. Gary Wolfram, George Munson Professor of Political Economy, Hillsdale College

Protestant:

Other:

The Venerable Norman Aldred, Prayer Chapel of St. Francis of Assisi

Howard A. Ball, National Director, ChurchLIFE

E. Calvin Beisner, Associate Professor of Interdisciplinary Studies, Covenant College

Dr. Charles W. Colson, Chairman, Prison Fellowship Ministries

Michael Cromartie, Vice President, Ethics & Public Policy Center

Janice Shaw Crouse, Ph.D., Senior Fellow, Beverly LaHaye Institute

Dr. Thomas Sieger Derr, Professor of Religion, Smith College

Dr. James Dobson, President, Focus on the Family

Prof. Alan Gomes, Associate Professor and Chair, Department of Theology, Talbot School of Theology at Biola University

Dr. George Grant, President, Bannockburn College

Dr. P.J. Hill, George F. Bennett Chair of Economics, Wheaton College

Father Paul S. Howden, St. Luke's Reformed Episcopal Church

Rev. Dr. D. James Kennedy, President, Coral Ridge Ministries

Diane Knippers, President, Institute on Religion and Democracy

Dr. Ronald Nash, Professor of Philosophy, Reformed Theological Seminary and Southern Baptist Theological Seminary

David Noebel, President, Summit Ministries

Dr. James Nuechterlein, Editor, First Things

Dr. Marvin Olasky, Professor of Journalism and History, University of Texas, Austin

Rev. Edmund Opitz, Resident Theologian, Foundation for Economics Education (retired)

Rev. Steve Scheiderer, Wisconsin Evangelical Lutheran Synod

Paul Schmidt, Chairman, Ethical Issues and Human Needs Committee, PCUSA

Rev. Donald E. Wildmon, President, American Family Association

Dr. William R. Bright, President, Campus Crusade for Christ International

Rev. Thomas Coleman, Cornerstone Church (nondenominational) Muskegon, Michigan

William T. Devlin, Director, Urban Family Council

Dr. Elizabeth Fox-Genovese, Eleanore Raoul Professor of History, Emory University

Dr. Peter Huber, J.D., Senior Fellow, Manhattan Institute

Dr. George P. Khushf, Institute of Public Affairs, Center for Bioethics, University of South Carolina

Prof. Deepak Lal, James S. Coleman Professor of International Development Studies, UCLA

Floy Lilley, JD, expert in international environmental law, University of Texas-Austin

Dr. Henry I. Miller, Senior Research Fellow, Hoover Institution, Stanford University

Dr. Jane M. Orient, Executive Director, Association of American Physicians and Surgeons

Dr. Charles W. Rovey, Associate Professor of Geoscience, Southwest Missouri State University

Dr. D. Eric Schansberg, Associate Professor of Economics, Indiana University

Gilbert T. Sewall, Director, American Textbook Council

Senator BOXER. Thank you.

Senator Bond, Senator Inhofe and I agreed at the beginning we would each take 8 minutes and members would have 3 minutes. So you have your 3 minutes.

Senator BOND. Madam Chair, could I impose on your good nature and good will, since you have been so kind, if I could slip over a few minutes? I have a few things to say and I would welcome having a little slack.

Senator BOXER. The rule was 3 minutes. I will give you an extra minute.

Senator BOND. I will go fast like a bunny. Thank you very much.

Senator INHOFE. Correct me if I am wrong on the rule, but I think that if anyone who is not here at the time we start in on our witnesses would have to forego until later with their opening statement, is that what normally takes place?

Senator BOXER. Well, that is not what we have done in the past. But why don't you proceed?

**STATEMENT OF HON. CHRISTOPHER S. BOND, U.S. SENATOR
FROM THE STATE OF MISSOURI**

Senator BOND. Thank you, Madam Chair, for hosting this hearing. It is a great honor to have such distinguished leaders of the faith community here. I trust we are all leaders of faith. As I look down the listing of your distinguished backgrounds, I don't see any of my fellow Presbyterians here, so I will try to speak for—oh, thank you very much, Doctor. Well, as a matter of fact, we are members of the same cult.

Faith, as far as I am concerned, should inform our decision. Faith should form our values. One of those values I have shared with the committee, as the Chair has so kindly pointed out, is the need to care for the weak and vulnerable. While I am strongly supportive of reducing emissions through investments in technology and infrastructure that can conserve energy and the environment, I have spoken out against some of the climate change bills, such as Boxer-Sanders, which is supported by the Presidential candidates on their side, because I fear, as our Ranking Member does, that these will target the poor and vulnerable with the greatest degree of relative hardship.

Senator Inhofe has already pointed out how Boxer-Sanders would hit the poor. A recent MIT study showed that emission decreases required under this bill would cost \$210 for each emitted ton of CO₂. Now, those aren't paid just by the companies. Those are ultimately paid by the consumers. My Missouri electricity organization estimated it would increase Missouri electricity prices by 275 percent. Nearly tripling our electricity bills is unacceptable. The problem is that many can't even afford today's energy prices.

I introduced to the committee this young girl in a previous hearing. She was featured in a Hill newspaper ad for heating subsidies for the poor. As you see in this coat, the girl has two coats, one she wears outside and one for inside. She is an example of 29 million Americans who cannot afford to pay their heating bills. Thus, she must wear a coat in the winter to survive. I support and will continue to support and work for low-income energy subsidies. Even if we double our LIHEAP funding, we will still leave out in the cold

two of three families who cannot afford their heating bills. It is easy to see why. Families significantly below the poverty level spend as much as 19 percent of their income on utility bills. Those with family incomes above \$50,000 spend only 4 percent on energy. That means the poor are hit five times harder than middle class. That is not protecting the weak and vulnerable.

A recent study on the consequences of energy from poverty in Missouri called *Paid but Unaffordable*, found that 46 percent of poor households surveyed went without food in order to pay their home energy bill, 45 percent failed to take medicines, 38 percent went without needed school books. But even more disturbing, in some areas of the United States, as many as one-quarter of low-income renters are evicted due to inability to pay their heating bills.

Another study from my home State of Missouri explored the connection between eviction due to unpaid utility bills and poor educational attainment. We know if the kids cannot have a decent home, and they don't have adequate food, they are poor students. Now, some are rightly concerned we ought to focus on the Third World poor. We need to fight drought, lack of potable water. This is where the truly poor really are, living on less than \$2 or \$1 a day. That is why I have strongly supported and continue to support plant biotechnology to develop seeds that are disease, pest and drought resistant, to empower farmers in poor countries to support their families and feed their people. New advances with the beta carotene enriched rice, the golden rice, should reduce not only the blindness which afflicts a half a million children in lesser developed countries, but kills as many as 5 million a year.

These are steps that we can and must take. But to fight endemic poverty, India is using manufacturing to lift the poor, hopefully all the way to the middle class. Then how can we expect India to accept measures that would strangle good-paying Indian manufacturing jobs in the cribs? That is not the way to protect their weak and vulnerable.

I support measures to reduce our carbon footprint. I supported the Green Buildings bill yesterday. But I cannot support measures that unfairly target the poor, measures that target the Midwest, measures that unfairly target coal-dependent States, its manufacturing jobs, hard-working blue collar workers and struggling middle class. We need to develop clean coal technology which will utilize that coal, make our coal areas the Dubai of the Midwest and put money into clean coal technology, coal-to-liquids, coal-to-gas. I hope we can come together to include the entire world, not leaving out polluting countries, to rely on what we do best without hurting those who have the least. That is the way to protect the weak and vulnerable.

Madam Chair, I appreciate your indulgence and I thank very much our witnesses for coming.

Senator BOXER. Thank you, Senator Bond.

Senator Klobuchar, I am going to call on you in just a moment. I have a few things to put in the record. You will have up to 5 minutes, is what Senator Bond took.

So I want to place in the record the titles of the four anti-global warming bills we passed out of the committee, one of which was

referred to by the good Senator from Missouri. Also to announce that on June 26, we will be having a hearing on all of the various cap and trade bills that have been introduced relating to the utility sector. These are bipartisan proposals. We will be having that hearing.

I also want to place into the record the members of U.S. Climate Action Partnership, who in addition to Al Gore and the Hollywood elite have called for cuts in carbon, up to 60 to 80 percent: Alcoa, Caterpillar, Duke Energy, Dupont, PG&E and so on, GE. So I want to do that.

I also want to place into the record the Members of the Congress, how we voted on that last LIHEAP vote, that low-income energy assistance program, because there is no question we are going to have to help people. That is why we have the program. So I think it will be interesting to see where we fall on that.

Also put into the record the names of the 29 States and the 400 mayors who have called for caps on carbon.

Senator INHOFE. I have something to put into the record also, if I might.

Senator BOXER. Surely.

Senator INHOFE. I would like to place into the record the article on the front page of the *Washington Post* this morning where they recognize that we are going through natural cycles and the northern hemisphere is getting a little bit warmer. Now it is turning around and it will start going the other way. But they are all rejoicing up there, the sheep farmers now have 2 additional months, the cod fishermen are——

Senator BOXER. Senator, I will be happy to put that into the record.

Senator INHOFE. So that will be a part of the record.

Senator BOXER. I am happy to do that.

Senator INHOFE. There are some happy people out there rejoicing.

Senator BOXER. We are going to Greenland to talk to the happy people up there. So I hope you will come with us.

[Laughter.]

Senator BOXER. Senator Klobuchar.

**STATEMENT OF HON. AMY KLOBUCHAR, U.S. SENATOR FROM
THE STATE OF MINNESOTA**

Senator KLOBUCHAR. Thank you very much, Chairman and thank you, all of you, for coming today. I am so proud of the work we have been doing.

As you know, before this new Congress came in, there were a lot of debates about whether or not global warming exists. I think that we have changed, thanks to our Chairman, the discussion to talking about solutions. I know that before I came in I was at another meeting about immigration, which we have been working with a number of your congregations and communities on this, which is also a very emotional issue.

But I heard from my staff here that there were discussions by Senator Bond and others about the effect this would have on poor people. When I look at this climate change issue, and we have had several witnesses, I look at it differently. I am very concerned that

if we don't do anything that inaction will hurt the poor and the more vulnerable more. I am looking at the studies that we have seen about the effects it is going to have all over the world. I think of some of my own constituents. I was up in northern Minnesota last week where we had rampant fires in the forest, and 150, 200 houses down.

I can tell you, meeting with the people whose homes had been destroyed by a prolonged drought that the people with a lot of money who had built houses up there, they are going to be OK. But the waitresses and people that make a living off some of the tourism out there, it is not as easy for them, or the people who work at the ski places who told me that they have lost 35 percent in the last few years, because there is no snow. It is not as easy for the workers in those places to be able to have a safety net. So I look at this as a different issue in terms of the economics. That is not to say that we are not going to have to put safety nets in place for people if we see changes. It is our Democratic caucus which has been pushing for LIHEAP funding and other assistance for people who can't afford heating.

But what I am interested about with this panel is that we have heard and I have heard from all kinds of people before, Governors and mayors, and we have had CEOs in, we have had a former Vice Admiral of the Navy, we have had a Vice President in, we have talked to tugboat operators, I have talked to boaters and snowmobilers from all over my State, and people who ice-fish who are concerned that it takes months for them to put their fish house out.

But it is a little different here with this panel. You have not come to us because of your concern that it takes 42 more trips to haul the same amount of cargo across Lake Superior due to the water levels, because we have seen so much evaporation that the water levels in the Great Lakes are going down. You haven't come to us because your snowmobile business is shrinking or because your favorite coldwater stream no longer holds prize trout. You have come to us because your faith and the faith of those that you represent moves you.

This morning as I was preparing this hearing, I was struck by a passage in the National Council of Churches' written statement, where it says "The scientific community, in addition to providing us with a better understanding of the global warming threat we are facing, has also provided us with the knowledge of how we can solve this growing concern. Considering the interconnectedness of God's creation, both human and non-human, we must act now to protect God's planet and God's people, both now and in the future." I think that this eloquently sums up our mission.

Madam Chair, we have a picture in our office, and I don't know where I got it, but when I was district attorney I didn't feel comfortable putting it up. I put it up in our Senate office. It is a picture of a woman holding the earth in her hand. The words say, the angel shrugged, and she placed the world in the palms of our hand, and she said, if we fail this time, it will be a failure of imagination.

I think that is what we are dealing with here, as we approach a very challenging issue. But we have to have God on our side, and we have to have a mission on our side.

So I am just very excited and honored that you are here today, and humbled to have you with us. Thank you.

Senator BOXER. Thank you so much, Senator.

Now we get to our witnesses. It is my understanding, Reverend Schori, you are the Presiding Bishop of the Episcopal Church. Are you also speaking for the National Council of Churches today?

Bishop SCHORI. That is correct.

Senator BOXER. OK. The National Council of Churches represents 45 million Americans, is that correct?

Bishop SCHORI. I believe it is 100 million Americans.

Senator BOXER. One hundred million Americans. Well, I thank you very much. Please go ahead, Dr. Katharine Jefferts Schori.

STATEMENT OF THE MOST REVEREND DR. KATHARINE JEFFERTS SCHORI, PRESIDING BISHOP, THE EPISCOPAL CHURCH

Bishop SCHORI. Thank you. On behalf of the panel, I would like to express our condolences to all the Members of the committee at the recent death of Senator Thomas.

Senator BOXER. Thank you.

Bishop SCHORI. Know that he and his family are in our prayers.

Good morning, Madam Chair, Senator Inhofe, my fellow panelists. It is my great honor and privilege to join you here this morning. I am the Most Reverend Dr. Katharine Jefferts Schori, elected last summer to be Presiding Bishop of the Episcopal Church. Thank you for inviting me to participate in this very important hearing on global warming.

Before my ordination to the priesthood, I was an oceanographer. I learned that no life form can be studied in isolation from its surroundings or from other organisms. All living things are deeply interconnected and depend on the life of others. At the end of the creation account, the writer of Genesis tells us that God saw everything that he had made, and indeed, it was very good.

While many in the faith communities represented here may disagree on a variety of issues, in the area of global warming we are increasingly of one mind. The crisis of climate change presents an unprecedented challenge to the goodness, interconnectedness and sanctity of the world God created and loves. As one who has been formed both through a deep Christian faith and as a scientist, I believe that science has revealed to us without equivocation that climate change and global warming are real, and caused in significant part by human activities. They are a threat not only to God's good creation, but to all of humanity.

The connectedness of creation is part of what Paul meant when he spoke of Christians being part of the one body of Christ. Indeed, a later theologian, Sallie McFague, speaks of creation as the Body of God, out of the very same understanding that we are intimately and inevitably connected. We are connected to those who are just now beginning to suffer from the consequences of climate change and to those living generations yet to come who will either benefit from our efforts to curb carbon emissions or suffer from our failure to address the challenge that climate change presents.

The scientific community has made clear that we must reduce carbon emissions globally by 15 to 20 percent by the year 2020 and

by 80 percent by the year 2050 in order to avoid the most catastrophic impacts of climate change. On behalf of the Episcopal Church and the National Council of Churches, I implore you to make these goals a national priority.

To my colleagues in the faith community who doubt the urgency of addressing global warming, I urge you to reconsider, for the sake of God's good earth and all humanity. Many of us share a profound concern that climate change will most severely affect the most vulnerable and those who live in poverty. I want to be absolutely clear: Inaction on our part is the most costly of all possible courses of action for those who live in poverty.

In this decade, Americans have become increasingly aware of extreme global poverty, the kind of poverty that kills 30,000 people around the globe each and every day. Global poverty and climate change are intimately related.

As temperature changes increase the frequency and intensity of severe weather events around the world, poor countries—which often lack infrastructure—will divert resources away from fighting poverty in order to respond to disaster. A warmer climate will increase the spread of disease. Changed rain patterns will increase the prevalence of drought in places like Africa, where only 4 percent of cropped land is irrigated, and leave populations without food and unable to generate income.

Climate change and poverty are linked at home, as well. In the United States, minorities in particular, will suffer a disproportionate share of the effects of climate change. The Congressional Black Caucus Foundation report, "African Americans and Climate Change: An Unequal Burden," concluded that there is a stark disparity in the United States between those who benefit from the causes of climate change and those who bear the costs of climate change. The report finds that African Americans are disproportionately burdened by the health effects of climate change, including increased deaths from heat waves and extreme weather, as well as air pollution and the spread of infectious diseases.

While you may debate about how to deal with climate change, the answer is that we must reduce carbon emissions. I find hope in this, because it means that the solution is good leadership and vision. I am reminded of the book of Proverbs that says that where there is no vision, the people perish.

Congress has many of the necessary tools, through existing programs such as the Low-Income Home Energy Assistance Program and changes in tax policy to provide for middle- and low-income people. In the spirit of our Nation's historical entrepreneurial and innovative prowess, we can lead the world with new technologies, renewable sources of energy, and innovations not yet dreamed of that will allow for new markets, new jobs and new industries as we move away from the use of fossil fuels.

Madam Chair, I will close where I began, by recalling that the Scriptural account of creation and God's proclamation, that all of it was good and the whole of it was very good. Ultimately, Scripture is an account of relationships, the bond of love between God and the world and the inter-connectivity of all people and all things in that world. It is only when we take seriously those relationships, when we realize that all people have a stake in the health and

well-being of all others and of the earth itself that creation can truly begin to realize the abundant life that God intends for every one of us.

I will pray for each of you and for this Congress that you may be graced with vision and truth. May be the peace of God be upon this Senate and this committee. Thank you.

[The prepared statement of Bishop Schori follows:]

STATEMENT OF THE MOST REVEREND DR. KATHARINE JEFFERTS SCHORI, PRESIDING
BISHOP OF THE EPISCOPAL CHURCH

God has not given us a spirit of fear, but power, and of love, and of a sound mind.
2 Timothy 1:7

Good Morning, Madam Chair, Senator Inhofe, my fellow panelists, it is my great honor and privilege to join you here this morning. I appreciate your kind introduction. I am the Most Reverend Dr. Katharine Jefferts Schori, elected last summer to be Presiding Bishop of the Episcopal Church. Thank you for inviting me to participate in this very important hearing on global warming—which I believe to be one of the great human and spiritual challenges of our time.

Before my ordination to the priesthood, I was an oceanographer and I learned that no life form can be studied in isolation from its surroundings or from other organisms. All living things are deeply interconnected, and all life depends on the life of others. Study of the Bible, and of the Judeo-Christian religious tradition, made me equally aware that this interconnectedness is one of the central narratives of Scripture. God creates all people and all things to live in relationship with one another and the world around them. At the end of the biblical creation account, the writer of Genesis tells us that “God saw everything that he had made, and indeed, it was very good.”

I believe that each of us must recall ourselves to the vision that God has for us to realize in our own day. It is a vision in which all human beings live together as siblings, at peace with one another and with God, and in right relationship with all of the rest of creation. While many of the faith communities represented here today may disagree on a variety of issues, in the area of global warming we are increasingly of one mind. The crisis of climate change presents an unprecedented challenge to the goodness, interconnectedness, and sanctity of the world God created and loves. This challenge is what has called our faith communities to come here today and stand on the side of scientific truth. As a priest, trained as a scientist, I take as a sacred obligation the faith community’s responsibility to stand on the side of truth, the truth of science as well as the truth of God’s unquenchable love for the world and all its inhabitants.

The Church’s history, of course, gives us examples of moments when Christians saw threat, rather than revelation and truth, in science. The trial and imprisonment of Galileo Galilei for challenging the theory of a geocentric universe is a famous example of the Church’s moral failure. For his advocacy of this unfolding revelation through science, Galileo spent the remainder of his life under house arrest. The God whose revelation to us is continual and ongoing also entrusts us with continual and ongoing discovery of the universe he has made.

As one who has been formed both through a deep faith and as a scientist I believe science has revealed to us without equivocation that climate change and global warming are real, and caused in significant part by human activities. They are a threat not only to God’s good creation but to all of humanity. This acknowledgment of global warming, and the Church’s commitment to ameliorating it, is a part of the ongoing discovery of God’s revelation to humanity and a call to a fuller understanding of the scriptural imperative of loving our neighbor.

Each one of us is also connected with our neighbor in many unexpected ways. The connectedness of creation is part of what Paul meant when he spoke of Christians being a part of the One Body of Christ. Indeed a later theologian, Sallie McFague, speaks of creation as the Body of God, out of the very same understanding that we are intimately and inevitably connected.

Each one of us is connected to those who are just now beginning to suffer from the consequences of climate change and to those living generations from now who will either benefit from our efforts to curb carbon emissions or suffer from our failure to address the challenge which climate change presents.

The scientific community has made clear that we must reduce carbon emissions globally by 15 to 20 percent by 2020 and 80 percent by 2050 in order to avoid the most catastrophic impacts of climate change. On behalf of the Episcopal Church, as

a Christian leader representing today not only the concerns of Episcopalians, but the concerns of the many denominations that are part of the National Council of Churches, I implore you to make these goals a national priority. To my colleagues in the faith community who doubt the urgency of addressing global warming, I urge you to re-consider for the sake of God's good earth.

I join many of my colleagues and many of you on this committee in sharing a profound concern that climate change will most severely affect those living in poverty and the most vulnerable in our communities here in the United States and around the world. I want to be absolutely clear; inaction on our part is the most costly of all courses of action for those living in poverty.

The General Convention, (the governing body of the Episcopal Church), the National Council of Churches, and many Christian denominations have called on Congress to address both climate change and the needs of those living in poverty in adapting to curbs in fossil fuel use. On their behalf, I would like to offer into the record their own statements.

Over the past five years, Americans have become increasingly aware of the phenomenon of global poverty—poverty that kills 30,000 people around the world each day—and have supported Congress and the President in making historic commitments to eradicating it. We cannot triumph over global poverty, however, unless we also address climate change, as the two phenomena are intimately related. Climate change exacerbates global poverty, and global poverty propels climate change.

Let me give you a few examples. As temperature changes increase the frequency and intensity of severe weather events around the world, poor countries—which often lack infrastructure such as storm walls and water-storage facilities—will divert resources away from fighting poverty in order to respond to disaster. A warmer climate will also increase the spread of diseases like malaria and tax the ability of poor countries to respond adequately. Perhaps most severely, changed rain patterns will increase the prevalence of drought in places like Africa, where only four percent of cropped land is irrigated, leaving populations without food and hamstrung in their ability to trade internationally to generate income. By 2020, between 75 and 250 million Africans are projected to be exposed to an increase of water stress due to climate change.

Conversely, just as climate change will exacerbate poverty, poverty also is hastening climate change. Most people living in poverty around the world lack access to a reliable energy source, an imbalance that must be addressed in any attempt to lift a community out of poverty. Unfortunately, financial necessity forces many to choose energy sources such as oil, coal or wood, which threaten to expand significantly the world's greenhouse emissions and thus accelerate the effects of climate change. This cycle—poverty that begets climate change, and vice versa—threatens the future of all people, rich and poor alike.

This relationship between deadly poverty and the health of creation was not lost on the world's leaders when, at the turn of the 21st century, they committed to cut global poverty in half by 2015. Their plan, which established the eight Millennium Development Goals, included a specific pledge of environmental sustainability. This year marks the halfway point in the world's effort to achieve these goals, and while progress has been impressive in some places, we are nowhere close to halfway there. Addressing climate change is a critical step toward putting the world back on track.

Climate change and poverty are linked at home as well. We know that those living in poverty, particularly minorities, in the United States will suffer a disproportionate share of the effects of climate change. In July of 2004, the Congressional Black Caucus Foundation released a report entitled African Americans and Climate Change: An Unequal Burden that concluded "there is a stark disparity in the United States between those who benefit from the causes of climate change and those who bear the costs of climate change." The report finds that African Americans are disproportionately burdened by the health effects of climate change, including increased deaths from heat waves and extreme weather, as well as air pollution and the spread of infectious diseases. African American households spend more money on direct energy purchases as a percentage of their income than non African Americans across every income bracket and are more likely to be impacted by the economic instability caused by climate change, than other groups. That report makes a strong case for our congressional leaders to propose legislation to reduce carbon emissions that does not put a greater share of the cost on those living in poverty.

Climate change is also disproportionately affecting indigenous cultures. Nowhere is this more evident than in our Lutheran brothers' and sisters' northernmost congregation, Shishmaref Lutheran Church, located 20 miles south of the Arctic Circle on the Chukchi Sea, Alaska. The forces unleashed by global climate change are literally washing away the earth on which these 600 Inupiat Eskimos live. Due to in-

creased storms, melting sea ice, thawing permafrost, and rising sea levels, their island home will soon be under water. They must uproot themselves and their 4,000 year-old culture and find a new place to live.

In other parts of the Arctic, the exploitation of fossil fuels that contribute to global warming threaten both the subsistence rights of the Gwich'in people—more than 90 percent of whom are Episcopalian—and their culture as well. The calving grounds of the Porcupine Caribou in Alaska's North Slope are sacred to the Gwich'in people and the Episcopal Church supports the Gwich'in in calling for full protection of the Arctic National Wildlife Refuge.

Science, regardless of the field, is the pursuit of answers to questions that scientists raise in observing creation. While there may be great debate about how to deal with climate change, in fact the answer is known and the solution is clear. We must reduce carbon dioxide emissions. I find hope in this because it means the solution is simply good leadership and vision. And I am reminded by the Book of Proverbs that where there is no vision, the people perish.

In addressing climate change, Congress already has many of the necessary tools—through existing programs and resources that could aggressively help those with limited means to adapt to climate change. Tax policy can be adjusted and targeted to encourage middle and low income taxpayers to take advantage of new technologies or to adjust to potentially higher energy costs. The Low Income Home Energy Assistance Program could be fully funded and expanded where necessary to protect the neediest among us. Other policy options include a cap and trade system with a directed revenue stream that could be used to help vulnerable communities to access new technologies, equipment, or appliances.

In the spirit of our nation's historic entrepreneurial and innovative prowess, we can also find opportunity to lead the world with new technologies, renewable sources of energy and innovations not yet dreamed of, that will allow for new markets, new jobs, new industries and the ability to provide job training and transition for American workers as we move away from the use of fossil fuels.

Those innovations can benefit all of humanity. As the National Academies report "Understanding and Responding to Climate Change" concluded: "Nations with wealth have a better chance of using science and technology to anticipate, mitigate, and adapt to sea-level rise, threats to agriculture, and other climate impacts. . . The developed world will need to assist the developing nations to build their capacity to meet the challenges of adapting to climate change."

Madam chair, I will close where I began, by recalling the Scriptural account of creation and God's proclamation that each piece of it was good, and that the whole of it—when viewed together and in relationship—was very good. Ultimately, scripture is an account of relationships: the bond of love between God and the world, and the interconnectivity of all people and all things in that world. It is only when we take seriously those relationships—when we realize that all people have a stake in the health and well-being of all others and of the Earth itself—that creation can truly begin to realize the abundant life that God intends for every one of us.

As I conclude I offer you this prayer from the Episcopal Book of Common Prayer: "O merciful Creator, your hand is open wide to satisfy the needs of every living creature; Make us always thankful for your loving providence; and grant that we, remembering the account that we must one day give, may be faithful stewards of your good gifts; through Jesus Christ our Lord, who with you and the Holy Spirit lives and reigns, one God, for ever and ever. Amen"—BCP page 239.

I will pray for each of you and for this Congress that you will be graced with vision and truth. May the Peace of God be upon this Senate and this Committee. Thank you.

Senator BOXER. Thank you so much for your eloquence.

Now we turn to John Carr, the secretary of the Department of Social Development and World Peace, of the U.S. Conference of Catholic Bishops. As I understand it, that is 69 million people, correct?

Mr. CARR. On a good day.

[Laughter.]

Senator BOXER. Well, this is a very good day to have you all here.

STATEMENT OF JOHN L. CARR, SECRETARY, DEPARTMENT OF SOCIAL DEVELOPMENT AND WORLD PEACE, U.S. CONFERENCE OF CATHOLIC BISHOPS

Mr. CARR. My name is John Carr, and I am honored to be a part of this important and timely hearing, and this distinguished panel. It is obvious I am not a presiding bishop and I am not a rabbi, I am not a scientist and I am not a Senator, but I think I may have the most pompous title in the room. You stumbled over it.

I am secretary for Social Development and World Peace for the U.S. Catholic Bishops. I was once introduced with that rather pompous title in an elevator to a woman and she looked at me and said, "You need to do a better job."

[Laughter.]

Mr. CARR. What this hearing is about is we all need to do a better job. We need to do a better job of protecting both God's people and God's planet. The Catholic Bishops Conference welcomes this important and timely hearing on an issue that clearly affects God's creation and the entire human family. We believe our response to global climate change will be a moral measure of our Nation's leadership and stewardship.

In their statement *Climate Change: A Plea for Dialogue, Prudence and the Common Good*, the U.S. Catholic Bishops insist, at its core, global climate change is not simply about economic theory or political platforms, nor about partisan advantage or interest group pressure. Rather, global climate change is about the future of God's creation and the one human family. It is about our human stewardship of God's creation and our responsibility to those generations who will succeed us. If we harm the atmosphere, we dishonor our Creator and the gift of creation.

The Bishops' approach to climate change in this statement is nuance, not alarmist, traditional, not trendy. Our church has been called a lot of things, I have never heard us called trendy. It is an expression of faith, not politics. For us, this concern began with Genesis, not Earth Day.

The Catholic Church has focused on these challenges at the highest level, and on a global basis, at the Vatican, by other Bishops' conferences and the teaching of the Holy Father. In light of the new initiatives in the Congress, the Administration and now at the G-8, this is a crucial time to buildup the common ground for common action to pursue the common good for all of God's children and creation.

The Bishops Conference has sought to listen and learn and discern the moral dimensions of climate change. The Bishops accept the growing consensus on climate change, represented by the IPCC, but also recognize continuing debate and some uncertainties. However, it is neither wise nor useful to minimize the consensus, the uncertainties or the policy challenges.

The U.S. Catholic Bishops seek to offer constructive contribution as a community of faith, not an interest group. We are not the Sierra Club at prayer. We are not the Catholic Caucus of the coal lobby. The Catholic Bishops seek to help shape this debate by drawing on three traditional moral principles. First, prudence. This old-fashioned virtue suggests that we do not have to know everything to know that human activity is contributing to climate

change with serious consequences for both the planet and for people, especially the poor and vulnerable. Prudence tells us that we know that when a problem is serious and worsening, it is better to act now rather than wait until more drastic action is required.

Second, the common good. The debate over climate change is too often polarized and may in fact be paralyzed. Climate is a pre-eminent example of we are all in this together. This ethic of solidarity requires us to act to protect what we hold in common, not just our own interests. The Bishops Conference, working with the new Catholic Coalition on Climate Change, is participating in gatherings, promoting the search for common ground and the common good, among religious leaders, public officials and representatives from business, labor and environmental groups and those most affected. We have already been part of this in Florida, in Ohio and I this past weekend was in Alaska and saw this first-hand.

Third principle: priority for the poor. We should look at climate change from the bottom up. The real inconvenient truth is that those who contribute least to climate change will be affected most and have the least capacity to cope or escape. The poor and vulnerable are most likely to pay the price of inaction or unwise action. We know from our everyday experience that their lives, homes, children and work are at most at risk. We also know from bitter experience who gets left behind in catastrophes.

We must act to ensure that their voices are heard, their needs addressed and their burdens eased as our Nation and the world addresses climate change. This priority for the poor cannot be a marginal concern in climate policy, but rather must be a central focus of legislation and policy choices. Responses to climate change need to provide significant new resources to help those at greatest risk and least able to cope. If we do not address climate change and poverty together, we will fail both morally and practically. Human creativity, entrepreneurship and economic markets can help develop the knowledge and the technology to make progress and limit the damage. Sharing these tools is prudent policy and a requirement of solidarity and justice.

The Catholic Bishops Conference looks forward to working with this committee. I wish to submit for the record an appeal for action along these lines from Bishop Thomas Lenski, chair of the Bishops International Committee.

Senator BOXER. Without objection, it will be so.

Mr. CARR. These are not easy matters, nor do they have easy answers. But the religious community can reaffirm our traditional message of restraint, moderation and sacrifice for our own good, the good of the least of these and the good of God's creation. We are convinced that the moral measure of decisions on climate change will be whether we act with prudence to protect God's creation, advance the common good and protect the lives and lift the burdens of the poor. Both faith and our national values call us to these essential moral priorities.

Thank you.

[The prepared statement of Mr. Carr follows:]

STATEMENT OF JOHN L. CARR, SECRETARY, DEPARTMENT OF SOCIAL DEVELOPMENT
AND WORLD PEACE, U.S. CONFERENCE OF CATHOLIC BISHOPS

INTRODUCTION

I am John Carr, Secretary of the Department of Social Development and World Peace of the United States Conference of Catholic Bishops (USCCB). At a time of growing attention to the challenges of global climate change, the United States Catholic Bishops welcome these hearings and your leadership on an issue that clearly affects God's creation and the entire human family.

The religious leaders here today share an abiding love for God's gift of creation and the biblical mandate and moral responsibility to care for creation. As people of faith, we are convinced that "the earth is the Lord's and all it holds." (PS 24:1) Our Creator has given us the gift of creation: the air we breathe, the water that sustains life, the climate and environment we share—all of which God created and found "very good." (GEN: 1:31) We believe our response to global climate change is a sign of our respect for God's creation and moral measure of our nation's leadership and stewardship.

A decade ago, the U.S. Catholic bishops insisted that "(A)t its core, global climate change is not simply about economic theory or political platforms, nor about partisan advantage or interest group pressures. Rather, global climate change is about the future of God's creation and the one human family. It is about protecting both the 'human environment' and the natural environment. It is about our human stewardship of God's creation and our responsibility to those generations who will succeed us... As people of faith, we believe that the atmosphere that supports life on earth is a God-given gift, one we must respect and protect. It unites us as one human family. If we harm the atmosphere, we dishonor our Creator and the gift of creation." (Global Climate Change: A Plea for Dialogue, Prudence and the Common Good, U.S. Catholic Bishops, 2001).

With new initiatives in Congress, by the Administration, and at the 08 Summit meeting, this is an essential time to build up the common ground for common action to pursue the common good for all of God's children and creation. On climate change, it is now time to act with clear harrow, creativity, care and compassion, especially for our sisters and brothers who will suffer the most from past neglect and, if we turn our back, our future indifference.

CLIMATE CHANGE AND THE U.S. CATHOLIC BISHOPS

The Catholic Bishops are not scientists, climate experts, or policy makers. They are moral teachers, pastors, and leaders. For a decade, the USCCB has sought to listen, learn, and discern the moral dimensions of climate change. The bishops accept the growing consensus on climate change represented by the International Panel on Climate Change, but also recognize continuing debate and some uncertainties about the speed and severity of climate change. However, it is not wise or useful to either minimize or exaggerate the uncertainties and challenges we face.

The U.S. Catholic Bishops seek to offer a constructive, distinctive, and authentic contribution based on our religious and moral teaching and our pastoral service, especially among the poor in our country and around the world. For us this is not a new concern, but a call to apply traditional values to new challenges. It is:

- Distinctive in voicing the principled concerns of a community of faith, not an interest group. We are not the Sierra Club at prayer or the Catholic caucus of the coal lobby.

- Authentic in drawing directly on traditional principles of the Catholic Church—the life and dignity of the human person, the option for the poor, subsidiarity and solidarity, as well as the duty to care for God's creation.

In this testimony, I draw directly on an unprecedented statement of the entire body of United States bishops, *Global Climate Change: Plea for Dialogue, Prudence and the Common Good*. This statement is nuanced, not alarmist. It is traditional, not trendy. It is an expression of faith, not politics. For us, this began with Genesis not Earth Day. I also submit to the Committee a recent appeal for action which reflects the demands of prudence, the pursuit of the common good, and a priority for the poor from the Chair of the Bishop's Committee on International Policy, Bishop Thomas Wenski, to leaders of Congress, the Administration, business, environmental organizations, and other groups.

A MORAL FRAMEWORK

The USCCB's approach to climate change reflects these three central and traditional ideas: the virtue of prudence, the pursuit of the common good, and the duty to stand with and for the poor and vulnerable.

Prudence—This old fashioned virtue suggests that while we may not know everything about global climate change we know that something significant is occurring. We do not have to know everything to know that human activity is contributing to significant changes in the climate with serious consequences for both the planet and for people, especially those who are poor and vulnerable. Prudence requires wise action to address problems that will most likely only grow in magnitude and consequences. Prudence is not simply about avoiding impulsive action, picking the predictable course, or avoiding risks, but it can also require biding time, weighing available policy alternatives and moral goods and taking considered and decisive steps before the problems grow worse. Prudence tells us that “we know that when a problem is serious and worsening it is better to act now rather than wait until more drastic action is required.” (Global Climate Change, A Plea for Dialogue, Prudence and the Common Good, U.S. Catholic Bishops, 2001.)

Common Good.—The debate over climate change is too often polarized by powerful stakeholders seeking to advance their own agendas and interests and using or misusing science for their own purposes. However, the universal nature of climate change requires a concerted and persistent effort to identify and pursue the common good on climate with an attitude of “we are all in this together.” This ethic of solidarity requires us to act to protect what we hold in common, not just to protect our own interests.

Our response to climate change should demonstrate our commitment to future generations. We believe solidarity also requires that the United States lead the way in addressing this issue and in addressing the disproportionate burdens of poorer countries and vulnerable people. This is not simply a technical question of drafting legislation and fashioning agreements, but rather, a deeper question of acting effectively on our moral obligations to the weak and vulnerable and how to share blessings and burdens in this area with justice.

In building up common ground for the common good, the Catholic community is actively promoting dialogue among different sectors, interests, and groups. Recently, the Bishops’ Conference working with a new Catholic Coalition on Climate Change has been a part of three state-wide gatherings in Florida, Ohio, and this past weekend in Alaska. These remarkable sessions brought together public officials, leaders from business, labor, environment and religion. Last Saturday, we heard from those already affected by climate change including the Administrator of Newtok, Alaska, which is already being destroyed by erosion, flooding, and other forces. We believe that such gatherings can create an environment of dialogue and common ground for common action on climate change.

The Catholic Church is focused on these challenges at the highest levels and on a global basis. Recently, I had the honor of representing the U.S. Conference of Catholic Bishops at a major Vatican convening on global climate change. These themes have been a constant and persistent part of the teaching of both Pope John Paul II and now Benedict XVI. Pope John Paul II insisted that climate is a good that must be protected and that “it is the task of the State to provide for the defense and preservation of common goods such as the natural and human environments, which cannot be safeguarded simply by market forces...” (Centesimus Annus, #40.) Pope Benedict XVI has expressed his own view saying that “(E)nvironmental pollution is making particularly unsustainable the lives of the poor of the world.” (Angelus address on Sunday, Aug. 27, 2006.)

A Priority for the Poor.—While we are “in this together,” some are contributing more to the problem while others bear more of the burdens of climate change and the efforts to address it. We should look at climate change from the “bottom-up” for how it touches the poor and vulnerable. Pope Benedict XVI, in his powerful encyclical, *Deus Caritas Est*, insists care for “the least of these” is a defining religious duty. It is also a moral and public responsibility. The same message was just given to 1.3–8 leaders in an unprecedented letter from the Presidents of seven Catholic bishops’ conferences on June 1.¹

¹The Summit Agenda includes global climate change, an issue of particular concern to people of faith who are committed to protecting God’s creation. In this regard, we have a special concern for the poor. As a result of where they live and their limited access to resources, the poor will experience most directly the harmful effects of climate change and the burdens of any measures to address it, including potential escalating energy costs, worker displacement and health problems. This is true in our own countries as well as in Africa and elsewhere. While there are many technical aspects that need to be considered in addressing global climate change, we recognize our moral responsibility of good stewardship. Our actions and decisions, particularly those regarding our use of energy resources have a profound effect today and on future generations. The costs of initiatives to prevent and mitigate the harmful consequences of climate change should be borne more by other persons and nations who have benefited most from the

Continued

With due respect for former Vice-President Gore, the real “inconvenient truth” is that those who contributed least to climate change will be affected the most; those who face the greatest threats will likely bear the greatest burdens and have the least capacity to cope or escape. We should come together to focus more on protecting the poor than protecting ourselves and promoting narrow agendas. Many cite concern for the poor on both sides of this issue. We hope that the poor will not be ignored or misused either in postponing action or choosing policies that balm the poor more than help them, or as excuses to not take action.

This passion and priority for the poor comes from Catholic teaching and our Church’s experience in serving and standing with those in need. Catholic Relief Services is in 100 countries serving the poorest people on earth. We see with our own eyes that poor people in our country and in poor countries often lack the resources and capacity to adapt and avoid the negative consequences of climate change. Their lives, homes, children, and work are most at risk. Ironically, the poor and vulnerable generally contribute much less to the problem but are more likely to pay the price of neglect and delay and bear disproportionate burdens of inaction or unwise actions. We know from bitter experience who is left behind when disaster strikes.

Sadly, the voices and presence of the poor and vulnerable are often missing in the debates and decisions on climate change. This Committee and the religious community have an obligation to help make sure their voices are heard, their needs addressed, and their burdens eased as our nation and the world address climate change.

From an international perspective, climate change is a large part an issue of “sustainable development.” The poor have a need and right to develop to overcome poverty and live in dignity. More affluent nations have a responsibility to encourage and help in this development. In light of climate change, our assistance must also help safeguard the environment we share as a human family.

This priority for the poor in climate policy cannot be a marginal concern, but rather must be a central measure of future choices. If we do not address climate change and global poverty together, we will fail both morally and practically. There can be no option for the earth without a preferential option for the poor. We cannot protect the earth and ignore the “wretched of the earth.” Therefore, response to climate change must include providing significant new resources in addressing and overcoming poverty and providing for sustainable development at home and abroad. Under proposals to reduce greenhouse gas emission—whether to cap and trade, adopt carbon taxes, or implement other measures—the significant resources raised should be used for public purposes, especially to reduce the disproportionate burdens of those least able to bear the impacts of climate change. A significant portion of the resources generated should be dedicated to helping low-income communities in the United States, poorer nations, vulnerable populations, and workers dislocated by climate change adjustments.

We believe ingenuity, creativity, entrepreneurship, and economic markets can play essential roles in developing the knowledge, technology, and measures to make progress and limit the damage. We also believe that wealthier industrialized nations should find effective ways to share appropriate technology and knowledge with less-developed countries as prudent policy, acts of social justice, and signs of solidarity.

SOME POLICY CRITERIA

As the Congress, the Administration, and others move from whether climate change is occurring to what to do about it, we offer some general directions and possible examples for the Committee to consider.

- Richer countries should take the lead, particularly the United States, in addressing climate change and the moral, human, and environmental costs of addressing it.
- Low-income communities and countries have the same right as we do to economic and social development to overcome poverty and need help in ways that do not harm the environment and contribute to a worsening of global climate change.
- U.S. policy should promote the policies and practices of developing countries to focus on “real” sustainable development.
- Richer countries should find suitable ways to make available appropriate technologies to low-income countries.

harmful emissions that fueled development and should not be placed on the shoulders of the poor.” Letter on the occasion of the G-8 Summit to leaders of the Group of 8 Countries by the Presidents of the Catholic Bishops’ Conferences of Germany, Canada, Japan, France, England and Wales, Russia and the United States, June 1, 2007.

- Funds generated from cap and trade programs or carbon taxes should be used for public purposes with a significant portion dedicated to help the poor in our country and around the world address the costs of climate change and responses to it.

CONCLUSION

The United States Conference of Catholic Bishops looks forward to working with this Committee and other leaders to address the moral and ethical dimensions of global climate change. We do so with both modesty and respect. While there are no easy answers, the religious community has moral principles, everyday experience, engaged people and leaders to make a constructive contribution to climate change debate and decisions. The religious community can re-affirm and re-articulate our traditional message of restraint, moderation, and sacrifice for our own good and the good of God's creation.

Today, we particularly seek your support and leadership to shape responses that respect and protect the lives and the dignity of poor families and children here and abroad. We are convinced that the moral measure of debate and decisions on climate change will be whether we act with prudence to protect God's creation, advance the common good, and lift the burdens on the poor. Both our faith and the best of our national values call us to these essential tasks.

Thank you.

Senator BOXER. Thank you, sir, very much.

Now we turn to the Reverend Jim Ball, Evangelical Climate Initiative, as I understand it, representing over 100 signatory evangelical ministers. Is that correct?

Rev. BALL. Yes, ma'am.

Senator BOXER. Sir, welcome. Go ahead.

**STATEMENT OF THE REVEREND JIM BALL, Ph.D., SIGNATORY
TO THE EVANGELICAL CLIMATE INITIATIVE**

Rev. BALL. Good morning, thank you, Chairwoman Boxer and Senator Inhofe, for the opportunity to testify before you and the committee. It is an honor to be here.

My name is the Reverend Jim Ball. I am an evangelical Christian who professes Jesus Christ to be my personal Savior and Lord. I am also president and CEO of the Evangelical Environmental Network, and I am testifying before this committee as a signatory of the Evangelical Climate Initiative, a group of more than 100 senior evangelical leaders who believe that a vigorous response to global warming is a spiritual and moral imperative.

We see today a growing number of religious and national leaders, including last week President Bush who acknowledged recent scientific reports that the human contribution to climate change is virtually certain. This human contribution makes concrete action to reduce global warming pollution an inescapably spiritual act.

The leaders of the Evangelical Climate Initiative include megachurch pastors such as Rick Warren, author of "The Purpose Driven Life," Leith Anderson, president of the National Association of Evangelicals, and Bill Hybels of Willowcreek Community Church in the Chicago area. Others include Richard Stearns, president of World Vision U.S., the largest Christian relief and development organization in the world; Todd Bassett, former national commander of the Salvation Army, the largest charity in the United States; and David Clark, former chairman of the National Religious Broadcasters.

Some evangelical leaders have not yet joined in this campaign, but today, it is clear that to be concerned about global warming is recognized as a distinguishing characteristic of new evangelical

leadership coming to the fore. It is not only evangelical leaders who are concerned. A just-released national poll of evangelicals revealed that 70 percent believe global warming will pose a serious threat to future generations. And 64 percent believe that we must start addressing it immediately.

The Evangelical Climate Initiative's call to action statement makes four basic claims. No. 1, human-induced climate change is real. We believe the science is settled, and it is time to focus on solving the problem. No. 2, the consequences of climate change will be significant and will hit the poor the hardest. Evangelicals care about what happens to the poor. We have donated billions of dollars over the years to our relief agencies to combat the very problems global warming will make worse: water scarcity, hunger and malnutrition, basic health concerns and the problem of refugees.

As my written testimony details, billions will be affected, millions threatened with death. The ECI believes that when you look at the consequences of global warming, you understand that the problem has been framed incorrectly. It is not primarily an environmental problem. It is the major relief and development problem of the 21st century, because it will make all of their problems much worse. That is why those who lead most of the Nation's major relief and development agencies have become ECI leaders.

Our No. 3 ECI claim is that Christian moral convictions demand our response. The ECI leaders believe that Jesus' commands to love God and our neighbor, to do unto others as we would have them do unto us, to care for the least of these, as if they were Christ himself, and to steward or care for His creation as He would all require us to respond to climate change with moral passion and concrete action.

The ECI's No. 4 claim is that the need to act now is urgent. Governments, churches, business and individuals all have a role to play. Churches have a vital role in educating their members about the teachings of Jesus that can be applied to this and other important moral issues, and of modeling good behavior through our facilities and programs.

We commend businesses who have taken the lead, such as Wal-Mart, ConocoPhillips, General Motors and General Electric. They will do well by doing good.

As for governments, we praise the many Governors and States who have taken the lead, especially two Republican Governors who have signed laws that require an 80 percent reduction of CO₂ by 2050: Governor Schwarzenegger of California and Pawlenty of Minnesota, who is an evangelical Christian. To help Congress understand our views, we have created a document entitled Principles for Federal Policy on Climate Change, and I have attached it to my written testimony and ask that it be included in the record.

Based upon the latest findings of the Intergovernmental Panel on Climate Change and in agreement with Governors Schwarzenegger and Pawlenty, we believe that in the United States, reductions on the order of 80 percent by 2050 will be necessary. We should solve the problem by harnessing the power of the market and by protecting property rights. We support a cap and trade approach. In our special concern for the poor, we also urge Congress to make sure that any climate policies are not regressive.

Finally, let me say that we are optimistic. The challenge is larger, but our vision, our beliefs, our values, are larger. Some are fearful of tackling global warming, but where others fear to go, we see opportunity to do well by doing good. We have the opportunity to unite our country and indeed, the world, in a common cause to create a better future for our children to make sound investments for their well-being.

Moses, the great lawgiver, excuse me, Rabbi, in his farewell address to the Hebrews, set before them the paths of life and death: life by loving God and doing His will, and death by forsaking God and His commands. He said, "I call heaven and earth to witness against you today that I have set before you life and death, blessings and curses. Choose life, so that you and your descendants may live." Let us choose life this day by addressing global warming. Thank you.

[The prepared statement of Reverend Ball follows:]

STATEMENT OF THE REVEREND JIM BALL, PH.D., SIGNATORY TO THE EVANGELICAL CLIMATE INITIATIVE

Good morning. Thank you Chairwoman Boxer and Senator Inhofe for the opportunity to testify before you and the Environment and Public Works Committee. It is an honor to be here.

My name is the Reverend Jim Ball. I am an evangelical Christian who professes Jesus Christ to be my personal Savior and Lord. I am president and CEO of the Evangelical Environmental Network (EEN) and I am testifying before this committee as a signatory of the Evangelical Climate Initiative, a group of more than 100 senior evangelical leaders who believe that a vigorous response to global warming is a spiritual and moral imperative—now recognized as such by a majority of evangelical Christians and taken seriously by a new generation of evangelical leaders.

None of the witnesses before this committee today—except for Bishop Jefferts Schori—is a scientist. But some of us—myself included—have studied the developing science for many years, and we see today a growing number of religious and national leaders, including last week President Bush, who acknowledge recent scientific reports that the human contribution to climate change is virtually certain. This human contribution makes concrete action to reduce global warming pollution an inescapably spiritual act.

INTRODUCTION: THE EVANGELICAL CLIMATE INITIATIVE (ECI) WITHIN THE EVANGELICAL CONTEXT

The Evangelical Climate Initiative was launched on February 8, 2006. Evangelical leaders who are part of the ECI include megachurch pastors such as Rick Warren, author of the "Purpose Driven Life", Leith Anderson of Wooddale Church in St. Paul who is also president of the National Association of Evangelicals, Bill Hybels of Willowcreek Community Church in the Chicago area, and Joel Hunter of Northland Church near Orlando.

ECI leaders include Richard Stearns of World Vision U.S., the largest Christian relief and development organization in the world; Todd Bassett, former national commander of the Salvation Army, the largest charity in the U.S., Duane Litfin, president of Wheaton College, perhaps evangelicalism's most prestigious institution of higher learning, David Neff, editor of "Christianity Today", and David Clark, former chairman of the National Religious Broadcasters and founding Dean of Regent University.

Denominational leaders who joined the ECI include: Dr. Jack Hayford, president, International Church of the Foursquare Gospel; Rev. Michael J. Glodo, former stated clerk, Evangelical Presbyterian Church; Dr. Peter Borgdorff, executive director emeritus, Christian Reformed Church; Bishop James D. Leggett, general chair, Pentecostal World Fellowship; Rev. Glenn R. Palmberg, president, Evangelical Covenant Church, and all of the bishops of the Free Methodist Church of North America.

Some evangelical leaders have not yet joined in this campaign, but today it is clear that to be concerned about global warming is recognized as a distinguishing characteristic of new evangelical leadership coming to the fore, leadership that—

while embracing the vital concerns of every generation of evangelical Christians—is challenging our spiritual community and our national leaders to focus on a broader set of issues.¹

The ECI's Call to Action begins by stating that:

We are proud of the evangelical community's long-standing commitment to the sanctity of human life. But we also offer moral witness in many venues and on many issues. Sometimes the issues that we have taken on, such as sex trafficking, genocide in the Sudan, and the AIDS epidemic in Africa, have surprised outside observers. While individuals and organizations can be called to concentrate on certain issues, we are not a single-issue movement. We seek to be true to our calling as Christian leaders, and above all faithful to Jesus Christ our Lord. Our attention, therefore, goes to whatever issues our faith requires us to address.²

In the statement, the ECI leaders affirm that “For most of us, until recently this has not been treated as a pressing issue or major priority. Indeed, many of us have required considerable convincing before becoming persuaded that climate change is a real problem and that it ought to matter to us as Christians.”³

But once convinced, the ECI leaders have remained true to their pledge even in the face of criticism and pressure to recant by some members of the community.⁴

It is not only evangelical leaders who are concerned. A national poll of evangelicals conducted by Ellison Research in September 2005 revealed that:

- 70 percent believe global warming will pose a serious threat to future generations;
- 63 percent believe that although global warming may be a long-term problem, it is being caused today and therefore we must start addressing it immediately;
- 51 percent said that steps should be taken to reduce global warming, even if there is a high economic cost to the U.S.⁵

Finally, many of our ECI leaders have seen that it is evangelicals 30-and-under who are increasingly concerned about environmental or creation-care problems in general and global warming in particular. These anecdotal reports are backed up by a recent Pew poll showing a significant difference between older and younger evangelicals in their concern about creation-care or environmental issues: 59 percent of those 18-to-30 were concerned that the country was “losing ground” on environmental problems, while only 37 percent of older evangelicals thought so.⁶ On other issues this poll found no significant difference between older and younger evangelicals. Younger evangelicals are looking for leadership in the area of creation-care. The leaders of the ECI are supplying it.

Thus, in the evangelical community there is widespread concern about global warming, and our ECI leaders are helping to lead the way into the future in calling for significant action.

THE MESSAGE OF THE EVANGELICAL CLIMATE INITIATIVE

We estimate, based on extensive media coverage and national advertising, that the message of the ECI has been heard by more than 30 million Americans.⁷ And what is that message?

The ECI's Call to Action makes four basic claims.

¹“Emphasis Shifts for New Breed of Evangelicals” in the May 21, 2007 New York Times cites the ECI as an example of the maturing of the evangelical church.

<http://www.nytimes.com/2007/05/21/us/21evangelical.html?pagewanted=1&en=a2a799f19fee40e3&ex=337486400&partner=ermalink&exprod=permalink&ei=5124>. See also an editorial in *Christianity Today*, <http://www.christianitytoday.com/42965>.

²The official site of the Evangelical Climate Initiative is www.christiansandclimate.org. The ECI statement, *Climate Change: An Evangelical Call to Action*, can be found at <http://www.christiansandclimate.org/statement>, both as html and pdf. The present quotation can be found in the printed or pdf version in the Preamble on page 2.

³Ibid.

⁴When the ECI launched on February 8, 2006, there were 86 signatories to the statement. Since then 20 have asked that their names be added while three have asked for their names to be removed, bringing the current total to 103.

⁵A brief report by Ellison Research on the national poll of evangelicals they conducted in September 2005 is available at: <http://www.christiansandclimate.org/press>.

⁶Pew Research Center Survey, February 7, 2007.

⁷This estimate is based upon the fact that all three major newscasts ran stories, and we had 300-plus news articles, not counting radio and local TV coverage. To ensure our evangelical audience received the message, our TV spot ran for two weeks on popular evening shows on Fox News and on Pat Robertson's 700 Club; in addition, our radio spot ran for two weeks on popular shows on Christian radio.

1. *Human-induced climate change is real.*— As Christian leaders who are not scientific experts in climate change we rely on the world’s leading scientists to provide the best scientific information upon which we can make moral judgments. As referenced in our Call to Action, in making our first claim that human-induced climate change is real we have utilized the work of the Inter-governmental Panel on Climate Change or IPCC, the world’s most authoritative body on the subject, as well as the work of the U.S. National Academy of Sciences. The work of the IPCC has been endorsed by the National Academies of Science of all G8 countries (including the US), plus China, India, and Brazil. In their joint statement they described the IPCC as representing the “international scientific consensus.”⁸

That the IPCC’s scientific assessment (called Working Group I) was headed up from 1988–2002 by Sir John Houghton, an evangelical Christian, also gives us added confidence in the IPCC’s conclusions.

The latest IPCC report on the science of climate change released in February of this year concluded that global warming is “unequivocal,” and that there is at least a 90 percent probability that the warming over the last 50 years is mainly due to human activities.⁹

ECI leaders believe it is well past time to move beyond the debate about whether human-induced global warming is happening. It is time to start solving the problem.

2. *The Consequences of Climate Change Will Be Significant, and Will Hit the Poor the Hardest.* This may be best illustrated by a personal story, the story Anna Nangolol, a teenager who lives in Northwest Kenya—one of the harshest landscapes on the planet. Her nomadic tribe had been well-adapted to this fierce environment. However, over the past 30 years the droughts there have been extreme and dangerous. Consistent with what climate change models predict, there has been 25 percent less rainfall. Their herds are reaching the tipping point of their existence. “This drought has been very bad,” explains Anna. “Past droughts have been short and rains have come. This one seems never to finish and our goats and cattle are not multiplying. Even if the rains do finally come now, it will take a long, long time for us to get back all of our animals.” Indeed in Kenya over 3 million people are in need of food aid because of the extreme drought—nearly double the number receiving aid even just a few years ago.¹⁰ Something troubling is going on with their climate. The impacts of global warming are already starting to be felt in the world’s most vulnerable areas such as Anna’s.

It is important for us to remember as we discuss a problem being created in the atmosphere and as we cite large abstract numbers that it is individuals like Anna, someone’s son or daughter, someone’s grandchild, who will be impacted. Millions of families will suffer, especially the children. It is important to keep Anna and her family in mind as we talk about global warming.

Evangelicals care about what happens to people like Anna Nangolol and her family. We have donated billions of dollars over the years to our relief and development agencies to combat the very problems global warming will make worse: water scarcity, hunger and malnutrition, basic health concerns, and the problem of refugees. That is why those who lead most of the major evangelical relief and development agencies have become ECI leaders—including Richard Stearns, President of World Vision U.S., Ben Homan, President of both Food for the Hungry and the Association of Evangelical Relief and Development Organizations (AERDO), Michael Nyenhuis, President of MAP International, Gordon MacDonald, Chair of World Relief (the relief arm of the National Association of Evangelicals), and Jo Anne Lyon, President of World Hope International.

As the latest IPCC report demonstrates, harmful impacts are already starting to occur. Here are some illustrative examples of the magnitude of the impacts of global warming on the poor in this century:

- Agricultural output in many poorer countries could be significantly reduced. An additional 90 million poor people could be at risk of hunger and malnutrition.¹¹
- 1–2 billion people or more will face water scarcity.¹²

⁸Joint Academies’ Statement: Global Response to Climate Change, p. 2, footnote 2; <http://www.royalsoc.ac.uk/displaypagedoc.asp?id=20742>.

⁹Intergovernmental Panel on Climate Change, Summary for Policymakers, Climate Change 2007: The Physical Science Basis, pages 5, 10; <http://ipcc-wg1.ucar.edu/wg1/wg1-report.html>.

¹⁰New Economics Foundation, Up in Smoke? Threats from, and Responses to, the Impact of Global Warming on Human Development, Oct. 2004 p.7; <http://www.itdg.org/does/advocacy/up-in-smoke.pdf>

¹¹IPCC’s Climate Change 2001: Impacts, Adaptation, and Vulnerability: section 19.4.2, Box 19–3; <http://www.grida.no/climate/ipcc-tar/wg2/674.htm>.

¹²IPCC Summary for Policymakers, Climate Change 2007: Impacts, Adaptation, and Vulnerability, pp. 5, 8; <http://www.ipcc.ch/>.

- By 2020 in Africa 75–250 million will face water scarcity, and crop yields could be reduced by 50 percent in some areas.¹³
 - Hurricane Katrina demonstrated that even in the U.S. the poor are the most vulnerable to extreme weather events. Poorer countries are much less able to withstand the devastation caused by extreme weather events, and climate change is likely to increase such events. For example, global warming could increase the number of people impacted by flooding by 50 million.¹⁴
 - Hundreds of millions of people will be at increased risk of malaria, dengue fever, yellow fever, encephalitis, and other infectious diseases because of global warming.¹⁵
 - Each of these stressors increases the likelihood of environmental refugees and violent conflicts.
 - A heat wave in Europe in 2003 due primarily to global warming killed at least 20,000, mainly the poor and elderly. Such summers are projected to be the average by the middle of this century.¹⁶
 - In addition to impacts on human beings, up to 30 percent of God’s creatures could be committed to extinction by 2050, making global warming the largest single threat to biodiversity.¹⁷
- Table 1 from the IPCC also illustrates projected impacts.¹⁸

¹³ Ibid, p. 8.

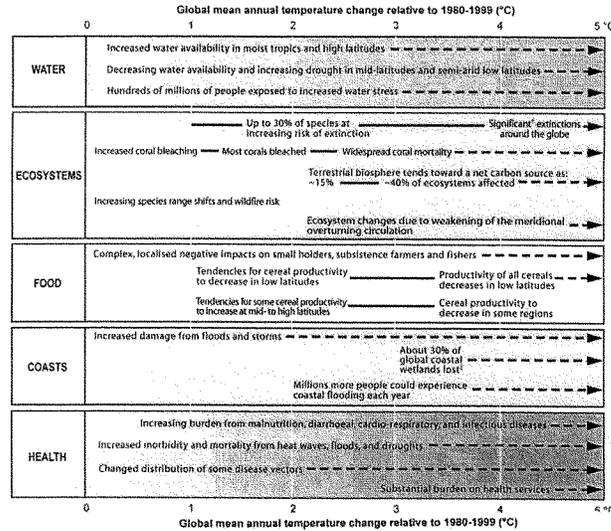
¹⁴ Ibid, p. 4; see also IPCC’s Climate Change 2001: Impacts, Adaptation, and Vulnerability (2001): section 7.2.2.2, <http://www.grida.no/climate/ipcc-tar/wg2/310.htm#72214>.

¹⁵ IPCC Summary for Policymakers, Climate Change 2007: Impacts, Adaptation, and Vulnerability, pp. 7–8; <http://www.ipcc.ch/>; see also IPCC’s Climate Change 2001: Impacts, Adaptation, and Vulnerability (2001): section 7.2.2.2, <http://www.grida.no/climate/ipcc-tar/wg2/310.htm#72214>.

¹⁶ IPCC Summary for Policymakers, Climate Change 2007: Impacts, Adaptation, and Vulnerability, p. 11. See also Sir John Houghton; <http://www.creationcare.org/files/houghton-NAE-briefing.pdf>.

¹⁷ IPCC Summary for Policymakers, Climate Change 2007: Impacts, Adaptation, and Vulnerability, p. 6.

¹⁸ Ibid., p. 15. The SPM GW2 explains the information in Table 1 as follows: “Illustrative examples of global impacts projected for climate changes (and sea-level and atmospheric carbon dioxide where relevant) associated with different amounts of increase in global average surface temperature in the 21st century. [T20.7] The black lines link impacts, dotted arrows indicate impacts continuing with increasing temperature. Entries are placed so that the lefthand side of text indicates approximate onset of a given impact. Quantitative entries for water scarcity and flooding represent the additional impacts of climate change relative to the conditions projected across the range of SRES scenarios A1FI, A2, B1 and B2 (see Endbox 3). Adaptation to climate change is not included in these estimations.”



* Significant is defined here as more than 40%.
 * Based on average rate of sea level rise of 4.2 mm/year from 2000 to 2080.



Illustrative examples of global impacts projected for climate changes associated with different amounts of increase in global average surface temperature in the 21st century.



The new projections for Africa cited above are especially troubling because of the speed of their arrival—by 2020. This means that significant consequences for Africa will occur quite soon. (Such impacts are not simply a humanitarian concern. They could have national security implications as well, given that the U.S. imports more oil from sub-Saharan Africa than we do from the Middle East, and are projected to get up to 40 percent of our oil from there by 2015.¹⁹)

The ECI believes that when you look at the consequences of global warming you understand that the problem has been framed incorrectly. It is not primarily an “environmental” problem. It is the major relief and development problem of the 21st century, because it will make all of the basic relief and development problems much worse. It will be an insidious reversal of our efforts to help the poor. Billions will be adversely affected. Millions upon millions—people like Anna Nangolol—will be threatened with death.

3. Christian Moral Convictions Demand Our Response to the Climate Change Problem.—For Christians who have confessed Jesus to be the Lord of our lives, it is crucial for us to know his teachings and reflect upon how to apply them to our day-to-day existence.

When asked what the greatest commandment in the Law is, Jesus answered, “Love the Lord your God with all your heart and with all of your soul and with all of your mind and with all of your strength.’ The second is this: ‘Love your neighbor as yourself.’ There is no commandment greater than these” (Mark 12:29–31).²⁰ These have come to be known as the Great Commandments, and all Christian biblical ethics is based upon them.

Jesus also taught a version of what is commonly called the Golden Rule, “In everything, do to others what you would have them do to you, for this sums up the Law and the Prophets” (Matthew 7:12).²¹

In his ministry Jesus had a special concern for the poor and vulnerable. As recounted in Luke, he begins his ministry by saying that “The Spirit of the Lord is

¹⁹ See a recently released report by 11 former Generals and Admirals, National Security and the Threat of Climate Change, p. 20; <http://securityandclimate.cna.org/>. See also the testimony of Gen. Chuck Wald before the Senate Foreign Relations Committee on May 7, 2007, <http://www.senate.gov/foreign/hearings/2007/hr070509a.html>.

²⁰ All quotations from the New International Version, unless otherwise indicated. See also Matthew 22:34–40, Luke 10:25–28, Romans 13:9, Galatians 5:14, and James, 2:8. Jesus was quoting Deuteronomy 6:8 and Leviticus 19:18.

²¹ See also Luke 6:31.

on me, because he has anointed me to preach good news to the poor” (4:18). He treats them like family by feeding and healing them throughout his ministry. In Matthew 25 he says that what we do to “the least of these” we do to him (v. 40). He so loves them, he so identifies with them, that what we do to them we do to him.

The Scriptures also teach that we are to be stewards of the Lord’s creation (Genesis 1:28; 2:15). In the New Testament we come to understand that all things actually belong to Christ. Colossians 1:16 teaches that “all things were created by him and for him.” Hebrews proclaims that he is the heir of all things (1:3). So Christians are called to be caretakers of Christ’s creation, to treat it how He would treat it.

In light of the impacts of global warming described above, the ECI leaders believe that the commands to love God and our neighbor, to do unto others as we would have them do unto us, to care for the least of these as if they were Christ Himself, and to steward or care for His creation as He would, all require us to respond to climate change with moral passion and concrete action.

4. *The Need to Act Now is Urgent. Governments, Businesses, Churches, and Individuals All Have a Role to Play in Addressing Climate Change—Starting Now.*—The ECI leaders believe there is a need for urgency for three reasons.

First, deadly impacts are happening now, as confirmed by the latest IPCC report.²²

Second, the oceans warm slowly, creating a lag in experiencing the consequences. In addition, carbon dioxide (CO₂) traps heat for 200 years. Both of these facts mean the consequences of the global warming pollution we create now will be visited upon our children and grandchildren.

Third, as individuals and as a society we are making long-term decisions today that will determine how much carbon dioxide we will emit in the future, such as whether to purchase energy efficient vehicles and appliances that will last for 10–20 years, or whether to build more coal-burning power plants that last for 50 years.

As for all of the roles that need to be fulfilled, we believe that individuals have an important responsibility to do what we can to reduce our own emissions. To help them do so, we have recently created an ECI version of an individual offsets program called “Cooling Creation” whereby individuals can reduce their global warming pollution to zero.²³

Churches have a vital role of educating their members about the teachings of Jesus that can be applied to this and other important moral issues, of praying for our country and its leaders to fulfill the law of love and protect the poor and vulnerable, and of modeling good behavior through its own facilities and programs.

Businesses should find ways to be good corporate citizens on climate change regardless of whether the law requires them to or not. We encourage them to find ways to reduce their emissions and also save money such as through energy efficiency improvements. The Environmental Protection Agency’s Energy Star program has numerous examples of companies large and small doing just that.²⁴ Businesses should also find ways to make money by selling climate-friendly products. Both of these activities will allow businesses to do well by doing good. Finally, businesses should work constructively with government officials and others to help create legislation that is both business- and climate-friendly.

We commend the commitments made by corporations such as ConocoPhillips, General Motors, General Electric, and Duke Energy who are a part of the U.S. Climate Action Partnership (US–CAP), as well as others such as Wal-Mart, who is investing \$500 million per year in sustainable technologies and innovations, reducing global warming pollution at their stores by 20 percent over the next five years, and improving their vehicle fleet’s efficiency by 25 percent in three years and 100 percent in 10 years.²⁵

As for governments, we commend the efforts of local communities, such as the 300-plus mayors representing over 50 million citizens who have signed The U.S. Mayors Climate Protection Agreement.²⁶

²² IPCC Summary for Policymakers, Climate Change 2007: Impacts, Adaptation, and Vulnerability, pp. 1–4; <http://www.ipcc.ch/>

²³ See www.coolingcreation.org for ECI’s offset program.

²⁴ See <http://www.energystar.gov/index.cfm?c=pt-awards.pt-es-awards> and <http://www.energystar.gov/index.cfm?c=sb-success.sb-winners>.

²⁵ Testimony of Wal-Mart’s James Stanway before the Senate subcommittee on Private Sector and Consumer Solutions of the Environment and Public Works Committee, May 9, 2007, p. 2; see <http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore-id=f83bac05-7158-41be-b6c9-7ed1c6bc5c5b>.

²⁶ For more on the US Mayors Climate Protection Agreement, go to: <http://www.usmayors.org/climateprotection/>.

We also praise the many Governors and states who have taken the lead, especially two who have signed laws that require an 80 percent reduction of CO₂ by 2050—Governors Schwarzenegger (R–CA)²⁷ and Pawlenty (R–MN), who is an evangelical Christian. At the time he signed the bill Gov. Pawlenty stated: “The best time to have taken action on energy issues would’ve been 30 years ago. The second best time is right now.”²⁸

Given that the problem is global, and that nation-states are primary seats of government authority, the ECI recognizes that important decisions must be made at the national level and between nations at the international level. While state actions and voluntary initiatives have resulted in positive benefits in the U.S., national emissions have continued to rise at a level inconsistent with long-term climate protection. In addition, businesses are now facing an inefficient patchwork of regulations. Thus, an economy-wide federal policy with mandatory targets and timetables for major sources of emissions is needed. However, this policy should allow for maximum freedom for businesses and the states.

PRINCIPLES FOR PUBLIC POLICY

To help Members of Congress and the Executive Branch understand our views on how to address climate change we have created a document entitled Principles for Federal Policy on Climate Change. We have attached this as a separate document, and I ask that it be included in the record. I would like to provide a few highlights.

First, we agree with the objective of the Framework Convention on Climate Change (FCCC), a treaty that President George H.W. Bush signed and that was ratified by the Senate unanimously. The FCCC’s objective is “to achieve stabilization of greenhouse gas concentrations in the atmosphere at a low enough level to prevent dangerous anthropogenic interference with the climate system.”

Based upon the latest findings of the Inter-governmental Panel on Climate Change (IPCC), in the U.S. reductions from the year 2000 levels on the order of 80 percent by 2050 will be necessary to prevent such dangerous human-induced interference with the climate system.²⁹ Given that a voluntary approach has been tried for over a decade and has not achieved the required domestic results, we believe this target must be mandatory.

At the same time, we believe that we must maximize freedom in solving the problem. Freedom flourishes when the rule of law prevents chaos. In the case of global warming, a proper policy framework will establish the “rules of the road” and what businesses call “regulatory certainty.” This can enhance freedom by allowing us to begin to solve a problem whose impacts will severely limit that freedom in the future if not addressed. To protect freedom, unnecessary government regulations must be avoided. Government policies should be structured to allow the free market to solve the problem to the greatest extent possible. We should use the least amount of government power necessary to achieve the objective.

We must also take special care to protect the most vulnerable. This means we must solve the problem through both adaptation and mitigation efforts, the latter including the 80 percent by 2050 emissions reduction.

But any climate legislation must also protect low-income households in this country. Legislation should include policies (e.g. consumer assistance such as LIHEAP,

²⁷ California Governor Arnold Schwarzenegger signed Executive Order S–3–05 on June 1, 2005. The action established short-, medium-, and long-term greenhouse gas emission reduction targets for California, including a reduction of 80 percent below 1990 levels by the year 2050 (<http://gov.ca.gov>). On September 27, 2006, the Governor signed into law Assembly Bill 32, which enacted the medium-term limits (returning to 1990 levels by 2020) for major industries statewide. (<http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab-0001-0050/ab-32-bill-20060927-chaptered.pdf>).

²⁸ According to a press release dated May 25, 2007, from Minnesota Governor Tim Pawlenty’s office, “The bill [the Next Generation Energy Act signed by Gov. Pawlenty] establishes statewide GHG reduction goals of 15 percent by 2015, 30 percent by 2025, and 80 percent by 2050.” (<http://www.governor.state.mn.us/mediacenter/pressreleases/PROD008146.html>).

²⁹ Intergovernmental Panel on Climate Change Summary for Policymakers, Climate Change 2007: Mitigation of Climate Change; www.ipcc.ch. In this SPM AR4 WG3, conservative estimates for the reductions in global CO₂ emissions in 2050 (as a percent of 2000 emissions) range from 50 to 85 percent, with more aggressive reductions being more likely to achieve the requisite atmospheric concentrations of 450 ppm CO₂-eq to keep global mean temperature increases below 2 °C (see pp. 21–25, and especially Row A1 of Table SPM.5 on p. 22). The SPM warns that these may be underestimates. If global emissions (including countries which have contributed relatively little to the problem) are required to be reduced by close to 85 percent, then U.S. emissions reductions should certainly be close to 85 percent and possibly steeper, given our greater historical and current contribution to CO₂ emissions and our relatively higher standard of living. Hence our conservative policy recommendation for the U.S. of an 80 percent reduction in emissions by 2050 relative to year 2000 emissions.

weatherization assistance, tax cuts) to offset any regressive consequences of implementation. As a recent report from the Congressional Budget Office demonstrates, how you structure the policy can result in small increases or decreases in household income for those on tight budgets.³⁰ Legislation should also be structured to make it easy and economical for businesses to pass their energy cost savings on to consumers.

Finally, we should solve the problem utilizing market forces and by protecting property rights. Harnessing the power of the market will allow innovation, ingenuity, and entrepreneurship to generate climate solutions, and will ensure that U.S. businesses can compete internationally in clean technologies. To help ensure competitiveness, climate policy should provide: (1) a stable, long-term, substantial research and development program; (2) long-term regulatory certainty, and (3) a robust price signal that reflects the true social cost of greenhouse gas pollution. We feel it is important to recognize along with Mark Sanford, the Governor of South Carolina, that global warming pollution invades the property rights of all its victims, and restricts their freedom by forcing them to bear costs they should not have to pay because of the actions of others—"in either the quality of the air they breathe, the geography they hold dear, the insurance costs they bear, or the future environment of the children they love."³¹ Climate policy should ensure that the costs of global warming pollution are reflected in the price of goods and services that produce greenhouse gases. When prices are right, the free market can do its job.

We believe that the preferable market-based mechanisms will be the ones that are politically achievable in the near term. The U.S. now has extensive experience in managing a successful cap-and-trade program for sulfur dioxide (SO₂), and there is growing political support for a cap-and-trade system. This could also allow us access to a global trading system, providing further efficiencies. We support a cap-and-trade approach, by itself or in combination with a revenue neutral global warming pollution tax whereby those who act to reduce global warming pollution receive a tax cut. If there is a cap and trade approach, again, those with low incomes should be protected from regressivity. The CBO report suggests that the optimum approach is to have the proceeds of the auction of allocation permits returned to citizens in the form of a lump-sum payment.³²

All of our activities as a country up to this point have been like warming up before the start of a long race. The crack of the starting gun will be the passage of significant mandatory federal legislation. That will not be the end, but merely the beginning.

A TREMENDOUS OPPORTUNITY

Finally, let me say that we are optimistic. The challenge is large, but our vision, our beliefs, our values are larger. Some are fearful of tackling global warming, but where others fear to go we see opportunity to do well by doing good.

We have the opportunity to unite our country, and indeed the world, in a common cause to create a better future for our children, to make sound investments for their well-being.

In so doing we will:

- save millions of lives of the poorest and most vulnerable people in our country and around the world, generation after generation³³;
- clean up our air and water, including the mercury poisoning of the unborn³⁴;

³⁰ Congressional Budget Office, Economic and Budget Issue Brief, "Trade-offs in Allocating Allowances for CO₂ Emissions," April 25, 2007; <http://www.cbo.gov/ftpdocs/80xx/doc8027/04-25-Cap-Trade.pdf>.

³¹ Mark Sanford, "A Conservative Conservationist?" Washington Post, Friday, February 23, 2007; A19.

³² CBO, "Trade-offs," pp. 6–8.

³³ See footnotes 11–18 above. See also IPCC Summary for Policymakers, Climate Change 2007: Impacts, Adaptation, and Vulnerability, and R. Warren, 2006, "Impacts of Global Climate Change at Different Annual Mean Global Temperature Increases," Chapter 11 in H.J. Schellnhuber (ed.), *Avoiding Dangerous Climate Change*, Cambridge University Press. Increases in global average temperatures greater than 2 °C from pre-industrial, which pollution mitigation will help to avoid, include water stress for billions of people, increased hunger from falling food production for hundreds of millions of people, displacement of coastal dwellers, increase in exposure to diseases like dengue fever.

³⁴ "Energy use and agricultural practices are the main sources of both air pollution and climate change. Therefore, many measures to cut air pollution also benefit climate through reduction of greenhouse gas emissions and vice versa. Understanding these synergies and addressing local, regional and global objectives simultaneously makes economic sense." From "A Good Climate For Clean Air: Linkages Between Climate Change And Air Pollution: An Editorial Essay" *Climatic Change* 66: 263–269, 2004. On mercury and the unborn, see the Evangelical Environ-

- reduce our dependence on foreign oil;³⁵
- enhance rural economic development;³⁶
- save money by having our homes, churches, businesses, and governments become more energy efficient;³⁷
- create sustainable jobs and a clean energy future³⁸;
- help our country lead the world in solving global warming.³⁹

Moses, the great lawgiver, in his farewell address to the Hebrews, set before them the paths of life and death; life, by loving God and doing His will, and death, by forsaking God and His commands. “I call heaven and earth to witness against you today that I have set before you life and death, blessings and curses. Choose life so that you and your descendants may live.” (Deuteronomy 30:19).

Let us choose life this day by addressing global warming.

Thank you.

Senator BOXER. Reverend, thank you so much.

We have been joined by Senators Carper and Isakson. I am very pleased that they are here.

Rabbi.

STATEMENT OF RABBI DAVID SAPERSTEIN, DIRECTOR AND COUNSEL, RELIGIOUS ACTION CENTER OF REFORM JUDAISM

Rabbi SAPERSTEIN. I am Rabbi David Saperstein, here representing the National Reform Jewish Movement, the largest seg-

mental Network fact sheet for citations, <http://www.creationcare.org/resources/mercury/mercury-unborn.php>.

³⁵President Bush identified “addiction to oil” as a “serious problem” in his 2006 State of the Union address (<http://www.whitehouse.gov/news/releases/2006/01/20060131-10.html>). General Gordon R. Sullivan (ret.), former Army Chief of Staff, and chairman of the Military Advisory Board for the recently-released report “National Security and the Threat of Climate Change” (<http://securityandclimate.cna.org/>) commented last Thursday: “world leaders should not wait as scientists narrow any few remaining uncertainties about climate change. As a former military commander, I’ve learned that waiting for 100 percent certainty to begin planning an appropriate response can lead to disastrous consequences on the battlefield” (<http://www.cna.org/documents/General%20Sullivan%20Statement%20on%20G-8.pdf>).

³⁶According to a report from the University of Tennessee on the benefits of having 25 percent of our energy come from renewable sources by 2025, “Including multiplier effects through the economy, the projected annual impact on the nation from producing and converting feedstocks into energy would be in excess of \$700 billion in economic activity and 5.1 million jobs in 2025, most of that in rural areas” and “the total addition to net farm income could reach \$180 billion” (see first page of Executive Summary). See Burton C. English, Daniel G. De La Torre Ugarte, Kim Jensen, Chad Hellwinckel, Jamey Menard, Brad Wilson, Roland Roberts, and Marie Walsh, 25 percent Renewable Energy for the United States By 2025: Agricultural and Economics Impacts (November 2006).

See also IPCC Summary for Policymakers, Climate Change 2007: Mitigation of Climate Change, p. 19. “Agricultural practices collectively can make a significant contribution at low cost to increasing soil carbon sinks, to GHG emission reductions, and by contributing biomass feedstocks for energy use.”

³⁷IPCC Summary for Policymakers, Climate Change 2007: Mitigation of Climate Change, p. 18. “Energy efficiency options for new and existing buildings could considerably reduce CO₂ emissions *with net economic benefit*. Many barriers exist against tapping this potential, *but there are also large co-benefits*” (italics added). One European study found that nearly a quarter of the climate mitigation strategies that would be required to limit atmospheric CO₂ concentrations to 450 ppm had a zero or negative net life-cycle cost—they saved money as well as pollution, even with a change in climate policy. Removing institutional and organizational barriers to these changes in energy efficiency in the transportation and transport sectors would be welfare enhancing under any scenario (Per-Anders Enkvist, Tomas Nauclér, and Jerker Rosander, 2007, “A cost curve for greenhouse gas reduction”, The McKinsey Quarterly, 2007, No. 1, pp. 35–45).

³⁸Daniel M. Kammen, Kamal Kapadia, and Matthias Fripp. Putting Renewables to Work: How Many Jobs Can the Clean Energy Industry Generate? RAEL Report, Jan 2004. “Expanding the use of renewable energy is not only good for our energy self-sufficiency and the environment; it also has a significant positive impact on employment. This is the conclusion of 13 independent reports and studies that analyze the economic and employment impacts of the clean energy industry in the United States and Europe” (p. 1). “Across a broad range of scenarios, the renewable energy sector generates more jobs than the fossil fuel-based energy sector per unit of energy delivered (i.e., per average megawatt)” (p. 2).

³⁹The Spring 2007 Foreign Affairs/Public Agenda survey on U.S. foreign policy found that 2/3 of Americans believed international cooperation could reduce global warming, and that the U.S. government has been doing too little to lead the world (61 percent gave the U.S. a “C” or below for working with other countries on global warming). Six in ten wanted global warming specifically to be a focus of international cooperation (<http://www.publicagenda.org/foreignpolicy/foreignpolicy-climate.htm>).

ment of American Jewish community. Also representing the Coalition on Environment and Jewish Life, an umbrella group serving 29 national Jewish agencies as the Jewish community's most broad-based voice on environmental issues.

I am pleased to join the other distinguished members of this panel, the majority of whom share my sentiments, when I say, at last, at last the Congress is recognizing the importance of looking at the perspectives of faith and values in environmental justice, at last the Congress is recognizing the depth of the concern and the breadth of activity among religious Americans on environmental issues. At last our Government seems to be beginning to address the global climate change crisis with a sense of urgency that the science and the ethics of the crisis demand. From the perspective of the religious community, whatever else comes of this hearing, it is a very important day.

But on issues that bear on the integrity of God's creation here on earth, and more specifically the need to address global warming and its particular impact on the poor, there is a degree of deeply shared unity that is rare, resulting in our abiding resolve to work together. The urgency of climate change, mixed with our strong Scriptural mandates, have connected our faiths and compelled us to act in unison to forge an answer to our climate crisis.

Now, this is not just rhetoric or claim. In fact, religious communities have been actively engaged in this pursuit for some time, whether it is humorously titled programs like the Evangelical "What Would Jesus Drive?" campaign, aimed at raising the moral concerns about fuel economy and pollution from vehicles, or the Jewish community's, "How Many Jews Does it Take to Change a Light Bulb?" that mobilized synagogues to install 50,000 compact fluorescent light bulbs during the past Hanukkah, a celebration or festival of lights, or a score of other national programs run by the different agencies that are part of the National Religious Partnership on the Environment. The religious community has manifested its resolve and commitment to stewardship and the preservation of God's creation. It is a commitment felt across the spectrum of religious life in America. It is happening at the national level and it is happening in the pews, because the idea of protecting God's creation is one of the most intuitive religious obligations of this generation. Care for God's creation is quickly becoming a central concern of the faith community, and one of the defining characteristics and priorities of the next generation of religious leaders. Preserving our natural world is a key component at the heart of what it means to be religious.

These themes were powerfully captured in the recent public letter *Wonder and Restraint* from key leaders of all the streams of the American Jewish community, and which I would like to submit for the record in its entirety.

Senator BOXER. Without objection.

Rabbi SAPERSTEIN. Two covenantal relationships apply most directly to the environmental challenges of our time. The first demands inwardness, the second, outwardness. The first, in a word, is restraint: to practice restraint in individual and communal lives. Judaism encourages this sensibility in many of its most fundamental metaphors and obligations, *mitzvot*. There is a restraint

embodied by Shabbat, our central holy day of wholeness and not producing. There is restraint expressed through kashrut, dietary consciousness, which gives us an appetite for sacredness instead of gluttony. There is the restraint expressed as *bal tashchit*, the Biblical injunction against wanton destruction, rooted in the Bible's responses to the environmental ravages of warfare.

In the second covenantal obligation, that our earth and our faith requires that we speak out to the world's leaders. We are obliged to contrast our religious and ethical values with the values of self-indulgence, domination, short-term land, national security and money worship that fuel the ravaging of the earth. We are obliged to support policies that ease poverty and spare the planet its ravages, that protect under-developed countries from serving as the world's environmental dumping grounds, that tie economic development to environmental stewardship and that enable poor people to pursue sustainable economic lives.

We are obliged to challenge a fever of consumption that drives unsustainable economic growth. Our voices must be loudest and clearest when addressing the impact of climate change on the poor, the most vulnerable. It is not simply an issue of the environment. It is at the core of the religious community's passion for justice.

The Book of Proverbs teaches us, "Speak up, judge righteously, champion the poor and the needy." We know that extremes of weather have and will have disproportionate impact on the poorest populations. We must help to be their voice as we empower them to speak out. We only need consider the record surface temperatures of the last 20 years and look into the faces of the victims of Hurricanes Katrina and Rita. Those with the fewest resources got left behind and forgotten. Disproportionately, they are the ones forced to fend for themselves.

We must prepare to aid these communities with the difficulties as they work to adapt to changing climate. Senator Bond allowed for the importance of increased aid to the poor globally and domestically. It is precisely that increased aid that needs to help them sustain themselves as we move to address the threat of global warming.

President Bush is today talking about this issue at the G-8. In my own conversations with the President, it is clear how deeply his faith shapes his values and policies. I pray that he hears God's call to us to protect God's creation and protect the poor.

The source of the quote that you cited in ending your opening remarks is from the Talmud. The Book of Jewish Law was written at the time when Jesus walked the earth. It says, God took Adam through the garden, saying, "Look at my works, see how beautiful they are, how excellent. For your sake have I created them all. See to it that you do not spoil and destroy my world, for if you do, there will be none else after us to repair it."

The task of all people of conscience is to ensure that God's mandate is heard today by all humanity. For the earth is our garden. This time we face not expulsion, but devastation. And that we cannot, we dare not allow, neither for our children's sake nor for God's.

[The prepared statement of Rabbi Saperstein follows:]

STATEMENT OF RABBI DAVID SAPERSTEIN, DIRECTOR AND COUNSEL, RELIGIOUS
ACTION CENTER OF REFORM JUDAISM

Thank you for inviting me to address you this morning.

I am Rabbi David Saperstein, Director and Counsel of the Religious Action Center of Reform Judaism. I want to thank Marc Katz, an Eisendrath Legislative Assistant at the RAC working on environmental issues, for his assistance in preparing this testimony. The Religious Action Center's work is mandated by the Union for Reform Judaism, whose 900 congregations across North America include 1.5 million Reform Jews, and the Central Conference of American Rabbis, whose membership includes more than 1,800 Reform rabbis. The Religious Action Center has been the hub of Jewish social justice and legislative activity in the nation's capital for more than 40 years. I am also pleased to represent the Coalition on the Environment in Jewish Life, an umbrella group serving 29 national Jewish agencies as the Jewish community's most broad-based voice on environmental issues.

I am pleased to join the other distinguished members of this panel who, I'm sure, share my sentiments when I say, "At last!" At last the Congress is recognizing the importance of looking at the perspectives of faith, values, and environmental justice. At last, the Congress is recognizing the depth of concern and the breadth of activity among religious Americans on environmental issues. At last, our government seems to be beginning to address the global climate change crisis with the sense of urgency through science that the ethics of the crisis demand. From the perspective of the religious community, whatever else comes of this hearing, this is a very important day.

I have been working in and with the American faith community for 33 years. Often the diversity of religious practice and scriptural readings that exist within and between denominations of Judaism and Christianity have meant that we do not always agree on matters of morality and public policy. Those of you on the committee know all too well the diversity of voices in the religious community, and the even greater diversity of opinions—often conflicting—expressed by members of those communities.

But on issues that bear on the integrity of God's creation here on earth and, more specifically, the urgent need to address global warming and its particular impact on the poor, this degree of deeply shared unity is rare, resulting in our abiding resolve to work together. The urgency of climate change mixed with our strong scriptural mandates have connected our faiths and compelled us to act in unison to forge an answer to our climate crisis.

Now this is not just rhetoric or claim. In fact, religious communities have been actively engaged in this pursuit for some time. Whether it's the humorously titled program like the Evangelical "What Would Jesus Drive?" campaign aimed at raising the moral concerns about fuel economy and pollution from vehicles or the Jewish community's, "How Many Jews Does It Take To Change A Light Bulb?" that mobilized synagogues to install over 50,000 compact fluorescent light bulbs during this past Hanukkah, or a score of other national programs, the religious community has manifested its resolve and commitment to stewardship and the preservation of God's creation.

This commitment is being felt across the spectrum of religious life in America. It's happening at the national level, by major denominational governing bodies, and it's happening in the pews. Our congregants are taking the lessons they learn in our synagogues and churches and placing them "on the doorposts of their homes and upon their gates" (Deuteronomy 6:9) in the form of solar panels, wind turbines, and neighborhood recycling programs.

Care for God's creation is quickly becoming a central concern of the faith community generally and the defining characteristic and priority of the next generation of religious leaders. Preserving our natural world is a key component at the heart of what it means to be religious.

To be religious is to inexorably bound up with being a "light unto the nations" (Isaiah 42:6), a partner with God in shaping a better world. As children of God we have been endowed with wisdom and faith to vivify our tradition and pursue justice. Faced with the degradation of our natural world, we must embody the biblical command of *bal tashchit*, do not destroy, and when faced with a chance to correct our misdeeds, proclaim in one voice, "we will do and we will hearken" (Exodus 24:7).

These themes were powerfully captured in the recent public letter "Wonder and Restraint" from key leaders of all the streams of the American Jewish community:

- "Two covenantal responsibilities apply most directly to the environmental challenges of our time. The first demands inwardness, the second, outwardness. The first fulfills the traditional Jewish role as a "holy nation," the second, as a "light unto the nations."

- The first, in a word, is restraint: to practice restraint in our individual and communal lives. Judaism encourages this sensibility in many of its most fundamental metaphors and mitzvot. There is the restraint embodied by Shabbat, our central holy day of wholeness and not-producing. There is the restraint expressed through kashrut, dietary consciousness, which gives us an appetite for sacredness instead of gluttony.

- There is the restraint expressed as *bal tashchit*, the injunction against wanton destruction that is rooted in the Torah's responses to the environmental ravages of warfare; and as *tza'ar ba'alei chayim*, pity for the suffering of living creatures, requiring us to treat our fellow creatures as sentient beings, not as objects for exploitation.

- There is the restraint required to fulfill the demands of *kehillah*—the communal and intergenerational obligations that Judaism applies to our wealth, our private property, our decision-making, and our salvation. In the tradition of Maimonides, modesty and open-handed generosity have long been hallmarks of Jewish life.

- There is the restraint implied by *sh'mirat haguf*, protection of our own bodies and by *pikuakh nefesh*, the commandment to protect life at nearly any cost. There is the restraint mandated by *s'yag l'torah*, building a "fence around the Torah," which bids us to err on the side of caution when it comes to matters of life, limb and spiritual integrity—all of which are surely endangered by the destruction of biological diversity and the degradation of the biosphere, most obviously by the catastrophes likely to be induced by global warming.

- In the Jewish mystical tradition, it is God who sets the example of restraint by practicing *tsimtsum*, self-withdrawal, in order to permit the universe to emerge into being. The mystics, drawing upon the Talmud (*Chagigah 12a*), linked this creation story to the appellation *Shaddai*, usually translated to mean "Almighty," but understood by mystics as the One Who said to the infant universe, "*dai*," "enough," and thus gave form and boundary to the chaos.

- Today, we who are made in the image of *Shaddai* must emulate this act of *tsimtsum* if we want our world to persist in health and abundance. Human activity is now as consequential to the Earth and its wealth of species as glaciers, volcanoes, winds and tides—so we cannot persist in the illusion that the world is inexhaustible. Human activity has split the seas, brought down manna from heaven, cured pestilence, built vast tabernacles—so we cannot continue to quake and stammer at the prospect of assuming the responsibility given to us along with our power. Instead, we must transform ourselves from nature's children to nature's guardians by learning to say "*dai*," "enough," to ourselves.

- But not only to ourselves: for the second covenantal obligation that our Earth and our faith require is that we speak out, and speak truth, to the world's leaders.

- We are obliged to contrast our religious and ethical values with the values of self-indulgence, domination, short-term national security, and money-worship that fuel the ravaging of the Earth.

- We are obliged to oppose the political empowerment of religious fatalists who view our environmental crisis as a mark of Armageddon and a glad-tiding of redemption.

- We are obliged to support policies that ease poverty and spare the planet its ravages; that protect underdeveloped countries from serving as the world's environmental dumping grounds; that tie economic development to environmental stewardship; and that enable poor people to pursue sustainable economic lives.

- We are obliged to withdraw support from corporations that act parasitically rather than symbiotically with the natural world, or that tamper with fundamentals of Creation without caution, without reverence, but solely for purposes of short-term profit and petty self-interest.

- We are obliged to challenge the fever of consumption that drives unsustainable economic growth.

- We are obliged to challenge public officials who deify property and wealth, reducing our living planet to a commodity.

- We are obliged to seek peace and pursue it—to oppose easy recourse to military violence, outside of legitimate self-defense, not only for its destruction of human life and health, but also for its shattering impact on nature and natural resources.

- It is precisely in taking these kinds of prophetic stances, lifting our voices to join protest to prayer, that we renew Judaism's capacity for stirring the *rachamim*, the womb-love, of God and of the human race, thus keeping the gates open to a healthy future for our planet and its inhabitants."

As you have previously heard, the birth of our religious environmental connection explicitly coincides with the creation of the world and humanity's charge to act as its caretaker and steward. With these shared beliefs the religious community has worked tirelessly to protect and preserve God's creation. However much common

cause there has been in the past, though, we believe there is an entirely new dynamic and concern at work that will only strengthen this unity and resolve; our voice must be loudest, and clearest, when addressing the impact of climate change on the most vulnerable. This is not simply an issue of the environment; it is at the core of the religious community's passion for economic justice.

The book of Proverbs teaches us to "speak up, judge righteously, [and] champion the poor and the needy" (31:9). Extremes of weather have and will continue to have disproportionate impact on the world's poorest populations and we must be their voice. A 2004 UN report highlights this; wealthy countries constitute 15 percent of people who are exposed to extreme natural events, but only 1.8 percent who die from such events. We need only consider the record surface temperatures of the last 20 years or look into the faces of the victims of Hurricanes Katrina and Rita. Those with the fewest resources get left behind and forgotten. Disproportionately, they are the ones forced to fend for themselves.

Thus, we must first prepare to aid those communities that will face difficulties as they work to adapt to the changing climate. The Intergovernmental Panel on Climate Change has been clear that even in the best of scenarios, the earth is facing a 2-degree rise in temperature in the next century that will significantly change worldwide weather and precipitation patterns. We must do more for these communities, here and abroad, helping them switch to sustainable agriculture practices, urge fair trade practices, publicly finance renters' and home owners' insurance, and providing effective emergency assistance for those dislocated by weather-related events.

Already the religious community has acted as a leader in promoting worldwide climate justice, working with NGOs and charities like World Vision, Catholic Charities, Jewish Federations, and Church World Service to provide billions of dollars in aid to affected areas.

Yet as we provide these direct services, we are all too aware that it will take you, Members of Congress, to address the root of the problem through changes in policy. We must ensure that as we reduce emissions with a "cap and trade" program or carbon tax, sufficient revenues are in place to offset the rising energy costs and worker displacement, predicted in the CBO report, "Trade-Offs in Allocating Allowances for CO₂ Emissions" (April 25, 2007). It is our moral obligation to provide for these populations by establishing programs to retrain them to work in our future energy marketplace. We must aid those less fortunate by providing energy and tax rebates and by helping lower income families weatherize their homes, thus lowering their need for higher priced heating.

The Talmud, a cornerstone of Jewish theology, elaborates on this, teaching us that on Adam's first night in the garden, God led him around saying, "Look at my works! See how beautiful they are—how excellent! For your sake I created them all. See to it that you do not spoil and destroy My world; for if you do, there will be no one else to repair it." (Midrash Kohelet Rabbah, 1 on Ecclesiastes 7:13). Humankind has a fundamental choice: are we going to continue to abuse the earth, or help to build our sanctuary for God to dwell (Exodus 25:8)?

The task of the Jew, the task of all people of conscience, is to ensure that God's mandate is heard today by all humanity. For this Earth is our garden, and this time we face not expulsion but devastation. That we cannot—we dare not—allow, neither for our children's sake nor for God's.

Senator BOXER. Thank you, Rabbi.

Dr. Russell Moore, we welcome you, dean of the School of Theology, senior vice president for Academic Administration, associate professor of Christian Theology, Southern Baptist Theological Seminary. Thank you very much for being here, Doctor.

STATEMENT OF RUSSELL D. MOORE, DEAN, SCHOOL OF THEOLOGY, SENIOR VICE PRESIDENT FOR ACADEMIC ADMINISTRATION, ASSOCIATE PROFESSOR OF CHRISTIAN THEOLOGY, THE SOUTHERN BAPTIST THEOLOGICAL SEMINARY

Mr. MOORE. Thank you, Senator. Good morning, Chairman Boxer, Senator Inhofe and members of the committee. I am a Southern Baptist, a member of a church in cooperation with the Southern Baptist Convention, the Nation's largest Protestant de-

nomination, with over 16 million reported members and 42,000 cooperating churches.

The role of religion, specifically of evangelical Christian theology, has been an important part of the debate over global warming, from former Vice President Al Gore's musings on spirituality and theology in "Earth in the Balance" to the "What Would Jesus Drive?" advertising campaign, to manifestoes and counter-manifestoes of evangelical groups on the issue of global warming. Evangelical interest in the global warming issue is framed by some in the press and in some sectors of American political life as a seismic shift in evangelical political engagement, away from concern with so-called "Religious Right" issues, such as the sanctity of human life, and toward a so-called broader agenda.

Yet, Southern Baptists and other like-minded conservative evangelicals are for environmental protection, of course, for the stewardship of the earth. Our views of the universe, that the material world was created as an inheritance for Christ, that man was given dominion over the creation and that the cosmos itself will be renewed in Christ at the end of the age mean that we cannot hold an economic libertarian utilitarian view of the earth and its resources.

This does not mean, however, that evangelicals are united in tying the Biblical mandate for creation care to specific legislative policies to combat global warming. Indeed, last year's meeting of the Southern Baptist Convention passed a resolution, Senator Inhofe has already referred to it, warning against the use of the Bible by some religious groups to support some of the proposals of the secular environmentalist movement.

The problem for Southern Baptists and other like-minded evangelicals with some proposals on the environment is not that they address the stewardship of the earth. We are not wondering, "What hath Jerusalem to do with Kyoto?" Instead, our difficulty is with tying the Biblical mandate to specific public policy proposals, proposals that are not, of course, mandated by Scripture, and with ramifications that are not yet fully known.

This is further complicated when national political leaders, including recently the Chairman of the Democratic National Committee, point to evangelical global warming activism as a means to mobilize the evangelical vote. Southern Baptists and other evangelicals do not deny that there is climate change, or even that some of this climate change may be human-caused. Many of us, though, are not yet convinced that the extent of human responsibility is as it is portrayed by some global warming activists, or that the expensive and dramatic solutions called for will be able ultimately to transform the situation.

We find theologically and Biblically problematic statements by some religious leaders that we can restore Eden through addressing global climate change with Government action. We find troubling apocalyptic scenarios in some environmentalist rhetoric that make our evangelical end-times novels look Pollyannaish in comparison.

Southern Baptists will not resonate with any legislative program that does not clearly see the limitations of human endeavors to reverse the post-Edenic groaning of the creation, especially since so

much of the language of the secular environmentalist movement often veers into a techno-idolatrous triumphalism that is closer to the Tower of Babel than to the Ark of Noah.

Southern Baptists have also expressed our concern that public policy proposals do not compromise the dignity of humanity as created in the image of God. With that, we are concerned very much with two issues: population control and world poverty. Some in the evangelical environmental movement speak of population control efforts as the third rail in this discussion. In an era with millions of abortions worldwide, with governments such as that of China coercively controlling family size, those of us who are still unsure of the precise contribution of human beings to climate change will be especially attentive that any proposal, even one that we can support otherwise, does not sacrifice the dignity of innocent human life.

Likewise, Southern Baptists and like-minded evangelical Christians must question the possible effect of any global warming legislation on the world's poor. As religious scholar Philip Jenkins has pointed out, global Christianity is increasingly less represented by the wealthy elites of America's dwindling Protestant mainline and more represented by impoverished but vibrant congregations in the Global South. What will Government regulation on this issue do for the economic development of poor countries to providing electrification, water purification, and sanitation to the world's poor? What will any given proposal on global warming do to the ability of working class people in America and around the world to have jobs to provide for their families?

Southern Baptists and other like-minded evangelicals are not opposed to environmental protection. But we also understand that divine revelation does not give us a blueprint for environmental policy. We have no pronouncements on what Jesus would drive, except that the Scripture seems to indicate that the next time we see Him, He will be driving neither a Hummer nor a hybrid. We are sure, though, that he would call us to protect the earth, to care for the poor, to protect innocent human life. We are concerned that tying Bible verses to any specific legislation on global warming, especially when there are potentially harmful results, could serve both to harm the public interest and trivialize the Christian gospel.

Bishop Schori is exactly right: the Book of Proverbs tells us, "Where there is no vision, the people perish." But the vision there is not an abstract, generic imagination. The vision is a vision from God, divine revelation. We do not have a specific blueprint on this issue, and so prudence and common sense ought to come into this debate as we ask, what will be the effects of such legislation on the world?

Thank you, Senators, for your time and consideration.
[The prepared statement of Mr. Moore follows:]

STATEMENT OF RUSSELL D. MOORE, DEAN, SCHOOL OF THEOLOGY, SENIOR VICE PRESIDENT FOR ACADEMIC ADMINISTRATION, ASSOCIATE PROFESSOR OF CHRISTIAN THEOLOGY, THE SOUTHERN BAPTIST THEOLOGICAL SEMINARY

Good morning Chairman Boxer, Senator Inhofe, and members of the committee. I appreciate this committee's concern for the perspectives of religious organizations on the global warming debate, particularly given the persistent appeals to theology

and spirituality by both secular and religious advocates of massive governmental action to address the issue of climate change.

The role of religion, and specifically of evangelical Christian theology, in the global warming conversation has been an important part of the public policy debate for several years—ranging from “What Would Jesus Drive?” advertising campaigns to the competing manifestoes of evangelical interest groups to the recent book by E.O. Wilson written in the form of a letter to a Southern Baptist pastor in appeal to form alliances to “save the earth.”¹ Evangelical interest in the global warming issue is framed by some in the press and by more leftward sectors of American political life as a seismic shift in evangelical political engagement—away from concern with so-called “Religious Right” issues such as abortion and marriage and toward a “broader” agenda more compatible with the platform of the Democratic Party.²

Yet, religious voices on the issue of global climate change are not as uniform as some might suggest. There is a significant constituency within American evangelical Christianity deeply concerned about the use of biblical texts and theological rhetoric to pursue specific policy proposals on climate change, proposals that could have negative repercussions both at the level of public policy and at the level of evangelical identity. The Southern Baptist Convention, of which I am a member, stands representative of this concern. The SBC is the nation’s largest Protestant denomination, made up of over 16 million members in more than 42,000 churches. With other evangelical denominations and organizations, the SBC has expressed concern about the theological assumptions behind the religious voices calling for massive governmental intervention on the question of climate change.

The refusal of many conservative evangelicals to accept at face value the arguments for drastic government involvement and action regarding global warming should not be seen as a lack of concern for the care of creation. It is not as though conservative Christians are asking, “What hath Jerusalem to do with Kyoto?” Secular environmentalist progressives at times have charged American evangelical Protestants as holding an inherent hostility to environmental protection—rooted often in a caricature of evangelical views of the human dominion, Armageddon, and the imminence of the end times.³ Such caricatures do not stand up to close scrutiny. Indeed, the beginnings of the contemporary ecological movements coincided with evangelical thinkers such as Francis Schaeffer and Carl F.H. Henry calling the church to stewardship of the earth.⁴

The SBC, a consistently conservative voice on theological and cultural concerns since a redirection of the denomination’s leadership in 1979 called the Convention back to the doctrinal orthodoxy of its founders, has adopted resolutions calling on Southern Baptists to “recognize publicly our responsibility to God to be better stewards of all of the created order” and to “seek ways personally and corporately to care for the earth” [Appendix A]. Far from seeing the earth as of secondary importance in light of a future Armageddon, messengers to last year’s Southern Baptist Convention meeting spoke publicly to the goodness of the created order and to the ultimate restoration of the cosmos in Christ [Appendix B]. Because the creation reveals the glory of God, Southern Baptists resolved, the protection of the creation should be a priority for Christians.

The theological impetus for environmental concern on the part of Southern Baptists and like-minded evangelicals is, however, the very reason these Christians are opposed to the use of religion employed by some environmental activists on the global warming issue.

The first area of concern is that the biblical text not be used as vehicle for a political agenda—no matter how commendable the agenda might be. This does not mean that evangelicals believe the Scripture is irrelevant to political concerns. Southern Baptists and other evangelicals are not afraid of saying “Thus saith the Lord” to issues clearly revealed in Scripture—calling for the protection of innocent human life, for instance. The Bible does call us to serve as guardian-stewards of the earth and her resources, but the global warming debate is not simply between those who argue for such stewardship and those who argue against it. Rather the debate is, at this point, largely at the questions of prudence. How much of climate change is human caused? And what would be the cost—in terms of loss of economic security,

¹E.O. Wilson, *The Creation: An Appeal to Save Life on Earth* (New York: W.W. Norton, 2006).

²For example, Michael Luo and Laurie Goodstein, “Emphasis Shifts for New Breed of Evangelicals,” *New York Times*, 21 May 2007, A1, A15; Jim Wallis, “The Religious Right’s Era Is Over,” *TIME*, 16 February 2007, accessed online at <http://www.time.com/time/nation/article/0,8599,1590782,00.html>.

³For example, Stephenie Hendricks, *Devine Destruction: Wise Use, Dominion Theology, and the Making of American Environmental Policy* (Hoboken, NJ: Melville House, 2005).

⁴For example, Francis A. Schaeffer, *Pollution and the Death of Man* (Wheaton, IL: Tyndale House, 1970).

private property, national sovereignty, personal liberty—for such initiatives to be put into place? Christians can and do disagree on such questions. To tie the authority of the Bible to the shifting and revisable scientific and public policy proposals of one’s global warming agenda is unhelpful to the debate at best and trivializing of Christian faith at worst.

This hyper-politicization of the gospel is a key reason why conservative Protestants in the twentieth century distanced themselves from the liberal bureaucracies of the National Council of Churches and the mainline denominations, groups which now face ever declining memberships even as they churn out more and more detailed policy statements. As evangelical theologian Carl F.H. Henry put it in 1964, “Is it not incredible that some churchmen, whose critical views of the Bible rest on the premise that in ancient times the Spirit’s inspiration did not correct erroneous scientific concepts, should seriously espouse the theory that in modern times the Spirit provides denominational leaders with the details of a divine science of economics?”⁵ This pattern repeats itself in the present discussion of climate change. Evangelical Christians will not be convinced to support a public policy proposal on the basis of citations of the Garden of Eden and the Ark of Noah by churches that long ago relegated the narrative of Genesis to myth and saga.

The ecumenical Left is not the only religious voice calling for specific action on global warming. Groups such as the Evangelical Environmental Network and some high-profile evangelical leaders have also joined the debate. Many of their arguments are sound, and can be affirmed and commended across the evangelical spectrum. The problem with this engagement comes not at the question of human stewardship of the environment, but, again, with the tying of this mandate to specific policy proposals—with ramifications that are not yet fully known.

This is further complicated when national political leaders point to evangelical global warming activism as a means to mobilize the evangelical vote toward liberal candidates. Democratic National Committee chair Howard Dean has called on outreach to evangelicals—not by reconsidering the Party’s platform on issues such as abortion rights—but by capitalizing on what are seen to be liberalizing political trends within evangelicalism. “People don’t want to go to church anymore...and come out feeling bad because they know someone who’s gay,” Dean said. “People want to go to church because they know what they can do about poverty, about Darfur, about the environment”⁶ Actually, most evangelicals would say that people go to church for none of these reasons, but instead to know Christ and to live together as an obedient outpost and herald of the Kingdom of God. The partisan political dynamic further impedes the conversation among evangelicals.

The use of religion by global warming activists is what leads to such statements as the June 2006 SBC resolution [Appendix B] which concludes that “some environmental activists are seeking to advance a political agenda based on disputed claims,” an agenda that, according to the Convention resolution, threatens “to become a wedge issue to divide the evangelical community and further distract its members from the priority of the Great Commission.”

Secondly, Southern Baptists and other conservative evangelicals are wary of the utopianism present in the proposals of many environmentalist proposals on climate change—both secular and religious. An evangelical Protestant commitment to creation is built on an understanding of the narrative of history as outlined in Scripture. God created all things, and declared them good, for the purpose and goal of presenting the universe as an inheritance to Christ Jesus. Humanity, God’s image-bearing vice-regent, declared treason against God’s lordship and plunged the natural order into captivity to a curse. In Christ, Christians believe, God is redeeming the world—by putting away sin and death. And, ultimately, God will redeem his creation by freeing nature from its curse. We understand that we live in the “already” of an “already/not yet” framework of this restoration. We cannot therefore share an economic libertarian’s purely utilitarian view of the earth and its resources. Nor can we share a radical environmentalist’s apocalyptic scenarios of “earth in the balance.” In our care for creation, we must maintain the limits of environmental action, knowing that the ultimate liberation of creation has everything to do with our resurrection and the resumption of human rule through Christ over this universe. This sense of limitation is why the 2006 SBC resolution speaks both of human stewardship over creation and the preeminent responsibility for human reconciliation with God.

⁵ Carl F.H. Henry, *Aspects of Christian Social Ethics* (Grand Rapids: Eerdmans, 1964), 136–37.

⁶ Carla Marinucci, “DNC Chair Dean Says Party Needs to Invite Young Evangelical Christians,” *San Francisco Chronicle*, 11 May 2007, B2.

One can then understand why some evangelical Christians may be puzzled when a respected conservative evangelical statesman says that the global warming cause should be seen as “a note from God” saying that though sin has its consequences, “with my help you can restore Eden.”⁷ Without a doubt this evangelical did not mean to imply that global government action on climate change, fueled along by creation-care theology of religious persons, could reverse the curse of the Fall. Nonetheless, conservative evangelicals, such as Southern Baptists, will not resonate with any program to address climate change that does not clearly see the limitations of such human endeavors, especially since so much of the language of the secular environmentalist movement often veers into techno-idolatrous triumphalism that is closer, in the minds of evangelical Christians, to the Tower of Babel than to the Ark of Noah. Christians, as all people of the contemporary era, have seen the failures all around us—some simply misguided; some profoundly wicked—of utopian visions that call for the power of national or multi-national governments.

Finally, Southern Baptists and like-minded evangelical Christians are concerned that any public policy proposals on global warming do not compromise the uniqueness and dignity of humanity. The 2006 SBC resolution warns against a “neopagan” environmentalist replacement of God the Father with Mother Earth [Appendix B]. The resolution further laments that some sectors of the environmentalist movement have “elevated animal and plant life to the place of equal—or greater—value with human Life.” This concern is hardly imagined. While former Vice President Gore chooses to speak of global warming as a “fever” of the earth, others have used far more disturbing language—including one recent liberal Baptist thinker who commented that human beings themselves are the earth’s “cancer” eating away at the organism of the planet.⁸

That human beings bear the image of Jesus, the perfect icon of God’s nature, is at the very heart of the Christian understanding of the universe. The earth was indeed created, evangelicals believe, for human beings—or, more correctly, for a human being: Jesus Christ. It’s not just that the meek shall go to heaven; they shall inherit the earth.

The unique dignity of humanity must be addressed in the global warming debates chiefly on two issues: that of population control and that of the world poverty.

Any public policy proposal on global climate change that seeks to enlist the support of evangelicals must address the role of population control in such an agenda. This is especially true in an era when millions of unborn children every year, in the United States alone, lose their lives to abortion; when governments such as that of China coercively determine family size. Evangelical global warming activists assure us they remain committed to the sanctity of human life; and I believe them. But those who are still unsure of the precise contribution of human beings to climate change will be especially attentive to whether any proposal—even one we can support otherwise—does not sacrifice the dignity of human life.

Likewise, Southern Baptists and other evangelicals must question the effect of any global warming legislation on the world’s poor. In a groundbreaking study, Philip Jenkins reminds us that global Christianity is increasingly less represented by the wealthy elites of America’s dwindling Protestant mainline and more represented by impoverished but vibrant congregations in the Global South.⁹ What will global warming measures do to men, women, and children, in these countries? The global poor are not simply a “cause” for conservative evangelicals. Because of our commitment to world missions, we are involved on a daily basis in cooperative efforts to minister to impoverished people all over the world. The Southern Baptist Convention alone has an international mission force of over 5,000 missionaries—many of them engaged daily in helping to provide food, clean water, and relief to the world’s poor. This is why the SBC has spoken out regarding the effects of some environmental proposals on “economic well-being,” not chiefly out of a personal concern for the personal costs of endless regulation but for the social costs as well.

Evangelical ethicist E. Calvin Beisner argued to the Vatican’s Pontifical Council for Justice and Peace [Appendix C], “Because energy is an essential component in economic production, reducing its use and driving up its costs—often reducing its use by driving up its costs—will slow economic development in poor communities, reduce overall productivity and increase costs of all goods, including the food, clothing, shelter, and other goods most essential to the poor.” Beisner further contends that the tremendous resources involved in a carbon dioxide emissions reduction pol-

⁷Richard Cizik, cited in John McNeill, “12 Ideas for the Planet,” *Newsweek*, 16 April 2007, 92.

⁸Oliver “Buzz” Thomas, “God Goes Green,” *USA Today*, 4 June 2007, A11.

⁹Philip Jenkins, *The Next Christendom: The Coming of Global Christianity* (New York: Oxford University Press, 2002).

icy could divert resources needed for the more crucial obviously needed tasks of providing electrification, water purification, and sanitation for the world's poor. The SBC Ethics and Religious Liberty Commission (ERLC) expressed similar concern through its president Richard Land's statement: "Draconian measures to reduce reliance on fossil fuels will hurt the poor because it will not allow them to develop their societies. Studies have shown that developed societies are actually cleaner societies and better able to adapt to changes in climate."¹⁰ This warning deserves careful attention.

In a public policy statement on this issue, the ERLC has acknowledged a probable human contribution to climate change, while noting that the extent of humanity's role and the possibility of curbing such climate change effectively are not yet conclusive [Appendix E]. The ERLC statement therefore concludes:

The Christian view on global warming needs to be based on theology and reason, and this position on global warming has been developed under these guidelines. God has given man a biblical requirement for stewardship (Gen. 2:15), which means that humans should both use and care for the environment. Devaluing the use and over-emphasizing the care for the environment is not a proper biblical practice and neither is the opposite. Biblical stewardship demands a dual relationship between use and care in order to develop industry and protect against abuse. In the current global warming debate there are simply not enough facts to mandate an extreme limiting of the use of natural resources to guard against "abuse" that only has hypothetical consequences and goes against the informed opinions of thousands of knowledgeable scientists and climatologists.

The SBC and other like-minded evangelical groups are not opposed to environmental protection. We have no pronouncements on what Jesus would drive. We are sure that He would call us to protect the earth, to care for the poor, and to protect innocent human life. We forthrightly state that our understanding of this matter has everything to do with theological considerations—as do many of the proposals from environmentalists sounding the alarm on global warming. As citizens of a Republic, we do not demand that our fellow citizens adopt our theological convictions, though we are quite willing to discuss how our commitment to biblical principles shapes the questions we ask on such matters. We are, however, concerned about the ways in which religious arguments are used in this debate, possibly with harmful consequences both for public policy and for the mission of the church.

Thank you, Senators, for your time and consideration. I welcome any questions you may have.

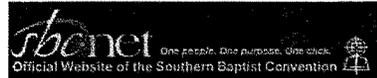
¹⁰Gregory Tomlin, "Gore's Oscar, Global Warming Debated Among Evangelicals," Baptist Press, 9 March 2007.

Appendix A

Southern Baptist Convention

“Resolution On Environmental Stewardship”

June 1990



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SBC Resolutions

Resolution On Environmental Stewardship

June 1990

WHEREAS, "The earth is the Lord's and the fullness thereof, the world and those who dwell therein" (Psalm 24-1:); and

WHEREAS, "God called the dry land Earth, and the waters that were gathered together He called Seas. And God saw that it was good" (Genesis 1:10); and

WHEREAS, Christians recognize God as Father, Son, and Holy Spirit and as Creator, Redeemer, and Sustainer of the created order; and

WHEREAS, "The Lord God took the man and put him in the Garden of Eden to till it and keep it" (Genesis 2:15); and

WHEREAS, The sinfulness of the human race has led to the destruction of the created order (Romans 8:22) as evidenced by the endangerment of the earth by pollution, human extravagance and wastefulness, soil depletion and erosion, and general misuse of creation; and

WHEREAS, We are forbidden to worship the creation (Matthew 4:10, Romans 1:25), but are charged by our Creator with caring for creation (Genesis 1:28, 2:15), and are called to be faithful stewards of that which is entrusted to us (Luke 16:1-13).

THEREFORE, BE IT RESOLVED, That we, the messengers of the Southern Baptist Convention, meeting in New Orleans, Louisiana, June 12-14, 1990, recognize publicly our responsibility to God to be better stewards of all of the created order; and

BE IT FURTHER RESOLVED, That the messengers in the session for this Southern Baptist Convention covenant with one another to seek ways personally and corporately to care for the earth and all those who dwell therein; and

BE IF FURTHER RESOLVED, That individuals, churches, and other Baptist groups be encouraged to make an environmentally responsible ethic a part of our lifestyle and evangelistic witness.

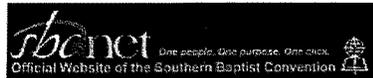
New Orleans, Louisiana

Appendix B

Southern Baptist Convention

“8. On Environmentalism And Evangelicals”

June 2006



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SBC Resolutions

8. On Environmentalism And Evangelicals

June 2006

WHEREAS, In the beginning God created the heavens and the earth (Genesis 1:1), declared it good (Genesis 1:4, 10, 12, 18, 21, 32), and it reveals His glory (Psalm 19:1-6); and

WHEREAS, God created men and women in His image and likeness (Genesis 1:26-27), placing them in value above the rest of creation and commanding them to exercise caring stewardship and dominion over the earth and environment (Genesis 1:28; cf. Psalm 8); and

WHEREAS, Mankind as free moral agents willfully disobeyed God, plunging the whole creation into corruption because of our sin (Genesis 3:1-19), from which the fallen creation awaits restoration (Romans 8:19-22); and

WHEREAS, Since the fall into sin, humans have often ignored the Creator, shirked their stewardship of the environment, and further defiled the good creation; and

WHEREAS, Some in our culture have completely rejected God the Father in favor of deifying "Mother Earth," made environmentalism into a neo-pagan religion, and elevated animal and plant life to the place of equal—or greater—value with human life; and

WHEREAS, The scientific community is divided on the effects of mankind's impact on the environment; and

WHEREAS, Some environmental activists are seeking to advance a political agenda based on disputed claims, which not only impacts public policy and in turn our economic well-being, but also seeks to indoctrinate the public, particularly students in public institutions; and

WHEREAS, Environmentalism is threatening to become a wedge issue to divide the evangelical community and further distract its members from the priority of the Great Commission; now, therefore, be it

RESOLVED, That the messengers to the Southern Baptist Convention meeting in Greensboro, North Carolina, June 13-14, 2006, renew our commitment to God's command to exercise caring stewardship and wise dominion over the creation (Genesis 1:28); and be it further

RESOLVED, That we urge all Southern Baptists toward the conservation and

preservation of our natural resources for future generations while respecting ownership and property rights; and be it further

RESOLVED, That we encourage public policy and private enterprise efforts that seek to improve the environment based on sound scientific and technological research; and be it further

RESOLVED, That we resist alliances with extreme environmental groups whose positions contradict biblical principles (2 Chronicles 19:2) and that we oppose solutions based on questionable science, which bar access to natural resources and unnecessarily restrict economic development, resulting in less economic opportunity for our poorest citizens; and be it finally

RESOLVED, That we not only reaffirm our God-given responsibility of caring for the creation, but above all, that we continue to commit ourselves to the Great Commission to take the Good News of Jesus Christ to people of every tribe, tongue, and nation thus bringing glory to the One who will make all things new at His coming (Revelation 21:1).

Greensboro, NC

Appendix C

E. Calvin Beisner

“Climate Change
and the Responsibility of Civil Society:
Some Biblico-Theological Aspects
of the Global Warming Debate”

April 2007

**Climate Change
and the Responsibility of Civil Society:
Some Biblico-Theological Aspects
of the Global Warming Debate**

E. Calvin Beisner, Ph.D.
National Spokesman, Interfaith Stewardship Alliance
Associate Professor of Historical Theology & Social Ethics
Knox Theological Seminary

Comments delivered at
“Climate Change and Development,”
a conference hosted by the
Pontifical Council for Justice and Peace
Vatican City, April 27-28, 2007

It is a great privilege for me to speak to this august body, and I am grateful to you, Cardinal Martino, for your invitation for one named Calvin to speak for a Vatican conference—but though I consider my name to be providentially given, perhaps you will take comfort from knowing that my parents named me not after John Calvin but after the American President Calvin Coolidge.

I cannot hope to address the scientific aspects of the ongoing debate over climate change and climate change policy at the level of erudition of the scientists among us. I am a scientific layman who, in an effort to develop rational understandings of these issues, has read many books on the science of climate change, hundreds of refereed and non-refereed but scholarly articles, and thousands of popular articles. In light of those readings, I am persuaded, though I recognize my fallibility, that:

1. Foreseeable global warming will have moderate and mixed (not only harmful but also helpful), not catastrophic, consequences for humanity—including the poor—and the rest of the world’s inhabitants.
2. Natural causes almost certainly account for a large majority of global warming in both the last thirty and the last one hundred fifty years, which together constitute an episode in the natural rising and falling cycles of global average temperature. Human emissions of carbon dioxide and other greenhouse gases are probably a real but proportionally insignificant contributor to its causes.
3. Reducing carbon dioxide emissions would have at most an insignificant impact on the rate, quantity, and duration of global warming and would not significantly reduce alleged harmful effects.
4. Government-mandated carbon dioxide emissions reductions not only would not significantly curtail global warming or reduce its harmful effects but also would probably cause greater

harm than good to humanity—especially the poor— and other species, while offering virtually no benefit. Among the harms it would likely cause are not only reduced economic development because of higher energy costs, harming especially the poor who desperately need economic development spurred by abundant and affordable energy, but also the withholding of the aerial fertilization effect of heightened CO2 mentioned yesterday by Dr. Craig Idso, a knock-on effect of which would be the necessity of farming more land to feed humanity than would otherwise be needed, adding to stress on biodiversity.

5. In light of all the above, the most prudent response is not to try (almost certainly unsuccessfully and at enormous cost) to prevent or reduce whatever slight warming might really occur. It is instead to prepare to adapt by fostering means that will effectively protect humanity—especially the poor—not only from whatever harms might be anticipated from global warming but also from harms that might be fostered by other developments, including global cooling (which will certainly come in time).

I have co-authored a paper that summarizes extensive scientific and economic evidence for this perspective, “A Call to Truth, Prudence, and Protection of the Poor: An Evangelical Response to Global Warming,” printed for you here and available online at www.interfaithstewardship.org. I prepared the paper with three co-authors—climatologist Dr. Roy Spencer, senior research scientist at the University of Alabama at Huntsville and formerly of NASA, who is one of two scientists in charge of the US satellite remote temperature sensing program (the other being John Christy, another critic of AGW dogma); environmental economist Dr. Ross McKittrick, of the University of Guelph in Ontario, Canada, who is famous for his work refuting the “hockey stick” graph of Michael Mann and associates; and Paul K. Driessen, an energy policy analyst with the Congress of Racial Equality. Others in this gathering, however, have already ably discussed the science and, to some extent, the economics, so, speaking as a believing Christian, I shall focus on two other matters: some Biblico-theological considerations that should guide our understanding, and the impact of climate policy on the most vulnerable people among us.

Biblico-Theological Foundations—Part I

So, first, let me begin with some Biblico-theological considerations, and as a preliminary, let me defend their legitimacy in principle. Many in today’s modernist and postmodernist world think it is illegitimate for theological principles to guide interpretation of scientific data. Yet that belief is itself theological and is therefore self-refuting. Ironically, those who rule out Biblico-theological matters from scientific discussion are acting in the very unscientific manner of turning a blind eye to some data. In contrast, Christians, recognizing the Bible as the Word of God written, must take its statements as part of the data they consider. That is, the consistent Christian must take *more* data into account than does the non-Christian. There is no neutrality. Everyone undertakes his studies presupposing either the relevance or the irrelevance of Biblico-theological data, and the Christian need not be embarrassed to think them relevant.

Although many might be addressed, I shall limit myself to just three Biblico-theological concerns at the start, the doctrines of creation and providence, and the virtue of humility. I shall raise one

more as my conclusion.

Consider the doctrine of creation. The Bible teaches that our wise Creator made a magnificent creation and, when finished, pronounced it “very good” (Genesis 1:31). In contrast, a common theme of almost all environmental writings is that the Earth is fragile. That certainly is a central assumption of the dogma of manmade global warming alarmism. The dogma tells us that exceedingly tiny changes in atmospheric chemistry cause changes in global average temperature so great as to have catastrophic effects on humanity and the rest of the environment. But think about that for a moment. Does a wise engineer design a system so that the tiniest change can throw it into irreversible, chaotic degradation? Certainly not. He designs it with positive and negative feedback mechanisms that balance each other out and maintain not perfect equilibrium but something tolerably close to it. It is far more consistent with the Biblical doctrine of creation to think God has so designed the Earth than to think He made it so that tiny fluctuations in atmospheric chemistry can threaten human civilization and life itself.

Now consider the doctrine of providence, and here I make reference to two passages in the Bible that bear specifically on some of the greatest fears associated with global warming alarmism.

In Genesis 8:21-22, after the Flood, God said, “While the earth remains, seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease.” This is an example of a poetic device called merism, in which contrasting extremes denote the whole range of something. Here God promised Himself—and His promise cannot fail—that seedtime and harvest, cold and heat, summer and winter, day and night shall not cease. That is, the cycles necessary for human beings and other life on Earth to thrive will continue as long as Earth abides. For Christians, this should raise the level of evidence required to persuade us that manmade greenhouse gases and other emissions will stop or seriously harm the cycles on which life depends—as the poetic device implies, not only the cycles of seedtime and harvest, cold and heat, summer and winter, and day and night, but also, e.g., of the North Atlantic Decadal Oscillation, the Thermohaline Circulation, the Pacific Multidecadal Oscillation, and the El Nino/La Nina cycles. This does not mean we should ignore scientific evidence, but it does give us a prior assumption in interpreting it.

Again, in Psalm 104:6-9, the psalmist, inspired by the Holy Spirit, tells us what God did to land and sea during and after the Flood: “You covered [the land] with the deep as with a garment; the waters were standing above the mountains. At Your rebuke they fled, at the sound of Your thunder they hurried away. The mountains rose; the valleys sank down to the place which You established for them. You set a boundary that they may not pass over, so that they will not return to cover the earth.” This is a summary of God’s promise in the covenant with Noah after the Flood, recorded in Genesis 9:9-17, and reflected in His challenge to Job:

. . . who enclosed the sea with doors when, bursting forth, it went out from the womb; when I made a cloud its garment and thick darkness its swaddling band, and I placed boundaries on it and set a bolt and doors, and I said, “Thus far you shall come, but no farther; and here shall your proud waves stop”? [Job 38:8-11]

One of the greatest fears connected with global warming is of rising sea levels inundating low-lying populated areas and forcing mass migrations. Again, while our reading of these passages does not justify utter disregard of scientific debates about sea level, the arguments that sea level rise is more likely quite small than quite large are more consistent with these data than vice versa.

I am not suggesting that everyone should accept my interpretation and application of these passages. There is room for hermeneutical disagreement. But Christians certainly cannot in good conscience simply ignore passages like these, which certainly appear *prima facie* to be relevant to the discussion. Those who, in considering these issues, ignore these passages deprive themselves of the input of the inspired Word of God when they ought instead to study it and believe it.

Finally, let me refer just briefly to humility. In re-reading Job 38 this morning, first of those marvelous chapters in which God challenges Job to explain creation, I was reminded of the awe I felt as I read the discussion of the limits of human understanding inherent in turbulent fluid dynamics in Christopher Essex and Ross McKittrick's *Taken By Storm* and more recently Henrik Svensmark and Nigel Calder's just-released *The Chilling Stars: A New Theory of Climate Change*. These books express in elegant scientific terms what the author of Job put in poetic terms: that there are mysteries that defy human comprehension—that indeed as the boundaries of our understanding grow, so do the boundaries of our ignorance. Such realizations should provoke a humble recognition in every one of us that we might be wrong.

The Impact of Climate Policy on the Poor

Now let me turn to my second major topic, more in keeping with the title assigned me, climate change and the responsibility of civil society: the impact of climate policy on the poor. In doing so, I am not turning away from Biblico-theological considerations but focusing on one particular one that binds all, regardless of our interpretation of those passages that seem specifically to address global climate concerns: the Christian faith's insistence that all acts must be judged in light of their effects on the most vulnerable among us. The Apostle Paul reported that the leaders of the church asked him to remember the poor and added that this was "the very thing [he] was eager to do" (Galatians 2:10). When we consider what policies to pursue in response to climate change, we, too, must first of all remember the poor.

I believe a policy to reduce future global warming by capping carbon dioxide emissions would be economically devastating to the world's poor—a point made by Ambassador Estrada Oyuela. Because energy is an essential component in economic production, reducing its use and driving up its costs—often reducing its use *by* driving up its costs—will slow economic development in poor communities, reduce overall productivity, and increase costs of all goods, including the food, clothing, shelter, and other goods most essential to the poor.

It is a common claim of many supporters of such a policy that those who oppose it do so only because they want to continue a profligate way of living. Let me make this perfectly clear. Although I think such a policy is bad science and bad economics, I care little about its effect on the wealthiest countries of the world. If United States GDP per capita growth rate were reduced

by a half a percentage point or so in the quixotic quest to fight global warming, the effect on Americans would be a minor adjustment at the margin of our opulence. Ho hum. But to raise the cost and reduce the availability of energy to the world's poor is unconscionable. It would prolong for decades or generations the high rates of illness and premature death that are the inevitable accompaniments of poverty.

One of the ways in which a CO₂ emissions reduction policy would hurt the poor is simply by diverting vast resources away from more helpful endeavors. How vast? The worldwide cost of full compliance with just the first step of the Kyoto Protocol would likely be from \$200 billion to \$1 trillion in constant dollars *every year* from 2001 through 2050. That means combined costs of \$10 trillion to \$50 trillion. The temperature reductions purchased would be trivial. According to climatologist, global warming alarmist, and Kyoto supporter Tom Wigley, "Global mean reductions [in warming by 2100] for the three scenarios [considered by the IPCC] are small, 0.08-0.28°C." Others are not so optimistic. University of Virginia climatologist Patrick Michaels estimated that "the Kyoto Protocol . . . if adhered to by every signatory (including the United States)[.] would only reduce surface temperature by 0.07° C in fifty years." In either case, the temperature reduction is so tiny as to disappear in annual fluctuation and have no significant impact on consequences. As a result, Kyoto's supporters also say it is just a first step—that we shall need many more such treaties. National Center for Atmospheric Research scientist Jerry Mahlman says elimination of human-induced warming would require "forty successful Kyotos." Others say thirty. That forces us back to counting costs again. The annual cost of *twenty* "Kyotos" would be \$4 trillion to \$20 trillion, or about 9 percent to 45 percent of present annual gross world product. The cost for the full fifty years of \$200 trillion to \$1 quadrillion.

As shown by the Copenhagen Consensus and other studies, other investments of the costs of mitigation would be of much greater benefit. It would cost a one-time investment of only about \$200 billion, and a much smaller amount annually after that, to provide clean drinking water and sanitation to everyone in the world who doesn't already have them. But if we spend \$200 billion to reduce carbon emissions, we can't spend that money to provide drinking water and sanitation to the world's poor. But providing those two simple services would prevent, according to the World Health Organization, two to three million premature deaths and about half a billion serious illnesses every year.

What the world's poor most need is not the hypothetical and probably never-to-be-achieved reduction of future global warming by a tiny fraction of a degree but economic development to make affordable the amenities we take for granted. Affordable, plentiful energy is an indispensable condition of that economic development. But forced carbon dioxide emission reductions would push energy prices upward, making everything produced and transported with energy—which is literally *everything* our economies produce—more expensive. Thus the policy would prolong the suffering of the world's poor, who, for instance, are forced to use wood and dried dung as their principal fuels for cooking and heating—causing indoor air pollution that the World Health Organization estimates causes some 1.6 million premature deaths and many more millions of serious respiratory diseases, mostly among women and children, every year. Providing electricity

to their homes would help not only them but also other species, for they would then no longer need to speed deforestation and habitat loss in their quest for firewood. It would also enable them sooner to refrigerate food, reducing spoilage and consequently disease caused by consuming spoiled foods and hunger caused by throwing them away. Likewise, investing to improve their crop yields would not only reduce their suffering from hunger but also reduce the need for crop land, again reducing habitat destruction and thus pressure on species survival.

Poor countries have every right to develop their economies, ultimately creating greater environmental awareness and reaching an improved economic and technological ability to achieve greater energy efficiency, pollution control, and environmental improvement. Similarly, developed nations have a duty to refrain from imposing restrictions that would make it harder for them to do so. Only in this way can both human and ecological goals be met.

Biblico-Theological Consideration–Part II

I could go on to address a variety of concerns about how the debate is carried on. As a logic teacher, I am regularly grieved by the illogic often apparent in alarmists' arguments (e.g., *non causa pro causa*, correlation taken for causation, consensus rather than data and explanation in science, *argumentum ad verecundiam*, and *argumentum ad hominem*, etc.). I could discuss the need for charity and mutual respect, or the misuse of arguments from prudence by resting them on a *petitio principii* of the reality, magnitude, and negative impacts of manmade warming, or the sad tendency for people to reach conclusions before carefully examining counter-arguments—and then to ignore the counter-arguments or even to declare flatly that they don't exist (which makes me wonder who slipped me the drugs that caused all my hallucinations when thought I was reading such counter-arguments). I could point to problems of media exaggeration and sensationalism. I could talk of unintended consequences, e.g., ethanol production in US pushing up beef and pork prices for Americans and, much worse, corn and therefore tortilla prices in Mexico. But time is limited. Let me turn therefore to one last theological point.

Psalm 19 tells us that the heavens declare the glory of God, the firmament shows His handiwork. Although natural revelation, the creation, cannot reveal the gospel by itself, having learned the gospel from the Bible, we can see analogies, types, of redemption in the created order. Paul did this when in 1 Corinthians 15 he compared the resurrection of Christ, and the general resurrection, to the planting and sprouting of seeds.

I want to conclude by tying theology and science together, adapting Paul's typological/analogical method to the debate over carbon dioxide and climate change. Every doubling of carbon dioxide concentration in the atmosphere brings an average 35 percent increase in plant growth efficiency. Now, where does the added carbon dioxide come from? It comes mostly from our burning fossil fuels, especially coal and petroleum. Where do they come from? We dig or pump them up out of the ground. But how did they get there? They are the remains of trillions of plants and animals, buried deep under layers of sediment and transformed by pressure and heat.

According to both the Bible and sound science, the great pools of oil and veins of coal formed from sudden, simultaneous deposits of vast numbers of plants and animals in a great geological cataclysm—what Christians recognize as the Flood of Noah’s time. That flood was an exercise of God’s judgment on sin.

Think about it: God condemns the world for mankind’s sin. Plants and animals die. They are buried. We remove them from the ground, refine them, and burn them to provide energy for all our economic activities—to produce all the goods and services that enhance our lives. In the process, we release carbon dioxide that has been stored in them. The carbon dioxide enhances plant life. Since plants are at the bottom of the food chain, that means it enhances all other life, too.

Sound familiar? Something dies, is buried, is raised up from the dead, and gives life. Haven’t you heard that before? Yes! Jesus Christ died under God’s judgment, not for His sins but for ours; He was buried; He rose again from the dead. Listen to how the Apostle Paul put it in 1 Corinthians 15:42-45. In the resurrection, the human body, particularly the body of our Lord,

is sown a perishable body, it is raised an imperishable body; it is sown in dishonor, it is raised in glory; it is sown in weakness, it is raised in power; it is sown a natural body, it is raised a spiritual body. If there is a natural body, there is also a spiritual body. So also it is written, “The first man, Adam, became a living soul.” The last Adam became a life-giving spirit.

This is the gospel that is the power of God for salvation to everyone who believes (Romans 1:17). The carbon cycle is a *type* of that gospel. Paul argued typologically about the resurrection. The resurrection is typified in the sowing of seed: it falls into the ground, apparently dead and rotting, but it springs up in new life. So also in the carbon cycle we have a picture, a *type*, of the redeeming work of Christ: Christ died, was buried, and rose from the grave to give life. Analogously, plants and animals died, were buried, and now, raised from the grave, they, too, give life. The sad irony is that millions of people *fear* what should lead them instead to *praise* God. Added carbon dioxide from fossil fuels isn’t *pollution*; it’s part of the *solution* to human poverty and to the thriving of the whole Earth.

How will we respond to this good news—this typological “gospel” of the beneficial effects of enhanced carbon dioxide on all earthly life? It is not, of course, to be confused with the saving gospel of justification by faith exemplified by Abraham, who “believed God and it was credited to him for righteousness” (Romans 4:3). But it is good news of its own sort. It is a remarkable type of the gospel of Christ’s redeeming death, burial, and resurrection. Will we doubt and reject it? Or will we follow the pattern of Abraham, the father of all who believe, by believing it?

Suggested Readings

E. Calvin Beisner (environmental ethicist), Paul K. Driessen (energy policy analyst), Ross McKittrick (environmental economist), and Roy W. Spencer (climatologist), “A Call to Truth, Prudence, and Protection of the

Poor: An Evangelical Response to Global Warming,” and “An Open Letter to the Signers of ‘Climate Change: an Evangelical Call to Action,’ and Others Concerned About Global Warming,” at www.interfaithstewardship.org. The “Call to Truth” contains extensive scientific evidence and documentation and is endorsed now by 149 leaders, including many climatologists, meteorologists, and other climate scientists, environmental and developmental economists, plus theologians, pastors, and leaders in Christian education and missions.

E. Calvin Beisner, “Important Developments on Global Warming in 2006,” also at www.interfaithstewardship.org.

E. Calvin Beisner, Paul K. Driessen, and Roy W. Spencer, “An Examination of the Scientific, Ethical, and Theological Implications of Climate Change Policy,” also at www.interfaithstewardship.org.

You can subscribe to the newsletter of the Interfaith Stewardship Alliance by going to <http://www.interfaithstewardship.org/pages/contact.php> and completing the online form.

Christopher Essex (mathematician/physicist specializing in climate physics) and Ross McKittrick (environmental economist), *Taken By Storm: The Troubled Science, Policy and Politics of Global Warming* (Toronto: Key Porter Books, 2002; second edition forthcoming, April 2007). This is *the best* book I know for understanding the science of the global warming debate—thrilling reading.

D. James Kennedy and E. Calvin Beisner, *Overheated: a Reasoned Look at the Global Warming Debate* (Ft. Lauderdale, FL: Coral Ridge Ministries, 2007). *Truths that Transform* radio interview transcript, basic overview of the controversy and reasons for the view presented in this lecture.

Patrick J. Michaels, *Meltdown: The Predictable Distortion of Global Warming by Scientists, Politicians, and the Media* (Washington: Cato Institute, 2005). Clear and understandable.

Patrick J. Michaels, ed., *Shattered Consensus: The True State of Global Warming* (Lanham, MD: Rowman & Littlefield, 2005). Chapters by specialists show that the best science destroys the vaunted “consensus” on catastrophic human-induced global warming.

S. Fred Singer and Dennis T. Avery, *Unstoppable Global Warming: Every 1,500 Years* (Lanham, MD: Rowman & Littlefield, 2006). An amazing, kaleidoscopic review of vast arrays of evidence for superimposing cycles of warming and cooling throughout geologic and human history the implication of which is that current and foreseeable warming is well within bounds of natural variability.

Henrik Svensmark and Nigel Calder, *The Chilling Stars: A New Theory of Climate Change* (UK: Icon Books, 2007). Presents evidence and explanation for the theory that variations in solar magnetic wind are the principal driver of climate change.

Appendix D

E. Calvin Beisner, Paul K. Driessen,
Ross McKittrick, and Roy W. Spencer,
Interfaith Stewardship Alliance

“A Call to Truth, Prudence, and Protection of the Poor: An
Evangelical Response to Global Warming”

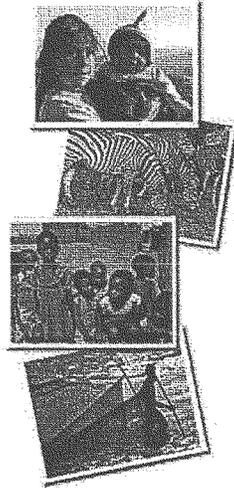
2006

Dominion. Stewardship. Conservation.



**A Call to Truth, Prudence, and Protection of the Poor:
An Evangelical Response to Global Warming**

By E. Calvin Beisner, Ph.D., Paul K. Driessen, Esq.,
Ross McKittrick, Ph.D., and Roy W. Spencer, Ph.D.



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**A Call to Truth, Prudence, and
Protection of the Poor:
An Evangelical Response to Global Warming**

Preamble

As evangelicals, we commend those who signed the Evangelical Climate Initiative's "Climate Change: An Evangelical Call to Action" for speaking out on a public issue of ethical concern. We share the same Biblical world view, theology, and ethics. We are motivated by the same deep and genuine concern they express for the poor not only of our own nation but of the world. That very concern compels us to express our disagreement with their "Call to Action" and to offer an alternative that would improve the lot of the poor more surely and effectively.

It is important to speak directly to the issue of motive. We do not question the motive of those who produced or signed the ECI's "Call to Action." We assume that they acted out of genuine concern for the world's poor and others and considered their action justified by scientific, economic, theological, and ethical facts. We trust that they will render us the same respect.

It is not sufficient, however, to have good intentions. They must be linked to sound understanding of relevant principles, theories, and facts. As we shall argue below, that linkage is lacking for the ECI's "Call to Action."

We present our case in two stages. First, we respond point-by-point to the ECI's four claims and the four assumptions on which its "Call to Action" rests. Second, we present five contrary conclusions. The first four follow from the evidence presented in our critique of the ECI's claims. The fifth sets forth our own alternative call to action to protect the poor, the rest of humanity, and the rest of the world's inhabitants—not only from global warming but also from other potential environmental threats.

Response to the ECI's Four Assumptions

The ECI's "Call to Action" rests on the following four assumptions:

- Human emissions of carbon dioxide and other greenhouse gases into the atmosphere as we burn fuels for energy are the main cause of global warming.
- Global warming is not only real (which we do not contest) but is almost certainly going to be catastrophic in its consequences for humanity—especially the poor.
- Reducing carbon dioxide emissions would so curtail global warming as to significantly reduce its anticipated harmful effects.
- Mandatory carbon dioxide emissions reductions would achieve that end with overall effects that would be more beneficial than harmful to humanity and the rest of the world's inhabitants.

All of these assumptions, we shall argue below, are false, probably false, or exaggerated.

ECI's First Assumption: CO₂ emissions from fossil fuels are the main cause of warming.

The ECI's **first assumption** appears under "Claim 1: Human-Induced Climate Change is Real." While almost certainly true (since humans have long affected climates in which they live), the claim is too vague to have policy implications. It is *possible*, under some assumptions, to attribute *all* recent globally averaged warming to mankind. But our knowledge of climate history also reveals substantial natural variability. The mechanisms driving natural climate variations are too poorly understood to be included accurately in computer climate models. Hence, the models risk overstating human influence.

For support the "Call" cites the Executive Summary of the *Third Assessment Report* (2001) of the Intergovernmental Panel on Climate Change (IPCC) as attributing "*most of the warming*" (emphasis added) to human activities. However, the Executive Summary does not reflect the depth of scientific uncertainty embodied in the report and was written by government negotiators, not the scientific panel itself. Indeed, the wording of the conclusion supplied by the scientific panel as of the close of scientific review did not attribute "most" warming to humans. Instead it emphasized the existing uncertainties: "From the body of evidence since IPCC (1996), we conclude that there has been a *discernible* human influence on global climate. Studies are beginning to separate the contributions to observed climate change attributable to individual external influences, both anthropogenic and natural. This work suggests that anthropogenic greenhouse gases are a *substantial* contributor to the observed warming, especially over the past 30 years. However, the accuracy of these estimates continues to be limited by *uncertainties* in estimates of internal variability, natural and anthropogenic forcing, and the climate response to external forcing."¹ While much valuable scientific research is reflected by the IPCC's reports, their executive summaries have been so politicized as to prompt MIT climate scientist and IPCC participant Richard Lindzen to testify before the United States Senate, "I personally witnessed coauthors forced to assert their 'green' credentials in defense of their statements."²

Further, a number of studies support the conclusion that natural causes—e.g. fluctuations in solar output,³ changes in cloud forcing,⁴ and precipitation microphysics⁵—could outweigh human CO₂

¹Government and Expert Review Draft, IPCC Working Group I Third Assessment Report, 5, emphases added. The "IPCC is as much a collection of government bureaucrats as it is of working scientists. . . only about 33 percent of the 200+ 'lead authors' are in fact climate scientists. Consequently, the 'consensus' that these documents achieve is in fact determined by a majority opinion that is not necessarily formally trained in the subject matter." Patrick J. Michaels, *Meltdown: The Predictable Distortion of Global Warming by Scientists, Politicians, and the Media* (Washington: Cato Institute, 2004), 22.

²"Testimony of Richard S. Lindzen before the Senate Environment and Public Works Committee on 2 May 2001," online at http://epw.senate.gov/107th/lin_0502.htm.

³The IPCC attributes the whole warming of the first half of the twentieth century—about 0.5° C—to solar variability. John T. Houghton, et al., *Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2001),

emissions as causes of the current global warmth.⁶ Other studies find that rising CO₂ follows rather than leads warming and thus is not its cause but might be its effect.⁷ In addition, other human activities (e.g., land use conversion for agriculture and cities, particulate pollution) cause regional climatic changes that go largely unmentioned. Thus the human-induced part of the warming trend is only partly driven by CO₂ and other manmade greenhouse gases. Recently sixty topic-qualified scientists asserted that “global climate changes all the time due to natural causes and the human impact still remains impossible to distinguish from this natural noise,” and that “observational evidence does not support today’s computer climate models, so there is little reason to trust model predictions of the future.”⁸

The discerning reader of the ECI statement should ask: *How much* of current global warming is man-made versus natural? *How much* future warming can we reasonably expect? *What changes* in human behavior that affect climate may be anticipated, under *what conditions*? *What difference* will such changes make to the world’s climate? And what would it actually take to *fix the alleged problem*? In other words, the **first assumption**, which by itself suggests no policy, only becomes relevant when coupled with the second.

ECI’s Second Assumption: Global Warming Will Be Catastrophic, Especially for the Poor

The ECI’s second assumption appears under “Claim 2: The Consequences of Climate Change

697.

⁶A discussion of cloud variations as a cause of natural climate variability is contained in Climate Research Committee, Board on Atmospheric Sciences and Climate, Commission on Geosciences, Environment, and Resources of the National Research Council, “Natural Climate Variability On Decade-to-Century Time Scales” (Washington, D.C.: National Academy Press, 1995), online at: <http://darwin.nap.edu/books/0309054494/html>.

⁷The precipitation efficiency uncertainties in climate modeling (and thus our theoretical understanding of how these things can be involved in natural climate fluctuations) are discussed in N. O. Renno, K.A. Emanuel, and P.H. Stone, “Radiative-convective model with an explicit hydrologic cycle 1. Formulation and sensitivity to model parameters,” *Journal of Geophysical Research* 99 (July 10, 1994), 14,429-14,441. The end of the abstract says: “The cumulus convection schemes currently in use in general circulation models bypass the microphysical processes by making arbitrary moistening assumptions. We suggest they are inadequate for climate change studies.”

⁸Such natural causes—especially fluctuations in solar energy output, changes in earth’s orbit and tilt (The Marian Koshland Science Museum of the National Academy of Sciences explains and illustrates these well in “Global Warming Facts & Our Future” at <http://www.koshland-science-museum.org/exhibits/cc/causes08.jsp>), and other long and (geologically) short cycles—certainly outweigh human CO₂ emissions as causes of climate change in history. See, e.g., S. Fred Singer and Dennis T. Avery, “The Physical Evidence of Earth’s Unstoppable 1,500-Year Climate Cycle” (Dallas: National Center for Policy Analysis, NCPA Policy Report No. 279, 2005).

⁷Robert H. Essenhigh, “Does CO₂ really drive global warming?” *Chemical Innovation* 31:5 (May 2001), 44-46; online at http://www.pubs.acs.org/subscribe/journals/ci/31/special/may01_viewpoint.html; H. Fischer, et al., “Ice core record of atmospheric CO₂ around the last three glacial terminations,” *Science* 283, (1999): 1712-1714; U. Siegenthaler, et al., “Stable carbon cycle-climate relationship during the late Pleistocene,” *Science* 310:5752 (November 25, 2005), 1313-1317.

⁵Letter to Canadian Prime Minister Stephen Harper, published as “Open Kyoto to debate: Sixty scientists call on Harper to revisit the science of global warming,” *Financial Post*, April 6, 2006, at <http://www.canada.com/nationalpost/financialpost/story.html?id=3711460e-bd5a-475d-a6be-4db87559d605>. A complete list of signers of this letter is in the Appendix of this paper.

Will Be Significant, and Will Hit the Poor the Hardest.” We shall respond separately to the two parts of this claim.

The first part asserts that “the consequences of climate change will be significant.” It is impossible to quantify what is meant by “significant,” but the “Call to Action” goes on to list a variety of consequences, asserts without evidence that these will be hardest on the poor, and concludes, “Millions of people could die in this century because of climate change, most of them our poorest global neighbors.”

Catastrophic climate scenarios critically depend on the extremely unlikely assumption that global average temperature would rise 6° C (10.8° F) or more in response to doubled CO₂. But more credible estimates of climate sensitivity to doubled CO₂ have been in the range of 1.5° to 4.5° C (2.7° to 8.1° F). Researchers using several independent lines of evidence asserted a “maximum likelihood estimate . . . close to 3° C” (5.4° F). They concluded, “our implied claim that climate sensitivity actually has as much as a 5% chance of exceeding 4.5° C is not a position that we would care to defend with any vigour, since even if it is hard to formally rule it out, we are unaware of any significant evidence in favour of such a high value.”⁹ It is very unlikely that warming in that range would cause catastrophic consequences. Why? Among other reasons, because CO₂-induced warming will occur mostly in winter, mostly in polar regions, and mostly at night. But in polar regions, where winter night temperatures range far below freezing, an increase of 5.4° F is hardly likely to cause significant melting of polar ice caps or other problems.

The “claim that climate sensitivity has as much as a 5% chance of exceeding 4.5° C is not a position that we would care to defend with any vigour, since . . . we are unaware of any significant evidence in favour of such a high value.”—J. D. Annan and J. C. Hargreaves

Even if the recent strong warming trend (at most 1° F in the last thirty years) is entirely manmade (and it almost certainly is not), and even if it continues for another thirty years (as it might), global average temperature will only be at most 1° F warmer than now. Predicting climate beyond then depends on assumptions about future use of fossil fuels. Such assumptions are dubious in light of continuous changes in energy sources throughout modern human history. Who could have predicted our current mix of energy sources a century-and-a-half ago, when wood, coal, and whale oil were the most important components and petroleum and natural gas were barely in use?

The ECI predicts that “*even small rises* [emphasis added] in global temperatures will have” a variety of supposedly disastrous impacts. In each instance, there is good reason to reject the prediction:

⁹J. D. Annan and J. C. Hargreaves, “Using multiple observationally-based constraints to estimate climate sensitivity,” *Geophysical Research Letters*, vol. 33, L06704, doi:10.1029/2005GL025259, 2006, online at <http://www.agu.org/pubs/crossref/2006/2005GL025259.shtml>; prepublication draft at http://www.jamstec.go.jp/frcgc/research/d5/jdannaan/GRL_sensitivity.pdf. See also G. Hegerl, et al., “Climate sensitivity constrained by temperature reconstructions over the past seven centuries,” *Nature* 440 (April 20, 2006): 1029-1032.

- **“sea level rise”**: Contrary to visions of seawater inundating vast areas, model-average results from a mid-range scenario of the IPCC (a scenario that itself probably exaggerates warming) suggest a rise by A.D. 2100 of only about 0.387 meter (15.24 inches, or 1.27 feet).¹⁰ The rate of rise would be only 1.524 inches per decade, to which the few coastal settlements actually threatened could readily adapt by building dikes. Further, sea level has risen for centuries, since long before earth began to recover from the Little Ice Age (about 1550-1850) and long before fossil fuel burning could possibly have contributed to global warming. Through the twentieth century it rose about 0.18 meter (7.08 inches), and there is no reason to think the natural forces driving that rise will cease.¹¹ Even assuming that the IPCC’s projection of twenty-first century sea level rise is correct, then, only about half of that rise would be attributable to current global warming—and, in turn, only a fraction of that to human-induced warming. Further, “Of the costs to the Netherlands, Bangladesh and various Pacific islands [i.e., the places at greatest risk], the costs of adapting to the changes in sea level are trivial compared with the costs of a global limitation of CO₂ emissions to prevent global warming.”¹²
- **“more frequent heat waves”**: Though there is reason to doubt this prediction, its significance arises only from its impact on health and mortality. Heat-related death rates decline as people learn how, and become better able to afford, to protect themselves from excessive heat.¹³ For example, while a heat wave in Chicago in 1995 caused about 700 heat-related deaths, a nearly

IPCC mid-range scenario for sea level rise suggests only about 1.524 inches per decade, to which coastal settlements could readily adapt by building dikes.

¹⁰Sarah C. B. Raper and Roger J. Braithwaite, “Low sea level rise projections from mountain glaciers and ice caps under global warming,” *Nature* 439 (January 19, 2006), 311-313; abstract online at <http://www.nature.com/nature/journal/v439/n7074/abs/nature04448.html>. Similarly, Indur M. Goklany writes, “In the IPCC’s First Assessment Report, the estimated SLR between 1990 and 2100 was pegged at between 0.31 and 1.10 m with a best estimate of 0.66 m (FAR Scientific Assessment, page 277), and the Third Assessment Report’s estimates were between 0.09 and 0.88 m with a ‘central value’ of 0.48m (TAR Scientific Assessment, page 671). Recently Church and White (2006) came out with an estimate of between 0.28 and 0.34 m.” Indur M. Goklany, “Comments to the Stern Review on the Economics of Climate Change,” March 17, 2006, at <http://members.cox.net/goklany/Stern%202.pdf>, p. 4, citing John A. Church and Neil J. White, “A 20th century acceleration in global sea-level rise,” *Geophysical Research Letters*, vol. 33 (January 6, 2006), L01602, doi:10.1029/2005GL024826, abstract online at <http://www.agu.org/pubs/crossref/2006/2005GL024826.shtml>.

¹¹B. C. Douglas and W. R. Peltier, *Physics Today*, March, 2002, 35-40; compare Church and White (2006), which estimates sea level rise from January 1870 to December 2004 of 0.195 m (4.21 inches), i.e., 0.015 m (0.31 inch) per decade.

¹²Deepak Lal, “Ecological Imperialism: The Prospective Costs of Kyoto for the Third World,” in *The Costs of Kyoto: Climate Change Policy and Its Implications*, ed. Jonathan H. Adler (Washington: Competitive Enterprise Institute, 1997), 83-90, at 85-6. An implication of this is that economic development is an important step to protecting against heat waves, with or without global warming; a further implication is that because energy is a crucial component of economic development, affordable energy is necessary to protect against heat waves.

¹³R. E. Davis, et al., “Decadal changes in heat-related human mortality in the eastern United States,” *International Journal of Biometeorology* 47:166-75.

identical one only four years later caused only about 100, because of better advance warning from weather forecasters and protective steps.¹⁴ Further, those who warn of more frequent heat waves should even more fervently herald less frequent severe cold snaps. The death rate from severe cold is nearly ten times as high as that from severe heat,¹⁵ implying that global warming (assuming that it reduces cold snaps as much as it increases heat waves) should prevent more deaths from cold than it causes from heat.

- **“more frequent . . . droughts, and extreme weather events such as torrential rains and floods”:** Actual projections assuming IPCC-forecast global warming call for more frequent droughts in some places, less frequent droughts in others, more frequent wet periods in some places, and less frequent wet periods in others. It is not possible, at the present state of the science, to be sure whether there will be a net increase of either droughts or wet periods globally or in most locales. However, while worldwide data are insufficient to justify any generalizations, we do know that there is no statistical correlation between global average temperature and droughts in the southwestern United States or even the United States as a whole,¹⁶ a fact that puts the model forecasts into doubt. Further, in an increasingly wealthy world, the ability to distribute water and agricultural products efficiently will continue to improve, making societies more and more resilient to droughts—which will continue to occur with or without human influence on climate.
- **“increased tropical diseases in now-temperate regions”:** Since the mosquitoes that carry *Plasmodium falciparum* (the malaria-causing parasite) require winter temperatures above about 61° to 64° F to survive, it seems intuitively likely that expanding the regions with winter lows above that range would result in increasing malaria rates. However, even in very cold climates there are places sheltered from cold in which the mosquitoes can hibernate. Thus, malaria was common throughout Europe and even into the Arctic Circle even during the Little Ice Age and continued common through the end of World War II in Finland, Poland, Russia, around the Black Sea, and in thirty-six of the United States, including all northern border states from Washington through New York.¹⁷ It is not temperatures that are most important for malaria control but elimination of suitable breeding grounds and the use of pesticides to lower the population of malarial mosquitoes and keep them out of homes. The

The impacts of climate change on malaria, at least through 2084, will be trivial compared to non-climate change related factors.

¹⁴M. A. Palecki, S. A. Changnon, and K. E. Kunkel, “The nature and impacts of the July 1999 heat wave in the midwestern United States: Learning from the lessons of 1995,” *Bulletin of the American Meteorological Society* 82:1353-1367.

¹⁵W. R. Keatinge, *et al.*, “Heat related mortality in warm and cold regions of Europe: observational study,” *British Medical Journal* 321:670-673.

¹⁶O. W. Frauenfeld and R. E. Davis, “Midlatitude circulation patterns associated with decadal and interannual Pacific Ocean variability,” *Geophysical Research Letters* 29, DOI: 10.1029/2002GL015743; Michaels, *Meltdown*, 138-142.

¹⁷Paul Reiter, “From Shakespeare to Defoe: malaria in England in the Little Ice Age,” *Emerging Infectious Diseases* 6(1):1-10, at www.cdc.gov/ncidod/eid/vol6no1/reiter.htm.

IPCC suggested on the basis of mathematical models that by the 2080s global warming could put about 2-4 percent more people at risk for malaria. What this means is that 96 to 98 percent of people at risk of malaria would be at risk because of non-climate change related factors. In other words, the impacts of climate change on malaria, at least through 2085, will be trivial compared to non-climate change related factors.¹⁸ The IPCC also noted that most of those newly at risk would be in middle- or high-income countries where infrastructure and health services would make infection and death or serious disability unlikely.¹⁹ “Thus, the global study of *actual* malaria transmission shows ‘remarkably few changes, even under the most extreme scenarios.’”²⁰ The resurgence of malaria in some African and Asian countries correlates not with changing temperatures but with the banning of DDT and shifts to less effective disease control methods, and it costs over a million premature deaths annually.

- **“hurricanes that are more intense”**: The recent upswing in numbers and intensity of Atlantic hurricanes makes some people more receptive to claims that global warming might have such an effect. However, the National Oceanic and Atmospheric Administration (NOAA) concluded in a study announced in November 2005 that “the tropical multi-decadal signal is causing the increased Atlantic hurricane activity since 1995, and is not related to greenhouse warming.”²¹ More specifically,

The National Oceanic and Atmospheric Administration concluded in a study announced in November 2005 that “the tropical multi-decadal signal is causing the increased Atlantic hurricane activity since 1995, and is not related to greenhouse warming.”

claims of linkages between global warming and hurricane impacts are premature for three reasons. First, no connection has been established between greenhouse gas emissions and the observed behavior of hurricanes (Houghton et al. 2001; Walsh 2004). . . . Second, the peer-reviewed literature reflects that a scientific consensus exists that any future changes in hurricane intensities will likely be small in the context of observed variability (Knutson and Tuleya 2004; Henderson-Sellers et al. 1998), while the scientific problem of tropical cyclogenesis is so far from being solved that little can be said about possible changes in frequency. And third, under the assumptions of the IPCC,

¹⁸I. M. Goklany and D. King, “Climate Change and Malaria,” *Science* 306:5693 (October 2004), 55-57.

¹⁹J. J. McCarthy, et al., *Climate Change 2001: Impacts, Adaptation, and Vulnerability: Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2001), 9.7.1.1. Cited in Bjørn Lomborg, *The Skeptical Environmentalist: Measuring the Real State of the World*, rev. ed. (Cambridge: Cambridge University Press, 2001), 292.

²⁰Lomborg, *Skeptical Environmentalist*, 292, citing David J. Rogers and Sarah E. Randolph, “The Global Spread of Malaria in a Future, Warmer World,” *Science* 289(5485):1763-6. See also S. I. Hay, et al., “Climate change and the resurgence of malaria in the East African highlands,” *Nature* 415:905-09, which concluded that there was no correlation between malaria transmission and temperature variation.

²¹“NOAA attributes recent increase in hurricane activity to naturally occurring multi-decadal climate variability,” *NOAA Magazine Online*, Story 184, at <http://www.magazine.noaa.gov/stories/maa184.htm>.

expected future damages to society of its projected changes in the behavior of hurricanes are dwarfed by the influence of its own projections of growing wealth and population (Pielke et al. 2000).²²

We have been in a cyclical lull in Atlantic hurricane activity for several decades, during which our coastlines have seen rapid growth in population and infrastructure. It is thus the presence of more property in harm's way, not a historically unprecedented increase in frequency or intensity of hurricanes, that explains rising economic losses from hurricanes. The National Hurricane Center has warned that we were overdue for a return to greater activity, similar to what occurred in the 1930s to the 1950s. Emphasis on a possible human connection distracts from the very real issue that people need to be prepared for increased hurricane activity, whether or not hurricanes' frequency, intensity, or duration are affected by manmade greenhouse gases.

• **“reduction in agricultural output, especially in poor countries”:**

Observational evidence and computer models yield little confidence in forecasts of the impact of global warming on agricultural production, whether in poor countries or elsewhere.²³ However, rising CO₂—presumably what drives global

warming—enhances agricultural yield. For every doubling of atmospheric CO₂ concentration, there is an average 35 percent increase in plant growth efficiency. Plants grow better in warmer and colder temperatures and in drier and wetter conditions, and they are more resistant to diseases and pests. Consequently their ranges and yields increase.²⁴ Agricultural productivity worldwide and in developing countries has never been higher than it is today.²⁵ Three likely results of rising CO₂ are shrinking deserts, lower food prices, and reduced demand for agricultural land to feed the world's population, the latter resulting in reduced pressure on

For every doubling of atmospheric CO₂ concentration, there is an average 35 percent increase in plant growth efficiency. . . . Consequently their ranges and yields increase.

²²R. A. Pielke Jr., et al., “Hurricanes and Global Warming,” *Bulletin of the American Meteorological Society*, November 2005, 1571-75, citing IPCC's *Climate Change 2001*; K. Walsh, “Tropical cyclones and climate change: Unresolved issues,” *Climate Research* (2004) 27:78-83; T. R. Knutson and R. E. Tuleya, “Impact of CO₂-induced warming on simulated hurricane intensity and precipitation: Sensitivity to the choice of climate model and convective parameterization,” *Journal of Climate* (2004) 17:3477-95; A. Henderson-Sellers, et al., “Tropical cyclones and global climate change: A post-IPCC assessment,” *Bulletin of the American Meteorological Society* (1998), 79:9-38; R. A. Pielke Jr. and D. Sarewitz, “Turning the big knob: Energy policy as a means to reduce weather impacts,” *Energy and Environment* (2000) 11:255-76.

²³Lauren Sacks and Cynthia Rosenzweig, “Climate Change and Food Security,” at <http://www.climate.org/topics/agricul/index.shtml>.

²⁴Many studies have been published demonstrating the benefits of rising CO₂ to agriculture. Much of the work has been done by scientists at the Center for the Study of Carbon Dioxide and Global Change, <http://www.co2science.org/scripts/CO2ScienceB2C/Index.jsp>, which has links to many articles by both its own scientists and others.

²⁵I. M. Goklany, “Potential Consequences of Increasing Atmospheric CO₂ Concentration Compared to Other Environmental Problems,” *Technology* 7 Suppl. 1 (2000), 189-213.

habitat and consequently on species survival. These benefits would be reduced or forgone if we reduced atmospheric CO₂.

In sum, to support its claims that human-induced global warming is not only real but also bound to become catastrophic, the ECI either misreads the IPCC's reports or, following the example of the media and politicians, uncritically relies on its Summary for Policy Makers. The Summary, as we noted above, does not reflect the scientific uncertainty contained in the body of the report, was not agreed to by the vast majority of IPCC

Claims of dangerous or catastrophic global warming are founded primarily on outlier models that present far more extreme scenarios than the vast majority [and] are based on grossly unrealistic assumptions about future factors that do not reflect current facts or likely future situations.

scientists, and was politically driven. Claims of dangerous or catastrophic global warming are founded primarily on outlier models that present far more extreme scenarios than the vast majority. These outlier models can neither predict even one year into the future nor reconstruct one year into the past. They produce scenarios with no basis in actual evidence. They are based on grossly unrealistic assumptions about future energy use, dominant energy types, pollution levels, economic development, and other factors that do not reflect current facts or likely future situations.²⁶ Mainstream media generally report on worst-case scenarios and assume that warming will be catastrophic and will bring devastating harm but no benefits. The ECI's statement follows that model.

There is evidence that the current warming period, from the mid-1800s to the present and likely to continue for a century or more, is driven largely by natural causes. Major global and regional climate changes of equal or greater magnitude—the Roman and Medieval Warm Periods, the Little Ice Age, and civilization-killing droughts in the Yucatan and the American southwest, not to mention the ice ages and interglacial periods—are known to have occurred in the complete absence of significant human impact. Yet the ECI, while presenting no evidence that natural causes are *not* the primary driving forces, endorses a response policy that is not only potentially very harmful but also irrational if the current warming is driven largely by natural causes.

What About Scientific Consensus on Human-induced Global Warming?

Before dealing with the effects on the poor, and since what we argue runs counter to a popularly perceived consensus among scientists on global warming, we must also address the ECI's claim, "Since 1995 *there has been general agreement* [emphasis added] among those in the scientific community most seriously engaged with this issue that climate change is happening and is being caused mainly by human activities . . ." We should like to make three points. First, unlike politics,

²⁶IPCC, SRES. See I. M. Goklany, "Is a Richer-but-warmer World Better than Poorer-but-cooler Worlds?" 25th Annual North American Conference of the US Association for Energy Economics/International Association of Energy Economics, September 21-23, 2005.

but like truth, science is not a matter of consensus but of data and valid arguments. Second, as Thomas Kuhn so famously pointed out in *The Structure of Scientific Revolutions*, great advances in science, often involving major paradigm shifts, occur when small minorities patiently—and often in the face of withering opposition—point out anomalies in the data and inadequacies in the reigning explanatory paradigms until their number and weight become so large as to require a wholesale paradigm shift, and what once was a minority view becomes a new majority view. Indeed, skepticism is essential to science: “Most institutions demand unqualified faith; but the institution of science makes skepticism a virtue.”²⁷

“Most institutions demand unqualified faith;
but the institution of science makes
skepticism a virtue.”—Robert K. Merton

Third, the popular belief that there is such a consensus is dubious at best. Since 1998 over 19,700 scientists have signed a petition saying, “There is no convincing scientific evidence that human release of carbon dioxide, methane, or other greenhouse gasses is causing or will, in the foreseeable future, cause catastrophic heating of the Earth’s atmosphere and disruption of the Earth’s climate. Moreover, there is substantial scientific evidence that increases in atmospheric carbon dioxide produce many beneficial effects upon the natural plant and animal environments of the Earth.” The signers include “2,660 physicists, geophysicists, climatologists, meteorologists, oceanographers, and environmental scientists who are especially well qualified to evaluate the effects of carbon dioxide on the Earth’s atmosphere and climate” and “5,017 scientists whose fields of specialization in chemistry, biochemistry, biology, and other life sciences make them especially well qualified to evaluate the effects of carbon dioxide on the Earth’s plant and animal life.”²⁸

In 2004 *Science* published the results of a study by Naomi Oreskes claiming that “without substantial disagreement, scientists find human activities are heating the earth’s surface.”²⁹ But an attempt at replicating the study both found that she had made serious mistakes in handling data and, after re-examining the data, reached contrary conclusions. Oreskes claimed that an analysis of 928 abstracts in the ISI database containing the phrase “climate change” proved the alleged consensus. It turned out that she had searched the database using three keywords (“global climate change”) instead of the two (“climate change”) she reported—reducing the search results by an order of magnitude. Searching just on “climate change” instead found almost 12,000 articles in the same

²⁷Robert K. Merton, “Science and the Social Order,” *Philosophy of Science* 5:3 (July 1938), 321-337, at 334.

²⁸See the Oregon Petition Project at <http://www.oism.org/pproject/s33p37.htm>. Dr. Art Robinson, an evangelical who managed the project and keeps the signature list up to date, reports that additional scientists continue to sign the petition regularly, and almost none have removed their signatures in the nine years the petition has been in existence. For a complete list of signers, separate lists of those with specialized qualifications, and refutation of attempts to discredit the Petition, see <http://www.oism.org/pproject/s33p357.htm>. Similarly, since 1995 over 1,500 topic-qualified scientists have signed the Leipzig Declaration opposing the Kyoto Protocol (<http://www.sepp.org/leipzig.html>). Forty-seven topic-qualified scientists who reject the hypothesis of catastrophic human-induced global warming are listed at http://www.envirottruth.org/myth_experts.cfm, complete with contact information and notes on their subjects of expertise.

²⁹Naomi Oreskes, “The scientific consensus on climate change,” *Science*, vol. 306, issue 5702 (December 3, 2004), 1686, at <http://www.sciencemag.org/cgi/content/full/306/5702/1686>.

database in the relevant decade. Excluded from Oreskes's list were "countless research papers that show that global temperatures were similar or even higher during the Holocene Climate Optimum and the Medieval Warm Period when atmospheric CO₂ levels were much lower than today; that solar variability is a key driver of recent climate change; and that climate modeling is highly uncertain." Further, even using the three key words she actually used, "global climate change," brought up 1,247 documents, of which 1,117 included abstracts. An analysis of those abstracts showed that

- only 1 percent explicitly endorsed what Oreskes called the "consensus view";
- 29 percent implicitly accepted it "but mainly focus[ed] on impact assessments of envisaged global climate change";
- 8 percent focused on "mitigation";
- 6 percent focused on methodological questions;
- 8 percent dealt "exclusively with paleo-climatological research unrelated to recent climate change";
- 3 percent "reject[ed] or doubt[ed] the view that human activities are the main drivers of the 'the [sic] observed warming over the last 50 years'";
- 4 percent focused "on natural factors of global climate change"; and
- 42 percent did "not include any direct or indirect link or reference to human activities, CO₂ or greenhouse gas emissions, let alone anthropogenic forcing of recent climate change."³⁰

³⁰Benny J. Peiser, Letter to *Science*, January 4, 2005, submission ID: 56001. *Science* Associate Letters Editor Etta Kavanagh eventually decided against publishing the letter, or the shortened version of it provided at her request by Peiser, not because it was flawed but because "the basic points of your letter have already been widely dispersed over the internet" (e-mail from Etta Kavanagh to Benny Peiser, April 13, 2005). Peiser, a scientist at Liverpool John Moores University, replied: "As far as I am aware, neither the details nor the results of my analysis have been cited anywhere. In any case, don't you feel that SCIENCE has an obligation to your readers to correct manifest errors? After all, these errors continue to be employed by activists, journalists and science organizations . . . Are you not aware that most observers know only too well that there is absolutely *no* consensus within the scientific community about global warming science?" He went on to cite a survey of "some 500 climatologists [that] found that 'a quarter of respondents still question whether human activity is responsible for the most recent climatic changes,' and other evidence. Peiser, e-mail to Kavanagh, April 14, 2005. The whole correspondence, including much more evidence of the lack of scientific consensus on anthropogenic global warming, is online at www.staff.livjm.ac.uk/spsbpeis/Scienceletter.htm.

On April 6, 2006, sixty well-qualified scientists working in the field of climate change sent an open letter to Canadian Prime Minister Stephen Harper, saying, "Observational evidence does not support today's computer climate models, so there is little reason to trust model predictions of the future." The scientists went on to reject the vision of catastrophic human-induced global warming and oppose the Kyoto Protocol.³¹ Shortly afterward a group of leading New Zealand climatologists and meteorologists skeptical of catastrophic human-induced global warming formed The New Zealand Climate Science Coalition.³² And on April 20, 2006, the British Broadcasting Corporation aired a radio program, "Overselling Climate Change," in which many scientists, including those who believe global warming is a serious problem, decried exaggerated claims about it that undermine confidence in science.³³ As Lindzen testified,

"Observational evidence does not support today's computer climate models, so there is little reason to trust model predictions of the future."—Sixty climate-change scientists in an open letter to Canadian Prime Minister Stephen Harper

Indeed, the whole issue of consensus and skeptics is a bit of a red herring. If, as the news media regularly report, global warming is the increase in temperature caused by man's emissions of CO₂ that will give rise to rising sea levels, floods, droughts, weather extremes of all sorts, plagues, species elimination, and so on, then it is safe to say that global warming consists in so many aspects, that widespread agreement on all of them would be suspect *ab initio*. If it truly existed, it would be evidence of a thoroughly debased field. In truth, neither the full text of the IPCC documents nor even the summaries claim any such agreement. Those who insist that the science is settled should be required to state exactly what science they feel is settled.³⁴

". . . the whole issue of consensus and skeptics is a bit of a red herring. . . . neither the full text of the IPCC documents nor even the summaries claim any such agreement."—Richard S. Lindzen

The idea of scientific consensus on anthropogenic global warming is an illusion.³⁵

³¹<http://www.canada.com/components/print.aspx?id=3711460e-bd5a-475d-a6be-4db87559d605>.

³²<http://www.climate-science.org.nz/Index.php>. For a news report on it, see http://www.nzherald.co.nz/section/story.cfm?c_id=1&ObjectID=10379768.

³³"Overselling Climate Change," audio online at <http://www.bbc.co.uk/radio4/thebattleforinfluence/pip/abkim/>.

³⁴Testimony of Richard S. Lindzen before the Senate Environment and Public Works Committee on 2 May 2001, online at http://epw.senate.gov/107th/lin_0502.htm.

³⁵It is ironic that many supporters of the ECI rely heavily on the claim of scientific consensus to buttress their view of global warming. The role of the IPCC in climate studies is similar to that of the Jesus Seminar in New Testament scholarship in the 1990s and Darwinism for the past century. It is a self-selecting group with a narrow point of view favored by the political left and mainstream media, and it tends to respond to critics with derision or dismissal rather than collegial engagement. Evangelicals have been quick to criticize the process behind the Jesus Seminar and Darwinism. They have resisted the idea that complex scholarly issues could be decided by a majority vote among club members. Those same critical instincts need to be kept in place when evaluating claims of consensus on global warming.

Global Warming and Concern for the Poor

The second part of Claim 2 is that “The consequences of climate change will . . . hit the poor the hardest.” On the contrary, the destructive impact on the poor of enormous mandatory reductions in fossil fuel use far exceeds the impact on them—negative or positive—of the moderate global warming that is most likely to occur. Indeed, the policy promoted by the ECI would be both economically devastating to the world’s poor and ineffective at reducing global warming.

Because energy is an essential component in almost all economic production, reducing its use and driving up its costs will slow economic development, reduce overall productivity, and increase costs of all goods, including the food, clothing, shelter, and other goods most essential to the poor. The ECI does not detail steps to reduce CO₂ emissions, instead offering

Full compliance with the Kyoto Protocol’s carbon emissions reductions would reduce global warming by less than 0.2° F by 2050—an amount so tiny as to disappear in annual fluctuation and with no significant impact on consequences.

only broad outlines. That reduces its vulnerability to direct criticism. But its broad outlines generally fit with the Kyoto Protocol, so until the ECI offers its own detailed set of proposals, it is helpful to point out the weaknesses in Kyoto. Compliance with the Protocol, without a global carbon emissions trading mechanism, could cost the global economy about \$1 trillion per year³⁶ (i.e., about 2.25 percent of the world’s annual production). Over the fifty years from 2001 to 2050, that means \$50 trillion. Yet full compliance would reduce global warming by less than 0.2° F by 2050³⁷—an amount so tiny as to disappear in annual fluctuation and with no significant impact on consequences. As a result, its supporters also say Kyoto is just a first step—that we shall need many, perhaps forty, more such treaties,³⁸ each more costly than the last, to prevent catastrophic global warming. It is

³⁶Bjorn Lomborg, “Should we implement the Kyoto Protocol? No—We risk burdening the global community with a cost much higher than that of global warming,” at www.spiked-online.com/articles/0000002D2C3.htm. More specifically, with no emissions trading, the combined annual cost of compliance in the year 2010 to the United States, the European Union, Japan, Canada, Australia, and New Zealand alone would be around \$350 billion; with emissions trading within two blocks of that group, about \$240 billion; with unrestricted trading within all Annex I countries, slightly over \$150 billion; and with global trading, about \$75 billion. Lomborg, *Skeptical Environmentalist*, 303, Figure 158, citing John P. Weyant and Jennifer N. Hill, “Introduction and overview,” *The Energy Journal*, Kyoto Special Issue [1999], vii-xliv, at xxxiii-xxxiv, and Bureau of Economic Analysis, *Price Indexes for Gross Domestic Product and Gross Domestic Purchases* (www.bea.doc.gov/bea/dn/st3.csv) and *Selected NIPA Tables showing advance estimates for the fourth quarter of 2000* (www.bea.doc.gov/bea/dn/dpqa.txt), both 2001.

³⁷Calculations of the range of temperature reduction from compliance with Kyoto differ but are all very low. E.g.: (1) “the Kyoto Protocol . . . if adhered to by every signatory (including the United States)[,] would only reduce surface temperature by 0.07° C (.13° F) in fifty years” (Michaels, *Meltdown*, 19). (2) “Global mean reductions [in warming by 2100] for the three scenarios are small, 0.08-0.28°C” [i.e., 0.14-0.5° F] (T. M. L. Wigley, “The Kyoto Protocol: CO₂, CH₄ and Climate Implications,” *Geophysical Research Letters*, vol. 25 [July 1998], 2285-88, at 2287).

³⁸Wigley writes: “For B=CONST, the expected global-mean warming to 2100 is reduced by [Kyoto compliance by] 0.10-0.21°C depending on the climate sensitivity (close to 7% in all cases). For NOMORE, the reduction in warming is 4%, while for the B=-1% case it is approximately 14%. The rate of slow-down in temperature rise is small, with no sign of any approach to climate stabilization. *The Protocol, therefore, . . . can be considered only as a first and relatively small step towards stabilizing the climate*” (Wigley, “The Kyoto Protocol,” 2287-88, emphasis added). National Center

impossible to calculate with any confidence the actual amount that would cost the world economy, but since initial emissions cuts would be cheapest, and every deeper level of cuts afterward would be more costly, it would stand to reason that compliance with forty levels of Kyoto-type agreements would reduce global economic production not by \$1 trillion but by over \$40 trillion per year—i.e., about 91 percent of its present total. As Lindzen put it:

Should a catastrophic scenario prove correct, Kyoto will not prevent it. If we view Kyoto as an insurance policy, it is a policy where the premium appears to exceed the potential damages, and where the coverage extends to only a small fraction of the potential damages. Does anyone really want this? I suspect not.³⁹

The one specific policy the ECI does name to reduce CO₂ emissions is cap-and-trade: adopting through international treaty maximum limits on global emissions, issuing permits to individual nations, and the nations auctioning those permits to bidders.

The ECI supports a proposal the requirements of which would be far lighter than those of the Kyoto Treaty and consequently would have no significant climatic effect, regardless of cost.

Specifically, and in contradiction to its explicit concern to reduce global warming and its alleged perils, the ECI supports a proposal by Senators Pete Domenici and Jeff Bingaman the requirements of which would be far lighter than those of the Kyoto Treaty and consequently would have no significant climatic effect, regardless of cost. In principle a tradable permits scheme is a sensible way to deal with pollution and can be less costly than a command-and-control regulatory approach. However, advocating efficient means of achieving pointless goals does not avoid the problem that the goal itself is poorly conceived. Its efficiency depends largely on there being a variety of ways to address the pollution problem at a variety of costs. In the climate change arena, the lowest cost solutions have largely been either abandonment of means of production that are high CO₂ emitters or using “sinks”—planting more forests to absorb CO₂. While the cap-and-trade system for sulfur dioxide emissions ushered in by the Clean Air Act amendments of 1990 is often cited, it operates on a much smaller scale than that envisioned for controlling national and global CO₂ emissions. Sulfur dioxide was controllable with relatively simple and inexpensive end-of-pipe treatments, such as smokestack scrubbers. No such options are available for CO₂ emissions. Imposing an absolute cap on national or global CO₂ emissions in the absence of any low-cost abatement options would create substantial risks of job losses and economic disruption, whether or not permits are tradable.

for Atmospheric Research scientist Jerry Mahlman says elimination of human-induced warming would require “forty successful Kyotos” (Tim Appenzeller and Dennis Dimick, “The Heat Is On,” *National Geographic*, September 2004, 11). David Malakoff cites other climate scientists as saying thirty (David Malakoff, “Thirty Kyotos Needed to Control Warming,” *Science*, December 19, 1997, 2048).

³⁹“Testimony of Richard S. Lindzen before the Senate Environment and Public Works Committee on 2 May 2001,” online at http://epw.senate.gov/107th/lin_0502.htm.

Moreover, we still must determine how harmful CO₂ emissions are and, thus, the benefits of reducing them. But, as we have seen, many scientists, especially agriculturalists, believe that CO₂ should not be classed as a pollutant at all because of its benefits to plant growth. Even assuming that CO₂ is a pollutant, it is simply impossible at the present state of the science to estimate with any reasonable degree of confidence how much harm—and benefit—is done by each ton emitted, and the balance between the two. Further, most of the proposals for cap-and-trade now on the table would exempt most developing countries from the cap. Because large, rapidly developing countries like India and China are among the exempt, and firms in regulated countries could move operations to unregulated countries to avoid abatement or permit costs, the result would be to leave actual global emissions largely unaffected.

Many scientists, especially agriculturalists, believe that CO₂ should not be classed as a pollutant at all because of its benefits to plant growth.

Church leaders, evangelicals in particular, are concerned about climate change primarily because they fear its potential impacts on the world's poor, especially in the tropics. However, forecasts of things like precipitation and temperature change over long time horizons in particular regions are simply not possible. If the aim is to help the poor, what

If the aim is to help the poor, what matters from the policy point of view is supporting the development process by which countries acquire greater ability to deal with adverse economic, climatic, and social conditions, regardless of cause.

matters from the policy point of view is supporting the development process by which countries acquire greater ability to deal with adverse economic, climatic, and social conditions, regardless of cause. Put simply, poor countries need income growth, trade liberalization, and secure supplies of reliable, low-cost electricity. Rather than focusing on theoretically possible changes in climate, which varies tremendously anyway with El Niño, La Niña, and other natural cycles, we should emphasize policies—such as affordable and abundant energy—that will help the poor prosper, thus making them less susceptible to the vagaries of weather and other threats in the first place.

ECP's Third and Fourth Assumptions: Reducing CO₂ Emissions

The ECI's **third and fourth assumptions** appear under "Claim 3: Christian Moral Convictions Demand Our Response to the Climate Change Problem" and "Claim 4. The need to act now is urgent. Governments, businesses, churches, and individuals all have a role to play in addressing climate change—starting now." The assumptions are that reducing carbon dioxide emissions would so curtail global warming as to significantly reduce its anticipated harmful effects (which we have just seen is false), and that government-mandated carbon dioxide emissions reductions would achieve that end with overall effects that would be more beneficial than harmful to humanity and the rest of the world's inhabitants.

With the general assertions that Christians must care about climate change because we love God and are called to love our neighbors and that God has given us stewardship over the earth, we agree. But these address motive. They do not specify action. The specific actions demanded by the ECI are “to find ways now to begin to reduce the carbon dioxide emissions from the burning of fossil fuels that are the primary cause of human-induced climate change”⁴⁰ and to “help the poor adapt to the significant harm that global warming will cause.” But as we have already seen, the harms caused by mandatory CO₂ emissions reductions will almost certainly outweigh the benefits, especially to the poor, for whom the marginal increases in prices will be a much greater burden than for the rich.

The harms caused by mandatory CO₂ emissions will almost certainly outweigh the benefits, especially to the poor.

The world’s poor are much better served by enhancing their wealth through economic development than by whatever minute reductions might be achieved in future global warming by reducing CO₂ emissions.⁴¹ It is difficult to imagine how it could possibly be that, as the ECI claims, “*The basic task for all of the world’s inhabitants* [emphasis added] is

Not only will the policies proposed by the ECI not solve any of the real, present, and vast problems that cost millions of deaths among the poor every year, but instead they will slow down and in some cases prevent their being solved.

to find ways now to begin to reduce the carbon dioxide emissions from the burning of fossil fuels that are the primary cause of human-induced climate change.” Millions of poor people in developing countries die every year because they lack clean water and indoor plumbing, electricity (forcing them to burn wood and dung for cooking and heating and to live without refrigeration and air conditioning), sewage treatment, jobs, access to affordable medical care, and adequate nutrition—not to mention just and orderly legal and economic systems. Not only will the policies proposed by the ECI not solve any of these real, present, and vast problems, but instead they will slow down and in

⁴⁰This question-begging language deserves notice. Suppose (only to illustrate the point, not as if it were true) that one-tenth of 1 percent of global warming were human-induced, and that 60 percent of that were induced by burning fossil fuels. In that case 0.06 percent of global warming would be attributable to burning fossil fuels. If anticipated global warming from a doubling of atmospheric CO₂ were 3° C (likely on the high side), that would mean that only 0.0018° C of global warming from doubled CO₂ could be blamed on burning fossil fuels. Yet it would still be true that only by reducing fossil fuel use could we “reduce the carbon dioxide emissions from the burning of fossil fuels that are the primary cause of *human-induced* climate change.”

⁴¹See, as examples of studies supporting such conclusions, the following papers by environmental policy analyst Indur M. Goklany: “Comments to the Stern Review on the Economics of Climate Change,” March 17, 2006, at <http://members.cox.net/goklany/Stern%20202.pdf>; “Evidence for the Stern Review on the Economics of Climate Change,” December 9, 2005, <http://members.cox.net/goklany/Goklany-%20Evidence%20for%20Stern%20Review.pdf>; “Integrated Strategies to Reduce Vulnerability and Advance Adaptation, Mitigation, and Sustainable Development,” http://members.cox.net/goklany/Goklany-Integrating A&M_preprint.pdf; “A Climate Policy for the Short and Medium Term: Stabilization or Adaptation?,” *Energy & Environment* 16:3&4 (2005), http://members.cox.net/goklany/EEv16_Stab_or_Adaptation.pdf; “Evidence to the House of Lords Select Committee on Economic Affairs on Aspects of the Economics of Climate Change,” *Energy & Environment* 16:3&4 (2005), http://members.cox.net/goklany/EEv16-3+4_GoklanyHoL_Evidence.pdf.

some cases prevent their being solved—all for the sake of responding to speculative and likely exaggerated risks far in the future, through measures that would be ineffective anyway.

The ECI's claim that "deadly impacts are being experienced now" is unsubstantiated. To substantiate it, the ECI would have to prove not just that global average temperatures are rising or that severe weather events are more frequent or more extreme, etc., but that (a) these things are significantly driven by CO₂ emissions from fossil fuel consumption and (b) the numbers of deaths attributable to them match or exceed the numbers attributable to the known, well-understood causes listed above. No data anywhere suggest anything remotely like that. In fact, virtually everywhere death rates have declined over the last several decades, even as the globe has admittedly warmed—although they are rising in some areas that are sinking deeper into poverty or where malaria is resurgent and AIDS has become prevalent.⁴²

Worse, by emphasizing these improbable risks and solutions, and by condemning the world's poor to slower economic development by raising energy prices, the ECI asks the poor to give up or at least postpone their claims to modern technology that is essential for a better future for themselves and their children. It tells them they must not expect to have fossil fuels, electricity, or even ecotourism (because jets emit greenhouse gases and cause climate change). Other environmental activists tell them they must not use hydroelectric or nuclear power to generate electricity, because of fears of damming rivers and risks from handling nuclear wastes. So the world's poor must remain indigenous, traditional, and poor—or as Leon Louw has put it, must continue living in "human game preserves," so that affluent Westerners can visit them in their quaint villages.⁴³

It is immoral and harmful to Earth's poorest citizens to deny them the benefits of abundant, reliable, affordable electricity and other forms of energy (for homes, cars, airplanes, and factories) merely because it is produced by using fossil fuels. Foreseeable forms of renewable energy (other than hydroelectric)

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won't provide *reliable, affordable* electricity at least for many years, in amounts that are adequate and necessary for modern hospitals, factories, homes, communities and nations. To tell poor families, communities, and nations that they can't develop hydroelectric or nuclear energy either, because some people disapprove of them, is unconscionable.

As discussed previously, the ECI advises, "In the United States, the most important immediate step that can be taken at the federal level is to pass and implement national legislation requiring sufficient

⁴²I. M. Goklany, "The Globalization of Human Well-being," *Policy Analysis* 447 (Washington: Cato Institute, August 22, 2002).

⁴³For thorough discussion of the destructive impact of much environmental policy originating in the West on the poor in the developing world, see Paul Driessen, *Eco-Imperialism: Green Power Black Death* (Bellevue, WA: Free Enterprise Press, 2003).

economy-wide reductions in carbon dioxide emissions through cost-effective, market-based mechanisms such as a cap-and-trade program.” The term *sufficient* here is misleading: no one claims the kinds of cap-and-trade systems under discussion would be sufficient to mitigate global warming. And the statement itself is a contradiction in terms. Compulsory programs are not market-driven; they are driven by regulations, treaties, and rent seeking.⁴⁴ But such programs appeal to politicians, who want to hide the tax and blame others for the soaring prices.

We agree that it is wise to pursue increasing energy efficiency through the development of new technologies. But a program that can only be done by government mandate is by definition not a program that the market deems cost effective. We believe the market is a better judge of cost effectiveness than bureaucrats and politicians. What are needed are *prudent* policies that reflect actual risks, costs, and benefits; an honest evaluation of sound scientific, economic, and technological data; and unbiased application of moral, ethical, and theological principles.

Perhaps the most ironic element of the ECI’s “Call to Action” appears in its statement that “as a society and as individuals we must also help the poor adapt to the significant harm that global warming will cause.” It is ironic not only because it assumes what might very well be false (that the overall impact of global warming on the poor will be more harmful than beneficial) but, much more importantly, because the cure it prescribes will rob the poor of the very thing they most need if they are to be able to adapt, not just to catastrophic global warming but to *any* future catastrophe: wealth.⁴⁵ We know we have said this before, but it bears repeating: since energy is an essential component in all economic production, artificially restricting its consumption will drive down production, drive up prices, and reduce access to life-improving and life-saving technologies, harming the poor especially.

A Better Vision, a Better Call to Action

In light of all the above, we conclude that the best scientific and economic evidence points to these five conclusions:

- Foreseeable global warming will have moderate and mixed (not only harmful but also helpful), not catastrophic, consequences for humanity—including the poor—and the rest of the world’s inhabitants.
- Natural causes may account for a large part, perhaps the majority, of the global warming in both the last thirty and the last one hundred fifty years, which together constitute an episode in the natural rising and falling cycles of global average temperature. Human emissions of carbon dioxide and other greenhouse gases are probably a minor and possibly an insignificant

⁴⁴Rent seeking is the process of seeking profit not by producing goods and services for consumers but by manipulating the economic circumstances through government mandates.

⁴⁵I. M. Goklany, “Integrated Strategies to Reduce Vulnerability and Advance Adaptation, Mitigation, and Sustainable Development,” forthcoming in *Mitigation and Adaptation Strategies for Global Change* (2006).

contributor to its causes.

- Reducing carbon dioxide emissions would have at most an insignificant impact on the quantity and duration of global warming and would not significantly reduce alleged harmful effects.
- Government-mandated carbon dioxide emissions reductions not only would not significantly curtail global warming or reduce its harmful effects but also would cause greater harm than good to humanity—especially the poor—while offering virtually no benefit to the rest of the world’s inhabitants.
- In light of all the above, the most prudent response is not to try (almost certainly unsuccessfully and at enormous cost) to prevent or reduce whatever slight warming might really occur. It is instead to prepare to adapt by fostering means that will effectively protect humanity—especially the poor—not only from whatever harms might be anticipated from global warming but also from harms that might be fostered by other types of catastrophes, natural or manmade.

We believe the first four of these points are adequately supported by the previous discussion. Hence we turn to the fifth: the need for economic development to protect against environmental problems of all kinds.

National Center for Atmospheric Research scientist Jerry Mahlman has said even full compliance with Kyoto would have no measurable effect on CO₂ levels or climate—and to stabilize the Earth’s climate would take “forty successful Kyotos,”⁴⁶ each more restrictive than its predecessors. This assessment and similar ones are behind demands by some that poor countries (especially the large, dynamic ones), which were exempted from the Kyoto Protocol, must also agree to it and curb their appetites for energy. However, Brazil, China, India, and other developing countries have a duty, as governments responsible for the well-being of their people, to promote and facilitate energy and economic development, and greater prosperity and hope, for their people. Poor countries have every right to develop their economies, ultimately creating greater environmental awareness and reaching an improved economic and technological ability to achieve greater energy efficiency, pollution control, and environmental improvement. Similarly, developed nations have a duty to refrain from imposing restrictions that would make it harder for them to do so. Only in this way can both human and ecological goals be met.

Many environmentalists argue that developed and developing nations alike must stop using fossil fuels. They thus oppose coal and natural gas-fired electrical generating plants. But because they also oppose hydroelectric and nuclear facilities, they leave developing countries no alternatives to more expensive, presently less efficient energy technologies like solar and wind (technologies that do not represent the required base load or dependable power source needed by societies for energy security).⁴⁷ The very fact that such higher-cost technologies are not widely used in rich countries

⁴⁶Appenzeller and Dimick, “The Heat Is On,” *National Geographic*, September 2004, 11.

⁴⁷“Renewable sources of energy—hydroelectric, solar, wind, geothermal and biomass—have high capital investment

testifies that they cannot be widely used in poor ones. Fossil fuels, then, should be seen as a proper stage in energy development, far safer than burning wood and dung (smoke from which claims 1.6 million lives per year),⁴⁸ and a means of enabling the economic growth that eventually can make even cleaner technologies affordable.

Stopping or reversing economic development in the world's poor countries—which drastic restrictions on fossil fuel use would cause—would keep poor nations impoverished. It would perpetuate what South Africa's Leon Louw calls “human game preserves” where Western tourists can see “cute indigenous people at one with their environment and the wildlife.” But what climate activist—indeed, what signer of “Climate Change: An Evangelical Call to Action”—would willingly, for even a month, live in a mud hut in malaria-infested rural Africa under the indigenous conditions their policy prescription would perpetuate? Who among them would be glad to drink the locals' contaminated water, eat their paltry, mold-infested food, breathe the smoke from their wood and dung fires, live twenty-four hours a day, seven days a week, three hundred sixty-five days a year without lights, air conditioning, and refrigeration? Who among them would work all day in the fields amid swarms of diseased mosquitoes and tsetse flies—and swelter under bed nets, trying to sleep when the temperature in the hut is 90° F and inside the bed net 100°—all without bug spray, pesticides, and anti-malaria pills? Who among them would be prepared to walk twenty miles to the nearest clinic, carrying their sick or dying child with them, when they inevitably come down with the fever, chills, and convulsions of acute malaria?

Stopping or reversing economic development in the world's poor countries—which drastic restrictions on fossil fuel use would cause—would keep poor nations impoverished.

That way of life—or rather, death—is the real, though unintended, impact of the policies promoted by “Climate Change: An Evangelical Call to Action.”

A thought experiment might help make our point clearer. Imagine that your city were struck by a

requirements and significant, if usually unacknowledged, environmental consequences. For most renewables, the energy they collect is extremely dilute, requiring large areas of land and masses of collectors to concentrate. Manufacturing solar collectors, pouring concrete for fields of windmills, drowning square miles of land behind dams damages and pollutes.” E.g., a 1,000-megawatt wind farm (about the capacity of a medium-sized conventional power plant) would occupy 2,000 square miles “and even with substantial subsidies and uncharged pollution externalities would produce electricity at double or triple the cost of fossil fuels.” At that ratio, wind farms sufficient to generate the 604,000 megawatts the United States consumes would occupy a third of the country's total land area. Richard Rhodes and Denis Beller, “The Need for Nuclear Power,” *Foreign Affairs* 79:1 (January/February 2000), 30-44; citing here from annotated version at <http://www.nci.org/conf/rhodes/index.htm>.

⁴⁸The Intermediate Technology Development Group, citing United Nations and International Energy Agency data. Smoke from wood and dung fires thus kills more people than malaria and almost as many as unsafe drinking water and lack of sanitation. Most of its victims are women and children. Alex Kirby, “Indoor smoke ‘kills millions’,” BBC News, November 28, 2003, online at <http://news.bbc.co.uk/1/hi/3244214.stm>.

heat wave like the one that killed 700 in Chicago in 1995. Would you be more likely to survive comfortably and safely if you were wealthy, or if you were poor? If the answer is as obvious as we believe it is, what moral basis can there be for adopting an anti-global warming policy that reduces economic development for the world's poor and thus prolongs the time during which they cannot afford to protect themselves from heat—or any other risk?

Responsible discussion of a proposed policy to deal with any problem requires comparing its costs and benefits with those of alternative policies to deal not just with the same problem but also with other problems. Every prescription is likely to have both positive and negative consequences—for different aspects of the environment, different species, different regions, and different groups of people. Therefore we commend the approach used by the Copenhagen Consensus, and we hope our evangelical brothers and sisters, and all who are concerned not just about global warming but about other threats to human and planetary well being, will study it carefully.⁴⁹

We should reduce any emissions only in a cost-effective manner. The difficulty lies in defining what is cost-effective, which entails consideration of monetary cost, available technology, opportunity cost (other uses for that money for health, education, environmental protection, etc), the likelihood and magnitude of risks to be averted, the likelihood and magnitude of benefits to be achieved, who is most likely to enjoy the benefits, who is most likely to bear the costs, and who gets to make the decisions. We believe mandatory carbon emissions reductions are not cost-effective. Therefore we believe that, while we should continue studying the issue, there is no need for draconian measures that will keep the poorest people on Earth from enjoying the benefits of abundant energy. Our technological advancements over the next fifty years will likely dwarf those of the twentieth century and yield new energy generation and use technologies that we cannot even imagine today. All will help reduce human impacts on the climate. More important for the life, health, and well being of the world's poor and their posterity, however, we should continue to promote policies that encourage economic growth where they are.

⁴⁹Bjørn Lomborg, *Global Crises, Global Solutions* (Cambridge: Cambridge University Press, 2004); <http://www.copenhagenconsensus.com/Default.aspx?ID=675>. In the process, studies by specialists and respondents were submitted to eight expert economists, including three Nobel Laureates, who then prioritized major problems facing mankind and alternative solutions to them and then ranked them from most to least effective. The alternatives were divided into four categories of cost-effectiveness—Very Good, Good, Fair, and Bad—and listed in descending order of cost effectiveness (how many people would experience how much benefit at what cost) within each category. The results (*Global Crises, Global Solutions*, 606) were: **Very Good**: 1. Communicable diseases: control of HIV/AIDS. 2. Malnutrition and hunger: providing micronutrients. 3. Subsidies and trade: trade liberalization. 4. Communicable diseases: control of malaria. **Good**: 5. Malnutrition and hunger: development of new agricultural technologies. 6. Sanitation and water: community-managed water supply and sanitation. 7. Sanitation and water: small-scale water technology for livelihoods. 8. Sanitation and water: research on water productivity in food production. 9. Governance and corruption: lowering the cost of starting a new business. **Fair**: 10. Migration: lowering barriers to migration for skilled workers. 11. Malnutrition and hunger: improving infant and child nutrition. 12. Communicable diseases: scaled-up basic health services. 13. Malnutrition and hunger: reducing the prevalence of low birth weight. **Bad**: 14. Migration: guest worker programs for the unskilled. 15. Climate change: optimal carbon tax. 16. Climate change: Kyoto Protocol. 17. Climate change: value-at-risk carbon tax. **Of the seventeen options, the three worst all had to do with attempting to reduce global warming.**

Sixteen years ago, the *Oxford Declaration on Christian Faith and Economics* made this crucial point:

We deplore economic systems based on policies, laws, and regulations whose effect is to favour privileged minorities and to exclude the poor from fully legitimate activities. Such systems are not only inefficient, but are immoral as well in that participating in and benefitting from the formal economy depends on conferred privilege of those who have access and influence to public and private institutions rather than on inventiveness and hard work. Actions need to be taken by public and private institutions to reduce and simplify the requirements and costs of participating in the national economy.⁵⁰

Today we stand with the Oxford Declaration in deploring policies, laws, and regulations whose effect is to favor the already wealthy at the expense of the still poor, excluding them from legitimate development of and legitimate participation in advanced economies and all the benefits they deliver such as lower infant and child mortality rates, longer life expectancy, lower disease rates, more and better education, transportation, communication, and all the other things the already wealthy take for granted. Therefore we pledge to oppose quixotic attempts to reduce global warming. Instead, constrained by the love of Jesus Christ for the least of these (Matthew 25:45), and by the evidence presented above, we vow to teach and act on the truths communicated here for the benefit of all our neighbors.

Authors: E. Calvin Beisner, Ph.D. (History/History of Political Thought), Associate Professor of Social Ethics, Knox Theological Seminary, and author of *Where Garden Meets Wilderness: Evangelical Entry Into the Environmental Debate* (Grand Rapids: Eerdmans/Acton Institute, 1997); Paul Driessen, Esq., environmental ethicist, Senior Policy Advisor on energy and environmental issues, Congress of Racial Equality, and author of *Eco-Imperialism: Green Power, Black Death* (Bellevue, WA: Free Enterprise Press, 2003); Ross McKittrick, Ph.D. (Environmental Economics), Associate Professor and Director of Graduate Studies, University of Guelph, author of the Donner Prize-winning *Taken By Storm: The Troubled Science, Policy and Politics of Global Warming* (Toronto: Key Porter Books, 2002), IPCC expert reviewer (Working Group 1); and Roy Spencer, Ph.D. (Climatology), principal research scientist, University of Alabama, Huntsville, former senior scientist for climate studies, Marshall Space Flight Center, NASA.

⁵⁰*Oxford Declaration on Christian Faith and Economics* (1990), 47; published online at <http://www.casi.org.nz/statements/decoxfef.htm>.

Appendix

**Signers of the Open Letter to
Canadian Prime Minister Stephen Harper**

<http://www.canada.com/nationalpost/financialpost/story.html?id=3711460e-bd5a-475d-a6be-4db8759d605>

Dr. Ian D. Clark, professor, isotope hydrogeology and paleoclimatology, Dept. of Earth Sciences, University of Ottawa; **Dr. Tad Murty**, former senior research scientist, Dept. of Fisheries and Oceans, former director of Australia's National Tidal Facility and professor of earth sciences, Flinders University, Adelaide, currently adjunct professor, Departments of Civil Engineering and Earth Sciences, University of Ottawa; **Dr. R. Timothy Patterson**, professor, Dept. of Earth Sciences (paleoclimatology), Carleton University, Ottawa; **Dr. Fred Michel**, director, Institute of Environmental Science and associate professor, Dept. of Earth Sciences, Carleton University, Ottawa; **Dr. Madhav Khandekar**, former research scientist, Environment Canada, member of editorial board of Climate Research and Natural Hazards; **Dr. Paul Copper**, FRSC, professor emeritus, Dept. of Earth Sciences, Laurentian University, Sudbury, Ont.; **Dr. Ross McKittrick**, associate professor, Dept. of Economics, University of Guelph, Ont.; **Dr. Tim Ball**, former professor of climatology, University of Winnipeg; environmental consultant; **Dr. Andreas Prokoph**, adjunct professor of earth sciences, University of Ottawa, consultant in statistics and geology; **Mr. David Nowell**, M.Sc. (Meteorology), fellow of the Royal Meteorological Society, Canadian member and past chairman of the NATO Meteorological Group, Ottawa; **Dr. Christopher Essex**, professor of applied mathematics and associate director of the Program in Theoretical Physics, University of Western Ontario, London, Ont.; **Dr. Gordon E. Swaters**, professor of applied mathematics, Dept. of Mathematical Sciences, and member, Geophysical Fluid Dynamics Research Group, University of Alberta; **Dr. L. Graham Smith**, associate professor, Dept. of Geography, University of Western Ontario, London, Ont.; **Dr. G. Cornelis van Kooten**, professor and Canada Research Chair in environmental studies and climate change, Dept. of Economics, University of Victoria; **Dr. Petr Chylek**, adjunct professor, Dept. of Physics and Atmospheric Science, Dalhousie University, Halifax; **Dr./Cdr. M. R. Morgan**, FRMS, climate consultant, former meteorology advisor to the World Meteorological Organization, previously research scientist in climatology at University of Exeter, U.K.; **Dr. Keith D. Hage**, climate consultant and professor emeritus of Meteorology, University of Alberta; **Dr. David E. Wojcik**, P.Eng., energy consultant, Star Tannery, Va., and Sioux Lookout, Ont.; **Rob Scagel**, M.Sc., forest microclimate specialist, principal consultant, Pacific Phytometric Consultants, Surrey, B.C.; **Dr. Douglas Leahey**, meteorologist and air-quality consultant, Calgary; Paavo Siitam, M.Sc., agronomist, chemist, Cobourg, Ont.; **Dr. Chris de Freitas**, climate scientist, associate professor, The University of Auckland, N.Z.; **Dr. Richard S. Lindzen**, Alfred P. Sloan professor of meteorology, Dept. of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology; **Dr. Freeman J. Dyson**, emeritus professor of physics, Institute for Advanced Studies, Princeton, N.J.; **Mr. George Taylor**, Dept. of Meteorology, Oregon State University; Oregon State climatologist; past president, American Association of State Climatologists; **Dr. Ian Plimer**, professor of geology, School of Earth and Environmental Sciences, University of Adelaide; emeritus professor of earth sciences, University of Melbourne, Australia; **Dr. R.M. Carter**, professor, Marine Geophysical Laboratory, James Cook University, Townsville, Australia; **Mr. William Kininmonth**, Australasian Climate Research, former Head National Climate Centre, Australian Bureau of Meteorology, former Australian delegate to World Meteorological Organization Commission for Climatology, Scientific and Technical Review; **Dr. Hendrik Tennekes**, former director of research, Royal Netherlands Meteorological Institute; **Dr.**

Gerrit J. van der Lingen, geologist/paleoclimatologist, Climate Change Consultant, Geoscience Research and Investigations, New Zealand; **Dr. Patrick J. Michaels**, professor of environmental sciences, University of Virginia; **Dr. Nils-Axel Morner**, emeritus professor of paleogeophysics & geodynamics, Stockholm University, Stockholm, Sweden; **Dr. Gary D. Sharp**, Center for Climate/Ocean Resources Study, Salinas, Calif.; **Dr. Roy W. Spencer**, principal research scientist, Earth System Science Center, The University of Alabama, Huntsville; **Dr. Al Pekarek**, associate professor of geology, Earth and Atmospheric Sciences Dept., St. Cloud State University, St. Cloud, Minn.; **Dr. Marcel Leroux**, professor emeritus of climatology, University of Lyon, France, former director of Laboratory of Climatology, Risks and Environment, CNRS; **Dr. Paul Reiter**, professor, Institut Pasteur, Unit of Insects and Infectious Diseases, Paris, France, expert reviewer, IPCC Working group II, chapter 8 (human health); **Dr. Zbigniew Jaworowski**, physicist and chairman, Scientific Council of Central Laboratory for Radiological Protection, Warsaw, Poland; **Dr. Sonja Boehmer-Christiansen**, reader, Dept. of Geography, University of Hull, U.K., editor, *Energy & Environment*; **Dr. Hans H.J. Labohm**, former advisor to the executive board, Clingendael Institute (The Netherlands Institute of International Relations) and an economist who has focused on climate change; **Dr. Lee C. Gerhard**, senior scientist emeritus, University of Kansas, past director and state geologist, Kansas Geological Survey; **Dr. Asmunn Moene**, past head of the Forecasting Centre, Meteorological Institute, Norway; **Dr. August H. Auer**, past professor of atmospheric science, University of Wyoming; previously chief meteorologist, Meteorological Service (MetService) of New Zealand; **Dr. Vincent Gray**, expert reviewer for the IPCC and author of *The Greenhouse Delusion: A Critique of 'Climate Change 2001'*, Wellington, N.Z.; **Dr. Howard Hayden**, emeritus professor of physics, University of Connecticut; **Dr. Benny Peiser**, professor of social anthropology, Faculty of Science, Liverpool John Moores University, U.K.; **Dr. Jack Barrett**, chemist and spectroscopist, formerly with Imperial College London, U.K.; **Dr. William J. R. Alexander**, professor emeritus, Dept. of Civil and Biosystems Engineering, University of Pretoria, South Africa, member, United Nations Scientific and Technical Committee on Natural Disasters, 1994-2000; **Dr. S. Fred Singer**, professor emeritus of environmental sciences, University of Virginia, former director, U.S. Weather Satellite Service; **Dr. Harry N.A. Priem**, emeritus professor of planetary geology and isotope geophysics, Utrecht University, former director of the Netherlands Institute for Isotope Geosciences; past president of the Royal Netherlands Geological & Mining Society; **Dr. Robert H. Essenhigh**, E.G. Bailey professor of energy conversion, Dept. of Mechanical Engineering, The Ohio State University; **Dr. Sallie Baliunas**, astrophysicist and climate researcher, Boston, Mass.; **Douglas Hoyt**, senior scientist at Raytheon (retired) and co-author of *The Role of the Sun in Climate Change*, previously with NCAR, NOAA, and the World Radiation Center, Davos, Switzerland; **Dipl.-Ing. Peter Dietze**, independent energy advisor and scientific climate and carbon modeller, official IPCC reviewer, Bavaria, Germany; **Dr. Boris Winterhalter**, senior marine researcher (retired), Geological Survey of Finland, former professor in marine geology, University of Helsinki, Finland; **Dr. Wibjorn Karlen**, emeritus professor, Dept. of Physical Geography and Quaternary Geology, Stockholm University, Sweden; **Dr. Hugh W. Ellsaesser**, physicist/meteorologist, previously with the Lawrence Livermore National Laboratory, Calif., atmospheric consultant; **Dr. Art Robinson**, founder, Oregon Institute of Science and Medicine, Cave Junction, Ore.; **Dr. Arthur Rorsch**, emeritus professor of molecular genetics, Leiden University, The Netherlands, past board member, Netherlands organization for applied research (TNO) in environmental, food, and public health; **Dr. Alister McFarquhar**, Downing College, Cambridge, U.K., international economist; **Dr. Richard S. Courtney**, climate and atmospheric science consultant, IPCC expert reviewer, U.K.

Appendix E

Andrew R. Lewis,
The Ethics & Religious Liberty Commission

“Policy Statement on Global Warming”

August 2005

Policy Statement on Global Warming

By *Andrew R. Lewis*

Aug 1, 2005

The issue of global warming has become a topic of heated debate in the political and Christian communities in recent decades. It is a complex issue that sits at the very heart of the dispute between diverging environmental policies. Various groups are taking different approaches to this issue, and while all the groups agree that a warming trend is occurring, they disagree on its causes. Some conclude that global warming is primarily the result of manmade causes, while others believe that global warming is merely a phase through which our planet is going. The time has come for Christians to engage this issue, and, in order to do so in a responsible manner, they must be informed by a biblical worldview.

An understanding of God's intended relationship between humanity and the natural world is the starting point for a Christian response to the issue of global warming. Genesis 2:15 reveals the biblical model of environmental stewardship by declaring that God put man in the Garden of Eden to "work it and take care of it." This makes clear that God calls Christians to be stewards of the natural environment by both caring for and using what God has graciously given. Also, Jesus gives a clear biblical example of stewardship in His "Parable of the Talents" (Matt. 25:14-28). In this parable, the master praises his servants for their wise use of the resources entrusted to them. However, one servant was unwise in his use, and he was scolded harshly by the master. In this parable, Jesus provides a clear principle of good stewardship: a good steward is one who puts to good use what has been provided to him.

Good stewardship is about more than using resources, though; it also involves caring for those resources. This added dimension of stewardship is based in the goodness of God's creation and the belief that God is the owner and giver of all. The very fact that God created the world gives it great value and demands our care. When He finished His creation, God called it "very good" (Gen. 1:31). David reaffirms God's declaration when he proclaims, "The earth is the Lord's, and everything in it, the world, and all who live in it" (Ps. 24:1). Consequently, while man exercises considerable freedom in his use of creation, he is not free to abuse it, since God is the ultimate owner and ruler. Therefore, the desire to care for creation must be derived from an understanding of the intrinsic value of creation and its relationship to the Creator.

While it is clear that God demands proper stewardship of His creation, many have championed distorted views of this reality. Some have advocated using nature without any reservations, leading to environmental destruction. This is an anthropocentric way to view the world, focusing on what will most benefit man and making man the center of the universe rather than God. The other extreme view puts heavy emphasis on caring for the environment while downplaying or limiting its use for the good of man. This is a pantheistic view of the world, putting nature at the center of the universe rather than God. Neither is a proper biblical view of the environment. God demands that His people both care for and use what He has given. It is this balance between care and use that should drive Christian environmental policies, because any alternate view is distinctly unbiblical and unchristian.

One must use this proper view of environmental stewardship to address the subject of global warming. No one refutes that the planet is currently experiencing a warming trend. Many do, however, dispute its causes. The popular view among many politicians, the news media, and scientists is that global warming is being caused by the release of carbon dioxide (CO₂) into the atmosphere by pollution and the burning of fossil fuels. Once in the atmosphere, many scientists have declared, these CO₂ gases act as “greenhouse gases,” retaining heat inside the earth’s atmosphere. They conjecture that this has led and will lead to increased temperatures over a period of time, eventually changing the climate of the earth. If true, this could have disastrous effects on the earth’s environment, oceans, wildlife, plant life, and economic system.

Because of these projected results, global warming has become a hot-button topic in environmental politics in the past couple decades, and there is increasing pressure from interest groups and European countries for the United States to take a strong position on this issue. In conjunction with the belief of manmade global warming, the Kyoto Protocol was put forth by the United Nations in 1997 to curb greenhouse gases and attempt to limit global warming throughout the world. The Kyoto Protocol targets the largest producers of carbon emissions in the world, asking them to sign on and agree to reduce greenhouse gases. Many European nations have agreed to this international treaty in recent years, but the United States has not, which consequently has led to constant pressure both nationally and internationally. Multiple national, international, and Christian groups have also made statements and signed documents encouraging the United States to take specific action on global warming. Despite political, religious, and national pressure, the United States, thousands of scientists, think tanks, interest groups, and religious institutions (like the Southern Baptist Convention) have refused to adopt parts or all of the manmade global warming theory and the proposed Kyoto Protocol because of multiple flaws, scientific unknowns, and potential economic problems.

Global warming is a very complicated subject and the Kyoto Protocol has complicated processes that could lead to complex results. However, there are some basic flaws and concerns with both the idea and premise of manmade global warming and the functionality of the Kyoto Protocol. The Kyoto Protocol’s policies insist that industrialized nations are the primary factor in the increased carbon emissions in the environment and the ensuing “greenhouse effect” which will increase temperatures and affect climate change. However, there are several factors that do not explicitly point to humans as being the primary factors in the greenhouse effect and the warming of the earth. In the twentieth century alone data show periods of warming and cooling that seem to be unaffected by human pollution. From 1900 to 1940 there was a strong pattern of warming of the earth’s surface temperature, and then from 1940 to the late 1970s, after a significant increase in greenhouse gas production from factories and automobiles, a slight cooling trend was seen. And now from the 1970s to the present another warming trend is occurring¹. This points to a more cyclical pattern of warming and cooling rather than a consistently increasing warming pattern caused exclusively by man, as advocates of the manmade global warming theory would have people believe.

Overall the scientific data is simply not conclusive enough concerning the human effect on climate change to take rash action on limiting carbon emissions. In fact, tens of thousands of scientists agree that there is no conclusive evidence for the manmade global warming theory². Records prove that climates have changed in the past without human interaction, and most of the computer models that predict severe climate change are extrapolated from a very short span of data and use models and analysis that predict an ever-increasing temperature. Also, most models are based on surface temperature, but the real results should be developed

from readings of atmospheric temperature. Scientists have weather balloon data dating back to 1957 and satellite data beginning in 1979, and both point to no significant warming trend. It has also been proven that a variety of physical, non-human factors can affect the extended rising and falling of temperatures. The El Niño effect in the Pacific Ocean (which is a common natural occurrence that warms the ocean temperatures and, in turn, the air) that was present in 1997 and 1998 and caused a natural warming during those years is one such non-human factor.

This El Niño effect led to increased temperatures in the late 1990s, and these temperature increases are often used to point to manmade global warming, without events such as El Niño being mentioned. It is true that man has played a significant role in the increased carbon emissions in the atmosphere. However, natural events such as El Niño create further uncertainties about the extent to which man has contributed to the global warming phenomenon.

Therefore, the most rational action to take would be to not blindly accept inconclusive evidence as pure fact and act irrationally upon it. Yet, the Kyoto Protocol does exactly this. It calls for extensive and expensive cuts in carbon emissions by those countries that produce the most carbon emissions, but since it does not target most of the developing world, the Protocol would have little effect on the global environment while causing enormous financial strain on world economies. According to popular extrapolated models (which have been proven to have biases³), global warming is supposed to increase the average temperature about 1 degree Centigrade by 2050, and, if Kyoto is put in place during that same time period, the difference between no action and the actions of Kyoto will be six hundredths of a degree (0.06), which is an environmental non-factor⁴. But, while it would impact the climate change to a nearly statistically insignificant number, Kyoto would have disastrous effects on the economy, as the estimated cost in implementing Kyoto would be between \$100 billion and \$400 billion⁵.

Beyond the overall cost of Kyoto, it is fatally flawed in its design. Since Kyoto is not targeting the developing world, most industries, instead of facing the environmental restrictions, would probably relocate to a less-restrictive, developing country. And, because of struggling governments with no ability to regulate environmental policies, the output of carbon emissions from those particular countries would likely increase over current emission numbers. These developing countries are also predicted to have the largest increase in carbon emissions in the near future, as they begin to rely more heavily on automobiles, industry, and technology. Thus, without regulating their carbon emissions, the regulation of the developed world through Kyoto would go for naught.

The Kyoto Protocol simply cannot be supported. It would cause incredible amounts of lost jobs (the Heartland Institute estimates 2.4 million jobs would be lost⁶), lead to increased poverty, and perpetuate a crippled American economy for a cause that will not be universally applied and will have little impact on the global climate.

After analyzing all the studies and information, it is clear that global warming is a complex issue without definitive answers. It is indisputable that humans have played a role in increased carbon emissions, and because of this, government and the people should constantly focus on trimming the rate and amount of carbon emissions, thereby producing cleaner air. Humanity and governments should take precautions to decrease carbon emissions and increase environmentally-friendly technology without crippling the world economy and causing an even greater poverty epidemic than already exists. One way to do this would be to

decrease the amount and the concentration of carbon emissions without limiting them entirely. This would allow technology and industry to grow, while resulting in a reduction in carbon released into the atmosphere. This type of measure is in agreement with the action taken and principles stated by the United States in the Asia-Pacific Partnership on Clean Development in July of 2005.

While humanity is responsible for increased carbon emissions and should take results-oriented action, there is no conclusive evidence that a current warming trend is solely or even primarily due to human factors. Many factors impact climate change, and as recently as the mid-twentieth century there was a cooling trend even while human carbon emissions were unchecked. In fact, recent numbers have been inflated because of the El-Niño phenomenon. To base an entire global warming “world crisis” on the extrapolation of data from a short time period into decades and centuries of supposed increased warming using a hypothetical computer model is neither prudent nor effective. There may be a current warming trend on the earth, and humans probably have played a role in causing this trend. However, the degree of warming is not proven and the extent of man’s role has not been pinpointed. Thus, to take rash action, crippling economies and forcing families out of jobs over a phenomenon that could be largely impacted by weather patterns and cyclical warming and cooling trends in the oceans and natural environment, is both irrational and imprudent. Thus, continued research is vital to more clearly understand the root problems of potential climate change and discover if this is a problem which particularly impacts the current generation because of environmental disregard, if it is part of a large scope of warming and cooling patterns throughout history, or if it is simply an environmental non-issue.

The Christian view on global warming needs to be based on theology and reason, and this position on global warming has been developed under these guidelines. God has given man a biblical requirement for stewardship (Gen. 2:15), which means that humans should both use and care for the environment. Devaluing the use and overemphasizing the care for the environment is not a proper biblical practice and neither is the opposite. Biblical stewardship demands a dual relationship between use and care in order to develop industry and protect against abuse. In the current global warming debate there are simply not enough facts to mandate an extreme limiting of the use of natural resources to guard against “abuse” that only has hypothetical consequences and goes against the informed opinions of thousands of knowledgeable scientists and climatologists.

Endnotes

¹ Sallie Baliunas, “Warming Up to the Truth: The Real Story About Climate Change,” The Heritage Foundation (22 August 2002), par. 11.

² “Instant Expert Guide: Global Warming,” The Heartland Institute (Chicago: Heartland, 1999), 7.

³ Pat Michaels, “Review of the 2001 U. S. Climate Action Report,” Cato Institute 3 June 2002, 2.

⁴ *Ibid.*, 52.

⁵ *Ibid.*, 56.

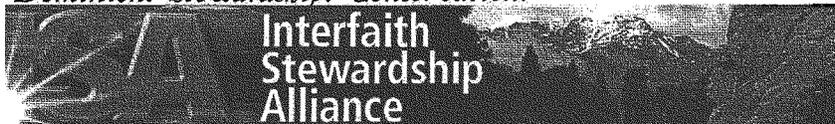
⁶ “Instant Expert Guide: Global Warming,” The Heartland Institute, 5.

Appendix F

Interfaith Stewardship Alliance

“An Open Letter to the Signers of
‘Climate Change: An Evangelical Call to Action’
and Others Concerned About Global Warming”

Dominion. Stewardship. Conservation.



**An Open Letter to the Signers of
"Climate Change: An Evangelical Call to Action"
and Others Concerned About Global Warming**

*"They only asked us to remember the poor--the very thing I was eager to do."
--The Apostle Paul, Galatians 2:10*

Widespread media reports tell of a scientific consensus that:

- the world is presently experiencing unprecedented global warming;
- the main cause of it is rising atmospheric carbon dioxide because of human use of fossil fuels for energy; and
- the consequences of continuing this pattern will include (1) rising sea levels that could inundate highly populated and often poor low-lying lands, (2) more frequent deadly heat waves, droughts, and other extreme weather events, (3) increased tropical diseases in warming temperate regions, and (4) more frequent and intense hurricanes.

Recently eighty-six evangelical pastors, college presidents, mission heads, and other leaders signed "Climate Change: An Evangelical Call to Action," under the auspices of the Evangelical Climate Initiative. The document calls on the federal government to pass national legislation requiring sufficient reductions in carbon dioxide emissions to fight global warming and argues that these are necessary to protect the poor from its harmful effects.

In light of all this, many people are puzzled by the Interfaith Stewardship Alliance's opposition to such calls. Do we not *care* about the prospect of catastrophic global warming? Do we not *care* that with rising temperatures the polar ice caps will melt, and the sea will inundate low island countries and coastal regions? Do we not *care* that the world's poor might be most hurt by these things?

Yes, we care. But we also believe, with economist Walter Williams, that "truly compassionate policy requires dispassionate analysis." That is the very motive for our opposing drastic steps to prevent global warming. In short, we have the same motive proclaimed by the Evangelical Climate Initiative in its "Call to Action."

But motive and reason are not the same thing. It matters little how well we mean, if what we do actually harms those we intend to help.

That is why we take the positions we do. In the accompanying document, "A Call to Truth, Prudence,

and Protection of the Poor: An Evangelical Response to Global Warming,” we present extensive evidence and argument against the extent, the significance, and perhaps the existence of the much-touted scientific consensus on catastrophic human-induced global warming. Further, good science—like truth—is not about counting votes but about empirical evidence and valid arguments. Therefore we also present data, arguments, and sources favoring a different perspective:

- Foreseeable global warming will have moderate and mixed (not only harmful but also helpful), not catastrophic, consequences for humanity—including the poor—and the rest of the world’s inhabitants.
- Natural causes may account for a large part, perhaps the majority, of the global warming in both the last thirty and the last one hundred fifty years, which together constitute an episode in the natural rising and falling cycles of global average temperature. Human emissions of carbon dioxide and other greenhouse gases are probably a minor and possibly an insignificant contributor to its causes.
- Reducing carbon dioxide emissions would have at most an insignificant impact on the quantity and duration of global warming and would not significantly reduce alleged harmful effects.
- Government-mandated carbon dioxide emissions reductions not only would not significantly curtail global warming or reduce its harmful effects but also would cause greater harm than good to humanity—especially the poor—while offering virtually no benefit to the rest of the world’s inhabitants.
- In light of all the above, the most prudent response is not to try (almost certainly unsuccessfully and at enormous cost) to prevent or reduce whatever slight warming might really occur. It is instead to prepare to adapt by fostering means that will effectively protect humanity—especially the poor—not only from whatever harms might be anticipated from global warming but also from harms that might be fostered by other types of catastrophes, natural or manmade.

We believe the harm caused by mandated reductions in energy consumption in the quixotic quest to reduce global warming will far exceed its benefits. Reducing energy consumption will require significantly increasing the costs of energy—whether through taxation or by restricting supplies. Because energy is a vital component in producing all goods and services people need, raising its costs means raising other prices, too. For wealthy people, this might require some adjustments in consumption patterns—inconvenient and disappointing, perhaps, but not devastating. But for the world’s two billion or more poor people, who can barely afford sufficient food, clothing, and shelter to sustain life, and who are without electricity and the refrigeration, cooking, light, heat, and air conditioning it can provide, it can mean the difference between life and death.

Along with all the benefits we derive from economic use of energy, another consideration—a Biblical/theological one—points in the same direction. The stewardship God gave to human beings over the earth—to cultivate and guard the garden (Genesis 2:15) and to fill, subdue, and rule the whole earth (Genesis 1:28)—strongly suggests that caring for human needs is compatible with caring for the earth. As theologian Wayne Grudem put it, “It does not seem likely to me that God would set up the world to work in such a way that human beings would eventually destroy the earth by doing such ordinary and morally good and necessary things as breathing, building a fire to cook or keep warm, burning fuel to travel, or using energy for a refrigerator to preserve food.”

Whether or not global warming is largely natural, (1) human efforts to stop it are largely futile; (2) whatever efforts we undertake to stem our small contributions to it would needlessly divert resources from much more beneficial uses; and (3) adaptation strategies for whatever slight warming does occur are much more sensible than costly but futile prevention strategies. Therefore, we believe it is far wiser to promote economic growth, partly through keeping energy inexpensive, than to fight against potential global warming and thus slow economic growth. And there is a side benefit, too: wealthier societies are better able and more willing to spend to protect and improve the natural environment than poorer societies. Our policy, therefore, is better not only for humanity but also for the rest of the planet.

We recognize that reasonable people can disagree with our understanding of the science and economics. But this is indeed our understanding.

Please join us in endorsing “**A Call to Truth, Prudence, and Protection of the Poor: An Evangelical Response to Global Warming.**” To do so, send an e-mail with your name, degree(s) (with subject, level, and granting institution), professional title, professional affiliation (for identification purposes only), mailing address, e-mail address, and (for verification) phone number to isa@interfaithstewardship.org. If you have questions, please e-mail the same address.

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(Updated July 29, 2006)

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RESPONSES BY RUSSELL D. MOORE TO ADDITIONAL QUESTIONS FROM
SENATOR INHOFE

Question 1. Have Southern Baptists spoken collectively to the issue of global warming even more recently than their annual convention in Greensboro in 2006? If so, what did they say?

Response. Yes, the Southern Baptist Convention addressed the issue of global warming explicitly this year at the SBC meeting in San Antonio. SBC resolution number 5, adopted this June by the SBC is included with this correspondence as Attachment A.

This resolution, when originally reported out of the SBC resolutions committee, was already quite strongly worded. It was strengthened by action from the floor to delete language that called for government support for research on cleaner, alternative fuels. This sort of amendment from the floor, especially one that strengthens a resolution, is quite rare in SBC polity. It further demonstrates that Southern Baptists are not part of the so-called “evangelical consensus” on global warming represented by some within the National Association of Evangelicals and other groups.

Question 2. What specific concerns did Southern Baptists express this year about climate change legislation?

Response. The resolution addresses many of the concerns I mentioned to the committee in my June 7 testimony along with several others. The resolution denies that the scientific data conclusively demonstrate the idea of catastrophic human-induced global warming. It further points out specific concerns with Kyoto Protocol including the possibly crippling effects of Kyoto on developing nations, a burden which will be borne largely by the world’s poor.

The resolution concludes that the Southern Baptist Convention messengers gathered in San Antonio “consider proposals to regulate CO₂ and other greenhouse gas emissions based on a maximum acceptable global temperature goal to be very dangerous, since attempts to meet the goal could lead to a succession of mandates of deeper cuts in emissions, which may have no appreciable effect if humans are not the principal cause of global warming, and could lead to major economic hardships on a worldwide scale.”

Question 3. Do you have any concerns about groups such as the Evangelical Environmental Network being funded by a foundation that supports abortion advocacy?

Response. I am indeed concerned about such funding.

At the June 7 hearing, Senator Inhofe asked Jim Ball of the Evangelical Environmental Network about the funds given to the Evangelical Climate Initiative advertising campaign and other EEN causes by the Hewlett Foundation, a foundation that supports abortion-rights causes and groups including the National Abortion Federation, Planned Parenthood Federation of America, the Religious Coalition for Reproductive Choice, and Catholics for a Free Choice. The foundation notes on its website that it “concentrates its resources on activities in education, environment, global development, performing arts, and population.” It is the last of these emphases that concerns me. The Hewlett Foundation has given \$1 million donations in 2001 and 2004 to the United Nations Population Fund, which holds a view of humanity quite at odds with the worldview of biblical Christian theology and which is tied to coercive abortion policies in countries such as China.

No one is suggesting that organizations such as EEN are covertly abortion-rights groups. The question is instead why would a group so interested in supporting abortion-rights and, specifically, population control wish to fund an initiative by evangelical Christians? Clearly, I think, it is because the Hewlett Foundation believes that a religious advocacy for action on global warming can lead to drastic national and multi-national action on climate change, action that includes—in most environmentalist proposals offered around the world to date—“action” on population control.

Evangelical Christians believe in the stewardship of humanity of the creation. We also believe, however, in the dignity of human beings created in the image of God. Any proposal that seeks to shed innocent human blood, born or pre-born or which sees the Genesis mandate of a fruitful and multiplying humanity as a curse rather than a blessing cannot be supported by evangelical Christians.

Mr. Ball’s response to Senator Inhofe’s question was perplexing to me. Mr. Ball suggested that any funds from the Hewlett Foundation to evangelical global warming initiatives made money the Foundation could use to fund abortion that much less. I think the larger question is whether the Hewlett Foundation believes their support of these initiatives does lead ultimately to abortion and population-control policies, and whether they are right to assume so.

I have appended to this document (Attachment B) a news article from the Baptist Press, the news service of the Southern Baptist Convention, about the reaction of some evangelical groups to reports of Hewlett Foundation funding of the Evangelical Climate Initiative.

Question 4. Does your position simply leave the climate change dismissal at the level of laissez-faire, leaving corporations to impact the earth and its atmosphere, as they will for the sake of economic growth?

Response. My position could not be further from a corporatist laissez-faire approach to environmental conservation. Government does have a role in protecting the common good. I support much, if not most, of the environmental protection legislation passed by the United States Congress since the 1970s. Government has a role in protecting our national parks, our wildlife refuges, the purity of our water systems, and the quality of our air. At issue in this discussion is not whether corporations should be free to run untrammelled over the earth, but instead whether this specific set of policy recommendations is wise, especially given religious groups' willingness to grant such recommendations the implicit imprimatur of divine revelation by tying them to Scripture passages on creation stewardship.

Southern Baptists and other conservative evangelicals are hardly captive to Exxon/Mobil or any other corporation. We have been more than willing to speak to the issue of corporate irresponsibility repeatedly over the years. Southern Baptists went so far as to all for a boycott of the Disney theme parks in 1997 out of concern for the corporation's perceived contributions to cultural decay. We have spoken out consistently against an American corporate culture that profits from alcohol and tobacco abuse, materialistic covetousness, pornography, the dissolution of the nuclear family, and the list goes on and on. Conservative evangelicals are not naïve about human sinfulness—including sinfulness that can accumulate in corporate structures. With such the case, conservative Protestant Christians are as suspicious of big business as we are of big government.

At issue in this discussion is not, for me, whether oil companies will profit or fail to profit from whatever policy decisions are made, but whether the policies advocated will do more harm than good and whether, when tied as they have been to divine revelation, they co-opt the Word of God as a prop for a dubious political program.

Appendix A

Resolution No. 5 “On Global Warming”

Adopted by the Southern Baptist Convention

June 2007



5. ON GLOBAL WARMING

June 2007

WHEREAS, God is not a distant bystander with respect to human affairs, but judges all people and holds them accountable for their thoughts and actions (Psalm 24:1; Isaiah 45:5-8; Hebrews 4:12-13); and

WHEREAS, Christians are called by God to exercise caring stewardship and dominion over the earth and environment (Genesis 1:28; Psalm 8); and

WHEREAS, We share God's concern that the poor should not be abused, taken advantage of, nor overburdened (Psalm 140:12; Proverbs 14:31; 29:7; Isaiah 25:4; Ezekiel 22:29, 31; Matthew 25:40; John 14:15); and

WHEREAS, The record shows that global temperature has risen and fallen cyclically throughout geologic history, with some periods warmer and others cooler than the present; and

WHEREAS, The global temperature has generally risen since 1850 as it recovers from the "Little Ice Age" (1550-1850 A.D.); and

WHEREAS, The ten warmest years since 1850 have occurred in the last fifteen years; and

WHEREAS, The scientific community is divided regarding the extent to which humans are responsible for recent global warming; and

WHEREAS, Many scientists reject the idea of catastrophic human-induced global warming; and

WHEREAS, Sixty international experts in climate and related sciences signed an open letter on April 5, 2006, to Canadian Prime Minister Stephen Harper stating that scientific evidence does not support the computer models of catastrophic human-induced global warming; and

WHEREAS, The United Nations' Intergovernmental Panel on Climate Change (IPCC), while remaining politically active in warning of catastrophic human-induced global warming, has recently altered many of its previous statements, reducing its projections of the magnitude of global warming and its impacts on the world; and

WHEREAS, Many scientists argue that natural causes such as El Niño, alterations in solar energy, solar wind output, cycles of cosmic ray influx, precipitation microphysics, and changes in cloud forcing—along with human-land-use conversion for cities and agricultural use and deforestation—are much more significant in climate change than CO₂ emissions; and

WHEREAS, Certain areas of the world, where some say warming is most pronounced, were actually much warmer than they are today, like Greenland, which was extensively farmed by the Vikings from around 1000 to 1300 A.D., before colder temperatures made farming virtually impossible for them; and

WHEREAS, Measures to curb global warming, such as those contained in the United Nations-sponsored Kyoto Protocol, are estimated to only reduce the likely rise in the average global temperature by 10 percent or less, from an increase of 2.0o C to 1.9o C by 2100, for example; and

WHEREAS, Some estimate that compliance with Kyoto would cost the global economy from about \$200 billion to \$1 trillion each year without a policy that would allow for global carbon emissions trading and \$75 billion each year even

with a worldwide trading scheme; and

WHEREAS, Large developing countries such as China, India, and Brazil are currently exempt from Kyoto; and

WHEREAS, Exempting emerging economies like China, India, and Brazil from CO₂ and other greenhouse gas emissions reductions would significantly undermine the minute effect on average global temperature gained through reductions by developed nations; and

WHEREAS, Forcing developing countries to comply with Kyoto will significantly inhibit their economic development and the development of the international economy; and

WHEREAS, Proposed carbon offset programs will have little impact on reducing rising temperatures if human activity is not a significant cause of recent global warming; and

WHEREAS, Some are proposing that a maximum acceptable global temperature increase should serve as the guideline for determining reductions in CO₂ and other greenhouse gas emissions; and

WHEREAS, Businesses and municipalities will likely pass along the cost of emissions reduction programs to consumers, driving up the cost of goods and services; and

WHEREAS, Poor people and underdeveloped regions of the world will be impacted the most severely by higher costs; and

WHEREAS, The poor and most vulnerable people around the world are faced with many more quantifiable, immediate, devastating problems; now, therefore, be it

RESOLVED, That the messengers to the Southern Baptist Convention meeting in San Antonio, Texas, June 12-13, 2007, urge Southern Baptists to proceed cautiously in the human-induced global warming debate in light of conflicting scientific research; and be it further

RESOLVED, That we consider proposals to regulate CO₂ and other greenhouse gas emissions based on a maximum acceptable global temperature goal to be very dangerous, since attempts to meet the goal could lead to a succession of mandates of deeper cuts in emissions, which may have no appreciable effect if humans are not the principal cause of global warming, and could lead to major economic hardships on a worldwide scale; and be it further

RESOLVED, That we urge Congress and the president to only support cost-effective measures to reduce CO₂ and other greenhouse gas emissions and to reject government-mandated reductions in greenhouse gas emissions; and be it further

RESOLVED, That we urge governments to begin to take steps to help protect vulnerable communities and regions from the effects of the inevitable continued cycles of warming and cooling that have occurred throughout geologic history; and be it further

RESOLVED, That we strongly request that all public policy decision makers ensure an appropriate balance between care for the environment, effects on economies, and impacts on the poor when considering programs to reduce CO₂ and other greenhouse gas emissions; and be it further

RESOLVED, That we support the development of environmental public policy that will improve the stewardship of the earth's resources without resulting in significant negative consequences not only on the United States and other developed economies, but also, and most importantly, on the poor and on developing economies; and be it further

RESOLVED, That we support public policy that helps provide immediate assistance to the poor and most vulnerable people around the world, including access to clean drinking water and electricity, AIDS care and prevention,

vaccinations, malaria eradication, and education programs; and be it finally

RESOLVED, That we continually reaffirm our God-given responsibility to care for the earth by remaining environmentally conscious and taking individual and collective efforts to reduce pollution, decrease waste, and improve the environment in tangible and effective ways.

San Antonio, TX

<http://www.sbc.net/resolutions/amResolution.asp?ID=1171>
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Appendix B

**“Pro-Abortion Foundation Aided Evangelical
Climate Effort”**

**Tom Strode
Baptist Press**

March 2006



Pro-abortion foundation aided evangelical climate effort

By Tom Strode

Mar 1, 2006

WASHINGTON (BP)—A new effort by more than 80 evangelical Christian leaders to combat global warming is being criticized by some pro-life organizations for using funds given by a foundation that regularly supports abortion-rights advocacy.

The Evangelical Climate Initiative (ECI) has utilized funds that originated with the Hewlett Foundation in an advertising campaign to advance its work against global warming. The Hewlett Foundation, which has generously funded Planned Parenthood Federation of America and other national and international advocates for legal abortion, designated a \$475,000 grant to a religious, environmental coalition for ECI.

Concerned Women for America and Operation Rescue took issue with ECI's use of money from a foundation that promotes abortion rights in its grants. The Hewlett Foundation "is one of the most prodigious and unabashed funders of abortion causes," and its "significant grant for this initiative ... reveals where this effort could lead," CWA President Wendy Wright said in a written statement. "They would not fund something that contradicts their main missions."

An ECI spokesman said the coalition of 86 evangelicals who signed on to the statement promoting a campaign against climate change believes in protecting unborn life. Jim Jewell denied use of the money promotes abortion. "The only thing that the grant shows is that there is some agreement that global warming is going to hurt people in the days ahead and that it needs to be stopped," Jewell told Baptist Press. "To say that the grant says anything else, it really holds no water."

In a statement released at a Feb. 8 news conference, ECI described global warming as "mainly human-induced" and called for federal legislation to reduce carbon dioxide emissions. Though leaders such as mega-church pastors Rick Warren of Southern California and Leith Anderson of Minneapolis signed onto it with denominational, parachurch and university heads, other well-known evangelicals — including James Dobson of Focus on the Family and Richard Land of the Southern Baptist Ethics & Religious Liberty Commission — did not endorse the statement, citing a lack of consensus among evangelicals about the extent and cause of global warming.

While ECI members hope their statement will gain the endorsement of many more evangelical leaders, it remains to be seen if the news about the Hewlett Foundation's support will deter that effort.

The Hewlett Foundation, located in Menlo Park, Calif., says on its website it "concentrates its resources on activities in education, environment, global development, performing arts and population." An online review of its population program grants since 1999 shows Hewlett has continually given to organizations that perform abortions and promote their legal protection in the United States and other countries.

For instance:

-- The Planned Parenthood Federation of America, the largest abortion provider in the country, or at least one of its affiliates has received Hewlett funds each year, including general support grants for PPF of \$3.6 million in 2001 and \$4 million in 2004 and a \$1 million gift in 2005 to aid PPF in its outreach on the Gulf Coast after Hurricane Katrina.

-- The International Planned Parenthood Federation, a leading advocate for the liberalization of anti-abortion laws overseas, has been the beneficiary of Hewlett grants yearly, including a \$1.35 million donation to IPPF's European Network in 2000, \$1.5 million contributions to IPPF's Western Hemisphere Region in both 2001 and 2003, and a \$4.7 million gift in 2004 for IPPF's general support.

-- The United Nations Population Fund (UNFPA), which the Bush administration has refused to support for four consecutive years because of links to China's coercive population control program, received \$1 million contributions from Hewlett through the United Nations Foundation in both 2001 and 2004. Hewlett also has given to the U.S. Committee for UNFPA.

-- The Center for Reproductive Rights, a legal defender and advocate for abortion rights in all countries, accepted Hewlett general-support gifts of \$2 million in both 2001 and 2004.

-- The Population Council, which holds the United States patent for the abortion drug RU 486, has received funds from Hewlett, including general-support grants of \$3.8 million in 2002 and \$3 million in 2005.

Hewlett has funded numerous other organizations that promote abortion rights, including the National Abortion Federation, Religious Coalition for Reproductive Choice, Catholics for a Free Choice, Marie Stopes International and the Sexuality Information and Education Council of the United States.

Operation Rescue decried the ECI's use of a grant from a foundation that it said supports population control by means of abortion.

O.R. President Troy Newman said in a written release it "is immoral and unethical for Christian leaders to accept money from a foundation that is so dedicated to an agenda that is antithetical to the basic [tenets] of Christian teaching on the sanctity of human life." Newman called for ECI to return the grant to Hewlett.

Speaking on behalf of ECI, Jewell said the criticisms from CWA and O.R. amount to an "A plus B equals D critique. It doesn't add up."

"[The ECI coalition] is a group of people who hold as one of their main social priorities to protect the unborn, and to see that anybody's funding abortion is disturbing to this group," Jewell said. "What we do know is that [more than] \$400,000 that went to this effort will not be used to kill babies.

"While we do not support all of the interests and grant decisions of these foundations, we are accountable only for the stewardship of funds that we've received," Jewell told BP. "And we accept full responsibility

for our use of those funds to focus evangelical concern on the dangers of global warming.”

The evangelicals who signed on to the ECI statement did not participate in the decision to receive funds from Hewlett, Jewell told BP. “I wouldn’t want to hold these leaders responsible for the decisions of other people,” he said.

Jewell said the ECI receives money only from the Evangelical Environmental Network (EEN). Jim Ball, also an ECI leader, is EEN’s executive director. EEN actually received the funds from Hewlett, Jewell said.

The Hewlett website says it made a Jan. 27 grant of \$475,000 to the National Religious Partnership for the Environment designated for ECI. EEN is a part of the religious partnership. Hewlett also made a June 2005 grant of \$400,000 to the partnership for its climate and energy program, according to the website.

CWA’s Wright gave the benefit of the doubt to the signers, saying she was “sure that most of the evangelical leaders who signed on have no idea of [Hewlett’s] history and missions.”

“The radical environmental, pro-abortion lobby has learned to adopt language to win over unsuspecting, well-intentioned people,” she said.

The grant that originated with Hewlett has already been spent, Jewell told BP. The funds were used to underwrite an advertising campaign, he said. At the Feb. 8 news conference unveiling the ECI statement, the coalition announced the effort would include ads in *The New York Times* and *Christianity Today*, as well as television spots on Fox and CNN and ads on the Salem Radio Network.

Jewell told BP he did not know if research into Hewlett’s other grantees was conducted before EEN accepted the funds.

Phone calls to EEN’s Ball were not returned in time for this article.

BP contacted four evangelical-based, para-church organizations – Samaritan’s Purse, Campus Crusade for Christ, Compassion International and Feed the Children -- to ask about their policies on receiving funds from foundations.

Admittedly, the comparison between ECI and the four ministries is far from perfect. ECI is a coalition of leaders from a variety of institutions and organizations brought together to promote a specific goal, one that is not focused on evangelism. The four ministries are longstanding organizations with evangelism as a part, if not the focus, of their mission.

There seemed to be a sense among the four ministries that a foundation that funded efforts objectionable to evangelicals, such as Hewlett’s support of abortion rights organizations, would be unlikely to issue grants to them.

Both Samaritan’s Purse and Campus Crusade were uncomfortable about responding to hypothetical situations, saying such decisions would be based on specifics, according to the DeMoss Group, an Atlanta-

area firm that handles both ministries' media relations.

"Samaritan's Purse does not do extensive research on foundations offering grant money unless there is an apparent reason to do so," the ministry said in a statement issued through DeMoss. If it learned a foundation had given to abortion-rights groups, Samaritan's Purse said it "would make any such decision based on the specific situation as [it] knew it at the time."

Franklin Graham is the president of Samaritan's Purse, which is based in Boone, N.C.

In a written statement released to BP through DeMoss, Campus Crusade said its "general practice is to accept funds that people and organizations send in support of staff, projects and ministries, and issue receipts. Campus Crusade for Christ will not discuss specific donors to the ministry, as a person's, organization's or foundation's giving to Campus Crusade for Christ is confidential information. If any donors choose to make such information public, that is their prerogative, but Campus Crusade for Christ will not release such information."

Campus Crusade, founded by the late Bill Bright, has its headquarters in Orlando, Fla.

Compassion does not screen donors but is "very clear" about its identity, a spokesman for the ministry told BP.

"We're very up front about who we are, so people who sign on or donate to us are basically buying into what we are all about as an evangelical organization," said Jay Lees, Compassion's corporate communications director. "It's unlikely that anyone would donate to us that would not be extremely clear about who we are and what we are about."

Wesley Stafford is president of Compassion, which is based in Colorado Springs.

In a statement released to BP, Feed the Children said its mission "is to help hungry children. We don't believe it would be a wise use of resources to determine the personal or political beliefs of donors. People who are moved to help hungry children usually have very high motives."

Larry Jones is president of Feed the Children, which has its headquarters in Oklahoma City.

In addition to Hewlett, the ECI also received funding from Pew Charitable Trusts and the Rockefeller Brothers Fund.

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Senator BOXER. Thank you so much, Doctor.

Here is what we are going to do. We have two back to back votes, but we have time to hear from both of you, if you keep it to 5 or 6 minutes. Then we will take a break and we will be back to question the panel.

So I want to welcome our next witness, the Reverend Dr. Jim Tonkovich, president, Institute on Religion and Democracy. Welcome.

**STATEMENT OF THE REVEREND DR. JAMES TONKOWICH,
PRESIDENT, INSTITUTE ON RELIGION AND DEMOCRACY**

Rev. TONKOWICH. Thank you, Madam Chairman. Thank you for this opportunity to present my testimony.

Most of the constituents of the Institute on Religion and Democracy are evangelicals who are members of the so-called mainline Protestant churches. They are involved with the IRD in part because they feel mis-represented by their denominational Washington offices and by groups like the National Council of Churches. Most are working within their denominations to bring about changed social witness policies that are consistent with biblical and historic Christianity.

I would like to address two concerns regarding global warming this morning. First, human population and human development and second, the importance of debate. Since the Biblical story begins in a pristine garden, it is tempting to think that the story will end with the garden restored. But instead of restoration, the Bible is a story of recreation with an unexpected twist. The grand story that begins in Genesis in a garden ends in the book of Revelation in a city.

Now, a city is a complex of artifacts: walls, doors, windows, foundations fashioned out of quarried stone, lumber, metal and glass. The Bible values human beings as makers and creators. In fact, the world is incomplete without human activity. Even in Eden, there was no call to maintain an unpopulated wilderness area. Humans create.

A city is also a habitation for people, many people, people who belong on the earth. This idea is in contrast with much, if not most, environmentalist thinking. After all, since people use up natural resources, release carbon dioxide and otherwise pollute the environment, fewer people means less harm. Ergo, to save the earth, we have to reduce the human population. That is creeping into the thinking of Christian activists as well.

The foundational document of the evangelical environmental network states that environmental "degradations are a sign that we are pressing against the finite limits God has set for creation. With continued population growth, these degradations will become more severe." What solution is there for this problem, if it is a problem, except population control?

Yet population control, which nearly always includes abortion on demand, is abhorrent to evangelical and Catholic Christians. By contrast, a view that is consistent with biblical and historic Christian teachings is that human beings, human procreation and human industry are positive goods. The problem is not population, it is how to create a just, peaceful, educated society in which people

can use and develop the technologies that they need. In order to do that, we must make sufficient quantities of inexpensive energy available to the global poor, something believers in catastrophic global warming are unwilling to do because of fear of global warming.

It is not just a matter of withholding energy, as Senator Inhofe pointed out. According to the Congressional Budget Office, CO₂ cap and trade policies will disproportionately hurt the poor.

The second concern I want to mention is over the debate itself. Recently at a discussion between evangelicals on both sides of this issue, one side presented facts, arguments and questions. The other, those who believe in catastrophic global warming, responded with nothing but bald assertions, insisting that the debate is over. When pressed, one participate, as if on cue, reverted to an ad hominem attack and went on to assert that he believes whatever the scientists tell him because of the scientific consensus.

But there is no scientific consensus. Attached to my written testimony is an appendix listing scientists and scholars with relevant expertise who do not see the evidence for catastrophic, human-induced global warming. The kind of radical fideism that some evangelicals are exhibiting is a betrayal of science, because science is not about voting. Science is about facts, interpretation of those facts and conclusions that either align with reality or don't. Even if there was "nearly universal agreement" scientific consensus has been wrong in the past. It will be wrong again. Thank God for the skeptics.

It is also a betrayal of the Christian intellectual tradition. Christians have always relied on faith and reason to understand the world. We test would-be authorities in light of faith and reason. We ask hard questions, we demand answers, particularly when the livelihood and lives of the poor are at stake.

Stewardship of creation is non-negotiable. Environmental issues deserve well-informed and thoroughly Christian responses that consider all the scientific evidence.

Further, we must avoid the dangerous misanthropy of much modern environmentalist ideology, and we must avoid public relations campaigns that simply rely on endless repetition. Instead, a thoroughly Christian response will affirm that humans and human activity are valuable, worthy and in fact, indispensable in God's good plan for His good earth.

Thank you so much.

[The prepared statement of Reverend Tonkowich follows:]

STATEMENT OF THE REV. DR. JAMES TONKOWICH, THE INSTITUTE ON
RELIGION AND DEMOCRACY

First, I want to thank you for this opportunity to present my testimony. The Institute on Religion & Democracy is an ecumenical alliance of U.S. Christians working to reform their churches' social witness in order to contribute to the renewal of democratic society at home and abroad. Most of our constituents, let me add, are evangelicals who are members of the so-called "mainline" Protestant churches. They are involved with the IRD in part because they feel misrepresented by their denominational Washington offices and by groups like the National Council of Churches. Most are working within their denominations to bring about changed social witness policies that are consistent with biblical and historic Christian teachings.

This morning I would like to address two concerns regarding global warming, concerns where Christian theology had sometimes been misconstrued in the global warming debates. The first is the positive valuation of human population and

human development. The second is the importance on not foreclosing prudential debates that should remain open.

This summer, our son is getting married in his bride's hometown just outside Yosemite Valley. So along with a wedding, there'll be biking and fly fishing in the high country of Tuolumne Meadows.

Isn't that the way the world should be? After All, the biblical story begins in a garden—fresh, newly created, uncluttered, natural, a pristine wilderness.

Then came the breaking of God's law—the Fall.

"Cursed is the ground because of you," said God. "Through painful toil you will eat of it all the days of your life.

It will produce thorns and thistles for you and you will eat the plants of the field. By the sweat of your brow you will eat your food until you return to the ground, since from it you were taken; for dust you are and to dust you will return." (Genesis 3:17b-19).

After the expulsion from Eden, the story of humanity and of our relationship with God on this cursed ground seems as though it should end up back in the Garden. All the trash cleaned up and the marvelous, all-natural freshness of Eden restored. The Earth picked clean of human encroachment.

Its tempting to think about it that way. In fact recently National Association of Evangelicals Vice President for Governmental Affairs Richard Cizik told Newsweek that he feels that God is saving, "...with my help, you can restore Eden."¹ The thought is tempting, the sound-bite attractive, but biblically and theologically, it's pure nonsense.

In the final analysis, the Bible is not a story of restoration. It's a story of re-creation. "Behold," says God in Revelation 21:5, "I'm making everything new." Eden will never be restored. That was never the intent. Instead something better will happen: all things will be made new—re-created with an unexpected twist. The grand story that began in a garden ends in a city. This final city, the New Jerusalem, descends out of the New Heavens to its place on the New Earth. Its a perfect city; a river and garden mark its heart, but its a city nonetheless.

What is a city? First, a city is a complex of artifacts. Cities are not created out of nothing, nor do they grow out of the ground. Cities are shaped from the stuff of creation. Walls, doors, windows, paving stones, foundations fashioned out of stone that must be quarried, wood that must be harvested, and metal smelted from ore.

The Bible values humans as makers who take the raw material of creation—stone, trees, ores—and create. In fact, the creation is incomplete without human activity shaping it. Even in Eden, God called humans to tend the Garden and rule Earth's creatures (Genesis 1:28). This was not a call to maintain the Earth as an unpopulated wilderness area. The Bible sees human beings, human procreation, and human industry as positive goods. We improve what we are given. We build cities.

Second, a city is a habitation for people—people who belong on the Earth. "Be fruitful, multiply, fill the Earth" (Genesis 1:28).

This, as it turns out, is in contrast with much if not most environmentalist thinking.

For example, last year, the Texas Academy of Science named ecology professor Eric Pianka of the University of Texas its "Distinguished Texas Scientist" for 2006. In his acceptance speech Pianka said the only hope for Earth is the death of ninety percent of its human inhabitants. His remarks were greeted by what one observer called "loud, vigorous, and enthusiastic applause"² presumably by people who think they're part of the ten percent.

Pianka's remarks are consistent with a long history of environmentalist thinking that sees humans simply as consumers and polluters if not parasites and an infestation. This thinking leads many to insist that population control—including unlimited abortion on demand—is integral to any environmental agenda.

- "People are always and everywhere a blight on the landscape," said John Muir, founder of the Sierra Club.³

- "Given the total, absolute disappearance of Homo sapiens," wrote Paul Taylor, author of *Respect for Nature, A Theory of Environmental Ethics* "then not only would the Earth's community of Life continue to exist, but in all probability, its well-being enhanced. Our presence, in short, is not needed."⁴

¹Richard Cizik in "16 Ideas for the Planet," Newsweek, April 16, 2007.

²Forrest M. Mims, "Meeting Doctor Doom" in *Citizen Scientist*, March 31, 2006. <http://www.sas.org/tcs/weeklyIssues—2006/2006-04-07/feature1p/index.html>

³Fort Worth Dallas Four Wheel Drive, 5 October 1999. "Quotes from some Green Advocate Group Members." Internet: www.fwd-fwd.org/quotes.html. Accessed on 19 January 2000.

⁴Taylor, Paul, 1986. *Respect for Nature: A theory of Environmental Ethics*, Princeton, NJ: Princeton University Press, P. 115.

- Gophilus, spokesman for Gaia Liberation Front has said, “[W]e have no problem in principle with the humans reducing their numbers by killing one another. It’s an excellent way of making the humans extinct.”⁵

- And John Davis, editor of the journal “Earth First!” Commented, “Human beings, as a species, have no more value than slugs.”⁶

In a similar vein, Dr. Jay Richards of the Acton Institute received an email from a scientist who commented:

Surely, the Black Death was one of the best things that ever happened to Europe: elevating the worth of human labor, reducing environmental degradation, and, rather promptly, producing the Renaissance. From where I sit, Planet Earth could use another major human pandemic, and pronto!⁷

Now logically, you can support schemes for climate change without supporting population control. But for many environmentalists climate control is inextricably linked to population control. After all, since people use up natural resources, release carbon dioxide, and otherwise pollute the environment, fewer people means less harm to the environment. So, to save the Earth, we have to reduce the human population. And that thinking is creeping into the thinking of some Christians.

For example, the foundational document of the Evangelical Environmental Network states that environmental “degradations are signs that we are pressing against the finite limits God has set for creation. With continued population growth, these degradations will become more severe.”⁸ What solution is there to this problem except population control?

Karen Coshof who produced the film “The Great Warming”—a film enthusiastically endorsed by some evangelical leaders—said after the film’s release, “Population is the underlying problem—the catalyst for the whole thing, but we didn’t get into that in the film. That is the underlying problem—too many people—all in competition for the same resources.”⁹

National Association of Evangelicals Vice President for Government Affairs, Richard Cizik told an audience at the World Bank, “We need to confront population control and we can—we’re not Roman Catholics after all—but it’s too hot to handle now.”¹⁰

Population control, which nearly always includes abortion on demand, is abhorrent to most Evangelical and Catholic Christians.

By contrast, a view that is consistent with biblical and historic Christian teaching is that Earth was shaped by a benevolent Creator to be the habitat that sustains and enriches human life even as humans sustain and enrich the Earth through human creativity and human industry.

Is there sin that destroys the environment? Of course. There’s sin in everything, but the ethical way to control sin—environmental sin, personal sin, economic sin—is not to reduce the population of sinners. We need instead to find ways to empower people—particularly the global poor—to shape creation for the common good.

While there is nothing necessarily wrong with the thoughtful procreation of children, the notion of some fixed carrying capacity of the entire Earth is highly speculative. And it does not take into account that large portions of the Earth’s surface are uninhabited, most inhabitants are not using the best technologies available, and there’s no reason to assume that technological innovations have suddenly come to a halt.

The problem is not population. It’s how to create just, peaceful, educated societies in which people can use and develop technologies to meet their needs. And if the truth be told, population growth slows in more technologically advanced societies. So even if we wanted to slow population growth, the most humane way to do that would be to seek the greatest economic benefit for the poor. And in order to do that we must make sufficient quantities of inexpensive energy available to the global poor—something believers in catastrophic global warming are unwilling to do.

⁵The Off-Road Network, 2000. Genocide Threats from Green Terrorists. Internet: www.off-road.com/green/genocide.html. Accessed on 19 January 2000.

⁶Fort Worth/Dallas Four Wheel Drive, 5 October 1999. Quotes From Some Green Advocate Group Members. Internet: www.fwd-fwd.org/quotes.html. Accessed on 19 January 2000.

⁷Jay Richards, “God and Man in the Environmental Debate.” Acton Institute, November 30, 2005. <http://www.acton.org/policy/comment/article.php?article=298>

⁸Evangelical Environmental Network, “On the Care of Creation: An Evangelical Declaration on the Care of Creation.” <http://www.creationcare.org/resources/declaration.php>.

⁹Kate Monaghan, “Climate Movie: Conservative Worries Christians May Be Duped.” CNS News, November 6, 2006. <http://www.cnsnews.com/Culture/Archive/200611/CUL20061102a.html>

¹⁰Myron Ebell, Personal e-mail (May 2, 2006). Ebell is Director, Energy and Global Warming Policy at the Competitive Enterprise Institute.

And it is not just a matter of withholding energy from those who need it. According to the Congressional Budget Office, cap-and-trade policies of the sort that are advocated by many, including the Evangelical Climate Initiative,¹¹ will disproportionately hurt the poor.

Regardless of how the allowances were distributed, most of the cost of meeting a cap on CO₂ emissions would be borne by consumers, who would face persistently higher prices for products such as electricity and gasoline. Those price increases would be regressive in that poorer households would bear a larger burden relative to their income than wealthier households would.¹²

A solution to an environmental problem that will trap the poor in their poverty is not a solution.

An ethical environmental policy must elevate human beings, lifting them from poverty and pollution. Wealthier is healthier for humans and for the environment. Writing in the Winter 2006 *Wilson Quarterly*, Bjorn Lomborg, the Danish statistician who says he once held “left-wing Greenpeace views,” wrote:

. . . if we are smart, our main contribution to the global environment 30 years from now will be to have helped lift hundreds of millions out of poverty, sickness, and malnutrition while giving them a chance to compete in our markets. This will make a richer developing world, whose people will clean up the air and water, replant forests, and go green.¹³

The second concern I want to raise is over the debate about global warming. “Debate?” Someone may ask, “What debate?” That is exactly the problem.

The proponents of the idea of catastrophic global warming have declared that the debate is over. No further discussion is required and no further disagreement is welcome, no argument is engaged.

I was appalled recently at a moderated discussion between evangelicals on both sides of the global warming issue. One side presented facts, arguments, and questions while the other, those who believe in catastrophic global warming, responded with nothing but bald assertions. When pressed, one participant—as if on cue—reverted to an *ad hominem* attack on his opponents. He then went on to simply assert that he believes whatever the scientists tell him because the scientists all agree. But the scientists do not all agree.

Consider the questions that need to be answered:

- How is the climate changing?
- What are the causes?
- What is the likely extent of future change?
- Is it better to adjust to climate change or attempt to prevent it?
- What measures, if any, would prevent climate change?
- How much would such measures cost and would the benefits be worth the potentially massive cost?

In my reading of the literature and listening to the debate, I have not seen consensus on any of those questions.

Attached is an appendix listing scientists with relevant expertise who do not see the evidence that the current warming is primarily caused by humans and catastrophic.

The kind of radical fideism that some evangelical Christians are exhibiting toward catastrophic global warming is a betrayal of science and a betrayal of the Christian intellectual tradition. It is a betrayal of science because science is not about voting. Science is about facts, interpretations of those facts, and conclusions that either align with reality or don’t. Scientific consensus has been wrong before and it will be wrong again. Thank God for skeptics. They have saved millions of lives. “Skeptic” should be a badge of honor among scientists, and yet it is being tossed about in this debate as a term of derision.

As Carl Sagan wrote, “On the one hand it [science] requires an almost complete openness to all ideas, no matter how bizarre and weird they sound, a propensity to wonder. . . . But at the same time, science requires the most vigorous and uncompromising skepticism, because the vast majority of ideas are simply wrong, and the only way you can distinguish the right from the wrong, the wheat from the chaff,

¹¹ Evangelical Climate Initiative, “Principles for Federal Policy on Climate Change.” <http://pub.christiansandclimate.org/pub/PrinciplesforFederalPolicyonClimateChange.pdf>

¹² Congressional Budget Office, “Trade-Offs in Allocating Allowances for CO₂ Emissions” April 25, 2007, page 1.

¹³ Bjorn Lomborg, “What is the Most Pressing Environmental Question?” in *Wilson Quarterly*, Winter 2006, page 40.

is by critical experiment and analysis.”¹⁴ Declaring that the debate is over based on an alleged consensus and a rejection of skepticism is a betrayal of science.

It is also a betrayal of the Christian intellectual tradition. Christianity, contrary to what some claim, is not pure faith. Christians have always relied on faith and reason to understand the world. Protestant Christians have stressed the authority and responsibility of the individual in making judgments. We test would-be authorities by the light of faith and reason. We ask questions.

The refusal to engage in thoughtful debate about global warming, while choosing instead to make dubious assertions about the debate being over or all scientists agreeing, is not a Christian approach to the issue—particularly when the livelihood and lives of the global poor are at stake. As sixty scientists wrote to Canadian Prime Minister Stephen Harper, “‘Climate change is real’ is a meaningless phrase used repeatedly by activists to convince the public that a climate catastrophe is looming and humanity is the cause.”¹⁵ We can and must do better than the repetition of mantras based on what is wished to be true.

For Christians, stewardship of God’s creation is non-negotiable. Environmental issues deserve a well-informed and thoroughly Christian response. That response must be one that thoughtfully considers all the scientific evidence and eschews a public relations campaign of endless repetition. Further, we must also refuse the dangerous misanthropy of modern environmentalist ideology. We must take an approach that, by contrast, promotes a culture of life and that affirms that humans and human activity are valuable, worthy, and, in fact, indispensable in God’s good plan for this good Earth.

¹⁴ Carl Sagan, “Wonder and Skepticism” in *Skeptical Enquire*, Volume 19, Issue 1, January-February 1995. <http://www.positiveatheism.org/writ/saganws.htm>.

¹⁵ Dr. Ian Clark, et. al. “An open letter to Prime Minister Stephen Harper” in *National Post*, April 6, 2006. <http://www.canada.com/nationalpost/financialpost/story.html?id=3711460e-bd5a-475d-a6be-4db87559d605>

Appendix

A Selected List of Scientists and Scholars with Relevant Experience Who Question the Validity of the Theory of Catastrophic, Human-Caused Global Warming

- Dr. Ian D. Clark, professor, isotope hydrogeology and paleoclimatology, Dept. of Earth Sciences, University of Ottawa
- Dr. Tad Murty, former senior research scientist, Dept. of Fisheries and Oceans, former director of Australia's National Tidal Facility and professor of earth sciences, Flinders University, Adelaide; currently adjunct professor, Departments of Civil Engineering and Earth Sciences, University of Ottawa
- Dr. R. Timothy Patterson, professor, Dept. of Earth Sciences (paleoclimatology), Carleton University, Ottawa
- Dr. Fred Michel, director, Institute of Environmental Science and associate professor, Dept. of Earth Sciences, Carleton University, Ottawa
- Dr. Madhav Khandekar, former research scientist, Environment Canada. Member of editorial board of Climate Research and Natural Hazards
- Dr. Paul Copper, FRSC, professor emeritus, Dept. of Earth Sciences, Laurentian University, Sudbury, Ont.
- Dr. Ross McKittrick, environmental economics, Associate Professor and Director of Graduate Studies, University of Guelph. IPCC expert reviewer (Working Group 1)
- Dr. Tim Ball, former professor of climatology, University of Winnipeg; environmental consultant
- Dr. Andreas Prokoph, adjunct professor of earth sciences, University of Ottawa; consultant in statistics and geology
- Mr. David Nowell, M.Sc. (Meteorology), fellow of the Royal Meteorological Society, Canadian member and past chairman of the NATO Meteorological Group, Ottawa
- Dr. Christopher Essex, professor of applied mathematics and associate director of the Program in Theoretical Physics, University of Western Ontario, London, Ont.
- Dr. Gordon E. Swaters, professor of applied mathematics, Dept. of Mathematical Sciences, and member, Geophysical Fluid Dynamics Research Group, University of Alberta
- Dr. L. Graham Smith, associate professor, Dept. of Geography, University of Western Ontario, London, Ont.
- Dr. G. Cornelis van Kooten, professor and Canada Research Chair in environmental studies and climate change, Dept. of Economics, University of Victoria
- Dr. Petr Chylek, adjunct professor, Dept. of Physics and Atmospheric Science, Dalhousie University, Halifax
- Dr./Cdr. M. R. Morgan, FRMS, climate consultant, former meteorology advisor to the World Meteorological Organization. Previously research scientist in climatology at University of Exeter, U.K.
- Dr. Keith D. Hage, climate consultant and professor emeritus of Meteorology, University of Alberta

- Dr. David E. Wojcik, P.Eng., energy consultant, Star Tannery, Va., and Sioux Lookout, Ont.
- Rob Scagel, M.Sc., forest microclimate specialist, principal consultant, Pacific Phytometric Consultants, Surrey, B.C.
- Dr. Douglas Leahey, meteorologist and air-quality consultant, Calgary
- Paavo Siitam, M.Sc., agronomist, chemist, Cobourg, Ont.
- Dr. Chris de Freitas, climate scientist, associate professor, The University of Auckland, N.Z.
- Dr. Richard S. Lindzen, Alfred P. Sloan professor of meteorology, Dept. of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology
- Dr. Freeman J. Dyson, emeritus professor of physics, Institute for Advanced Studies, Princeton, N.J.
- Mr. George Taylor, Dept. of Meteorology, Oregon State University; Oregon State climatologist; past president, American Association of State Climatologists
- Dr. Ian Plimer, professor of geology, School of Earth and Environmental Sciences, University of Adelaide; emeritus professor of earth sciences, University of Melbourne, Australia
- Dr. R.M. Carter, professor, Marine Geophysical Laboratory, James Cook University, Townsville, Australia
- Mr. William Kininmonth, Australasian Climate Research, former Head National Climate Centre, Australian Bureau of Meteorology; former Australian delegate to World Meteorological Organization Commission for Climatology, Scientific and Technical Review
- Dr. Hendrik Tennekes, former director of research, Royal Netherlands Meteorological Institute
- Dr. Gerrit J. van der Lingen, geologist/paleoclimatologist, Climate Change Consultant, Geoscience Research and Investigations, New Zealand
- Dr. Patrick J. Michaels, professor of environmental sciences, University of Virginia
- Dr. Nils-Axel Morner, emeritus professor of paleogeophysics & geodynamics, Stockholm University, Stockholm, Sweden
- Dr. Gary D. Sharp, Center for Climate/Ocean Resources Study, Salinas, Calif.
- Dr. Roy W. Spencer, principal research scientist, Earth System Science Center, The University of Alabama, Huntsville
- Dr. Al Pekarek, associate professor of geology, Earth and Atmospheric Sciences Dept., St. Cloud State University, St. Cloud, Minn.
- Dr. Marcel Leroux, professor emeritus of climatology, University of Lyon, France; former director of Laboratory of Climatology, Risks and Environment, CNRS
- Dr. Paul Reiter, professor, Institut Pasteur, Unit of Insects and Infectious Diseases, Paris, France. Expert reviewer, IPCC Working group II, chapter 8 (human health)
- Dr. Zbigniew Jaworowski, physicist and chairman, Scientific Council of Central Laboratory for Radiological Protection, Warsaw, Poland
- Dr. Sonja Boehmer-Christiansen, reader, Dept. of Geography, University of Hull, U.K.; editor, Energy & Environment

- Dr. Hans H.J. Labohm, former advisor to the executive board, Clingendael Institute (The Netherlands Institute of International Relations) and an economist who has focused on climate change
- Dr. Lee C. Gerhard, senior scientist emeritus, University of Kansas, past director and state geologist, Kansas Geological Survey
- Dr. Asmund Moene, past head of the Forecasting Centre, Meteorological Institute, Norway
- Dr. August H. Auer, past professor of atmospheric science, University of Wyoming; previously chief meteorologist, Meteorological Service (MetService) of New Zealand
- Dr. Vincent Gray, expert reviewer for the IPCC and author of 'The Greenhouse Delusion: A Critique of 'Climate Change 2001,' Wellington, N.Z.
- Dr. Howard Hayden, emeritus professor of physics, University of Connecticut
- Dr. Benny Peiser, professor of social anthropology, Faculty of Science, Liverpool John Moores University, U.K.
- Dr. Jack Barrett, chemist and spectroscopist, formerly with Imperial College London, U.K.
- Dr. William J.R. Alexander, professor emeritus, Dept. of Civil and Biosystems Engineering, University of Pretoria, South Africa. Member, United Nations Scientific and Technical Committee on Natural Disasters, 1994-2000
- Dr. S. Fred Singer, professor emeritus of environmental sciences, University of Virginia; former director, U.S. Weather Satellite Service
- Dr. Harry N.A. Priem, emeritus professor of planetary geology and isotope geophysics, Utrecht University; former director of the Netherlands Institute for Isotope Geosciences; past president of the Royal Netherlands Geological & Mining Society
- Dr. Robert H. Essenhigh, E.G. Bailey professor of energy conversion, Dept. of Mechanical Engineering, The Ohio State University
- Dr. Sallie Baliunas, astrophysicist and climate researcher, Boston, Mass.
- Douglas Hoyt, senior scientist at Raytheon (retired) and co-author of the book 'The Role of the Sun in Climate Change'; previously with NCAR, NOAA, and the World Radiation Center, Davos, Switzerland
- Dipl.-Ing. Peter Dietze, independent energy advisor and scientific climate and carbon modeller, official IPCC reviewer, Bavaria, Germany
- Dr. Boris Winterhalter, senior marine researcher (retired), Geological Survey of Finland, former professor in marine geology, University of Helsinki, Finland
- Dr. Wibjorn Karlen, emeritus professor, Dept. of Physical Geography and Quaternary Geology, Stockholm University, Sweden
- Dr. Hugh W. Ellsaesser, physicist/meteorologist, previously with the Lawrence Livermore National Laboratory, Calif.; atmospheric consultant.
- Dr. Art Robinson, founder, Oregon Institute of Science and Medicine, Cave Junction, Ore.

- Dr. Arthur Rorsch, emeritus professor of molecular genetics, Leiden University, The Netherlands;
past board member, Netherlands organization for applied research (TNO) in environmental,
food and public health
- Dr. Alistair McFarquhar, Downing College, Cambridge, U.K.; international economist
- Dr. Richard S. Courtney, climate and atmospheric science consultant, IPCC expert reviewer, U.K.
- Dr. E. Calvin Beisner, Associate Professor of Social Ethics, Knox Theological Seminary. Author of
Where Garden Meets Wilderness: Evangelical Entry Into the Environmental Debate.
- Paul K. Driessen, Esq., environmental ethicist, Senior Policy Advisor on energy and environmental
issues, Congress for Racial Equality
- Dr. Roy W. Spencer, climatologist, principal research scientist, University of Alabama, Huntsville
and former senior scientist for climate studies, Marshall Space Flight Center, NASA

Senator BOXER. Thank you so much, sir.

Now our last witness, and then Senator Inhofe and I will go running off to vote.

Mr. David Barton, author and historian. We welcome you.

STATEMENT OF DAVID BARTON, AUTHOR AND HISTORIAN

Mr. BARTON. Thank you, Madam Chair, Senator Inhofe and other Senators. My name is David Barton and I represent a group that works to integrate faith with the many practical issues of daily life. Each year I speak literally to hundreds of different religious groups, from numerous different Christian denominations. I was honored to be named by *Time Magazine* as one of the top 25 most influential evangelicals in America, and that means, of course, that I will be speaking from the evangelical perspective.

Evangelicals are generally characterized by an adherence to what is called a traditional or that is, a conservative Biblical theology. The Gallup organization places the number of evangelicals at about 124 million, Barna much less. But most groups agree there are about 100 million evangelicals and the group is growing.

In my experience, three factors influence how people of conservative religious faith, especially evangelicals, approach the issue of man-caused global warming. The first is their theological view of man and the environment. The second is their perceived credibility of the scientific debate. The third is how evangelicals prioritize the issue of global warming among the many other cultural and social issues of concern to them.

A very accurate rendering of evangelicals' theological position on the environment is given in the Cornwall Declaration, which Senator Inhofe introduced. That was prepared by 25 conservative Protestant, Catholic and Jewish theologians. In general, evangelicals view the Creation as moving upward, in an ascending spiritual hierarchy, moving from the inanimate to the animate, with man and woman being the capstone of God's work. God placed man and woman over Creation, not under it. Man and woman interacted with nature and the environment, they were not isolated from it.

As my Jewish rabbi friend reminded me just last week, the Scriptures teach conservation, not preservation. While man was definitely to be a good steward of God's creation, God strongly warned against elevating nature and the environment over humans and their Creator. This generally summarizes theology common among evangelicals when approaching this issue.

The second factor influencing evangelicals' view on the subject is the credibility of the scientific debate. That is, when something is as hotly debated as is the issue of man-caused global warming, evangelicals tend to approach that issue with great skepticism. For example, although there are 2,500 scientists that do agree with the IPCC position on global warming, there are well over 10,000 that do not, including just this last week the head of NASA. While more than 100 religious leaders have signed the Evangelical Climate Initiative on Global Warming, there are more than 1,500 that have signed the Cornwall Declaration that reached quite different conclusions.

Over recent decades, environmental science has established a recurring pattern of reaching and announcing forceful and strong scientific findings and later reversing itself. I need point back no later than just the 1970s, when all the environmental scientists and even the U.S. Government were issuing reports that we were heading into an imminent ice age. We were warned to stockpile food, and scientists even made proposals on how to melt the polar ice caps so that when it refroze in the ice age, there would not be as much damage.

Additionally, just a few years ago, scientists all agreed that because of global warming, the seas would rise from 20 to 40 feet. But now, all the estimates have gone downward to a few inches at most, maybe a few feet. So there has been a huge change in the last 10 years just on the science of global warming. The science on this issue continues to oscillate, and Senator Inhofe is one of the many who has documented those who have switched positions after further research.

It is interesting to me that an ABC news poll recently found that 64 percent of the Nation still thinks there is no consensus on this debate. So despite what is often said, the people are not there yet.

The third factor affecting evangelicals' approach to man-caused global warming is how they rank that issue among the other issues that are important to them. Polling currently shows that evangelicals are not cohesive about the issue of man-caused global warming. Although there are 70 percent that are concerned, and 64 percent think that something needs to be done, it drops to 51 percent when the solution includes the economic price tag. Then when asked to prioritize the issue of global warming, NBC news and *Wall Street Journal* found that only 12 percent of the Nation thinks that global warming is a top priority, and less than 6 percent of evangelicals think that it is a top priority. So although they are concerned, it is not among their top issues.

While they are not cohesive on this issue, they do remain cohesive on many other issues. It is unlikely that at any time in the near future global warming is going to overshadow those other issues. In fact, 90 percent of evangelicals support global efforts to fight extreme poverty. Since even the Congressional Budget Office back on April 27 in their report said that the cap and trade solution will be what they called "regressive"—that it will hurt the poor—that makes it even more likely that the evangelicals will not support such policies if it does indeed hurt the poor—if it has a disproportionately negative impact on the poor, and if it impedes their chance for a more prosperous life. They simply will not place the theoretical needs of the environment above the actual needs of the poor.

In summary, I do not find any substantial wide-spread movement in the mainstream evangelical community to support any policy proposal on global warming that would significantly alter the way individuals live or that might inflict additional burden on the poor and potentially confine them to a permanent state of poverty. Based on these points, I urge extreme caution in crafting any policy on this issue. Thank you.

[The prepared statement of Mr. Barton follows:]

STATEMENT OF DAVID BARTON, AUTHOR AND HISTORIAN

My name is David Barton. I represent a group that works to integrate faith with the many practical issues of daily life, I was honored to be named by Time Magazine as one of the twenty-five most influential Evangelicals in America,¹ and I will generally speak from that Evangelical perspective. I personally address hundreds of religious groups each year—Jewish and Christian, Catholic and Protestant, including Protestants in dozens of different denominations. The overwhelming majority of those would be categorized as conservative people of traditional faith, especially as mainstream Evangelicals.

Evangelicals are estimated to number as high as 125 million by Gallup and as low as 75 million by others; but most estimates conservatively place the number at about 100 million.² Evangelicals are characterized by an adherence to a conservative Biblical theology, and significantly, statistics demonstrate that the religious groups and denominations in America adhering to conservative theological views are growing in membership and affiliation,³ whereas those adhering to liberal theological views are declining.⁴

In my experience, three factors influence how people of conservative religious faith—especially Evangelicals—approach the issue of man-caused Global Warming. The first is their theological view of man and the environment as derived from the Scriptures (attached on the electronic version); the second factor is the perceived credibility of the scientific debate; and the third is how Evangelicals prioritize the Global Warming issue among the many other pressing cultural and social issues that currently capture their attention.

Concerning the first, a very accurate rendering of their general theological position is presented in the Cornwall Declaration (attached on the electronic version), prepared by twenty-five conservative Jewish, Catholic, and Protestant theologians. In general, conservative people of faith view the creation in Genesis as moving upward in an ascending spiritual hierarchy, beginning with the creation of the lowest (the inanimate) and moving toward highest (the animate), with the creation of man and woman being the capstone of God's work. Man (which I use in the generic sense of mankind and not in the sense of gender) was the apex of creation and was placed over creation, not under it.⁵ Adam and Eve, and mankind after them, interacted with nature and the environment; they were not isolated from it.⁶ As the Cornwall Declaration explains, there is no conservative theological basis for the often current view that "humans [are] principally consumers and polluters rather than producers and stewards," and that nature knows best," or that "the earth, untouched by human hands is the ideal."⁷ Religious conservatives believe just the opposite; and as my Rabbi reminded me just last week, the Scriptures teach conservation, not preservation. Man was the steward of nature and the environment, and while man definitely is to tend and guard it, it is to serve him, not vice versa.⁸ From the beginning, God warned about elevating nature and the environment over man and his

¹David Van Biema, "The 25 Most Influential Evangelicals In America," Time, February 7, 2005, at 42 (at <http://www.time.com/time/covers/1101050207/photoessay/3.html>).

²See, for example, <http://www.wheaton.edu/isae/defining-evangelicalism.html>.

³Such as the National Association of Evangelicals, which now represents about 30 million people from 50-member denominations as well as individual churches from 24 other denominations, at <http://www.nae.net/>.

⁴For example, mainline churches that make up organizations such as the National Council of Churches have lost over 35 percent of their members since the 1970s (at <http://www.touchstonemag.com/archives/article.php?id=19-02-057-r>), and "the National Council of Churches (NCC) now receives more funding from private foundations, most of them secular and politically liberal, than from its member denominations, it was revealed at its fall 2005 Governing Board meeting. In the fiscal year ending in June 2005, the NCC received \$1,761,714 from liberal foundations, compared to \$1,750,332 from its 35-member churches. The foundations include the Ford Foundation, the Rockefeller Brothers Fund, the Tides Foundation, the Better World Fund, the Sierra Club, the AARP, the Ocean Conservancy, and the National Religious Partnership on the Environment" at NCC's New Money at <http://www.touchstonemag.com/archives/article.php?id=19-02-057-r>.

⁵In Matthew 10:31 and Luke 12:; Christ reminds man that "You are of more value than many sparrows," and Psalm 8:6-8 declares: "You have made man to have dominion over the works of Your hands; You have put all things under his feet, all animal, birds, and fish, whether on land or in the sea."

⁶In Genesis 1:25-29, God created all, and then placed man over his creation to interact with all of it, whether animate or inanimate.

⁷<http://www.interfaithstewardship.org/pages/aboutisa.php>.

⁸Genesis 2:8-20 records man's stewardship and interaction with creation, not his removal from it. God put him in the Garden to tend and keep it; and God brought his creation before Adam, who named it all.

Creator.⁹ This summarizes the general overview of the theology that is common among most Evangelicals.

The second factor influencing conservative religious adherents is the credibility of the scientific debate. When something is still debated as heavily as is the issue of man-caused Global Warming, and when there is not a clear consensus, Evangelicals tend to approach that issue with great skepticism. In fact, just this past Saturday in a major Canadian publication, a Gallup Poll was cited revealing that “53 percent of scientists actively involved in global climate research did not believe [man-made] global warming had occurred; 30 percent weren’t sure; and only 17 percent believed [man-made] global warming had begun.”¹⁰ And although up to 2,500 of the world’s top scientists agree with the Intergovernmental Panel on Climate Change (IPCC) assertions about man-caused global warming,¹¹ well over 10,000 scientists still do not.¹² And similarly, while more than 100 religious leaders signed onto the Evangelical Climate Initiative on Global Warming,¹³ some 1,500 religious leaders signed onto the Cornwall Declaration that reached quite different conclusions.¹⁴

The reason for skepticism among the conservative religious community on the hotly-debated issue of man-caused Global Warming is based on lengthy experience. Recall that twenty years ago the scientific community asserted that fetal tissue research held the solution for many of the world’s health problems; science eventually proved the opposite. Similarly, in the 1960s, environmental science alarmists warned that the Global Population Bomb would soon doom the entire planet and that by the year 2000, economic growth would be destroyed¹⁵ and there would be a worldwide unemployment crisis;¹⁶ yet the worldwide unemployment rate this year was at 6.3 percent¹⁷—hardly a crisis by any measurement. In the 1960s, environmental science alarmists similarly claimed that DDT harmed humans and caused cancer, thus leading to a near worldwide ban on the use of DDT and now resulting in the deaths of between one and two million persons each year from malaria.¹⁸ In fact, four decades later, the scientific community still has found no harm to humans from DDT,¹⁹ so the World Health Organization, the Global Fund, and U.S. AID have once again endorsed the use of DDT in fighting malaria²⁰—after millions of lives were needlessly lost. And let’s not forget that in the 1970s, aerosols were considered a leading cause of harm to the environment,²¹ but recent reports note that “Aerosols actually having effect on global temperatures” that helps “cancel out the

⁹ See, for example, Romans 1:20–25; for instances where man wrongly turned their primary focus toward animals and the creation rather than the Creator; see also Exodus 32:7–9, 34–35; 2 Kings 17:14–16; 2 Kings 18:3–5; 2 Chronicles 11:14–15; Nehemiah 9:17–19; Psalm 106:19–23; Ezekiel 8:9–12; Acts 7:40–42; etc.

¹⁰ Lawrence Solomon, “They call this a consensus?,” *Financial Post*, June 02, 2007, at <http://www.canada.com/nationalpost/financialpost/story.html?id=c47c1209-233b09412ccb6d1-5c755457a8af>.

¹¹ Lawrence Solomon, “They call this a consensus?,” *Financial Post*, June 02, 2007, at <http://www.canada.com/nationalpost/financialpost/story.html?id=c47c1209-233b09412ccb6d1-5c755457a8af>.

¹² See Arthur B. Robinson, Sallie L. Baliunas, Willie Soon, and Zachary W. Robinson, “Environmental Effects of Increased Atmospheric Carbon Dioxide”; <http://zwr.oism.org/pproject/s33p36.html>; and “The Heidelberg Appeal” and a partial list of signatories at www.heartland.org/perspectives/appeal.htm.

¹³ <http://www.christiansandclimate.org/statement>.

¹⁴ <http://www.interfaithstewardship.org/pages/aboutisa.php>.

¹⁵ “Get Serious About Population,” *The New York Times*, April 12, 1984, A–26.

¹⁶ Warren Brown, “A Population bomb: Report Warns Increase in Children May Trigger Third-World Unrest,” *The Washington Post*, March 10, 1979, A–2; see also “The Right Number of American,” *The New York Times*, February 2, 1989, A–24; “We are too many,” *The Globe and Mail (Canada)*, September 14, 1983; “Our crowded planet,” *The Globe and Mail (Canada)*, December 26, 1985.

¹⁷ <http://www.ilo.org/public/english/employment/strat/download/trnden03.pdf>.

¹⁸ “Dr. Conyers, I Presume,” Editorial, *Wall Street Journal*, April 28, 2007, at <http://www.fightingmalaria.org/article.aspx?id=785>; Paul Driessen, “Forty years of perverse ‘social responsibility’,” *Canada Free Press*, March 26, 2007, at <http://www.canadafreepress.com/2007/driessen032607.htm>; Roger Bate, “Without DDT, malaria bites back,” *Article 24*, April 2001, <http://www.spiked-online.com/Articles/00000005591.htm>.

¹⁹ “Dr. Conyers, I Presume,” Editorial, *Wall Street Journal*, April 28, 2007, at <http://www.fightingmalaria.org/article.aspx?id=785>; Roger Bate, “Without DDT, malaria bites back,” *Article 24*, April 2001, <http://www.spiked-online.com/Articles/00000005591.htm>.

²⁰ “Dr. Conyers, I Presume,” Editorial, *Wall Street Journal*, April 28, 2007, at <http://www.fightingmalaria.org/article.aspx?id=785>.

²¹ See, for example, W. Sullivan, “Tests Show Aerosol Gases May Pose Threat to Earth,” *New York Times*, 26 September 1974, A1.

warming effect of CO₂.”²² Environmental science has a demonstrated pattern of announcing strong conclusions, and then reversing itself following further time and study.

Consider further that the clamor about radical climate change is not new. In the 1920s, the newspapers were filled with scientists warning of a fast approaching Glacial Age; but in the 1930s, scientists reversed themselves and instead predicted serious Global Warming.²³ But by 1972, Time was citing numerous scientific reports warning of imminent “runaway glaciation,”²⁴ and in 1975, Newsweek reported overwhelming scientific evidence that proved an oncoming Ice Age, with scientists warning the government to stockpile food; in fact, some scientists even proposed melting the arctic ice cap to help forestall the coming Ice Age.²⁵ In 1976, the U.S. Government itself released a study warning that “the earth is heading into some sort of mini-ice age,”²⁶ but now, a mere two decades later, the warning of the imminent Ice Age has been replaced by the warning of an impending Global Warming disaster. In eighty years, environmental science has completely reversed itself on this issue no less than three times.

Furthermore, the scientific community is even reversing itself on its current claims. Just a few years ago scientists predicted that the seas would rise from 20 to 40 feet because of Global Warming,²⁷ with “waves crashing against the steps of the U.S. Capitol” and, launch[ing] boats from the bottom of the Capitol steps”; additionally, one-third of Florida and large parts of Texas were projected to be under

²²Noam Mohr, “A New Global Warming Strategy: How Environmentalists are Overlooking Vegetarianism as the Most Effective Tool Against Climate Change in Our Lifetimes” at <http://earthsave.org/globalwarming.htm>.

²³Chicago Daily Tribune, August 9, 1923, “Scientist Says Arctic Ice Will Wipe Out Canada”; Los Angeles Times, October 7, 1932, “Fifth Ice Age Is On The Way”; Los Angeles Times, April 6, 1924, “New Ice-Age is Forecast”; Los Angeles Times, March 11, 1929, “Is Another Ice Age Coming?”; New York Times, February 24, 1867, “The Glacial Period”; New York Times, February 24, 1895, “Prospects of Another Glacial Period”; New York Times, October 7, 1912, “Sees Glacial Era Coming”; New York Times, June 10, 1923, “Menace of a New Ice Age to be Tested by Scientists”; New York Times, September 28, 1924, “MacMillan Reports Signs of New Ice Age”; New York Times, January 27, 1972, “Climate Experts Assay Ice Age Clues”; New York Times, May 21, 1975, “Scientists Ask Why World Climate Is Changing”; “Major Cooling May Be Ahead”; Washington Post, August 10, 1923, “Volcanoes in Australia”; “Ice Age Coming Here”; Washington Post, October 28, 1928, “An Ice-Free World, What Then?”; Washington Post, August 2, 1930, “Hot Weather”; Washington Post, May 3, 1932 “Second World Flood Seen, if Earth’s Heat Increases”; Washington Post, January 11, 1970, “Colder Winters Held Dawn of New Ice Age”; Atlantic, December 1932, “This Cold, Cold World”; Fortune, August 1954, “Climate—the Heat May Be Off”; International Wildlife, July-August 1975, “In the Grip of a New Ice Age?”; Newsweek, April 28, 1975, “The Cooling World”; Science News, Nov. 15, 1969, “Earth’s Cooling Climate”; Science News, March 1, 1975, “Climate Change: Chilling Possibilities”; Time, January 2, 1939, “Warmer World”; Time, October 29, 1951, “Retreat of the Cold”; Time, June 24, 1974, “Another Ice Age?”; U.S. News & World Report, May 31, 1976, “Worrisome CIA Report; Even U.S. Farms May be Hit by Cooling Trend”; at <http://wizbangblog.com/2006/04/02/before-global-warming-there-was-global-cooling.php>; <http://www.businessandmedia.org/specialreports/2006/fireandice/fireandice.asp>.

See also George Will, “Cooler Heads Heeded on Warming,” Washington Post, April 02, 2006; citing Science magazine (Dec. 10, 1976) warned of “extensive Northern Hemisphere glaciation.” Science Digest (February 1973) reported that “the world’s climatologists are agreed” that we must “prepare for the next ice age.” The Christian Science Monitor (“Warning: Earth’s Climate is Changing Faster Than Even Experts Expect,” Aug. 27, 1974) reported that glaciers “have begun to advance,” “growing seasons in England and Scandinavia are getting shorter” and “the North Atlantic is cooling down about as fast as an ocean can cool.” Newsweek agreed (“The Cooling World,” April 28, 1975) that meteorologists “are almost unanimous” that catastrophic famines might result from the global cooling that the New York Times (Sept. 14, 1975) said “may mark the return to another ice age.” The Times (May 21, 1975) also said “a major cooling of the climate is widely considered inevitable” now that it is “well established” that the Northern Hemisphere’s climate “has been getting cooler since about 1950.” . . . “About the mystery that vexes ABC—Why have Americans been slow to get in lock step concerning global warming?—perhaps the . . . problem is big crusading journalism.”

²⁴“Another Ice Age?” Time, November 13, 1972, <http://www.time.com/time/magazine/article/0,9171,910467,00.html>.

²⁵“The Cooling World,” Newsweek, April 28, 1975.

²⁶“Worrisome CIA report; Even U.S. Farms May Be Hit By Cooling Trend,” U.S. News & World Report, May 31, 1976.

²⁷See, for example, “Long Island Queens, Trouble on the Rise,” at <http://www.seagrant.sunysb.edu/Pages/CoastGISMaps/Newsday-Future.htm>; “Climate Changes Futures: Health, Ecological and Economic Dimensions,” A Project of: The Center for Health Harvard Medicine (at <http://www.climatechangeandfutures.org/>); “Global Warming’s Increasingly Visible Impacts” <http://qulc1.www.environmentaldefense.org/documents/4891-GlobalWarmingImpacts.pdf>.

water.²⁸ Now the estimates have been revised to anywhere from a few inches to a few feet at most.²⁹ Clearly, the science on this issue continues to oscillate; in fact, Senator Inhofe has been one of many who have tracked the number of leading scientists who, after announcing their position in support of anthropogenic Global Warming, have reversed their position after further research. Such a lack of consensus and so many forceful assertions and repudiations merit a very cautious and guarded approach to any policy on this subject.

Evangelicals and people of conservative religious faith tend to be comfortable with theological teachings that have endured millennia but not with science that often reverses its claims on the same issue. And while science is still deciding where the ocean waves will end up, religious conservatives rest in the Old Testament promise of Jeremiah 5:22 wherein God reminded His people: "Will you not tremble at My presence, Who have placed the sand as the bound of the sea by a perpetual decree that it [the sea] cannot pass beyond it? And though its waves toss to and fro, yet they cannot prevail." To date, neither science nor experience has disproved the promise of that passage, so the skepticism of religious conservatives on the rapidly-changing science surrounding anthropogenic Global Warming is understandable.

The third factor affecting Evangelicals' approach to man-caused Global Warming is how they rank that issue within the much larger scope of numerous other issues of importance to them. Interestingly, Evangelicals as a group are concerned about many issues, not just one. In fact, polls regularly indicate that it is not conservative Christians who are fixated with single issues such as abortion but rather it is liberals. As one poll recently reported concerning views toward the judiciary, for liberals, "no other issue rivals abortion in importance"; but among Evangelicals, "three-quarters . . . view abortion as very important, [and] nearly as many place great importance on court rulings on the rights of detained terrorist suspects (69 percent) and whether to permit religious displays on government property (68 percent).³⁰ Very simply, Evangelicals tend to have many issues of importance on their list of concerns, not just one. So where does the issue of Global Warming fall on that list of concerns?

Polling clearly shows that Evangelicals are not yet cohesive about the issue of man-caused Global Warming but that they do remain the most cohesive group in the nation in their opposition to abortion, gay marriage, and civil unions;³¹ in teaching teenagers to abstain from sex until marriage;³² and in support of public religious expressions.³³ In fact, among Evangelicals, 99.5 percent support public displays of the Ten Commandments; 99 percent support keeping the phrase "In God We Trust" on the nation's currency; 96 percent support keeping "under God" in the Pledge of Allegiance; 86 percent support teaching Creationism in the public school classroom; and 94 percent oppose allowing the use of profanity on broadcast television.³⁴ Global Warming is nowhere near these numbers among Evangelicals, nor is it likely to overshadow these issues anytime in the near future. (The fact that so many groups that ardently push a climate change agenda also regularly oppose Evangelicals on issues of faith and values further exacerbates Evangelicals' suspicion concerning anthropogenic Global Warming.)

²⁸ Robert Locke, AP Science Writer, January 8, 1979, covering the American Association for the Advancement of Science meeting, *Christian Science Monitor*, October 8, 1980.

²⁹ See, for example, "Global Warming's Increasingly Visible Impacts" <http://quicj.www.environmentaldefense.org/documents/4891-GlobalWarmingImpacts.pdf>;

Washingtonpost.com, "We're All New Orleanians Now" <http://www.washingtonpost.com/wp-dyn/content/article/2006/08/18/AR2006081800984-pf.html>; "Long Island Queens, Trouble on the Rise" <http://www.seagrant.sunysb.edu/Pages/CoastGISMaps/Newsday-Future.htm>; "Climate Changes Futures: Health, Ecological and Economic Dimensions," A Project of: The Center for Health Harvard Medicine (at <http://www.climatechange-futures.org/>).

³⁰ "Abortion and Rights of Terror Suspects Top Court Issues; Strong Support for Stem Cell Research," Pew Research Center for the People & the Press, August 3, 2005, at <http://people-press.org/reports/display.php3?ReportID=253>.

³¹ "Pragmatic Americans Liberal and Conservative on Social Issues; Most Want Middle Ground on Abortion," Pew Research Center for the People & the Press, August 3, 2005, at <http://people-press.org/reports/print.php3?PageID=1071>.

³² "Abortion and Rights of Terror Suspects Top Court Issues; Strong Support for Stem Cell Research," Pew Research Center for the People & the Press, August 3, 2005, at <http://people-press.org/reports/display.php3?ReportID=253>.

³³ "Abortion and Rights of Terror Suspects Top Court Issues; Strong Support for Stem Cell Research," Pew Research Center for the People & the Press, August 3, 2005, at <http://people-press.org/reports/display.php3?ReportID=253>.

³⁴ "33 Percent of Adults Agree with Declaring America a 'Christian Nation'," Barna Poll, July 31, 2004, <http://www.christianpost.com/article/20040731/20420-Barna-Poll-33-Percent-of-Adults-Agree-with-Declaring-America-a-Christian-Nation-22.htm>.

Additionally, 90 percent of Evangelicals believe that America should be involved in global efforts to fight AIDS and extreme poverty, and 87 percent of Evangelicals cite their Evangelical faith as the reason for “helping those less fortunate than [them]selves.”³⁵ Therefore, if implementing the proposed “cap and trade” Global Warming solution results in a disproportionately negative impact on the poor in developing nations and will significantly impede their hopes for a better and more prosperous life—which the recent Congressional Budget Office report (attached on the electronic version) indicates will certainly be the case,³⁶ as does “A Call to Truth, Prudence, and Protection of the Poor: An Evangelical Response to Global Warming”³⁷ (attached on the electronic version) from the Interfaith Stewardship Alliance—then it is even more likely that Evangelicals will oppose placing the theoretical needs of the environment over the actual needs of the poor.

In summary, the three primary factors that influence how Evangelicals will respond to the current vigorous debate on Global Warming will be, first, their theological views of man and his relationship to nature and the environment; second, their skepticism over scientific disputes until a clear and unambiguous consensus has emerged; and third, whether there is sufficient weight in the issue to cause it to rise within the list of the many other issues of concern to them. Currently, I do not find any substantial widespread movement within the mainstream Evangelical community to support a massive policy proposal on Global Warming that would significantly alter their current lifestyle, or that might inflict additional burdens on the poor and even potentially confine them permanently to a state of poverty. I therefore urge extreme caution in any approach that this body might take in crafting any policy on this issue.

RESPONSES BY DAVID BARTON TO ADDITIONAL QUESTIONS FROM SENATOR INHOFE

Question 1. Have there been any further studies done that would confirm or disprove what “Scientific American” asserts about the number of scientists who dissent from the IPCC findings?

Response. Yes, Senator, there have been additional studies. As you know, the Oregon Institute announced that it had gathered the signatures of some 17,000 scientists who disagreed with the IPCC findings which supported the theory of man-caused Global Warming. That number was certainly impressive, and caused great concern for supporters of man-caused Global Warming. Subsequently, periodicals such as “Scientific American” acknowledged undertaking an investigation of those names and alleged (as noted by Senator Whitehouse) that a large number of signers on the Oregon Petition were not actual scientists. The Oregon Institute of Science and Medicine therefore commissioned an independent verification of the names and qualifications of the individuals on their list and confirmed that—despite charges to the contrary—their list did indeed include over 17,000 scientists who did not agree with the IPCC conclusions. In fact, the independent verification of the 17,100 applied American scientists who signed their list confirmed that two-thirds had advanced degrees. Furthermore, the signers included “2,660 physicists, geophysicists, climatologists, meteorologists, oceanographers, and environmental scientists who are especially well qualified to evaluate the effects of carbon dioxide on the Earth’s atmosphere and climate” and “5,017 scientists whose fields of specialization in chemistry, biochemistry, biology, and other life sciences make them especially well qualified to evaluate the effects of carbon dioxide upon the Earth’s plant and animal life” (<http://www.oism.org/pproject/s33p357.htm>). Therefore, in answer to your question, yes, further studies were undertaken and those studies clearly disprove the “Scientific American” allegations. Consequently, there remain multiple times more scientifically-trained individuals who oppose the IPCC conclusions on man-caused Global Warming than support them. This clear lack of scientific consensus in the area of man-caused Global Warming is one of the reasons that the Evangelical Community remains skeptical about dramatic action on this issue. I submit as part of the record a separate document that explains the process of verification undertaken by the Oregon Institute and the results of that verification.

³⁵ Adelle M. Banks, “Poll: Faith Sometimes Drives Support for AIDS, Poverty Relief,” Religion News Service, at <http://www.socialpolicyandreligion.org/article-index/article-print.cfm?id=2155>.

³⁶ “Trade-Offs in Allocating Allowances for CO₂ Emissions,” Congressional Budget Office, April 25, 2007.

³⁷ <http://www.cornwallalliance.org/docs/Call-to-Truth.pdf>, and <http://www.interfaithstewardship.org/pages/home.php>.

Below is the material referenced regarding the independent verification of scientists on the Oregon Institute list:

Petition Project

PO Box 1925, La Jolla CA 92038-1925

Listed below are 17,200 of the initial signers

During the past several years, more than 17,100 basic and applied American scientists, two-thirds with advanced degrees, have signed the [Global Warming Petition](#).

Signers of this petition so far include 2,660 physicists, geophysicists, climatologists, meteorologists, oceanographers, and environmental scientists ([select this link for a listing of these individuals](#)) who are especially well qualified to evaluate the effects of carbon dioxide on the Earth's atmosphere and climate.

Signers of this petition also include 5,017 scientists whose fields of specialization in chemistry, biochemistry, biology, and other life sciences ([select this link for a listing of these individuals](#)) make them especially well qualified to evaluate the effects of carbon dioxide upon the Earth's plant and animal life.

Nearly all of the initial 17,100 scientist signers have technical training suitable for the evaluation of the relevant research data, and many are trained in related fields. In addition to these 17,100, approximately 2,400 individuals have signed the petition who are trained in fields other than science or whose field of specialization was not specified on their returned petition.

Of the 19,700 signatures that the project has received in total so far, 17,800 have been independently verified and the other 1,900 have not yet been independently verified. Of those signers holding the degree of PhD, 95% have now been independently verified. One name that was sent in by enviro pranksters, Geri Halliwell, PhD, has been eliminated. Several names, such as Perry Mason and Robert Byrd are still on the list even though enviro press reports have ridiculed their identity with the names of famous personalities. They are actual signers. Perry Mason, for example, is a PhD Chemist.

The costs of this petition project have been paid entirely by private donations. No industrial funding or money from sources within the coal, oil, natural gas or related industries has been utilized. The petition's organizers, who include some faculty members and staff of the Oregon Institute of Science and Medicine, do not otherwise receive funds

from such sources. The Institute itself has no such funding. Also, no funds of tax-exempt organizations have been used for this project.

The signatures and the text of the petition stand alone and speak for themselves. These scientists have signed this specific document. They are not associated with any particular organization. Their signatures represent a strong statement about this important issue by many of the best scientific minds in the United States.

This project is titled "Petition Project" and uses a mailing address of its own because the organizers desired an independent, individual opinion from each scientist based on the scientific issues involved - without any implied endorsements of individuals, groups, or institutions.

The remainder of the initial signers and all new signers will be added to these lists as data entry is completed.

Question 2. Is it indeed true that all four branches of Judaism have taken a position in favor of action on Global Warming?

Response. No, sir, that is not true. Despite the claims made to the contrary during this hearing, distinguished Jewish Rabbi Daniel Lapin clearly refutes those claims. Rabbi Lapin is an internationally-known rabbinical scholar and was included in *Newsweek* Magazine's recent list of America's 50 most influential rabbis. He unequivocally states, and shows, that many of the various religious groups representing the four branches of Judaism do not agree on taking action on Global Warming, and he flatly states that any assertion otherwise is disingenuous. The same is true in the Evangelical community. I have a letter from Rabbi Lapin that I would like to submit as part of the record.

[The referenced material follows:]

From the Desk of

Rabbi Daniel Lapin †

June 12, 2007

To the distinguished Members of the U. S. Senate Environment and Public Works Committee:

In the June 7, 2007, EPW Committee hearing on Global Warming, a witness from the Jewish community indicated that all four branches of Judaism have taken positions in favor of action on Global Warming. This is not accurate.

Environmental politics has become as contentious an issue among American Jews as it is for many other Americans. Those who claim to speak for “The Jewish position” on this matter, or indeed on almost any other matter, mislead. It would be hard if not impossible to find anything on which all, or even most American Jews agree, including questions about the state of Israel.

Furthermore, not all Jewish denominations have only one official organization formally representing the denomination. For instance, Orthodox Judaism includes the Orthodox Union which only speaks for a specific number of formally affiliated synagogues. There are many other synagogue unions, as well as many other Orthodox groups. Most of these groups representing a substantial majority of Orthodox Jews most decidedly do not agree that action on Global Warming is a Jewish mandate, neither do they agree that such action is called for.

Without question, the largest group of American Jews today are those unaffiliated with any Jewish group, synagogue, or organization, often precisely because of their dislike for the hijacking of Judaism by left-leaning political interests. To suggest, therefore that all, or even most American Jews agree on something, is disingenuous. To suggest that “all” Jewish denominations agree on something is no less so.

Respectfully,

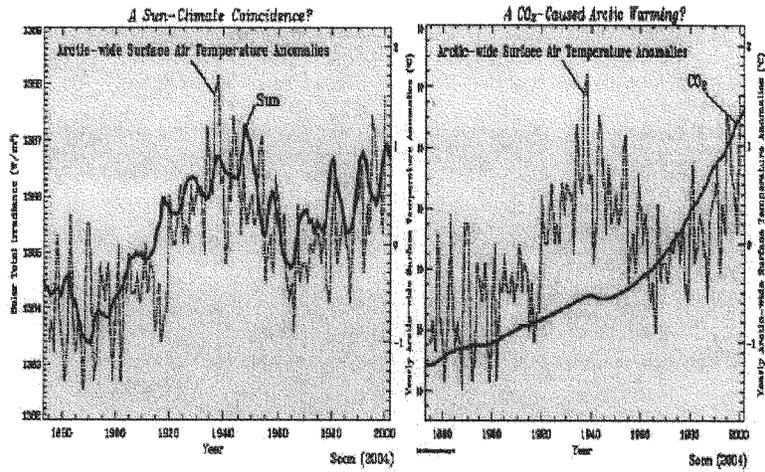
Rabbi Daniel Lapin

† Rabbi Daniel Lapin is an internationally-known rabbinical scholar, founding rabbi of one of the largest and fastest growing synagogues (Pacific Jewish Center, Los Angeles), president of Toward Tradition – the American Alliance of Jews and Christians, celebrated guest Torah teacher for fifteen American Orthodox synagogues, and was included in *Newsweek Magazine*'s recent list of America's 50 most influential rabbis.

Question 3. About the correlation between solar activity and the rise in the Earth's temperatures, who has done that research, and do you have that research available—is there any type of chart that has been prepared on this subject?

Response. Senator, there is an excellent chart—in fact, two charts—prepared on this specific point by Dr. Willie Soon, Astrophysicist at Harvard University. He has reduced his tedious and comprehensive research to two very clear and lucid graphs. He began by plotting the recorded temperatures at the Arctic from the past century, and his graph clearly demonstrates that there is a global warming trend underway—a trend that has been occurring for the past three decades. However, the question he investigated was whether that rise in temperature was the effect of human activity and the increased release of carbon dioxide (CO₂), or whether it was the effect of cyclical solar activity. To answer that question, he graphically recorded the increase of CO₂ over the past century and overlaid that graph with the graph displaying Arctic temperatures; the overlay of the two clearly did not correlate. Dr. Soon then plotted the pattern of solar activity, and when he superimposed that graph upon the measured temperatures, there was an immediately visible and direct correlation that matched almost point for point the temperature changes over the last century. The two charts from this distinguished scientist speak for themselves; I submit those two graphs as part of the record. Consequently, if indeed the current Global Warming trend is not man-made, and these graphs clearly indicate that it is not, then I continue to suggest that in the view of the Evangelical community, a more appropriate prioritization of resources would be to address genuine issues related to those suffering from extreme poverty—such as potable, clean water (which would eliminate millions of deaths caused by dysentery, cholera, etc.)—rather than address the so-called needs of the environment that may well be caused by factors beyond human control.

[The referenced material follows:]



The Sun is a more likely and dominant driver of the recorded Arctic temperature variations

Source: Harvard astrophysicist Dr. Willie Soon, "Remarks for the Council on National Policy Meeting," May 11, 2007.

Senator BOXER. Thank you so much.

I just want to thank the panel. You have all been eloquent, just terrific. It really instilled in me just so many issues I want to talk to you about.

So if you have some patience, if you could just wait, we have two back-to-back votes. It might be that we are back in about a half hour or maybe a little less. So we will stand in recess until we get back.

Senator INHOFE. And nobody leave.

[Laughter.]

[Recess.]

Senator BOXER. Thank you so much for your patience. We are embroiled in a debate on immigration and we had three back-to-back votes. I am so sorry to have kept you waiting.

But I think what was good about the session this morning is that you each laid out your views in a most eloquent fashion and I am going to start the questioning. We will have 6-minute rounds, but I would rather have 6 hours with you all.

So let me start asking each of you if you can give me a rough idea, in your particular denomination that you are familiar with, apparently we don't have 100 percent unanimity here, which you don't have on any issue in America. The only way you would have 100 percent unanimity is if you had a dictator say, you must think the way I think.

So clearly, there is division. But if you look at your church, could you give us, and this is not scientific, it is opinion, is it a 50–50 split, 60–40 split, which way, if you can give me a sense of it, in terms of moving toward real legislation, such as a cap. If you could answer that first, Bishop.

Bishop SCHORI. Certainly, Senator. I need to correct a statement I incorrectly made earlier. The NCC does represent 45 million Americans. So you were correct.

Senator BOXER. We had good research behind me, yes.

Bishop SCHORI. Absolutely. In my denomination, in the Episcopal Church, there is increasing urgency about this issue. Congregations, dioceses, individuals, are gearing up to respond. I am not aware of any pushback in my own denomination. The National Council of Churches passed a unanimous resolution urging action on climate change.

Senator BOXER. So you feel it is consensus?

Bishop SCHORI. Absolutely.

Senator BOXER. OK, how about you, Mr. Carr? How do you feel?

Mr. CARR. I think what you are asking is, who do we speak for here. Being at this table reminds me of a very short story. One of our bishops was testifying on the Civil Rights Bill and Senator Eastland, who was not favorably disposed, said, who do you represent, and when did you last speak to them? This bishop said, I represent God, and I spoke to Him this morning.

[Laughter.]

Mr. CARR. I do not make those claims.

The Catholic Bishops Conference—first of all—I represent the Bishops Conference, not the Catholic Church. This has been a very deliberate process for us. We have had a whole series of discussions. In a very unusual step, the body of bishops adopted this

statement, and did so overwhelmingly. As I said in my testimony, this is a matter which is being dealt with at every level of the Church. I represented—

Senator BOXER. It is unfortunate we have so little time. But basically you are saying it is a consensus among the bishops?

Mr. CARR. There is consensus around those three things: Prudence, common good, concern for the poor and the need to take action to protect the earth and the people of the earth.

Senator BOXER. Four things. Now, Reverend Ball, obviously there has been some direct challenge of your views here. So if you look at your membership, where do you sense it going? This is not scientific; I am just trying to get your sense of it.

Rev. BALL. Right. We actually have a just-released poll of a national poll of American evangelicals.

Senator BOXER. Oh, good. Will you share it with us?

Rev. BALL. Again, it says that the threat to future generations, 70 percent believe that that is the case for global warming, 64 percent say that we should address this issue immediately, and then 56 percent say that we should address it, even if there is high economic cost. Now, of course, we don't want that. But that was an indication of their resolve, 56 percent, even at high economic cost.

Senator BOXER. This is among the members of your church?

Rev. BALL. This is among evangelicals in the United States.

Senator BOXER. Thank you. That is very important.

Rabbi.

Rabbi SAPERSTEIN. Within the Jewish community, all four of the major streams of the Jewish community, the Reform Movement, the Conservative Movement, the Reconstructionist Movement and the Orthodox Movement, has passed resolutions on global warming. Judging from the polls, the support, not just consensus, is really overwhelming.

Senator BOXER. Thank you.

Dr. Moore, what do you say?

Mr. MOORE. I would point you to the Southern Baptist Convention resolution—

Senator BOXER. Yes, I have it in front of me.

Mr. MOORE [continuing]. Which is the way in which Southern Baptists speak to public policy issues.

Senator BOXER. Let me share that with you: "We urge all Southern Baptists toward the conservation and preservation, preservation of our natural resources for future generations, and respecting ownership and property rights. Resolved, we encourage public policy and private enterprise efforts that seek to improve the environment, based on sound scientific and technical research, and resolved, we resist alliances with extreme environmental groups and we oppose solutions based on questionable science, which bar access to natural resources and unnecessarily restrict economic development. We not only reaffirm our God-given responsibility of caring for the Creation, but we commit ourselves to the great commission to take the good news to people everywhere."

I find this different than the way you described it, but this stands for your view. This stands for your view because the thing is, extreme environmentalism is in the eye of the beholder. You

don't really explain what that means. But I find this to be much more encouraging than you presented it to us.

Reverend.

Rev. TONKOWICH. I would say that the IRD constituency would be very much in line with the Cornwall Declaration, the Cornwall Alliance. I am one of the advisors to the Cornwall Alliance. It is certainly my impression that my denomination, the Presbyterian Church in America, will be much more in line with the Cornwall Alliance.

Senator BOXER. So the Presbyterian Church in America, you don't speak for them today, do you?

Rev. TONKOWICH. I do not.

Senator BOXER. What do you think their view is?

Rev. TONKOWICH. I would say that they overall agree with the Cornwall Declaration.

Senator BOXER. That says that?

Rev. TONKOWICH. That says, as opposed to the Evangelical Climate Initiative and taking on global warming as the most pressing issue of all.

Senator BOXER. So you think that most Presbyterians in America—that there is a consensus view that we not take on—

Rev. TONKOWICH. In the Presbyterian Church in America, not all Presbyterians.

Senator BOXER. The Presbyterian Church. Well, that is very important. Thank you for that.

Mr. Barton, you are an author and historian, so I don't know who you could speak for, but your sense in the religious community is?

Mr. BARTON. That although 70 percent of evangelicals think that global warming is an issue, less than 6 percent place it as one of the top issues on their list. So it is an issue, but it is not very high on their list.

Senator BOXER. Fair enough.

Let me just place into the record this very interesting document here, Faith Principles on Global Warming. It calls for the toughest, 80 percent reductions by 2050. On this signatures, Presbyterian Church, U.S.A. So I think it is important that we not speak for folks that we are perhaps unaware of their views.

[The referenced material follows:]

THE EVANGELICAL CLIMATE INITIATIVE

PRINCIPLES for FEDERAL POLICY on CLIMATE CHANGE

The following principles are provided by the Evangelical Climate Initiative (ECI), which represents more than 100 evangelical leaders—including college presidents, mega-church pastors, international aid executives, and denominational heads. Because of their commitment to Jesus Christ, these leaders are compelled to seek ways to help our country solve the global warming problem.

As spelled out more fully in the ECI statement, *Climate Change: An Evangelical Call to Action* (see www.christiansandclimate.org), ECI leaders believe that love of God, love of neighbor, and the demands of stewardship are more than enough reason for us to respond with moral passion and concrete action. The values and principles found in the Bible—such as prudence, care for the poor, and stewardship of God’s provision—compel us to seek sound and just policies in keeping with classic Christian thought. As such, ECI leaders contend that the following principles should guide government officials as they establish policies at the federal level to begin to solve global warming.

1. The Problem is Real, the Objective Clear

We believe that human-induced global warming is real and, based on nearly universal agreement in the scientific community, we encourage policy-makers to accept this fact and to take action to slow, stop, and reverse the trend of increasing U.S. greenhouse gas emissions. Discussions in the policy arena should now concentrate on solutions.

We agree with the objective of the Framework Convention on Climate Change (FCCC), a treaty that President George H. W. Bush signed and that was ratified by the Senate. The FCCC’s objective is “to achieve stabilization of greenhouse gas concentrations in the atmosphere at a low enough level to prevent dangerous anthropogenic interference with the climate system.” The federal government should honor this treaty.

Based on the findings of the Inter-governmental Panel on Climate Change (IPCC), the world’s most authoritative body on the subject, in the U.S. reductions from the year 2000 levels on the order of 80 percent by 2050 will be necessary to prevent such dangerous human-induced interference with the climate system.

2. Maximize Freedom in Solving the Problem

We believe human beings are free moral agents whom God enables to choose to do what is right; they should be free to live the lives He intends for them. Thus, governments should expand and protect freedom to allow individuals to do His will. Freedom flourishes when the rule of law prevents chaos. In the case of global warming, a proper policy framework will establish the “rules of the road” and what businesses call “regulatory certainty.” This can enhance freedom by allowing us to begin to solve a problem whose impacts will severely limit that freedom in the future if not addressed.

To protect freedom, unnecessary government regulations must be avoided. Government policies should be structured to allow the free market to solve the problem to the greatest extent possible. We should use the least amount of government power necessary to achieve the objective.

3. Maximize Protection from Harm from Generation to Generation

A primary function of government is to protect all of its citizens from undue harm, be it from foreign invaders, criminals, or pollution that impacts human health. Such protection helps to create the conditions for citizens, families, and communities to flourish. The harm from global warming is likely to be widespread, diverse, and deadly—heat waves, floods, droughts, intensification of hurricanes, the spread of infectious diseases, and refugee crises. The impact will be worse for our children, our grandchildren, and their children if we fail to act today. Strong and decisive government leadership is required now to address this threat and to promote life, liberty, and the pursuit of happiness, and a policy that will be truly family-friendly for generations to come.

4. Take Special Care to Protect the Most Vulnerable

Jesus calls His followers to protect the poor, and as citizens in a democracy we want our government to do the same. The most important way that federal government policy can protect the poor here and around the world from the impacts of global warming is to begin to solve the problem by reducing CO₂ emissions 80 percent by 2050.

In addition, we recommend the following policies to protect the poor from both the impacts of climate change as well as any possible adverse impacts from climate legislation itself:

- consumer protection/assistance (e.g. LIHEAP) and weatherization assistance for low-income families;
- transition assistance for dislocated workers and communities;
- adaptation and mitigation assistance to least-developed countries, and;
- research into adaptation and mitigation measures for low-income households in the U.S. and the poor in least-developed countries.

With all of these policies, we favor an approach whereby faith communities can work in partnership with governments to deliver such services and assistance.

5. Enhance National and Energy Security, International Religious Freedom, and Rural Economic Development

The massive impacts of climate change around the world will have serious national security implications, creating a less-stable world. American reliance on foreign oil also undermines our national security, and makes us dependent on undemocratic, despotic foreign regimes that restrict the religious liberty of their peoples, threaten the stability of democratic allies such as Israel, and constrain our ability to occupy the moral high ground in foreign policy on human rights and religious freedom. Thus, we are in favor of climate policies that reduce our dependence on foreign oil (e.g. increasing fuel economy) and thereby enhance energy security and our advocacy of religious liberty and human rights.

In addition, a robust climate policy that increases our use of renewable sources like solar, wind, and biofuels will be a lifeline for struggling rural economies and will stabilize the economic outlook for family farms.

6. Disburse Decision-making Authority to the Lowest Possible Level

We believe that in general the flourishing of freedom occurs when the power to make decisions resides at the lowest possible organizational level. A robust response to the threat of global warming will involve individuals, families, churches, businesses, and governments at multiple levels. In particular, we believe in states' rights and responsibilities as the laboratories of democracy. Strong action on climate by states, businesses, families, and individuals should be encouraged and not weakened by action at the federal level.

Given that the problem is global, and that nation-states are primary seats of government authority, important decisions must be made at the national level and between nations at the international level. While state actions and voluntary initiatives have resulted in positive benefits in the U.S., national emissions have continued to rise at a level inconsistent with long-term climate protection. In addition, businesses are now facing an inefficient patchwork of regulations. Thus, an economy-wide federal policy with mandatory targets and timetables for major sources of emissions is needed to achieve an 80 percent reduction by 2050. However, this policy should allow for maximum freedom for businesses and the states.

7. Solve the Problem through the Free Market and Protection of Property Rights

Harnessing the power of the market will allow innovation, ingenuity, and entrepreneurship to generate climate solutions, and will ensure that U.S. businesses can compete internationally in clean technologies. To help ensure competitiveness, climate policy should provide: (1) a stable, long-term, substantial research and development program; (2) long-term regulatory certainty, and; (3) a robust price signal that reflects the true

social cost of greenhouse gas pollution.

We feel it is important to recognize that global warming pollution invades the property rights of all its victims, and restricts their freedom by forcing them to bear costs they should not have to pay because of the actions of others—in either the quality of the air they breathe, the geography they hold dear, the insurance costs they bear, or the future environment of the children they love. Climate policy should ensure that the costs of global warming pollution are reflected in the price of goods and services that produce greenhouse gases. When prices are right, the free market can do its job.

We believe that the preferable market-based mechanisms will be the ones that are politically achievable in the near term. The U.S. now has extensive experience in managing a successful cap-and-trade program for sulfur dioxide (SO₂), and there is growing political support for a cap-and-trade system. This could also allow us access to a global trading system, providing further efficiencies. We support a cap-and-trade approach, by itself or in combination with a revenue-neutral global warming pollution tax whereby those who act to reduce global warming pollution receive a tax cut.

8. Start Now and Solve the Problem in the Most Cost-Effective, Least-Disruptive Way Possible

Significant reductions in global warming pollution should start sooner rather than later in order to minimize disruption to the economy, and to avoid the necessity of drastic, steep reductions in the future. Shifting swiftly to a course that includes emissions reductions will minimize economic damage from climate change and will create a smooth transition to a new energy future.

9. Lead by Example

Regardless of whether all nations agree to be part of the solution, America must do the right thing. America is committed to democracy, human rights, and the rule of law regardless of the actions of other nations, and the same must be true of our response to global warming. We do not have to wait for China and India to act before we do. We have contributed by far the most CO₂ to the atmosphere. We should lead by example and create the technologies everyone will need to help solve the problem.

10. Learn from the Future

Our understanding will continue to grow, and we may find that we must accelerate steps that address climate change. Climate policies must be flexible to account for what we will learn in the future. In addition, we must avoid making decisions now that constrain our ability to control greenhouse gas emissions in the future. Specifically, we must encourage innovation and prevent energy infrastructure developments that lock us into old, inefficient technologies for years to come.

THE EVANGELICAL CLIMATE INITIATIVE

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Rev. TONKOWICH. Excuse me, Senator.

Senator BOXER. Yes, sir.

Rev. TONKOWICH. I said the Presbyterian Church in America, not the Presbyterian Church, U.S.A. It is the name of the denomination.

Senator BOXER. OK, I understand. So you don't think that the Presbyterian Church in America agrees with this?

Rev. TONKOWICH. Correct.

Senator BOXER. All right. Well, we will ask them. I think that is going to be the best way; we will try to see where they come from.

My time has run out. How many minutes did I give myself? Six. We are going to do 8, so I will take 8 and then give Senator Inhofe 8.

Reverend Tonkowich, are you aware that the IPCC, the Intergovernmental Panel on Climate Change, that those reports are approved by hundreds of scientists and more than 130 governments?

Rev. TONKOWICH. Yes, I am aware of that.

Senator BOXER. Are you aware that the U.S. Government said that warming is unequivocal and there is a 90 percent certainty that humans are causing most of the warming?

Rev. TONKOWICH. I am aware that that is in the executive summary.

Senator BOXER. OK. Are you aware of how many National Academies of Science said climate change is real and it is likely the warming is attributed to human activities? Do you know how many of those—

Rev. TONKOWICH. I don't know the numbers. But once again, science is not a question of voting. Science is a question of evaluating the evidence.

Senator BOXER. Exactly. Absolutely.

Rev. TONKOWICH. There are scientists on the other side as well.

Senator BOXER. Well, sir, there were scientists on the other side who said the world was flat, there were scientists who said HIV doesn't cause AIDS, and there are still scientists who say that tobacco doesn't cause cancer. So we don't have unanimity, as I said, unless there is a dictator that says you shall believe this or that.

So I guess my point is, saying that there is not clarity on this is simply not demonstrated by the facts. I want to put into the record that the National Academy of Science of the United States of America has so stated.

Now, somebody mentioned the head of NASA. Do we have that retraction? Sir, I think it was you.

Mr. BARTON. Yes, ma'am, I did.

Senator BOXER. Yes. Are you aware that he had made a retraction for his statement?

Mr. BARTON. Yes, ma'am. He said he regretted making that, because it had become a political debate rather than a technical debate. He regretted that statement.

Senator BOXER. Are you aware that he said, I have no doubt that a trend of global warming exists?

Mr. BARTON. Yes, ma'am, but not man-made. That is where he made the distinction. I agree that global warming exists—

Senator BOXER. No, that is not what he said. He said, I am not sure it is fair to say it is a problem we must wrestle with. He never said it wasn't man-made. So don't distort what was said. He was saying, in his opinion, he is not sure it is a problem we should wrestle with. But he said he has no doubt the trend exists.

So I would suggest when you are quoting someone from the Government, be careful on the point, especially since the President of the United States has now stated that it exists, there is a 90 percent certainty and he has followed my advice to convene a summit of the nations of the world who are the largest emitters.

Mr. BARTON. Senator, may I add one other thing?

Senator BOXER. You certainly can, Mr. Barton.

Mr. BARTON. This past weekend, this past Saturday, the Canadian Financial Post came out quoting a Gallup poll that said that 53 percent of scientists actively involved in global climate research did not believe man-made global warming had occurred. Thirty-three percent were not sure and only seventeen percent believed man-made global warming had occurred. So that is from the Canadian Financial Post, a Gallup poll that they quoted over the weekend.

Senator BOXER. OK, we believe that you are misquoting that. But we are getting the document, and we will put it into the record.

[The referenced material follows:]

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Section: FP Comment

They call this a consensus?

Lawrence Solomon

'Only an insignificant fraction of scientists deny the **global warming** crisis. The time for debate is over. The science is settled.'

So said Al Gore ... in 1992. Amazingly, he made his claims despite much evidence of their falsity. A Gallup **poll** at the time reported that 53% of scientists actively involved in **global** climate research did not believe **global warming** had occurred; 30% weren't sure; and only 17% believed **global warming** had begun. Even a Greenpeace **poll** showed 47% of climatologists didn't think a runaway greenhouse effect was imminent; only 36% thought it possible and a mere 13% thought it probable.

Today, Al Gore is making the same claims of a scientific consensus, as do the United Nation's Intergovernmental Panel on Climate Change and hundreds of government agencies and environmental groups around the world. But the claims of a scientific consensus remain unsubstantiated. They have only become louder and more frequent.

More than six months ago, I began writing this series, The Deniers. When I began, I accepted the prevailing view that scientists overwhelmingly believe that climate change threatens the planet. I doubted only claims that the dissenters were either kooks on the margins of science or sell-outs in the pockets of the oil companies.

My series set out to profile the dissenters -- those who deny that the science is settled on climate change -- and to have their views heard. To demonstrate that dissent is credible, I chose high-ranking scientists at the world's premier scientific establishments. I considered stopping after writing six profiles, thinking I had made my point, but continued the series due to feedback from readers. I next planned to stop writing after 10 profiles, then 12, but the feedback increased. Now, after profiling more than 20 deniers, I do not know when I will stop -- the list of distinguished scientists who question the IPCC grows daily, as does the number of emails I receive, many from scientists who express gratitude for my series.

Somewhere along the way, I stopped believing that a scientific consensus exists on climate change. Certainly there is no consensus at the very top echelons of scientists -- the ranks from which I have been drawing my subjects -- and certainly there is no consensus among astrophysicists and other solar scientists, several of whom I have profiled. If anything, the majority view among these subsets of the scientific community may run in the opposite direction. Not only do most of my interviewees either discount or disparage the conventional wisdom as represented by the IPCC, many say their peers generally consider it to have little or no credibility. In one case, a top scientist told me that, to his knowledge, no respected scientist in his field accepts the IPCC position.

What of the one claim that we hear over and over again, that 2,000 or 2,500 of the world's top scientists endorse the IPCC position? I asked the IPCC for their names, to gauge their views. 'The 2,500 or so scientists you are referring to are reviewers from countries all over the world,' the IPCC Secretariat responded. 'The list with their names and contacts will be attached to future IPCC publications, which will hopefully be on-line in the second half of 2007.'

An IPCC reviewer does not assess the IPCC's comprehensive findings. He might only review one small part of one

study that later becomes one small input to the published IPCC report. Far from endorsing the IPCC reports, some reviewers, offended at what they considered a sham review process, have demanded that the IPCC remove their names from the list of reviewers. One even threatened legal action when the IPCC refused.

A great many scientists, without doubt, are four-square in their support of the IPCC. A great many others are not. A petition organized by the Oregon Institute of Science and Medicine between 1999 and 2001 claimed some 17,800 scientists in opposition to the Kyoto Protocol. A more recent indicator comes from the U.S.-based National Registry of Environmental Professionals, an accrediting organization whose 12,000 environmental practitioners have standing with U.S. government agencies such as the Environmental Protection Agency and the Department of Energy. In a November, 2006, survey of its members, it found that only 59% think human activities are largely responsible for the **warming** that has occurred, and only 39% make their priority the curbing of carbon emissions. And 71% believe the increase in hurricanes is likely natural, not easily attributed to human activities.

Such diversity of views is also present in the wider scientific community, as seen in the World Federation of Scientists, an organization formed during the Cold War to encourage dialogue among scientists to prevent nuclear catastrophe. The federation, which encompasses many of the world's most eminent scientists and today represents more than 10,000 scientists, now focuses on 15 'planetary emergencies,' among them water, soil, food, medicine and biotechnology, and climatic changes. Within climatic changes, there are eight priorities, one being 'Possible human influences on climate and on atmospheric composition and chemistry (e.g. increased greenhouse gases and tropospheric ozone).'

Man-made **global warming** deserves study, the World Federation of Scientists believes, but so do other serious climatic concerns. So do 14 other planetary emergencies. That seems about right.

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Black & White Photo: David McNew, Getty Images File Photo / Al Gore's views have credible dissenters.;

Senator BOXER. Senator Inhofe, you have 8 minutes.

Senator INHOFE. OK. Here is what I am going to do, as we have members that come in, and Senator Isakson is going to have to be here just a short while, so let me defer to him and then you can come back to me if that would work.

Senator Isakson.

Senator ISAKSON. Thank you, Senator Inhofe.

Accepting the fact that anything we do that helps the environment is a good thing, there are many alternatives to the way we currently do things. I would be interested, first of all, in hearing from each of you, either your personal opinion, or if your denomination or your faith or your organization has an opinion, I would like to address for a second the issue of nuclear energy. In my judgment, and I am going to tell you where I'm coming from, so it is not a trick question, when Vice President Gore was here and I questioned him, I asked him precisely the same question. Because I have felt like if you are going to reduce carbon, if you are going to reduce the amount of coal that you burn, if you are going to reduce the amount of fossil fuels, you have to have alternatives. We are going to run out of natural gas, and that leaves one thing, solar, wind and all these others, which can only meet about 6 percent of the demand in the United States, or nuclear.

So I think to my believe is, you can't be against nuclear and for a cleaner environment, because you can't get to a cleaner environment without nuclear. That is my personal opinion.

So I am wondering if any of you have opined on this issue or if your organization has. I would start with the Most Reverend.

Bishop SCHORI. The Episcopal Church has not taken a position on nuclear power. We do recognize that our lack of willingness to invest in other alternative energy sources is a significant piece of the issue. I represented the State of Nevada, I was the Bishop of Nevada, where nuclear issues are of major concern, given Yucca Mountain. Certainly, Episcopalians in the State of Nevada have a variety of opinions about the usefulness of nuclear power.

Mr. CARR. The Catholic Bishops have not addressed this in a formal process. We think all alternatives ought to be explored, both for the contribution they can make but also the difficulties that might arise in this case, questions of safety and disposal. But we think everything ought to be explored.

Rev. BALL. I echo Mr. Carr's comments. The ECI, Evangelical Climate Initiative, does not say anything about nuclear power. But I would add that Governor Pawlenty in Minnesota just passed a bill with a goal of 25 percent of renewables by 2025. So they are bullish on the potential of renewables out there. He is an Evangelical Christian.

Rabbi SAPERSTEIN. In my own stream of the Jewish community, the Reform Jewish Movement, we have taken a position on this issue which doesn't exclude the possibility of using nuclear energy, once safety issues and the question of disposal of nuclear waste are dealt with. At this point, we do not see those issues being dealt with. What we do believe is, when we needed an atomic bomb, we poured all the resources we needed to make that happen in World War II. When we needed a Marshall Plan, we poured the resources

into making that happen. We needed to fight the war on terror, we poured the resources into making that fight happen.

Nothing we could do would be better for the world than to pour those kinds of resources into an urgent, massive development of those clean alternative energy sources that don't pose the dangers that nuclear energy poses to us as a target of terrorist attacks, in terms of disposal of waste, et cetera. To get clean energy is a contribution and a gift to the world and to every future generation. That is where our priority ought to be.

Mr. MOORE. The Southern Baptist Convention has taken no position specifically on nuclear power. But the Convention did resolve that we encourage public policy and private enterprise efforts that seek to improve the environment based on sound scientific and technological research. That is the extent of the way in which the Southern Baptist Convention as a denomination has addressed the issue.

Rev. TONKOWICH. We at the IRD have not addressed the issue.

Mr. BARTON. Same here.

Senator ISAKSON. Well, Rabbi Saperstein, you made a terrific comment in your answer, referring to the development of the atomic bomb. It was through the breakthroughs in the splitting of the atom and nuclear fission that developed that weapon which hopefully is never, ever used again, nor does it ever have to be.

But the comparison to me is exactly the same. We know what our options are in terms of alternatives. There are renewables in terms of ethanol, hopefully cellulose-based, but certainly we have corn-based. We know that there is some from wind, we know that there is some from solar. But as I said, you can't do what we do currently with coal and petroleum and natural gas with those things. You can help, but you can't do it.

So if we had the same type of commitment to storage, and there are recyclable capabilities in nuclear energy as well, to a comprehensive plan, then we could make the single largest reduction in emissions on the planet and do so in a safe, clean and friendly way. I do understand Nevada's particular problem with the storage issue, since you happen to have been the intended repository of waste. That is an issue we have to deal with. But it is an issue that we can confront, and just as was done in the Manhattan Project, we can succeed.

Last, and then my time will be up, I have introduced legislation on green space and open space. I was a real estate developer and real estate person for 33 years. Part of the things we need to do in terms of creation, in terms of preservation, is maintain open and green space where appropriate, both for the protection of tributaries as well as migratory habitat and things of that nature.

The Government's approach has always been to buy it, through national parks and through confiscation or condemning property. I have introduced legislation to create refundable tax credits, which raise the money for the Government to then buy conservation easements, where the private ownership of land remains. You might have a church or synagogue that is on a tributary or a river that needs protection on its bank. Rather than the Government condemning the property to take it all, they can purchase from the synagogue or from the church an environmental easement, which

controls the developable part of that property that is significant to the tributary without confiscating all the land.

That is too simple an explanation, and I would never bait you by just saying, doesn't that sound like a good idea. But I would hope as you focus on these issues that you focus on things like this, which just like in the case of nuclear energy, it is another way to slice the apple or to look at the problem, without something that is, in my way of thinking, confiscatory in terms of property or over-reacting in terms of emissions. That was more of a statement than a question, and I apologize, Senator Inhofe, but I will yield back my 30 seconds.

Senator WHITEHOUSE. I am a little bit new to this discussion, so if I get repetitive with things that have already been said, please forgive me.

I am interested in understanding why some of you are engaged in this discussion. I can understand that if your view is that the science of global warming is convincing, and the consequences that are anticipated are therefore real, that as pastors of your flocks, to take an interest in the welfare of those to whom you minister, makes a certain amount of sense. If you view as part of your ministry to comfort the suffering and afflicted, and you believe that suffering and affliction will result from global warming, then I can see how that premise, i.e., that you accept the science, then injects you into a role in this discussion.

What I don't understand is if you disagree with the science, or have no opinion on it, recognize that you are not a scientist and it is happening beside you, why you would then feel the obligation to inject yourself into that scientific debate. I guess I would ask, roughly we have the people who accept that global warming is happening and think something should be done about it, and the people who don't here are separated from coincidentally, I supposed, left to right, at least from my view.

Would one from each side care to comment on that observation? Why is it that you feel it is important to take up this issue as ministers? Am I right that it is because of the consequences that ensue and the desire to comfort the afflicted, or to be afflicted? But if you don't believe it, why go in and quarrel with the scientists? Why get involved?

Reverend Ball?

Rev. BALL. Senator, thank you for the question. You have seen that for those of us who are concerned about this in the religious community, it is precisely because of the impacts that are going to occur to the poor. I have been looking at this issue personally since 1992. I have been tracking the impacts on the poor and looking at what the scientists are having to say about this.

When I read the latest IPCC Working Group II report, I got scared when I saw that the impacts for those in Africa, major, serious impacts, could be occurring by 2020, and that up to 250 million people could be impacted by water scarcity in 2020 in Africa, and that in certain areas, up to 50 percent of crop production could be reduced, if you start reducing crop reduction in Africa that way, many people are going to be in dire distress.

So for the folks, the leaders who are part of the Evangelical Climate Initiative, we are engaged on this issue because of our con-

cern for the poor. I think the statements of my colleagues here have indicated that is the case for them as well.

Mr. MOORE. One of the reasons why so many conservative evangelicals left the mainline Protestant denominations is precisely because the ecumenical bureaucracies often spoke to public policy issues as though those issues came with a "thus saith the Lord." I am concerned that evangelicalism is not represented as adopting policies on global warming that do not come clearly from divine revelation.

Senator WHITEHOUSE. Say that again?

Mr. MOORE. When you have Bible verses tied—

Senator WHITEHOUSE. Repeat your last sentence, I am sorry, I didn't follow you.

Mr. MOORE. When you have evangelicalism represented as holding in some kind of consensus to environmental policies, evangelicals do not believe that there is a blueprint for energy policy or global warming policy in Scripture. So some of the arguments that have come from evangelical environmentalists have been very un-nuanced and have been very theologically problematic. That is one reason why we are concerned.

Another reason is precisely for the reason that you mentioned.

Senator WHITEHOUSE. Isn't that sort of like crossing the street to quarrel? Why bother, if you don't think that this is a real problem, why not just go on about your business?

Mr. MOORE. Because there are policies that have ramifications, many of which will be extremely, could be extremely harmful.

Senator WHITEHOUSE. Well, if the policy ramifications could be harmful and that is a matter of legitimate concern for you and your church, why aren't the consequences of global warming, which could be harmful also, consequences?

Mr. MOORE. I am not saying that global warming is not a concern. We have all said that climate change is a concern. The question is, we have science being presented as though there is an indisputable consensus and we do not agree that there is.

Mr. BARTON. Senator, may I add something to that?

Senator WHITEHOUSE. Sure, please.

Mr. BARTON. I think that we all agree global warming has occurred. I think the question becomes whether it is man-caused or whether it is caused by solar activities. I think for me, one of the most compelling things I have seen is from the astrophysicist at Harvard who has directly correlated CO₂ emissions with temperature changes at the Arctic and has done the same thing with solar activity. There is a perfect correlation with solar activity, not with CO₂ emissions.

Having said that, in looking at the estimated costs of what would happen in the first year of implementation of a program of large proportion, for the same amount of money, we could create clean, potable water for every country in the world, for about \$200 billion, that would stop the dysentery and the hundreds of thousands of deaths caused from unclean water. So the concern is, if this is, for example, created by something such as solar activity, if we put \$250 billion into it the first year, for that same amount of money, we could create clean water across the world. I think prioritization is the thing that I have spoken to and that I have heard within

the community, not that we are not concerned about global warming, but there is a prioritization of what they think should be addressed first.

Senator WHITEHOUSE. Go ahead, Mr. Carr.

Mr. CARR. Just a comment to build on that.

There are two religious mandates. One is to show our respect for the Creator by our care for Creation. The fact is, we will be judged on our response to the least of these.

We think there is often a false dichotomy between people and the planet. For us, and I think all of us, these are not abstract issues. Catholic Relief Services is in 100 countries, serving the poorest people on earth. We see the impact of this already. We are in the urban communities and the rural communities, where peoples' lives are already being diminished.

So this is not a matter of politics. This is a matter of faith and this is a matter of protecting the weakest people whose voices are frankly not very often heard in these rooms.

Senator WHITEHOUSE. Well, I have 12 seconds remaining. Rather than trying to make productive use of them, I will yield my time to the Ranking Member.

Senator INHOFE. Well, my clock says that is 1 second. Thank you.

[Laughter.]

Senator INHOFE. I told Senator Boxer on the way over to voting, I said, of the global warming hearings, this is by far the best. But it is one that is very revealing. Frankly, I am enjoying it. I never have enjoyed these before.

[Laughter.]

Senator INHOFE. I am glad that some things have come up. For example, I think it was you, Mr. Barton, that mentioned, you have to clarify what the issue is. It is not global warming. I think we throw that term out, and I know when you talk about some of the polling that has taken place, you talk about global warming. We all agree, I think we all agree, that global warming in the northern hemisphere, not the southern hemisphere, but the northern hemisphere, is taking place.

But also, we have had hearing after hearing after hearing showing the charts. God is still up there, and this is still going, and there is hardly any change. If you go through and you look at the science that this was originally based on, this guy that had the hockey stick thing, he totally neglected the fact that there was a Medieval warming period and the cooling period that were in that 500 year period. So that has been pretty much defused right now.

I look at the science, which of you mentioned the Canadians? It was you, David. I think you are probably aware of the fact that back in the middle 1990s, the 60 scientists advising the prime minister at that time, of Canada, to join onto the and become a participant in the Kyoto Treaty, those same scientists, now only less than, probably about 6 months ago, have said in reviewing this, now, if we had known, this is a direct quote, "If we had known in the 1990s what we know today, we would not have been a part of the Kyoto Treaty." Because science is developing and it is changing. Those were 60 scientists who signed this thing in unanimity.

We have had, I think someone mentioned the Oregon Petition, 17,800 scientists say, yes, we recognized that there is something

going on, but it is not man-made gases. That is the big key. Is it man-made gases, CO₂, methane, anthropogenic gases, that are causing these things? Certainly, the science has been changed and changed dramatically. I covered a lot of that in my opening statement. This is really not a science hearing. I think we can go from this fact that, assume the science is not settled for the purpose of the discussion here. Because the recent trends are very much on the other side.

Now, as far as the IPCC is concerned, that is the United Nations, they came up with this thing to start with. One of you mentioned it was the summary for policymakers, I think it was you, Reverend Tonkowich, and that is what it was. That is what we are looking at. So the policymakers come out with these things, the press picks it up as if that is science. Then they report it, and that is all you see in the media. It has been a very biased media during the course of this time.

Let me just go back now and ask a couple of questions. Mr. Barton, some of the people say that evangelicals are moving in large numbers to embrace the need of mandatory controls and carbon emissions to combat global warming. Now, you have heard this over and over again here. I would just like to know from your exposure to them, do you agree that the movement is going in that direction?

Mr. BARTON. I would not agree with that. Jim Ball has noted support in his poll, but the ABC poll did not find that movement among evangelicals to be nearly as pronounced. One of the things I have done for years is collect polls that deal with cultural issues and evangelicals. I have thousands and thousands of polls and therefore plot trends. What I have seen is that the issues that continue to remain at the top for evangelicals continue to be issues of innocent life, traditional marriage, and public religious expressions; and among evangelicals, although they are concerned with global warming, it still is only about 5 percent that put that as a top priority.

So I do not see global warming overtaking any of the other issues any time soon. I think there are much clearer Biblical mandates for the other issues than there is for dealing with what may or may not be man-caused.

Senator INHOFE. I appreciate that. Reverend Ball, in a minute I am going to get around to something you brought up, which was the recognition of my activity in Africa. I have had occasion to be in Africa about 30 times in the last 10 years. I stay very, very busy there. I have pretty good first-hand knowledge as to the poverty that is there.

Reverend Tonkowich, some would argue that the people who reject the cause for caps on greenhouse gas emissions are failing in their Biblical duty to be stewards on the earth. I would like to have you respond, because that has been said here, if you would do so.

Rev. TONKOWICH. Well, again, the debate has been reduced to ad hominem attacks. Everyone at this table cares about the earth, everyone at this table cares about the poor. Now, what do we do about the earth, what do we do about the poor? That is where the disagreements come. But the debate really needs to rise above, you don't agree with my policy, therefore you must not love Jesus.

Senator INHOFE. Yes. A number of the evangelical leaders who are embracing the Creation Care for Government Action on Global Warming are the same leaders who embraced wealth redistribution and other big government socialist policies in the 1980s, through which they believe Christ could liberate the poor. What parallels do you see in those two statements?

Rev. TONKOWICH. It is certainly the same personalities. While I appreciate that the ECI document regarding public policy says you need to push all the decisions down to the lowest level of government possible, what I see is everything going to the highest level of government and then going beyond that to an even higher level of government yet to be created, which is not good for democracy and I doubt very much is good for the poor.

Senator INHOFE. Well, let me jump over to Reverend Ball. It is my understanding, the Evangelical Climate Initiative, and I am pretty familiar with at least my perspective of it, hopefully that is not too unfair, but when I look at that and the other side in this combat that is taking place, your organization has received strong financial backing from the Hewlett Foundation, which is pretty well known as an ardent supporter of population control and abortion rights. I would ask, how do you think the majority of evangelicals would feel if this were more widely known, in terms of who is supporting your organization?

Rev. BALL. Well, we have been transparent about where we have gotten our funding from the very beginning. We are appreciative of the Hewlett Foundation giving us the funds to talk to folks about what we think Jesus says about care for God's Creation. So we figure that every dollar that goes to us goes to a pro-life group and not to a pro-choice group.

So it is clear in our statement that all of our leaders are pro-life. We are very proud of that. So for us, we are glad that they gave us the money so that we can talk about Jesus Christ more.

Senator INHOFE. But it doesn't seem inconsistent to you or difficult for you to explain to people that this huge organization that believes in abortion rights is pouring a lot of money into your organization? Is that difficult to explain? I heard your first explanation. I thought maybe there was a better one.

Rev. BALL. Well, let me see if this will work for you, Senator. I give money to my church, Riverside Baptist Church. But everybody who goes to that church is a sinner. So the church gets all—

Senator INHOFE. Well, everyone in this room is a sinner.

Rev. BALL.—of its money from sinners. So as soon as it comes to the Lord, then we can start doing good with it.

Senator WHITEHOUSE [Presiding]. xxSenator, your time has expired.

Senator INHOFE. OK, that is fine.

I would like to just follow up a little bit on the discussion we were having. But first, Mr. Barton, I am told that before you got here, you referenced a skeptic's position, signed by—

Mr. BARTON. Nineteen thousand two hundred, the Oregon Petition that Senator Inhofe mentioned, very possibly, yes.

Senator WHITEHOUSE. Are you familiar with Scientific American?

Mr. BARTON. The magazine? Yes, I am.

Senator WHITEHOUSE. Do you consider it a reputable and respectable, reliable magazine?

Mr. BARTON. I do, at times.

Senator WHITEHOUSE. I am told that they studied the skeptic's petition that you referred to, and when they actually looked at the numbers and checked into it, they determined that first of all, less than 10 percent of the scientists, the skeptics, actually held Ph.Ds in a climate-related science. Then when they contacted those scientists who had expertise in climate-related science, they found that less than half said that they still agreed with the petition? Were you aware of that?

Mr. BARTON. Even if it is less than half, that is still close to 10,000.

Senator WHITEHOUSE. No, no, no, less than half of the 10 percent.

Mr. BARTON. That may be. I am not aware of that. But I am aware of other groups that are out there. I know that when the NASA scientist came out—the head of NASA came out and then was promptly beat up for his position—that in places outside of America, Australia, New Zealand, Canada, elsewhere, scientists praised him for what he had said.

Senator WHITEHOUSE. But just in terms of evaluating the nature of your testimony, does it give you any pause to be citing a petition that you said had 19,700 participants, when subsequent review in a public magazine has disclosed that that may be less than accurate? For instance, is this new to you and are you now going to change the way you discuss it? Are we going to hear you going up a month from now and saying, oh, yes, there is a skeptic's petition of 19,700 votes?

Mr. BARTON. No. I will not change. Because that was such an insignificant part of what I did in the overall testimony. The overall testimony, for example, tracks the fact that in those scientific journals, throughout the 1920's, they were warning of an imminent ice age. In the 1930's, they were warning of global warming. In the 1970s, the U.S. Government was saying, we have an ice age coming, we need to stockpile food. These are all things that the scientific journals did. The scientific journals—

Senator WHITEHOUSE. My concern is a little bit more with the nature and quality of your testimony. Are you telling me that you intend in your argument, in favor of your position, to continue saying publicly that, notwithstanding the Scientific American review, you are going to continue to represent that there is in fact a 19,700 person skeptics?

Mr. BARTON. I will continue to represent that there is no consensus on this, that there are many scientists that disagree. Whether I say that—

Senator WHITEHOUSE. That is not the question on the one that I asked, though. I am actually trying to pin you down to the skeptics petition. Now that you know that the Scientific American—

Mr. BARTON. If indeed your characterization is accurate in that group, I may not use that group. But there are still plenty of other groups that I will use.

Senator WHITEHOUSE. OK.

Now that my colleague has raised the question of funding, I am interested, Dr. Tonkowich, in IRD and where its funding comes from. According to a web site called Media Transparency, IRD received 89 percent of its support in its first 2 years from six conservative foundations. In an article entitled Follow the Money, which appeared in the Washington Window, Howard F. Amundsen, Jr., alone gave IRD \$528,000 in 1991 and 1992, \$460,000 in 2001, \$150,000 in 2002 to 2003. My question is, are these figures accurate and what percentage of your total funding do those contributions represent?

Rev. TONKOWICH. I do not know whether they are accurate or not. I can find out and get back to you. I have been with the organization just over a year. I don't know what the funding was in 1991.

Senator WHITEHOUSE. You say you represent constituents of so-called mainline Protestant churches who feel mis-represented by their denominational Washington offices and by groups like the National Council of Churches. How many constituents is that, approximately? Do you have a number?

Rev. TONKOWICH. Our mailing list is somewhere in the neighborhood of 600,000 to 700,000.

Senator WHITEHOUSE. How do people get on your mailing list? I get stuff that I don't want all the time, and I don't consider myself to be a constituent of the groups that mail to me.

Rev. TONKOWICH. Again, people send us their church directories at times, and ask to add their friends to the list. We do very little prospecting. So it is people who have opted on.

Senator WHITEHOUSE. Where does the support for your organization come from?

Rev. TONKOWICH. A combination of foundations and individuals.

Senator WHITEHOUSE. Do you know how many foundations and how many individuals, approximately?

Rev. TONKOWICH. I think there are probably somewhere in the neighborhood of 8 to 10, well, a dozen or so foundations.

Senator WHITEHOUSE. I would be interested, to the extent you feel comfortable doing so, have you identify for the record who those are and who your major private donors are.

Rev. TONKOWICH. I would not feel comfortable, certainly, revealing the names of private donors. In terms of foundations, most of them make us sign a waiver saying that we will not in fact reveal their names.

Senator WHITEHOUSE. I am not as religious a person as the people who are in the witness chairs today. But I do recall during the course of my education some discussion about Paschal's wager and the prudence of believing in a God. Does it not seem simply prudent, given the risks that are potentially associated with global warming, to err on the side of caution? Do you have no hesitation in that regard, to the extent that your organizations are seen as impeding or interfering with or trying to discourage efforts to limit the effects of global warming? I mean, the downside, I think, we can argue about how likely that downside is, but the downside is pretty severe. Wouldn't the relatively small chance of that downside occurring be something to take sensible precautions about?

Rev. TONKOWICH. Global warming is likely to benefit some and hurt others. Climate change will do that. Senator Inhofe entered for the record the front page of today's *Washington Post*, the story about Greenland and how the warming trend is significantly benefiting the people of Greenland.

This is an enormously expensive undertaking, enormously expensive. As David pointed out, with \$200 billion, we could give every human being on the earth drinkable water. That would solve many, many problems.

I don't know what it would cost, but if only 4 percent of the fields in Africa are irrigated, why not pay to irrigate the rest and use that well? The estimates of cost for instituting the Kyoto Protocol that I have heard are in the neighborhood of \$300 million a year. I have heard numbers into the quadrillions. We can do things right now to help the poor. If there is global warming, if the sea levels are going to rise even 20 inches, and that would cause problem, we can do something today to make the lives of the poor different 100 years from now in order to cope with that.

Senator WHITEHOUSE. My time has expired. The Ranking Member has the floor.

Senator INHOFE. I just wanted to remind you, before you came in, I have only had one round, and you probably assumed that I have had two.

Here is one of the problems I see in the line of questioning here, Senator Whitehouse. Again, we are talking about global warming. It is not global warming, it is, is man-made anthropogenic, methane, CO₂ affecting climate change. That is the issue. I think we all acknowledge, and they are rejoicing up in Greenland, as you can see in the front page of the Post today, in the fact that they think they are going through a warming trend and they hope it doesn't reverse, as it always has in the past. If you don't believe that, ask the Vikings, the ones who were there prospering for a long period of time.

I was hoping we would get away from this science thing. No one with a straight face can say that the science is settled. It is not settled. Let me just read this. I thought we were beyond this point and we didn't need to get back to it. That is not what this is supposed to be. I could come with chart after chart after chart of the thousands of individuals, and by the way, you talked about the Oregon Petition, it is not 19,800, 17,800, but 15,000 of those—is that correct, 15,000, what is it? Twelve thousand of those have Ph.D., or higher equivalents. But forget about that. If you just take the top scientists in the world, and I used this one on the floor the other day, because I was debating the junior Senator from Massachusetts. It was the quote by Richard Lindzen, the Alfred P. Sloan Professor of Atmospheric Science at MIT, in an op-ed piece. He is getting very upset by the political motivation of this whole debate.

He said, "A general characteristic of Mr. Gore's approach is to assiduously ignore the fact that the earth and its climate are dynamic. They always are changing, even without any external forcing. To treat all change as something to fear is bad enough, but to do so in order to exploit that fear is much worse."

Now, I think you submitted, Dr. Tonkowich, in your statement, three pages as an appendix, naming a lot of the—would you kind

of go over, hand pick a few of these out, the scientists that seem to be challenged so readily by the other side if they don't agree immediately with them?

Rev. TONKOWICH. These are folks, Ian Clark is professor of Isotope Hydrogeology and Paleoclimatology, studying those trends in climate change and CO₂ change over time. A number of these I got as a list of signers, Richard Lindzen at MIT is certainly on the list. Roy Spencer.

Senator INHOFE. OK, I think that is good enough. The point I am trying to make, and it is already part of the record, so I won't submit it, most of these, we went through and more than half of these are ones who didn't appear on this list just a short while ago. So we are acknowledging that there are changes.

Now, the comment that was—yes, here are some of the new ones. First of all, I mentioned Claude Allegre. Claude Allegre is from France, he is a socialist. But he is one of the top geophysicists in France. He was one of them who was on the other side of this issue who changed, and is over on the other side, the skeptic's side, now. That is where the trend is going. I would say the same thing for a geologist from Alberta, Canada, Bruno Wiskell. In fact, these are all new ones here. I am going to go ahead and submit this, without objection, to be a part of the record.

Senator WHITEHOUSE. Without objection.

Senator INHOFE. I think that is very important to do.

Now, a lot of statements have been made about the IPCC. What isn't said about the IPCC is that what we are looking at is the review they have for policy holders. But even in this reviews, in the last one, this was in February, they came out and for the fourth consecutive time, they cut the sea level rise fear in half. They cut it down by half again this past time. So every time they come out, even though these are policymakers, they are still saying, we had better cover ourselves on this, because this just ain't true.

When we had the 3-hour debacle with Al Gore a couple of months ago, a lady came up to me afterwards from some place in Maryland, I can't remember where it was. She said her elementary school daughter is forced to watch that movie, the science fiction movie that he has, every month. The thing that bothers me is, these poor kids think it is true. The thing that bothers and scares them the most is sea level rise. They all honestly believe, and why wouldn't they believe this, sitting in school hearing from their teachers, that we are all going to drown.

So these things are out there, and I don't want to keep talking about science. I guess something is trying, not you, Senator Whitehouse, but some of them are trying to discredit the head of NASA, who came out the other day. Well, if you look carefully at what he said, he was talking about man-made changes, not about global warming. Let's keep in mind the guy that you see most prevalent is a guy named James Hansen. James Hansen is the guy, he is on all the shows I have seen him on, every time I go in to do a show, he is sitting there. He is the guy that received \$250,000 in a check from the Heinz Foundation, and you can say, well, that had nothing to do with his opinion. This wasn't a grant. This was just money given to him.

So I think that if you are going to get into these things, we can do the same thing on this side. Money is important.

We had a hearing. This was a good one. I think this is the best hearing we have had. Some of you are looking at this thinking it is not so good. We have had some awful ones. But one that was pretty good was the one where there were five corporations that joined U.S. Climate Action Partnership, five or seven of them came in. So we took them each one by one, General Electric, and the others would stand to make not just millions, but billions of dollars if we had cap and trade policy.

If I were one of the companies, I think one of the energy companies, I won't go into them now, because it is all a matter of the record already, who would make money in nuclear energy, which I strongly support, just as strongly as the Senator from Georgia, still in fact those individuals would make that much more. We have some natural gas people right now that are trying to do away with coal. Coal-generated electricity is responsible for 53 percent of our being able to run this machine we call America. Clean coal technology is coming along, and at this point, I hope everyone understood what Senator Isakson was saying, we have a crisis in this country. I used to say you can't run the biggest machine or the most sophisticated machine in the history of mankind on windmills. Then I find out the environmentalists don't like windmills any more, because they are killing birds.

We have to look, France, for example, 80 percent of France's energy is nuclear. Yes, we need to get to that. I think we all agree with that. But also clean coal technology is coming along, and all of the above is what we need. Our farmers in Oklahoma—the main cost factor driving up the cost of fertilizer is the cost of natural gas. It has more than doubled, just because of that, because of these things that we are doing.

So that is a bigger picture that we are looking at. I didn't really mean to get into all of that, and I don't know if you want to go back and forth or what you want to do. But there are a couple of questions I had at some point I want to get out.

Senator WHITEHOUSE. Why don't you ask them now, I will give you another round, another 8 minutes.

Senator INHOFE. I appreciate that.

Mr. Carr, I appreciate very much the very pleasant way in which you made your presentation, and I appreciate you. But I ask that, if you had paid attention, back when I was reading my opening statement the statement by Tom Mullen, the president of the Catholic Cleveland Charities, who testified in this room, sitting in the same chair you are sitting, as a matter of fact, about the rising cost of energy that would be caused by the imposition of a carbon cap and trade scheme. Then specifically, he said that one-fourth of the children in his city, that is in Cleveland, OH, were living in poverty and they would, with this cap and trade that they are talking about—and it is not any different, not a lot different than the ones we are talking about now—would suffer further loss of basic needs as their moms are forced to make choices of whether to pay the rent or live in a shelter, pay heating bills or see their child freeze, buy food or risk availability of a hunger center.

I would ask you, No. 1, do you know Tom Mullen; and No. 2, do you have any comments to make about his observations?

Mr. CARR. Thank you, Senator. I know and admire Tom Mullen and I very much admire the work of Catholic Charities in Cleveland and throughout the country. I have a couple of reactions. One, the people he describes are people we serve every day. They are in that situation not because of cap and trade policies, but because of the economic realities in the country. They are going to be affected by other economic realities, including the reality of climate change and its impact.

Everything we know about this says that the poor will have the least to say and the most to lose about this. So one of the things that I am really encouraged about is the focus on this side of the table and that side of the table on the poor. Because that is not usually the way things shake out up here. So one of my hopes is we will focus together on how the poor will not be left behind, will not be used as an excuse for inaction, and will not be seen simply as collateral damage.

Business as usual, the status quo, will hurt the poor. Business as usual in terms of what we do in the future, will hurt the poor. What I think we unite on is, business as usual is not good enough. In fact, what the religious community offers, I hope your science hearings were better than this, because this is a little scary. What the religious community offers is a set of principles. The three I suggested were prudence, the pursuit of the common good and the priority of the poor.

The other thing we offer, and this is what Tom Mullen was talking about, is we have experience. The poor are not abstractions for us. They have names and faces. So we know that inaction will hurt them and that the wrong action will hurt them. So I share very much his concern, and I hope this committee, as it does its work, will continue to reflect a common priority for the poor.

Senator INHOFE. I appreciate that. That is a very good response.

I think one of the reasons—there are a number of reasons why this hearing is taking place. It was the choice of our Chairman, Barbara Boxer. For those of you that don't hang around Washington very much, you might not be aware that for 4 years I chaired this committee, up until January, and the Democrats now have control by one vote, which could change.

But in doing this, I know, and I started out in my opening statement, and I don't think my Senator friend here was here at that time, I said one of the reasons I was glad this came up is because there is, there was a very brilliant attempt by some groups in order to try to divide and conquer on the issues that are fundamental issues to evangelicals. I named gay marriage and abortion and all that.

It started out being successful. This movement, which actually was about 2 years ago in March, is when it first appeared, they are attributing support from people like James Dobson, people like Chuck Colson. I called them up one by one and they all said, no, we were never consulted. So I was concerned, I think that is pretty much put to rest, and I think this hearing helps a lot in that respect, to do that.

Let me ask you, let's go over to the side of the minority witnesses.

Bishop SCHORI. Senator, may I interrupt? I apologize deeply, but I have a commitment that will not wait. I would ask your indulgence that I be excused. I would be happy to respond to any questions that might arise in writing.

Senator INHOFE. Let me do this. I will go ahead and get some questions for the record, because I did have three I was going to ask you, and then you can respond in writing, if that would be all right. We will do that after you leave, for the record.

Bishop SCHORI. Thank you very much.

Senator INHOFE. Thank you. Thank you for appearing here. We appreciate your contribution very much.

I would say to the witnesses that are minority witnesses, since I think we are getting pretty close to winding this down, if I just start with you, Dr. Moore, and see if there is anything that you have felt you have not really had time to share with us, if you would like to at this time.

Mr. MOORE. I think the issue of evangelical distraction and evangelical identity is a good point, the point that you just made. When you look at the lists of signers of some of the evangelical environmentalist manifestoes, as we have already mentioned, many of the names are exactly the same people who were holding to big government solutions in economic terms in the 1970s and 1980s, with very few exceptions.

We ought to have seen and heeded the dangers of the 1950s and 1960s when church bureaucracies took the Biblical text and superimposed it upon specific big government policies, enough to know that this is not a path we wish to go.

Senator INHOFE. That is good. How about you, Dr. Tonkowich?

Rev. TONKOWICH. I would like to say that Mr. Carr's comments about his three points, prudence, common good and the poor, are ones that I would certainly adhere to. I think those are points of common ground.

Of course, the question of prudence, that is really the question that is in the air. But those are important principles, and I appreciate that.

Senator INHOFE. You know, speaking of the poor, in my experiences in Africa, most all these programs that come along, as you well know, only engage developed countries, not developing nations. I would hope that we don't try to impose upon countries such as Africa some of these ideas that we think would work well in the developed nations.

Mr. Barton.

Mr. BARTON. Probably the thing that I would point back to is that I believe there is a real skepticism, as ABC points out, outside of Washington, DC, still 64 percent of the Nation thinks scientists are split on this. I continue to point to a good basis for that. The environmental scientists warned in the 1960s of a global population bomb that by 2000 there would be massive unemployment. It was 6.3 percent this year globally. They pointed to DDT. We banned that in 1972. We now find that cost about 2 million lives a year, so USAID has put it back in, because that can't find any human harm factor associated with DDT.

We went through Y2K. This Government spent \$225 billion on Y2K and nothing came of it. I can go through five or six other major areas where science has been of “consensus” and 20 years later, we are all of a different mind. That is why I really urge caution on this, because there is not a good record on this in the scientific community on a number of issues that were considered very significant at the time. Again, this has been cyclical. I tend to be like others, skeptical on this issue. That is why I would urge caution before we launch out into anything that really is going to reshape society. Let’s have a better consensus than we do now.

Senator INHOFE. I do think it is interesting to look at the changes. When I talked about the corporations, the others, when they say it is all about money, there are a lot of them who stand to make a lot of money. I recall Time Magazine, it was one of their biggest sellers about a year ago, that had that last polar bear standing on the last ice floe about to go. That is the same magazine that just about a few years ago said another ice age is coming and we are all going to die.

So people want that. The Weather Channel wants so badly for people to believe this. This gets the watchers and the viewers, the ratings up. So anyway, I don’t know what your intentions are.

Senator WHITEHOUSE. I think my intentions would be to allow the three majority witnesses a chance to make a very brief, parallel closing, takeaways for us if you might, then I will adjourn the hearing. If any of you would like to add to what Dr. Moore, Reverend Tonkowich, and Mr. Barton have said, briefly.

Mr. CARR. I would like to address the distraction concern. The Catholic community and the evangelical community share a commitment to human life, share a commitment to family life. With all due respect, I think the Catholics and evangelicals are capable of doing more than one thing at a time. I don’t think there is any doubt among the members of the Senate that my church is deeply involved in protecting the unborn, protecting the family, working to protect immigrants, while we are working for those principles I described.

I guess I can identify a little bit, and I will try to be brief; I am a skeptic. I am a convert to this. Frankly, I saw concerns in this area as a diversion from concerns about the poor and peace and the kinds of things that I have worked on all my life. Frankly, there are more resources for their side and for our side to do this than there is to work on the poor.

But I became convinced not by my own study but by the experience of the church around the world, and frankly, the leadership of John Paul II and now Benedict XVI, that this is not a diversion for our commitment to human life and dignity to care for the earth, this is an extension of it, this is a deepening of it. That we are involved, because we think there is a false choice here between protecting God’s creation and protecting God’s people.

What I take away from this hearing is great hope that as you decide how to respond to what is going on with prudence, in pursuit of the common good, that the poor and the vulnerable who will bear the greatest burdens will be at the center of your discussion and I hope your deliberation. We want to help you, both sides, in that task.

Senator WHITEHOUSE. Reverend Ball.

Rev. BALL. I think there has been a bit of a mischaracterization of our 100 evangelical leaders in the sense of saying that we are somehow this left wing group. Anybody who knows the evangelical community, who looks at that list of leaders, can see that it is primarily a centrist and conservative group of evangelical leaders. I have no idea what they were espousing in the mid-1980s. But I seriously doubt that the leaders on that were really engaged in involving big government kinds of things.

I would like to, again, we put this into the record, but to highlight a few of our principles for Federal policy on climate change. The second is maximize freedom in solving the problem. The fifth is enhance national and energy security, international religious freedom and rural economic development. The sixth, disperse decisionmaking authority to the lowest possible level. Then the seventh, solve the problem through the free market and protection of property rights.

We want—I am glad that the U.S. CAP corporations are going to make money. I want them to make lots of money. I hope they make tons of money. If they make lots of money and we are protecting the poor at the same time, boy, how can we get better?

So I look forward to making sure that the legislation is actually protecting the poor and making sure we don't make it regressive, but at the same time, making it business-friendly and using those market-based mechanisms to let our entrepreneurs solve this problem. We will lead the world at it.

Senator WHITEHOUSE. Rabbi Saperstein.

Rabbi SAPERSTEIN. A few very quick points. First, in the Jewish tradition, we have exactly what you describe, Senator, a central, legal concept called building a fence around the Torah, that where a core value is concerned, you protect it prophylactically, not be waiting until someone steps on it, but setting the boundaries far enough out to be absolutely sure that it is not violated. That is exactly what is called for here.

Second, I hope that this committee is aware of the extraordinary array of programs going on in the religious community dealing with this. In churches, synagogues, mosques, all across America, people are trying their best to deal with this, to cut down their carbon imprint, to use alternative, low greenhouse gas emitting technologies that will make them far more effective and far more protective of the earth, doing educational programs, really extraordinary. At the local level, people really get this. It is important that you be aware of how strongly held this is.

Third, I don't see how this idea that has been espoused by my colleagues here that somehow, if Scripture doesn't say something exactly about cap and trade, things that are particular mechanisms, you remain silent. I work with the Southern Baptists all the time on sex trafficking, on the Religious Land Use and Protection Act, which not only do we all believe Scripture had a principle, but we agree to all kinds of compromises, all kinds of mechanisms that are not found in Scripture. We use our best judgment as to how to apply that. We normally do it together. It is what is called for here.

Finally, I would say, I think Dr. Moore gave a wonderful presentation, really. I think inadvertently he used an image that to me is a deeply troubling image, the image of Noah. Noah is not the paradigm for what we need, a notion that few survive and we allow ecological devastation of all the rest of humanity. Indeed, it is the opposite paradigm that is called for here. We have to be sure the flood does not happen again. We have to act to preserve all of humanity. That is what is called for at this moment, and it requires bold and assertive steps by this Congress to make that happen.

Senator WHITEHOUSE. I thank the witnesses. I think the agreement that we are left with on prudence, pursuit of common good and prioritization of the poor is a good note to close the hearing on. I would say to my distinguished senior Senator and the Ranking Member here that while politics may divide us, we had an interesting visit from the British Secretary of State for the Environment, who noted that in his country the battle between the conservatives and the liberals is as to who will be stronger with respect to climate change. In that country, the conservatives are campaigning, in that country, blue is red and red is blue, so the conservatives are the blue party, and they are campaigning on a vote blue to get green platform. So there may be room for the two of us to come together in the fullness of time.

Senator INHOFE. I would be very happy to come up with a number of Brits, David Bellamy and others, who would take a differing view.

I want to thank all seven of you who showed up today. I had said that this thing would be over with at noon, it is now 1:15. Thank you for your tolerance.

Senator WHITEHOUSE. We are adjourned. The record stays open for a week after these hearings if there is anything you wish to put into them. Thank you.

[Whereupon, at 1:15 p.m., the committee was adjourned.]

[Additional statements submitted for the record follow.]

STATEMENT OF HON. JOSEPH I. LIEBERMAN, U.S. SENATOR FROM THE
STATE OF CONNECTICUT

Thank you, Madame Chairman.

I haven't yet spoken in this committee about the religious convictions that have influenced my work pushing legislation to curb global warming over the last four years. But those convictions are reflected in the title I chose in 2003 for my bill, the Climate Stewardship Act.

It is written in the Talmud that when God made Adam steward of the Garden, He said to Adam, "Look at my works! See how beautiful they are—how excellent! For your sake I created them all. See to it that you do not spoil and destroy My world; for if you do, there will be no one else to repair it."

My faith teaches me that God has commanded us to be good stewards of our natural world—to care for and nurture this precious gift He has given us.

And when science proved to me years ago that we were spoiling this world God gave us by pouring greenhouse gases into the atmosphere, both faith and reason moved me to action to try and put our nation on a path toward better stewardship of God's gift to us.

I am pleased to see that a bipartisan majority of the members of this committee now believes that robust greenhouse gas emissions reductions are needed to protect the Earth from harm. My hope is that each Senator who accepts that fact will also as a matter of both faith and reason support legislation mandating the emissions reductions that science reveals as necessary to avoid spoiling our natural world.

Stewardship of the natural world is not the only religious tenet that has informed my approach the issue of global warming. The book of Proverbs exhorts us to “plead the cause of the poor and the needy.”

There is consensus in both the scientific and the economic communities that the impacts of our excessive greenhouse gas emissions—intensified drought, intensified heat-waves, increased coastal flooding, migrating diseases—hurt the poor much earlier and much harder than they hit the wealthy.

This spring, the Intergovernmental Panel on Climate Change projected that unchecked global warming will cause water shortages affecting billions of people and drive millions to hunger.

With that knowledge, and with concern for the poor in this country and abroad, I hope that all of my colleagues will feel duty-bound to support legislation that brings this nation’s greenhouse gas emissions down to safe levels in time to avert catastrophe.

Some say that strong measures to curb global warming will punish the poor economically. But all indications, including a report this spring by the Congressional Budget Office, show that a well-designed emissions cap-and-trade program that allocates emissions credits wisely and equitably will not hurt low- and middle-income Americans.

Recognition of that fact is, I believe, a large part of what led Senator Norm Coleman, the distinguished Republican from Minnesota, to cosponsor my Climate Stewardship and Innovation Act last month.

Our faith tells us our duty. Science spells out the challenge before us. Together, faith and reason spur us to action to protect God’s gift, to protect the disadvantaged, and to protect our children and grandchildren.

Madame Chairman, thank you for holding this important hearing. And I thank the witnesses for the time and effort that they have spent preparing their testimony and traveling here.



STATEMENT OF THE REVEREND MARK S. HANSON
PRESIDING BISHOP
EVANGELICAL LUTHERAN CHURCH IN AMERICA

Living in God's amazing grace

On behalf of the Evangelical Lutheran Church in America (ELCA), a church of more than 4.9 million members and 10,000 congregations nationwide, I thank the members of the Senate Environment and Public Works Committee for considering the views of people of faith as the committee works to address the critical issue of global warming.

God's exhortation to us to till and keep the earth (Genesis 2:15) urges us to action in the face of a growing body of evidence from scientists around the world that global warming is threatening the future of creation, and the health and well-being of our children and all living things. Recent reports by the Intergovernmental Panel on Climate Change make it clear that Earth's climate is warming, largely due to humanity's use of fossil fuels. This phenomenon is likely to lead to disastrous consequences for all of creation, and particularly for "the least of these" (Matthew 25:40), people living in poverty, who are most vulnerable to rising sea levels, the spread of infectious disease, extending areas of drought, and other impacts of rising temperatures, many of which are already occurring.

In 1993, the ELCA recognized that "the buildup of greenhouse gases, especially carbon dioxide" threatens our planet.* "Caring for Creation," our church's social policy on the care of God's Earth, recognizes that the use of fossil fuels for our homes, our churches, our cars, and our places of business is a substantial part of the problem. In the United States, we produce one-quarter of the world's carbon emissions, even though we represent only five percent of the planet's human population.

* *Caring for Creation: Vision, Hope and Justice (Evangelical Lutheran Church in America, 1993)*. The Caring for Creation Social Statement was adopted by a more than two thirds majority vote by the Churchwide Assembly of the ELCA on August 28, 1993.

Recognizing our role as steward of God's creation, we must act to reverse this disparity and to take responsibility for our actions. We must follow the recommendations of leading scientists in order to protect all of God's creation from present and future harm. Therefore, we urge that the committee, when writing legislation to address global warming emissions, include comprehensive, mandatory, and aggressive emission reductions that aim to limit the increase in Earth's temperature to 2 degrees Celsius or less. In the short term, global warming legislation should focus on reducing U.S. carbon emissions by 15 to 20 percent by 2020. In the long term, global warming legislation should focus on reducing U.S. carbon emissions to 80 percent of 2000 levels by the year 2050.

The IPCC, in its recent reports, recognized that "the least of these"— those living in poverty in our own nation and around the globe — will be most affected by rising sea levels, increased drought, and other impacts of global warming. As a matter of justice, we urge that any legislation considered by the committee work to mitigate the impacts on poor and vulnerable populations around the globe who are least likely to have contributed to global warming and most likely to suffer from its effects. Specifically, we urge that the committee pass legislation ensuring a fair and equitable distribution of total benefits and costs among people, communities, and nations. We also urge that any legislation passed by the committee recognize the disproportionate impact that low-income communities have experienced, and will continue to experience, as the climate changes. And we urge that legislation include mechanisms to help poor communities around the globe adapt to changes in climate that will continue to occur even if we are able to slow changes in the planet's climate.

Our church supports the principle of sustainability and policies that provide "an acceptable quality of life for present generations without compromising that of future generations." In addressing global warming, we must make investments that ensure a good quality of life for humanity while ensuring that health and well-being of creation and the quality of life for future generations are not compromised by our actions. To reach our goal of sustainability, we urge the committee to adopt legislation to encourage

research and investment in clean, renewable energy sources that will both benefit current generations and our environment and ensure that future generations enjoy the same benefits.

“Caring for Creation” states that “in a world of finite resources, for all to have enough means that those with more than enough will have to change their patterns of acquisition and consumption.” We cannot achieve significant reductions in global warming emissions unless we make changes in our lifestyles, and particularly in our energy consumption. To support the goal of sufficiency, we urge the committee to pass legislation that encourages energy conservation in our homes, our communities, and our places of worship. We also urge the adoption of legislation that encourages energy conservation in national transportation and distribution systems and commercial enterprises, and pushes the federal government to lead through research and example in the practice and implementation of energy conservation.

The following statement, "Global Climate Change: A Moral and Spiritual Challenge", was adopted by the Standing Conference of the Canonical Orthodox Bishops in the Americas (SCOBA) at their May 23, 2007 Session held at St. Vladimir's Seminary in Crestwood, NY. The document was prepared by the SCOBA Social and Moral Issues Commission (SMIC) and concentrates on conveying a theological understanding of the role of the human person and the environment, with particular emphasis on climate change.

**Global Climate Change:
A Moral and Spiritual Challenge**
5/23/07

To all of the faithful clergy and laity of the Holy Orthodox Church throughout the Americas,

Beloved Brothers and Sisters in Christ,

For favorable weather, an abundance of the fruits of the earth, and temperate seasons, Let us pray to the Lord.

At every Divine Liturgy the Orthodox Church repeats this petition. And the Book of Prayers (Euchologion) contains numerous prayers for gardens, animals, crops, water and weather conditions. In her wisdom, then, the Church has always known that human beings are dependent upon the grace of God through the world around us to nurture and sustain civilized society. Indeed, "God has worked our salvation through the material world" (St. John Damascene, On Divine Images 1,16). While God is the Source of all that we have, and His presence fills the entire world (see Acts 17.28), we humans share a God-given responsibility to care for His creation and offer it back to Him in thanksgiving for all that we have and are.

Thine own of thine own, we offer unto thee, in behalf of all and for all.

The action of returning creation back to God in gratitude and praise summarizes the commands that God gave humanity in the first chapters of Genesis. These commandments are intended to guide us into a fullness of the spiritual and material goods that we need. God tells us to "have dominion over the earth" (Genesis 1.28), which means that we are to care for the earth as the Lord would care for it. In the original Hebrew, the word for dominion (radah) means to rule in the place of the Lord. In the Greek Septuagint, the word for full dominion (katakyrieuo) contains the root word kyrios, the same word that we use for Christ as Lord Ruler over all. From this, it follows that our responsibility as human beings is to enter into His will and to rule as the Lord would rule.

God also tells us that we are “to cultivate and keep the Garden of Eden” (Genesis 2.15, LXX). The literal meaning of this passage is that humans are required to serve the earth as well as to protect it from desecration or exploitation. We are responsible to God for how we use and care for the earth in order that all people may have a sufficiency of all that is needful. It is through our proper use of the material and natural world that God is worshipped: “Through heaven and earth and sea, through wood and stone ... through all of creation visible and invisible, we offer veneration and honor to the Creator.” (Leontius of Cyprus, Sermon 3 on Icons)

What is further implied in the same commandment is thanksgiving to God for all that we have received through the physical world. Thus, each person has a “priestly” responsibility before God (1 Peter 2.5) to offer back to God that which belongs to Him. All this is implied in the Divine Liturgy, when the presbyter offers back to God what He has placed into human care. Indeed, the commandment “to cultivate and keep” the Garden also implies an expectation that we are to share the things of the world with those who are suffering, with those in need, and to have concern for the good of humanity and the entire creation. Even though our first parents fell away through disobedience, our Lord restored this priestly responsibility to humanity through His life-giving Death and Resurrection.

In our day, however, society has failed to remember these holy mandates about the right conduct of human beings. In our pride, gratitude has often been replaced with greed. As a people, we have forgotten God and foregone our mandated responsibilities. We no longer strive for sufficiency and moderation in all things. Too often, instead of receiving the gifts of God as He would bestow them, we heedlessly take from the earth and needlessly waste its resources, disregarding the impact that our greed exerts upon the life of our neighbors and the life of the world. There is no doubt that the pollution and degradation of the world is directly related to the pollution and the degradation of our hearts. “Look within yourself,” writes St. Nilus of Ancyra, “and there you will see the entire world.” (Epistles 2,119)

As Church leaders, our concern is service to our Lord and Savior Jesus Christ, whose Gospel of love teaches us that our response to the welfare of our neighbor and respect for the creation are expressions of our love for God. This means that we are all personally responsible to identify and adopt appropriate moral and ethical approaches to the changing conditions of the world.

Faithful to the responsibility that we have been given within God’s good creation, it is prudent for us to listen to the world’s scientific leaders as they describe changes occurring in the world’s climate, changes that are already being experienced by many people throughout the world. Global climate change assumes many different shapes and appearances within our own country. In Alaska, for instance, the average temperature has risen by 7°F, causing glaciers to retreat and the Arctic Ocean to lose its summer ice. In Florida, Hawaii and the islands of the Caribbean, coral reefs are dying. In ocean waters such as those off the coast of San Francisco, higher temperatures now result in lower concentrations of plankton, reducing a primary food source for fish and bird life, and

ultimately, for humans. Across the western states, a modest increase in temperature has contributed to a six-fold increase in forest fires over the past two decades. In many parts of America, previously distant tropical diseases, such as West Nile virus and dengue fever, are appearing as a direct result of rising temperatures.

These are all clear signs of a rapidly changing climate. It cannot be predicted in precise detail how climate change is going to unfold, but the seriousness of this situation is widely accepted. And, while it is true that the world's climate has also undergone changes in past centuries, three crucial considerations make the current changes serious and unprecedented:

- * The rapid extent of temperature increase is historically unparalleled. Past changes in climate occurred over extended periods of time and were considerably less severe.
- * The human role in changing the climate is unique today. In earlier centuries, people did not have the technological capability to make such radical changes to the planet as are now taking place.
- * The impact that climate change will exert upon society is great and diverse, inevitably including conditions which deeply disrupt the lives and livelihoods of people on an unprecedented scale.

Climatologists label these changes as the result of measurable increases of carbon dioxide and other so-called "greenhouse gases" in the atmosphere. These gases are produced primarily by the burning or combustion of gasoline, coal and other fossil fuels. Among the many consequences, the atmosphere and the oceans are warming; wind and rainfall patterns are changing; and sea levels are rising. Forces of climate change also increase the acidity of the oceans; they raise the ferocity of storms, especially hurricanes; they cause droughts and heat waves to become more intense; and, in some areas, they disrupt normal agriculture. Furthermore, the changes are not occurring evenly: some parts of the world experience drought and others greater rainfall, even flooding. Importantly, the conditions that we observe now are only the early alterations to our climate. Much larger and far more disruptive changes will result unless we reduce the forces causing climate change.

It should be clear to all of us that immediate measures must be taken to reduce the impact of these changes to the world's climate. If we fail to act now, the changes that are already underway will intensify and create catastrophic conditions. A contributing root cause of these changes to our climate is a lifestyle that contains unintended, nevertheless destructive side effects. It may be that no person intends to harm the environment, but the excessive use of fossil fuels is degrading and destroying the life of creation. Moreover, the impact of our thoughtless actions is felt disproportionately by the poorest and most vulnerable, those most likely to live in marginal areas. By our lack of awareness, then, we risk incurring the condemnation of those who "grind the face of the poor" (Isaiah 3.15) As Church leaders, it is our responsibility to speak to this condition inasmuch as it represents a grave moral and spiritual problem.

Therefore, we wish to emphasize the seriousness and the urgency of the situation. To persist in a path of excess and waste, at the expense of our neighbors and beyond the capability of the planet to support the lifestyle directly responsible for these changes, is not only folly; it jeopardizes the survival of God's creation, the planet that we all share. In the end, not only is it sinful; it is no less than suicidal.

But there is hope. Society can alter its behavior and avoid the more serious consequences of climate change. To do this, however, we must work together to reduce the way that we have exploited the earth's resources, especially its fossil fuels. As Americans, we comprise barely 4% of the world's people; yet we consume over 25% of its resources and energy. Justice and charity for our neighbors demand a more frugal, simple way of living in order to conserve the fruits of creation.

In order to make the required changes, we are called to pray first and foremost for a change in our personal attitudes and habits, in spite of any accompanying inconvenience. Such is the depth of metanoia or repentance. The issue is not merely our response to climate change, but our failure to obey God. We must live in a manner that is consistent with what we believe and how we pray. Our heart must be "merciful, burning with love for the whole of creation." (Abba Isaac the Syrian, *Mystic Treatises*, Homily 48) At minimum, this means caring about the effect of our lives upon our neighbors, respecting the natural environment, and demonstrating a willingness to live within the means of our planet. Such a change will invariably require reduction in our consumption of fossil fuels as well as acceptance of alternative energy sources such as solar or wind power, and other such methods that minimize our impact upon the world. We can do these things, but it will require intentional effort from each of us.

Nevertheless, we cannot stop there. We must also learn all that we can about the emerging situation of climate change. We must set an example in the way that we choose to live, reaching out and informing others about this threat. We must discuss with fellow-parishioners and - since climate change is not only an issue for Orthodox Christians - we must raise the issue before public officials and elected representatives at the city, state and national levels. We are all responsible for this situation, and each one of us can do something to address the problem.

In each generation, God sends some great tests that challenge the life and future of society. One of the tests for our time is whether we will be obedient to the commands that God has given to us by exercising self-restraint in our use of energy, or whether we will ignore those commands and continue to seek the comforts and excesses that over-reliance on fossil fuels involves.

At every Divine Liturgy, we pray for seasonable weather. Let us enter into this prayer and amend our lives in whatever ways may be necessary to meet the divine command that we care for the earth as the Lord's. If we can do this, if we can render our lives as a blessing rather than a curse for our neighbors and for the whole creation, then, God willing, we may live and flourish. This is not an optional matter. We will be judged by

the choices we make. The Scriptures bluntly tell us that if we destroy the earth, then God will destroy us (see Revelation 11:18).

Let us all recall the commands of God regarding our use of the earth. Let us respond to the divine commandments so that the blessings of God may be abundantly upon us. And let us responsibly discern the right, holy and proper way to live in this time of change and challenge. Then we shall “perceive everything in the light of the Creator God.” (St. John Climacus, Ladder of Divine Ascent, Step 4,58)

Statement for Environment and Public Works Committee Hearing
National Council of Churches of Christ in the USA
June 7, 2007

Climate change has become one of the most important issues of our time because of the severe implications it will have on the future of God's people and God's planet. Already we are seeing impacts at both a local and global level—from melting ice sheets to increased storm events. The predicted impacts of drought and increased disease will affect God's community both at home and abroad.

The National Council of Churches of Christ in the USA (NCC) in conjunction with its 35 member denominations such as the Episcopal Church, the Presbyterian Church USA, the United Church of Christ, and the United Methodist Church, has been working to address climate change with our more than 100,000 congregations for over a decade. Many of the NCC's member communions have taken action to reduce their own carbon emissions and have passed resolutions calling for action from the federal government to prevent catastrophic climate change impacts from occurring. These policies and resolutions combined with congregant and congregational action provide evidence of the overwhelming concern for global warming within the Christian community. (Various denominational resolutions are attached to this statement)

Since the early 1990s, the church has been working to educate its members about the impacts individuals and society are having on God's Earth. Many individuals of faith, communities, and congregations have been actively changing their lifestyles to reduce their carbon footprint, switching their church to renewal sources of energy and calling on their elected officials to take a leadership role on climate change. Prayerful reflection on the consequences of global warming makes it clear that we must take immediate action to stop global warming. Our concern is rooted in our call for stewardship and justice. The impacts of global warming highlight that we have failed to be good stewards of God's creation and are failing to provide justice for the most vulnerable among us.

As Christians, we are called to be good stewards of God's creation. In Genesis, humans are called to care for God's good creation (Gen 2:15; 1:31) and to enable the fruitfulness with which God has blessed creation (Gen 1:11, 22) to continue. Human dominion over creation (Gen 1:26, 28) is granted upon our acceptance of the need to function in the image of God, and as Christians we look to Christ's model as a servant leader. God made a protective covenant with all life (Gen 9:9-17) and our faith makes it known that those who destroy the earth will also be destroyed (Rev 11:18). As Christians, we remember our responsibility to "provide for the redemption of the land" (Lev 25:24) for we know as God's earthly stewards that the Earth is the Lord's (Ps 24:1). Our current actions are having devastating ecological consequences, and we are not being good stewards of that which God has put into our hands and under our feet (Ps 8; Gen 9:2-3).

Numerous studies such as the Intergovernmental Panel on Climate Change Working Group Report highlight that global warming impacts are already being felt around the globe. Oceans are progressively acidifying which is negatively impacting coral reefs. At least 20 percent of the world's species are at increased risk of extinction with a 1.5-2.5 degree C increase in global

temperature. Sea level rise is expected to flood coastal communities causing severe havoc for millions of individuals.

The scientific community, in addition to providing us with a better understanding of the global warming threat we are facing, has also provided us with the knowledge of how we can solve this growing concern. In order to prevent catastrophic climate change we must reduce our greenhouse gas emissions, particularly carbon dioxide, by 80 percent by the year 2050. Considering the interconnectedness of God's creation—both human and nonhuman—we must act now to protect God's planet and God's people both now and in the future.

We will need to make economy-wide reductions as well as changes in our personal lifestyles in order to curb global warming emissions. In answering our call to be good stewards of God's creation, we must also become educated and mindful consumers. We must work to conserve the energy that we use and make our systems more efficient. In addition, our vehicles must go farther on a gallon of gas, and we must take advantage of renewable sources of energy such as wind and solar power. Congress must implement measures that will prevent catastrophic impacts that have been predicted if we continue with business as usual. Our actions at both a nation, local, and individual level must ensure that we create a bountiful future for our children and grandchildren.

As watchdogs for justice, we have a duty to protect vulnerable communities around the world. We already know that global warming will have devastating implications for God's planet, but it will also severely impact God's people. As Christians, we are called to protect the vulnerable and minister to those in need (Matthew 25:40-45). Christian tradition proclaims an unmistakable priority for those living in poverty, and calls for justice for the oppressed and the marginalized (Leviticus 26:34-35). Especially when we as a nation are contributing more than our fair share to the global warming problem, it is our responsibility to respond faithfully to the demands of God's justice. It has been shown that the effects of global warming will most greatly impact those living in poverty. This includes those living in developing countries as well as those in our own communities.

According to reports such as the IPCC, global warming has already had profound negative impacts on communities and people around the world. In 2005, more than 20 million people were affected by changes in agricultural production and an additional 90 million people who already live in poverty could be at risk of hunger and malnutrition in this century. One to two billion people will face water scarcity this century and by 2020 approximately 250 million will face water scarcity in Africa. Millions of individuals around the world will be at greater risk of contracting diseases such as malaria, dengue fever, and west Nile virus because of climactic changes. Each of these changes will have extreme impacts on those least able to adapt, those living in poverty, and vulnerable populations who are already dependent on their natural environment to ensure day to day survival.

Decreasing snow pack in the United States and around the globe will lead to decreased availability of fresh water. Rising sea levels and an increased number of extreme weather events

will threaten communities not only globally but also across the United States. Communities of color will be disproportionately impacted by the effects of climate change. The African American community, in particular, who are less responsible for climate change than other Americans as they emit less greenhouse gas, will be adversely affected by both climate change mitigation and global warming impacts. Because of predictions of higher energy costs with climate mitigation, African American households, which spend a higher fraction of their income on energy purchases than any other non African American group and are more than twice as likely to live in poverty, will be severely impacted. In addition, African Americans, who are more likely to suffer from extreme heat events, will feel the burden of global warming impacts. African Americans will be disproportionately affected by the economic instability caused by climate change. Because the burden of both global warming impacts and climate change mitigation will fall most heavily on communities of color and those living in poverty, climate legislation must include mechanisms to reduce the burden on these populations. Assistance with higher energy costs and a commitment to reducing carbon emissions will aid in the drive towards justice for all of God's people.

It is clear that we, as a nation, must act now in order to prevent the impacts of global warming from damaging communities and cultures in the U.S. and across the globe. As we have gained a better understanding of global warming it has become clear that we cannot address poverty without addressing global warming and we cannot address global warming without addressing poverty. Their interconnectedness makes it necessary to pursue the vision for a better tomorrow. Implementation of a national climate policy that would significantly reduce our emissions would be the most effective action that we could take to help those most in need combat the changes that lie ahead.

When weighing the implications of climate change on those living in poverty and vulnerable populations around the world, it becomes clear that the revenue received from climate policy should be used for the common good. Workers in carbon intensive industries who will be negatively impacted need assistance to gain usable job skills. Revenue from the sale of carbon allowances should be directed towards those affected by energy prices. Funding should be provided for weatherization and energy efficiency programs (efficient appliances, tax credits for efficient investments, renewable energy improvements) to reduce fossil fuel use at home. Financial assistance should also be provided for community development programs that improve efficiency and utilize renewable energy.

God's planet and people are already suffering from global warming and it is our duty and call to serve justice and be good stewards of God's creation by acting now to reduce carbon emissions and provide assistance to those who will be impacted by global warming and climate mitigation.

Attachment A

**Proposed Resolution for the 2006 General Assembly
Resolution on Global Warming**

*Approved by the Justice and Advocacy Commission, the NCC Governing Board, and the NCC
and Church World Service General Assembly*

TITLE: Resolution on Global Warming

POLICY

BASE: Christian Concern and Responsibility for Economic Life in a Rapidly Changing Technological Society, adopted by the General Board of the National Council of Churches USA Governing Board, February 24, 1966

The Ethical Implications of Energy Production and Use, adopted by the National Council of Churches USA Governing Board, May 11, 1979

RATIONALE: Prominent scientists and major, respected scientific bodies are in agreement that the Earth is warming because of human-induced carbon emissions. Global warming threatens the very fabric of God's creation and will hit those who are least able to adapt—both human and nonhuman—the hardest. Because the Christian community is called to justice, to be good “neighbors” with our brothers and sisters across the globe, and to steward God's creation, addressing global warming is a moral imperative and a Christian call.

RESOLUTION: The National Council of Churches has stated:

The rapidly expanding dimensions of (human) “dominion” over the earth and its physical resources call for new and deeper commitment to the Christian doctrine of stewardship . . . Natural resources, human techniques and institutions all together constitute an interlocking and interacting system of amazing complexity, precision and balance.¹

An ecologically just society will be guided by the values of sustainability, fairness, and participation. Sustainability refers to the earth's limited capacity to provide resources and to absorb the pollution resulting from their use. Sustainability requires that biological and social systems which nurture and support life not be depleted or poisoned. Fairness refers to . . . an equitable distribution of the total benefits and costs.²

Whereas the impacts of global warming, as currently predicted and understood by leading scientists and scientific bodies around the world including the National Aeronautics and Space Administration, the National Academy of Sciences, and the Intergovernmental

Panel on Climate Change, will dramatically and negatively alter God's gracious gift of creation and

Whereas the predicted impacts of global warming will have a disproportionate impact on those living in poverty and hunger, the elderly and infants, and those least responsible for the emissions of green house gases.

BE IT THEREFORE RESOLVED THAT THE NATIONAL COUNCIL OF CHURCHES IN CHRIST:

- 1) Expresses its deep concern for the pending environmental, economic, and social tragedies threatened by global warming to creation, human communities, and traditional sacred spaces
- 2) Urges the Federal Government to respond to global warming with greater urgency and leadership and gives support for mandatory measures that reduce the absolute amount of greenhouse gas emissions, and in particular emissions of carbon dioxide, to levels recommended by nationally and internationally recognized and respected scientific bodies.
- 3) Urges the Federal, State and Local Governments to support and invest in energy conservation and efficiency, sustainable and renewable, and affordable and sustainable transportation
- 4) Calls for business and industry to respond to global warming with increased investment in conservation and more efficient and sustainable energy technologies that are accessible, sustainable, and democratic.
- 5) Stands firmly with all of God's children by urging that adaptive measures and financial support be forthcoming from government and industry to aid those directly impacted by global warming and in particular those least able to relocate, reconstruct, or cope with the current and pending impacts of climate change
- 6) Calls on all Christians, people of faith and people of good will the world over to lead by example and seek active means whereby they may, individually and in community, quickly reduce their emissions of green house gas emissions and speak out for engagement by their elected officials on matters of global warming.

Attachment B

Episcopal Church
Global Warming, 2001

Resolved, that the Salt Lake City meeting of the Executive Council of the Episcopal Church urges the President of the United States to address the issue of global warming and take the necessary steps to reduce greenhouse gas emissions in the United States.

Resolved, that the Episcopal Church urges the President of the United States and Congress to provide financial support and leadership for developing nations to control their emissions of greenhouse gases in order to reduce the vulnerability to climate change and severe weather disasters.

Resolved, that the Episcopal Church urges the President of the United States and Congress to provide funds and leadership in an effort to encourage renewable energy, energy efficiency and conservation.

Attachment C

GENERAL BOARD RESOLUTIONS

Church of the Brethren General Board

Resolution on Global Warming and Atmospheric Degradation (1991)

WHEREAS our vastly increased use of fossil fuels is substantially increasing the atmospheric concentrations of the greenhouse gases, thereby enhancing the strong possibility of catastrophic warming of the earth's surface, and

WHEREAS the negative consequences of the greenhouse effect are likely to intensify human suffering especially in the developing countries, and

WHEREAS the Annual Conference statement "Creation: Called to Care" challenges us to take seriously our role as stewards of the earth, and to work for the renewal of creation, and

WHEREAS the General Board is committed to study and action on issues of justice, peace, and integrity of creation

THEREFORE BE IT RESOLVED that the Church of the Brethren General Board, meeting in Elgin, Illinois on October 19-22, 1991 commits itself and urges Brethren congregations, institutions and members to:

Reaffirm our belief

· That we are called by God to live in harmony with all of creation, and that our covenantal relationship to care for the creation requires us to be aware of present and impending threats to our environment and to take action to preserve the integrity of creation.

Join together

- In the search for ways to live together in harmony with God's creation;
- In addressing the causes and dealing with the consequences of atmospheric destruction locally and globally; and
- In praying for the strength to reduce consumption and reject the myths of unlimited resources and economic growth.

Work together through global, local, and personal efforts to safeguard the world's reliance on fossil fuels, and by

- Increasing awareness of the negative ecological consequences of continuing reliance on fossil fuels, and by expanding ongoing educational efforts that lead to action;
- Encouraging the building and renovating of our homes and church facilities and camp buildings to be energy efficient and initiating new programs of energy conservation and awareness, including alternatives to fossil fuels;
- Striving to eliminate the use of products that contain ozone-depleting Chlorofluorocarbons (CFCs);
- Using public transportation, carpooling, and telephone conferencing in order to reduce fossil fuel consumption;
- Becoming ecologically aware consumers by using diets and products that consume less energy in production, transportation, packaging, and use;
- Devoting maximum effort to the separation and recycling of household goods, while also reducing waste and toxic materials;
- Encouraging office energy audits and recycling programs (particularly paper and paper products).

Pledge ourselves to address the causes and reverse the consequences of global warming by

- advocating the passage of legislation, at all appropriate levels, that reduce carbon dioxide output and set reduction targets for other greenhouse gases;
- supporting research and development of energy alternatives to fossil fuels. And supporting the passage of mandatory higher fuel efficiency for new vehicles and the phasing out of older, less efficient vehicles;

- supporting the expansion and promotion of rail transportation and other systems of mass transit, including subsidies for public transportation;
- combating forest destruction domestically and internationally through programs of preservation and reforestation and through responsible consumption of wood and wood products;
- engaging with corporations in dialogue and shareholder resolutions on such issues as reduction of carbon dioxide and other greenhouse gases, phasing out of CFCs increased energy efficiency and fuel conservation, environmental cost accounting and other issues affecting global warming;
- calling for the adoption to limit the production of greenhouse gases worldwide;
- working to implement fair trade and economic relationships so that forms of development that minimize global warming are available to all nations.

FURTHER the General Board commits itself to;

- support and participate in national and international networks of religious bodies and other non-governmental organizations addressing the greenhouse effect; and
- continue through its program staff, within the context of a theology based on caring for the earth, and educational effort to acquaint the members of the Church of the Brethren with the nature, causes, and consequences of the greenhouse effect, including suggestions for individual and collective action to help address the problem. This will include the promotion of the use of the General Board's study resource, *Creation in Crisis: Responding to God's*

Covenant, in all congregations. We will elicit the cooperation of District Executive as agents within each district to work directly with pastors to reach the membership of the church.

This resolution was adopted by the Church of the Brethren General Board at its meetings in Elgin, Illinois on October 21, 1991. For further information contact Shantilal P. Bhagat, 1451 Dundee Avenue, Elgin, IL 60120, 1-800-323-8039.

Attachment D

Orthodox Perspectives on Creation**Report of the WCC Inter-Orthodox Consultation, Sofia, Bulgaria, October 1987 (Extracts)**

Creation and Holy Trinity

1. We believe that the created world itself is a 'mystery' originating in the sovereign will of God accomplished by the action (*energia*) of the Holy Trinity. We confess in the Nicene Constantinopolitan creed (325/381) that the Father is the "Creator of heaven and earth and of all things visible and invisible", the Son "He through whom all things were made", and the Holy Spirit, the "Creator of life" (*zoopion*). Thus, the three persons created together the world, which is the fruit of the common action of the Holy Trinity issuing out of the one essence.
2. As St. Basil the Great said, "We should understand in the creation the original cause of the Father as a founding cause, the cause of the Son as a creative, and the cause of the Spirit as an implementing one." Thus the Father is the "Creator of all things", the Son is the one "through whom all things were made", and the Holy Spirit is the one "in whom are all things". Everything that he (God the Creator) had made ... was very good" (Gen. 1:31), because "first He conceived, and His conception was a work carried out by His Word, and perfectly by His Spirit.
3. Thus, the action of the Holy Spirit, rooted in the Father, is presented as the 'economy' of the Son and the Spirit: the former bringing God's desire into existence and the latter perfecting it in goodness and beauty; the one calling the creation and leading it to the Father, and the other helping the creation to respond to His call and communicating perfection to it. Thus, the creation is the result of the communion (*koinonia*), close relationship and cooperation of the Holy Trinity. The community of three Persons participates actively in the execution of the whole of God's plan. Creation "out of nothing"
4. "In the beginning" the Holy Trinity created the world (heaven and earth) "out of nothing" (*ex nihilo*) and not out of preexistent matter. The world is a production of God's free will, goodness, wisdom, love and omnipotence. God did not create the world in order to satisfy some need of His. Rather he created it without compulsion and without force in order that it might enjoy His blessings and share in His goodness. God then brought all things into being out of nothing, creating both the visible and the invisible.
5. "Out of nothing" (*ex nihilo*) finds its first expression in the Bible. "Beholding the heavens and the earth, and seeing all that is there, you will understand that God has created it all from nothing" (2 Macc. 7:28). Thus, the creation springs into being or passes into being out of non-being. As St. Gregory of Nyssa affirms, "It begins to be, and the very substance of the creation owes its beginning to change". This transition from non-existence is a change brought about by God's creative Word "who has established the world so that it shall not be moved" (Ps.93:1).
Creation of the cosmos - integrity of the world
6. God is the Creator of the world. The world as cosmos, i.e. a created order with its own integrity, is a positive reality. It is the good work of the good God (Gen. 1), made by God for the blessed existence of humanity. The Cappadocian Fathers teach that God first creates the world and beautifies it like a palace, and then leads humanity into it. The genesis of the cosmos, being in becoming, is a mystery (mysterion) for the human mind, a genesis produced by the Word of God. As such, the world is a revelation of God (Rom. 1:19-20). Thus, when its intelligent inhabitants see it as cosmos, they come to learn about the Divine wisdom and the Divine energies. The cosmos is a coherent whole, a created synthesis, because all its elements are united and interrelated in time and space. A serious study of the mystery of creation, through faith, prayer, meditation and science,

will make a positive contribution to the recognition of the integrity of creation. The daily office of the Church (vespers) begins with a psalm which exalts the beauty of this mystery (Ps. 103), while the Fathers of the Church often comment on the various biblical passages which describe the integrity of the creation.

Value of the creation

7. The value of the creation is seen not only in the fact that it is intrinsically good, but also in the fact that it is appointed by God to be the home for living beings. The value of the natural creation is revealed in the fact that it was made for God (something which is beautifully expressed in Orthodox iconography), i.e. to be the context for God's Incarnation and humankind's deification, and as such, the beginning of the actualization of the Kingdom of God. We may say that the cosmos provides the stage upon which humankind moves from creation to deification.

Ultimately, however, the whole of the creation is destined to become a transfigured world, since the salvation of humankind necessarily involves the salvation of its natural home, the cosmos.

Human being as a microcosm

8. The fact that Adam and Eve were created by God last of all the other created beings and in a different way - not just by the utterance of a Divine Word but by the direct involvement and action of God - indicates not only the outstanding position of the human in the whole of the creation, but also its special relation to God. According to the Church Fathers, Genesis 1:26 ff, "...Let us make man ...(*poiesomen anthropon*) shows that the creation of the human being was the result of a Trinitarian act. Particularly significant in this connection is the statement that "man was made according to the image and the likeness of God". The reference to "the image of God" is to be understood in terms of Jesus Christ, since he is explicitly identified with it (2 Cor.4:4; Col. 1:15; Heb. 1:3 ff). Thus for mankind to be in the image of God means to be in, or assimilated to, Christ. This is a matter of grace and act and not a matter of nature, because only Christ is by nature God's image as God's eternal and natural offspring, his only begotten Son. The "likeness of God" is often connected with the grace of the Spirit who assimilates us to Christ.

9. In the created world only the human being combines material and spiritual elements. Human existence is thus differentiated from non-human creation in a qualitative way. In light of this fact, the Church Fathers often speak of the human being as a "little world", a "microcosm" of the whole of the creation. Using this notion, the Church Fathers teach that the human body contains in it all levels of existence of the natural world which preceded it in order of the creation, and considered the physical elements which make up the human body as in no way different

from those which constitute the physical world. This means that the natural world is fully integrated with the human being and the whole of the creation.

10. At the same time, the Fathers' use of the notion of microcosm means that humanity, created in God's image and likeness, transcends the material world because it participates in God spiritually and consciously, unlike the rest of the creation. Humankind then stands on the boundary (*methorion*) between the material and the spiritual worlds as a connecting link. It is directly related to the earthly aspect of created existence as well as to the untreated existence of the Creator. As such, on the one hand, it directly influences our thinking about the integrity of creation, and on the other hand it gives to human nature a dynamic spiritual dimension.

11. St. Gregory the Theologian says that we are fully involved with the material creation by virtue of our physical existence, and that the material created reality is deeply involved with us. If we move to the direction of deification, our human nature, progressing towards God, will somehow carry the created material world with it. If, however, we move to the opposite direction, the created world will suffer with us as well (cf. Rom. 8:19-22). This means that we are called to exercise dominion over all creatures on earth (cf. Gen. 1:28), i.e. to be stewards

(*oikonomoi*) of God's material world, caring for it, maintaining it in its integrity and perfecting it by opening it up to God through our own deification.

The Incarnation as the renewal of the creation

12. God's will, wisdom and love for the creation in general and for humankind in particular are revealed in the Incarnation in an inexpressible way. The Son of God, as the one through whom the process of creation was fulfilled, came down from heaven into the world and became fully man, i.e. assumed human nature in its integrity and led it to the fulfillment of its God-given destiny, deification. The Orthodox Church teaches that the Virgin Mother of God, the Theotokos, is the model of the renewal of humankind and the creation in Christ. In her receiving of the Son of God, the whole humankind and the whole of the creation participate. In the Incarnate God the Father "made known. His will ... as a plan for the fullness of time, to unite all things in Him (Christ), things in heaven and things on earth" (Eph. 1:10). In other words, Jesus Christ, the Son of God became man, restored and renewed humanity and the whole of the creation, uniting both of them with the Creator in and through Himself. One of the Trinity, thus, became Incarnate, became man, revealing his Lordship over the whole of the creation, and showing humanity a Lordship in stewardship and service.

II. Disintegrated creation

The human fall and the disintegration of creation

13. Before their fall the first human beings experienced the creation as one harmonious whole. It was like a beautiful garden (*paradeisos*, Gen. 2:8) which they tended with care and love. The human fall, however, which was essentially a sinful exercising of human freedom, introduced forces of disintegration into the body of creation. Humanity experienced a two-fold alienation. On the one hand, it was estranged from the Creator, since Adam and Eve tended to hide themselves away from the sight of God (cf. Gen. 3:8) as their communion with the source of life and light was broken. On the other hand, humanity lost its capacity to enter into a proper relation with nature and with the body of the creation. Enmity between the natural world and human beings replaced the relationship of harmony and care. Domination and exploitation of the creation for selfish ends by greedy human beings became the order of history. Thus, manifold forms of disintegration set in which converged in the fact of death and corruption. Fear of death instilled anxiety, acquisitiveness, greed, hatred and despair in human beings. Modern forms of economic exploitation, racial oppression, social inequalities, war, genocide, etc. are all consequences of the fear of death and collective signs of death.

The environmental crisis (...)

18. Environmental issues like air and water pollution, depletion of non-renewable resources, destruction of the ozone layer, increasing nuclear radiation, deforestation and desertification of vast areas, etc. threaten the life itself on this planet. The gifts of science and technology are being misused by human beings to the extent of abusing nature and turning today's life on earth into a hell, not only for the many millions of existing people but also for the generations to come. The voice of those who call for a just development, equal distribution of resources and ecological lifestyles is being systematically suppressed. Advances in bio-technology and genetic engineering need to be seen in the light of the Holy Spirit because without adequate knowledge of the transcendent (divine) vocation and spiritual nature of humanity, these new techniques run the risk of initiating biological disruption leading to a disastrous mutations that are extremely dangerous for the true life on earth. While human creativity and freedom can be armed as supreme gifts of God, it should also be emphasized that they should be rooted in divine wisdom and in human spiritual maturity. A reintegrated environment (...)

37. The environmental crisis is a sin and a judgment upon humanity. We need to find ways, as churches, to support sound programs which seek to preserve from pollution air, water and land. To speak of the reintegration of creation today is first to speak words of repentance and to make commitments toward the formation of a new way of living for the whole of humanity. The contemporary world must repent for the abuses which we have imposed upon the natural world, seeing it in the same kind of relationship to us as we see the unity of our human nature in both body and soul. We must begin to undo the pollution we have caused, which brings death and destruction to the mineral, vegetable and animal dimensions of the world environment. We must work and lobby in every way possible to us in our different situations to

encourage the scientific community to dedicate the good potentials of science and technology to the restoration of the earth's integrity. For ourselves, this means a recommitment to the simple life which is content with necessities and - with the Church Fathers – sees unnecessary luxuriousness as the deprivation of necessities owed to the poor. In all of its aspects, concern for the reintegration of the creation calls Christians to a new affirmation of self-discipline, a renewal of the spirit of asceticism appropriate to Christians, regardless of their status, position or condition. In short, we must see the created world as our own home, and every person in it as our brother and sister whom Christ loves.

Conclusions

(...) 45. We confess that God is the creator of all that exists, beautifully and wonderfully made, a fitting manifestation of His glory (cf. Ps. 103). But we stand today before a wounded creation which suffers under distorted conditions which are the result of the sin of humanity. In our selfishness and greed we have used our otherwise good technological abilities to exploit God's creation, to destroy the balance of nature and to deform what God originally made to be in wholesome communion with us and with Him. Creation is no longer integrated with humanity nor is it in harmony with God. In fact, it stands in danger of conflagration, in the face of nuclear war.

46. The creation needs to be reintegrated, but this can happen only as it is brought once again into communion with the Lord, so that it may find its fullness of purpose and its transfiguration. Humanity can no longer ignore its responsibility to protect it and preserve it. In order to do this, however, humanity must learn to treat the creation as a sacred offering to God, an oblation, a vehicle of grace, an incarnation of our most noble aspirations and prayers.

47. Just as bread and wine are liked up as an offering for the sanctification of the world and all people in the

Eucharist, a sacramental approach to the creation is needed for its reintegration.

49. The Lord God created His universe and all that is in it as an integrated whole. Today, we have brought about disintegration in what God intended to be integrated. We call upon individuals, nations and churches to give effect to a vision of the rightful harmony between the human dimension and the mineral, plant and animal dimensions of the creation. In spirit and in body, we are called to offer the whole of God's creation back to Him as a sacrament and as an offering cleansed, purified, restored for His sanctification of it.

50. O God, "the things that are Yours, we offer them to You according to all things and for all things. Amen." May this be our prayer for the "integrity of God's creation."

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Editor: Alexander Belopopsky and Dimitri Oikonomou

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Attachment E**Reformed Church in America (RCA)****General Synod 1998****Caring for Creation (Climate Change)**

In response to a Commission on Christian Action report, "Caring for Creation: The Church and Paper Use" (MGS 1997, pp. 89-93), the 1997 General Synod instructed the Office of Social Witness to continue to provide study material on lifestyles and the environment and to assist the church in exploring ways of making these environmental concerns a part of its life of witness and worship (MGS 1997, R-7, p. 93.) Through its Office of Social Witness the RCA participates in the National Religious Partnership for the Environment (NRPE), a coalition of four groups (Jewish, Roman Catholic, mainline Protestant, and Evangelical) which work together in developing resources and programs for a faith-based response to environmental issues. The minister for social witness serves as the co-chair of the National Council of Churches Eco-Justice Working Group, one of the four NRPE partners. Such ecumenical cooperation makes it possible to develop more resources and programs than would otherwise be possible. This year, for example, the Eco-Justice Working Group published a resource packet of study, worship, and action resources on human health and the environment which was sent to seventy thousand Protestant congregations, including each congregation in the RCA. Other activities of the Working Group which are helping to equip RCA members and congregations include an ecumenical training event, an annual public policy briefing, and a quarterly newsletter. In addition, a variety of study resources are available through the RCA Distribution Center and from the Office of Social Witness. The minister for social witness also led several workshops on the Christian response to environmental issues. "Caring for Creation Coordinators" were enlisted in several regions of the denomination. These people serve as resource and support persons to aid congregations in their ministries of defending and restoring creation. Through the Office of Social Witness, coordinators receive resources and training to assist congregations in three areas of ministry: learning (suggesting resources that will help churches learn about environmental issues and the biblical theology of creation); lifestyle (helping churches and families with ideas for reducing consumption, conserving energy, recycling, reducing use of toxins and pesticides, etc.); and legislation (serving as a conduit of information about important environmental issues and public policy issues so that Christians can write their legislators and make their feelings known).

Several RCA caring for creation coordinators were able to attend an ecumenical training event in Estes Park, Colorado, in May 1997. Another training event in Montreal, Noah Carolina, is scheduled for August 1998. Caring for creation coordinators were instrumental in helping congregations organize special worship services, ecumenical events, workshops, letter-writing campaigns, educational opportunities, and service projects. The advisory committee recommended:

R-25. To encourage each classis to identify one person to serve as a "caring for creation coordinator" and to communicate that person's name and address to the Office of Social Witness. (ADOPTED)-<

Climate Change

In 1993, in response to a report of the Commission on Christian Action on global warming (MGS 1993, pp. 98-103), 1993 General Synod voted;

To direct the minister for social witness to continue to prepare and distribute educational materials and worship resources on environmental issues, including global warming, for study by the churches (MGS 1993, p. 102). In the past few years a number of resources have been made available to RCA congregations, including, *It's God's World: Christians, the Environment, and Climate Change*. More recently, RCA caring for creation coordinators, working with colleagues in sister denominations, helped to place a public service announcement about climate change on local television stations and assisted in gathering more than twenty-five hundred postcards calling for stronger U.S. action on climate change.

The threat of climate change is of particular concern to Christians not only because of their God-given responsibility to tend the garden and to keep it (Gen. 2:15), but because climate change is an issue of justice. Industrialized nations such as the United States and Canada produce the major share of greenhouse gases, but those who live in poor and developing nations will suffer the most severe effects of climate change. Coastal flooding, more frequent and severe storms, the spread of insect-borne infectious diseases, and changes in agricultural practices would most seriously affect those least able to cope with such changes.

Climate change is also an issue of generational justice. The effects of global warming may be minimal in our lifetimes. It will not be so for succeeding generations. Current energy-rich and overly consumptive lifestyles may well be depleting the environmental capital on which the lives of future generations depend.

**Climate Change Update
by the Commission on Christian Action, 1998**

In its 1993 report to the General Synod the Commission on Christian Action called the church's attention to the issue of global warming and changes in climactic patterns likely to be caused by the increased atmospheric levels of heat-trapping gases in the atmosphere (*MGS 1993*, pp. 98-103). The report argued that the issue of climate change is one that calls for the church's response. We have a biblical mandate to tend and keep creation.

Moreover, since the effects of climate change will fall disproportionately on the poor and on future generations, the issue is a matter of justice. We cannot love God and love our neighbors as ourselves, and ignore the potentially disastrous consequences that human-induced climate change may have on future generations, on the poor, and on all of creation.

The 1993 report called on the church to advocate for policies that promote energy efficiency and conservation through such measures as higher energy efficiency standards and economic incentives, including imposing additional taxes (such as a carbon tax) on products that contribute to global warming. The synod also called on congregations to address the issue, to improve the energy efficiency of church buildings, and to consider other actions aimed at reducing greenhouse gas emissions.

SCIENTIFIC EVIDENCE FOR CLIMATE CHANGE

Since the 1993 report there has been growing scientific evidence that climate change caused by human activity is already occurring. The decade of the 1980s was the warmest decade of record and the 1990s are well on the way to surpassing the record warmth of the '80s. The four warmest years on record were 1990, 1995, 1997, 1998. Global temperatures in 1998 were the warmest in the past 119 years, since reliable instrument records began. The previous record was set in 1997. The year 1998 was also the twentieth consecutive year with an annual global mean surface temperature that exceeded the long-term average.¹ The Intergovernmental Panel on Climate Change (IPCC), a body of nearly 2,500 international scientists that has been researching climate change since 1988, reported in 1995 that "the observed warming trend is unlikely to be entirely natural in origin...the balance of evidence suggests that there is discernible human influence on global climate."² If greenhouse gas emissions are not reduced, the IPCC projects future temperature increases of about 3.5 degrees Celsius (six degrees Fahrenheit) by the end of the next century, a faster rate of climate change than any experienced during the last 10,000 years. The difference in temperature from the depths of the last ice age to now is five to nine degrees Fahrenheit.

For the past thirty years climatologists have predicted that global warming would occur most rapidly at the poles. Recent evidence suggests that such warming may have already begun. While global temperatures have, on average, warmed by one degree Fahrenheit over the last century, the Antarctic Peninsula has seen a jump of more than five degrees in the last fifty years. Huge sections of the ice shelf, including some pieces as large as the state of Delaware, have begun calving off its eastern shore. The southern half of the Greenland ice sheet, the second largest expanse of land-bound ice on earth, after Antarctica, has shrunk substantially in the last five years. If big ice sheets melt even partly, sea levels will rise around the world. Melting might also disrupt the ocean currents that modulate the earth's climate by distributing heat around the globe.

Although there is now substantial scientific consensus in support of IPCC conclusions, there are those who are working to undermine its case, seizing on remaining uncertainties in data or computer modeling to argue against the need to respond to the threat of climate change. The Global Climate Coalition, a leading oil industry public relations outlet and other organizations such as the National Coal Association, the American Petroleum Institute, and the Western Fuels Association have spent millions of dollars trying to downplay the threat of climate change and cast doubt on the scientific evidence.³ While there is a continuing need for further research and better computer modeling of the effects of increased greenhouse gas emissions, these uncertainties should not be used as an argument for delaying action. We do not know everything there is to know about potential climate change. We do know enough to act now. Prudence requires reducing greenhouse gas emissions without waiting for every last scientific uncertainty to be resolved. The vast scale of the environmental and social damage that would be caused by climate change, and the long time scale it will take to reverse the effects call for taking preventive action. It will be easier to achieve reductions now, and at less cost to society, than to wait until the problem has grown worse.

Meanwhile atmospheric levels of carbon dioxide and other greenhouse gasses continue to rise. Atmospheric levels of carbon dioxide in 1860 were 280 parts per million (ppm); in 1993, 350 ppm; and in 1998, 363 ppm, the highest point in 160,000 years.⁴ Not only are atmospheric levels increasing, but the rate of emissions also continues to increase at about 1 percent per year. Even maintaining current levels of carbon dioxide emissions will raise concentrations to over 700 ppm by the year 2100. In 1992 the U.S. committed itself to reducing greenhouse gas emissions to 1990 levels by the year 2000, and relied on volunteer efforts to do so. So far, such volunteer efforts have proven ineffective. A healthy economy, low fuel prices, the increasing popularity of larger, fuel-inefficient cars and sport utility vehicles, and our energy consumptive lifestyles have contributed to a 10.7 percent *increase* in emissions since 1990. The forecast is that emission levels will be at 13 percent above the 1990 level by the year 2000. The United States emits more carbon dioxide than any other nation, both in total and per capita. More than 98 percent of U.S. carbon dioxide emissions can be traced to the consumption of fossil fuels. The Intergovernmental Panel on Climate Change has conservatively estimated that the atmosphere can sustain carbon emissions of no more than two billion tons per year without serious disruption of the climate. Spreading that quota evenly among the ten billion people projected to share the planet by 2100 yields a per-person quota of a pound a day. The U.S., Japan, and other industrialized nations are emitting carbon at a pace twelve to twenty seven times this figure and the rates continue to climb.

EFFECTS OF CLIMATE CHANGE

The climactic consequences of increased levels of heat-trapping gases in the atmosphere are likely to include the following:

1. Weather patterns, particularly rainfall, are likely to change significantly and have a severe impact on water resources and water availability in many regions.

2. Droughts, storms, and floods are likely to be more frequent and more severe than in the past, especially in subtropical regions where many developing countries will be particularly severely affected.
3. The geographic distribution of vegetation types would be altered, leading to changes in habitat and further exacerbating the rate of species extinction (already occurring at the alarming rate of 75 to 100 species per day!).
4. Atmospheric warming would increase the temperature of the oceans, leading to an expansion in the volume of water and a rise in sea levels. Sea level rise would be exacerbated by melting polar ice. Already the sea level has risen ten to twenty-five centimeters in the last century. The IPCC estimates that it will rise another fifty centimeters by the end of the twenty-first century. Such a rise would have severe consequences for people and ecosystems in such areas as the Pacific and Caribbean islands, countries with populations and agriculture on river deltas (Bangladesh; Egypt; Louisiana, U.S.), and many coastal regions.
5. Insect- and rodent-borne diseases such as malaria, dengue, yellow fever, and encephalitis are likely to increase and spread into new areas.

WHAT CAN GOVERNMENTS DO?

In 1997 in Kyoto, Japan, the industrialized nations adopted the Kyoto Protocol, a treaty in which they agreed to make specific emissions reductions within eleven to fifteen years (2008 to 2012). The treaty calls for industrialized countries to reduce their emissions of carbon dioxide and other greenhouse gas emissions by an average of about 5 percent below 1990 levels. The United States' reduction would be about 7 percent. The U.S. administration has signed the protocol, but it awaits ratification by the Senate. Prior to the Kyoto conference the U. S. Senate passed a resolution stating it would not ratify any agreement that might harm the U.S. economy or did not include participation by developing nations. Although the treaty does not call for binding limits on emissions by developing nations, these nations are not exempt from the stipulations of the agreement. All signatory nations must inventory emissions and create pilot programs to limit them. Moreover simple justice requires that the industrialized nations, and the U.S. in particular, take the first steps in reducing emissions. In seeking an appropriate balance between consumption and the equitable use of global resources, we need to make a distinction between the "luxury emissions" of the rich and the "survival emissions" of the poor. "From everyone to whom much has been given, much will be required" (Luke 12:48). The treaty agreed to at Kyoto must be adopted by over half the industrialized nations before it takes effect. U.S. ratification is crucial. Late last summer leaders of several mainline denominations (including the Evangelical Lutheran Church in America, the Presbyterian Church (U.S.A.), the Reformed Church in America, the United Church of Christ, and the Church of the Brethren) signed letters to President Clinton and U.S. senators urging ratification of the Kyoto Protocol to the Climate Convention.

CLIMATE CHANGE AND CHRISTIAN WITNESS

The threats to creation represented by global warming are a cause for concern for everyone on the planet, but for Christians the issue is more than a matter of self preservation; it is a matter of faithfulness. Global climate change is an issue of justice. The industrialized nations, representing less than 20 percent of the world's population, are responsible for 75 to 80 percent of the annual greenhouse gas emissions. Yet those who live in poor and developing nations are the ones who will be most seriously effected by global warming. The North American suburbanite can afford to turn up the air conditioner and pay a little more for groceries. The peasant living in coastal Bangladesh would become an environmental refugee. Climate change is also an issue of intergenerational justice. The effects of global warming in our lifetimes may be minimal. It will not be so for our children and our children's children. Current North American energy-rich and overly consumptive lifestyles are being subsidized by the poor and by future generations.

Christians understand the threat of global climate change in the context of covenant. God has established a covenant “with every living creature” (Genesis 9:10ff.) and with the earth itself (Genesis 9:13). Humankind has been given a special place in this covenant relation. We are not merely one species among many but a species to whom God has given a unique and important responsibility. We are placed in the garden of creation “to till it and to keep it.” God has given us dominion over creation, not to do with it as we please but, in the words of Old Testament scholar Walter Brueggemann, “for its profit, well-being, and enhancement...to see to it that the creation becomes fully the creation willed by God.”⁶ This means, among other things, that our relationship with God, with our fellow human beings and with the rest of creation are all of a piece. A break in any one part of the covenant relationship affects the others. We cannot love God and hate our neighbor. Neither can we love God and our neighbors while we degrade creation.

Our response to the threat of global climate change is a matter of Christian witness. We confess that in Jesus Christ God entered creation in order to heal and restore the relationships broken by human sinfulness. The early Christians sang of Jesus Christ as the one in whom, through whom, and for whom all things were created and the one through whom God was pleased to reconcile to himself all things, whether on earth or in heaven (Colossians 1:15-20). This confession of a “cosmic Christ” has important implications for the church’s ministry. The church is called to bear witness to the Christ who reconciles and restores *all creation*. “The church is not an elite body, separated from a doomed world,” writes New Testament scholar, J. Christiaan Beker, “but a community placed in the midst of the cosmic community of creation. Its task is not merely to win souls but to bear the burdens of a creation, to which it not only belongs but to which it must also bear witness.”⁷

Dealing with the threat of climate change will require changes in technology, in public policy, and in our ways of thinking and living. We should not expect that it will be easy, and we should try to find ways in which the burdens of change are shared. But the longer we wait to deal with global warming, the more harm will occur and the greater will be the human, environmental, and economic costs for our children and grandchildren.

1. National Oceanic and Atmospheric Administration. “Climate of 1998: Annual Review,” available at URL www.ncdc.noaa.gov/ol/climate/research/1998/ann/ann98.html, accessed February 12, 1999.
2. IPCC. *Second Assessment Report of the Inter-governmental Panel on Climate Change*. Geneva: IPCC, 1995, p. 22.
3. Ross Gelbspan, “The Heat Is On,” *Harper’s Magazine*, December 1995, pp. 31-37.
4. Lester R. Brown and Christopher Flavin, “A New Economy for a new Century.” *State of the World 1999*, Washington, DC: Worldwatch Institute, 1999.
5. David Malin Roodman, “Building a Sustainable Society,” *State of the World 1999*, op. cit., p. 171.
6. Walter Brueggemann, *Genesis*. Atlanta: John Knox Press, 1982, pp. 32-33.
7. J. Christiaan Beker, *Paul the Apostle: The Triumph of God in Life and Thought*. Philadelphia: Fortress Press, 1980.

Simple Steps to Reduce Global Warming 1. Buy energy-efficient compact fluorescent bulbs for your most used lights.

Carbon dioxide reduction: (by replacing one frequently used bulb) about 500 pounds a year. 2. Wrap your water heater in an insulating jacket.

Carbon dioxide reduction: up to 1,000 pounds a year. 3. Ask your utility company for a home energy audit to find out where your home is poorly insulated or energy-inefficient.

Carbon dioxide reduction: potentially, thousands of pounds a year. 4. Whenever possible, walk, bike, carpool, or use mass transit.

Carbon dioxide reduction: 20 pounds for every gallon of gasoline saved. 5. When you buy a car, choose one that gets good gas mileage.

Carbon dioxide reduction: about 2,500 pounds a year if your new car gets 10 mpg more than your old one. 6. If your car has an air conditioner, make sure its coolant is recycled whenever you have it serviced.

Equivalent carbon dioxide reduction: thousands of pounds. 7. If you need to replace your windows, install the best energy-saving models.

Carbon dioxide reduction: up to 10,000 pounds a year. 8. Plant trees next to your home and paint your home a light color if you live in a warm climate, or a dark color in a cold climate.

Carbon dioxide reduction: about 5,000 pounds a year. 9. As you replace home appliances, select the most energy-efficient models.

Carbon dioxide reduction: 3,000 pounds a year if you replace your old refrigerator with an efficient model. 10. Be informed about environmental issues. Keep track of candidates' voting records and write or call to express concerns.

Carbon dioxide reduction: billions of pounds if we vote to raise U.S. auto fuel efficiency.

2001 (?) Report of the Commission on Christian Action

The Commission on Christian Action met November 16-17, 2000, on the campuses of Hope College and Western

Theological Seminary in Holland, Michigan; and February 9-10, 2001, at the Xavier Retreat and Conference Center in Convent Station, New Jersey.

Attachment F

8189:6/91

**AMERICAN BAPTIST
RESOLUTION ON GLOBAL WARMING**1 THE PROBLEM

2

3 The report from the Second World Climate Conference, held in Geneva from
4 October 29 until November 8, 1990, stated: "If the increase in greenhouse
5 gas
6 concentrations is not limited, then predicted climate change would place
7 stresses on the natural and social systems unprecedented in the past 10,000
8 years." It is believed that increased levels of gases are gradually causing
9 the earth's atmosphere and surface to become warmer. The effect is similar
10 to
11 that of the glass panels in a greenhouse that let some heat in but prevent
12 much of it from leaving. Much of the increase in levels of gases is directly
13 attributable to human industrial activity.

14

15 The first part of the Second World Climate Conference included over 700
16 scientists in different fields. A Ministerial Session followed in which 137
17 governments (82% of the United Nations) participated. The scientists reached
18 substantial agreement on a wide range of issues. The conference declared:
19 "Emissions resulting from human activities are substantially increasing
20 atmospheric concentrations of the greenhouse gases. These increases will
21 enhance the natural greenhouse effect, resulting on average in an additional

22 warming of the earth's surface."

23

24 In December of 1999 the heads of the National Office of Atmospheric
25 Administration/British Meteorological Office warned "Ignoring climate change
26 will surely be the most costly of all possible choices... The evidence global
27 warming "is almost controvertible...we need to act accordingly."¹

28 The major greenhouse gases and their sources are:²

29

30 • Carbon dioxide (CO₂) generated as a by-product of everyday energy
31 consumption, accounts for 55% of all greenhouse gases,

32

33 • Chlorofluorocarbons (CFC's) found in solvents, air conditioning
34 fluids,

35 refrigerants, and foam products constitute another 24% of total
36 greenhouse gases,

37

38 • Methane (CH₄) emitted from animal waste, rice and other types of
39 cultivation, and leaked or flared during the extraction of oil, gas

40 and

41 coal, amounts to 15% of greenhouse gases,

42

43 • The remainder consisting of nitrous oxide (N₂O) from nitrogen
44 fertilization, nitrogen oxides (NO_x) and tropospheric ozone from

¹ The Churches Role in Protecting the Earth's Atmosphere: Report of an Ecumenical Consultation of Churches in Northern Industrialized Countries held at Gwatt, Switzerland, from January 13-18, 1991, page 5.

² Ozone Action, WWW.ozone.org, "Scientific Consensus on Global Warming."

45 automobile exhaust, coal combustion and other sources, amounts to 6%
46 of
47 the total.

48

49 The particularly dangerous role of chlorofluorocarbons (CFC's) deserves
50 special mention. These gases are the primary cause of the depletion of the
51 ozone layer in the stratosphere and simultaneously contribute to warming.
52 The
53 ozone layer filters ultraviolet radiation. Its destruction leads to
54 increased
55 exposure and significantly increased levels of skin cancer.

56

57 Consequences of global warming include the partial melting of polar ice caps
58 and the rise in sea levels. Such rises could inundate land that is densely
59 populated and totally submerge island nations in the South Pacific and
60 elsewhere. Approximately 50% of the world's population lives in coastal
61 areas. Other impacts include increased storm intensity and frequency,
62 changes
63 in water condition and availability, stresses on health conditions, and
64 variations in agriculture and food production. In the words of the Second
65 World Climate Conference: "In many cases the impacts will be felt most
66 severely in regions already under stress, mainly in developing countries."

67

68 Although the initial impact of these global warming trends will
69 be felt by less industrialized nations, 75% of all carbon dioxide emissions
70 come from more industrialized nations.

71

72 THEOLOGICAL CONSIDERATIONS

73

74 As American Baptist Christians we have been growing in our awareness of the
75 implications of our faith related to ecological concerns. Our earlier Policy
76 Statement on Ecology reminded us of our responsibility to God for the care of
77 creation (Genesis 1:1, 11-12) and of God's displeasure with humanity's misuse
78 of creation. Further reflection calls us to consider more seriously the
79 implications of God's call to "love your neighbor as yourself."

80

81 There is but one Creator. As travelers on this globe together, we are
82 commonly dependent upon Earth for sustenance. We are interdependent with all
83 creation. We must learn to understand what it means to respect all that God
84 has created and to be our neighbor's keepers. We need to expand our hearing
85 of Jesus' "new commandment" to "Love one another." We must see the whole
86 creation as our neighbor. Certainly the implications of this command exceed
87 one culture, race, ethnic group, or species just as it exceeds one
88 denomination.

89

90 Further, as human beings we are surrounded by and live in an environment we
91 call air. It is in us as well as around us. When it is poisoned and
92 polluted

93 (Isaiah 24:5-6), all creation is harmed. The Old Testament word for air is
94 the same as "wind" and "Spirit." When we limit our understanding of God's
95 Spirit, we limit our understanding and care for God's creatures and creation.

96

97 Therefore, based on our faith in the Creator God who makes us a part of a
98 unified creation, the General Board of the American Baptist Churches USA,

- 99 calls on national boards, regions, American Baptist institutions,
100 congregations and individuals to:
101
- 102 A. Join in ways to build a culture that can live in harmony with God's
103 creation by:
104
- 105 1. Deepening our biblical understanding of creation and our role in
106 preserving the gifts God has given through such activities as use and
107 production of educational materials, courses, special programs, and
108 personal study.
109
 - 110 2. Developing a spirituality that embraces the dignity of the character
111 of creation, connecting our understanding of personal salvation with
112 stewardship of God's creation.
113
 - 114 3. Acting with others to build a world community of cooperation to share
115 justly the life-giving resources of the earth.
116
 - 117 4. Participating in multicultural bridge-building experiences.
118
 - 119 5. Learning about the causes of global warming through self-education
120 and
121 inclusion of materials in church school and learning institutions at
122 all levels, from nurseries to universities.
123
124
- 125 B. Join in global, local and personal efforts to safeguard the world's

- 126 atmospheric integrity and quality by:
127
- 128 1. Building and renovating our homes and church facilities to be energy
129 efficient and beginning programs of energy conservation and
130 awareness.
131
- 132 2. Striving to eliminate the use of products that contain CFC's.
133
- 134 3. Using public transportation, car pooling, and telephone conferencing.
135
- 136 4. Becoming ecologically aware consumers by using products, including
137 food, that consume less energy in production, transportation,
138 packaging, and use.
139
- 140 C. Address the causes and reverse the consequences of global warming by:
141
- 142 1. Advocating the passage of legislation at all appropriate levels to
143 reduce carbon dioxide output and to set reduction targets for other
144 greenhouse gases.³
145
- 146 2. Supporting the passage of mandatory higher fuel efficiency for new
147 vehicles and phasing out of older, less efficient vehicles.
148
- 149 3. Supporting rail and other means of increased transportation
150 efficiency
151 including subsidies for public transportation.
152

- 153 4. Combating deforestation domestically and internationally through
154 programs of preservation and reforestation and through responsible
155 consumption.
156
- 157 5. Sponsoring and supporting shareholder resolutions to corporations on
158 issues like reduction of carbon dioxide and other greenhouse gases,
159 phasing out of CFC's, increased energy efficiency and fuel
160 conservation, environmental cost accounting and other issues
161 affecting
162 global warming.
163
- 164 6. Calling for an international treaty such as the Kyoto Protocols on
165 global warming with specific targets for the reduction of
166 greenhouse gases.
167
- 168 7. Working to implement just intra- and inter-national trade and
169 economic
170 relationships (based on principles like the transfer of technical and
171 economic resources, self-reliance, sustainable agriculture, and forms
172 of development that do not exacerbate global warming).
173
174
175
- 176 ³ According to the "Justice, Peace and Integrity of Creation" document, Seoul, Korea 1991, suggests a 3% annual
177 reduction.
178

Adopted by the General Board of the American Baptist Churches -

November 1991

161 For, 0 Against, 1 Abstention

Modified by the Executive Committee of the General Board - March 2001

(General Board Reference # - 8189:6/91)

Policy Base

American Baptist Churches Policy Statement on Ecology - June 1989

American Baptist Churches Policy Statement on Energy - June 1977

American Baptist Churches Policy Statement on Human Rights - December
1976

4. The right to secure and healthy environment, clean air, pure
water,

and an earth that can nurture and support present and future
generations.

American Baptist Churches Resolution on Environmental Concerns - March
1983

American Baptist Churches Resolution on Nuclear Power: Seeking
Rational

Attachment G**Evangelical Lutheran Church in America (ELCA)****Caring for Creation: Vision, Hope, and Justice**

This social statement was adopted by a more than two-thirds majority vote as a social statement of the Evangelical Lutheran Church in America by the third Churchwide Assembly on August 28, 1993, at Kansas City, Missouri.

Prologue

Christian concern for the environment is shaped by the Word of God spoken in creation, the Love of God hanging on a cross, the Breath of God daily renewing the face of the earth.

We of the Evangelical Lutheran Church in America are deeply concerned about the environment, locally and globally, as members of this church and as members of society. Even as we join the political, economic, and scientific discussion, we know care for the earth to be a profoundly spiritual matter.

As Lutheran Christians, we confess that both our witness to God's goodness in creation and our acceptance of caregiving responsibility have often been weak and uncertain. This statement:

- offers a vision of God's intention for creation and for humanity as creation's caregivers;
- acknowledges humanity's separation from God and from the rest of creation as the central cause of the environmental crisis;
- recognizes the severity of the crisis; and
- expresses hope and heeds the call to justice and commitment.

This statement summons us, in particular, to a faithful return to the biblical vision.

I. The Church's Vision of Creation**A. God, Earth and All Creatures**

We see the despoiling of the environment as nothing less than the degradation of God's gracious gift of creation.

Scripture witnesses to God as creator of the earth and all that dwells therein (Pss 24:1). The creeds, which guide our reading of Scripture, proclaim God the Father of Jesus Christ as "maker of heaven and earth," Jesus Christ as the one "through [whom] all things were made," and the Holy Spirit as "the Lord, the giver of life" (Nicene Creed).

God blesses the world and sees it as "good," even before humankind comes on the scene. All creation, not just humankind, is viewed as "very good" in God's eyes (Gen 1:31). God continues to bless the world: "When you send forth your spirit, they are created; and you renew the face of the ground" (Pss 104:30). By faith we understand God to be deeply, mysteriously, and unceasingly involved in what happens in all creation. God showers care upon sparrows and lilies (Mat 6:26-30), and brings "rain on a land where no one lives, on the desert, which is empty of human life" (Job 38:26).

Central to our vision of God's profound involvement with the world is the Incarnation. In Christ, the Word is made flesh, with saving significance for an entire creation that longs for fulfillment (Rom 8:18-25). The Word still comes to us in the waters of baptism, and in, with, and under the bread and wine, fruits of the earth and the work of human hands. God consistently meets us where we live, through earthy matter.

B. Our Place in Creation

Humanity is intimately related to the rest of creation. We, like other creatures, are formed from the earth (Gen 2:7, 9, 19). Scripture speaks of humanity's kinship with other creatures (Job 38-39; Pss 104). God cares faithfully for us, and together we join in singing the "hymn of all creation" (*Lutheran Book of Worship*, page 61; Pss 148). We look forward to a redemption that includes all creation (Eph 1:10).

Humans, in service to God, have special roles on behalf of the whole of creation. Made in the image of God, we are called to care for the earth as God cares for the earth. God's command to have dominion and subdue the earth is not a license to dominate and exploit. Human dominion (Gen 1:28; Pss 8), a special responsibility, should reflect God's way of ruling as a shepherd king who takes the form of a servant (Phil 2:7), wearing a crown of thorns.

According to Gen 2:15, our role within creation is to serve and to keep God's garden, the earth. "To serve," often translated "to till," invites us again to envision ourselves as servants, while "to keep" invites us to take care of the earth as God keeps and cares for us (Num 6:24-26).

We are called to name the animals (Gen 2:19-20). As God names Israel and all creation (Pss 147:4; Isa 40:26, 43:1) and as the shepherd calls by name each sheep (John 10:3), naming unites us in a caring relationship. Further, we are to live within the covenant God makes with every living thing (Gen 9:12-17; Hos 2:18), and even with the day and night (Jer 33:20). We are to love the earth as God loves us.

We are called to live according to God's wisdom in creation (Prov 8), which brings together God's truth and goodness. Wisdom, God's way of governing creation, is discerned in every culture and era in various ways. In our time, science and technology can help us to discover how to live according to God's creative wisdom.

Such caring, serving, keeping, loving, and living by wisdom sum up what is meant by acting as God's stewards of the earth. God's gift of responsibility for the earth dignifies

humanity without debasing the rest of creation. We depend upon God, who places us in a web of life with one another and with all creation.

II. The Urgency

A. Sin and Captivity

Not content to be made in the image of God (Gen 3:5; Ezek 28:1-10), we have rebelled and disrupted creation. As did the people of ancient Israel, we experience nature as an instrument of God's judgment (cf., Deut 11:13-17; Jer 4:23-28). A disrupted nature is a judgment on our unfaithfulness as stewards.

Alienated from God and from creation, and driven to make a name for ourselves (Gen 11:4), we become captives to demonic powers and unjust institutions (Gal 4:9; Eph 6:12; Rev 13:1-4). In our captivity, we treat the earth as a boundless warehouse and allow the powerful to exploit its bounties to their own ends (Amos 5:6-15). Our sin and captivity lie at the roots of the current crisis.

B. The Current Crisis

The earth is a planet of beauty and abundance; the earth system is wonderfully intricate and incredibly complex. But today living creatures, and the air, soil, and water that support them, face unprecedented threats. Many threats are global; most stem directly from human activity. Our current practices may so alter the living world that it will be unable to sustain life in the manner we know.

Twin problems--excessive consumption by industrialized nations, and relentless growth of human population worldwide--jeopardize efforts to achieve a sustainable future. These problems spring from and intensify social injustices. Global population growth, for example, relates to the lack of access by women to family planning and health care, quality education, fulfilling employment, and equal rights.

Processes of environmental degradation feed on one another. Decisions affecting an immediate locale often affect the entire planet. The resulting damages to environmental systems are frightening:

- depletion of non-renewable resources, especially oil;
- loss of the variety of life through rapid destruction of habitats;
- erosion of topsoil through unsustainable agriculture and forestry practices;
- pollution of air by toxic emissions from industries and vehicles, and pollution of water by wastes;
- increasing volumes of wastes; and
- prevalence of acid rain, which damages forests, lakes, and streams.

Even more widespread and serious, according to the preponderance of evidence from scientists worldwide, are:

- the depletion of the protective ozone layer, resulting from the use of volatile compounds containing chlorine and bromine; and
- dangerous global warming, caused by the buildup of greenhouse gases, especially carbon dioxide.

The idea of the earth as a boundless warehouse has proven both false and dangerous. Damage to the environment eventually will affect most people through increased conflict over scarce resources, decline in food security, and greater vulnerability to disease.

Indeed, our church already ministers with and to people:

- who know firsthand the effects of environmental deterioration because they work for polluting industries or live near incinerators or waste dumps;
- who make choices between preserving the environment and damaging it further in order to live wastefully or merely to survive; and
- who can no longer make their living from forests, seas, or soils that are either depleted or protected by law.

In our ministry, we learn about the extent of the environmental crisis, its complexities, and the suffering it entails. Meeting the needs of today's generations for food, clothing, and shelter requires a sound environment. Action to counter degradation, especially within this decade, is essential to the future of our children and our children's children. Time is very short.

III. The Hope

A. The Gift of Hope

Sin and captivity, manifest in threats to the environment, are not the last word. God addresses our predicament with gifts of "forgiveness of sins, life, and salvation" (Luther, *Small Catechism*). By the cross and resurrection of Jesus Christ, God frees us from our sin and captivity, and empowers us to be loving servants to creation.

Although we remain sinners, we are freed from our old captivity to sin. We are now driven to God's promise of blessings yet to come. Only by God's promise are we no longer captives of demonic powers or unjust institutions. We are captives of hope (Zech 9:11-12). Captured by hope, we proclaim that God has made peace with all things through the blood of the cross (Col 1:15-20), and that the Spirit of God, "the giver of life," renews the face of the earth.

Captured by hope, we dream dreams and look forward to a new creation. God does not just heal this creation wounded by human sin. God will one day consummate all things in "new heavens and a new earth, where righteousness is at home" (2Pet 3:13). Creation--now in captivity to disruption and death--will know the freedom it awaits.

B. Hope in Action

We testify to the hope that inspires and encourages us. We announce this hope to every

people, and witness to the renewing work of the Spirit of God. We are to be a herald here and now to the new creation yet to come, a living model.

Our tradition offers many glimpses of hope triumphant over despair. In ancient Israel, as Jerusalem was under siege and people were on the verge of exile, Jeremiah purchased a plot of land (Jer 32). When Martin Luther was asked what he would do if the world were to end tomorrow, he reportedly answered, "I would plant an apple tree today." When we face today's crisis, we do not despair. We act.

IV. THE CALL TO JUSTICE

Caring, serving, keeping, loving, and living by wisdom--these translate into justice in political, economic, social, and environmental relationships. Justice in these relationships means honoring the integrity of creation, and striving for fairness within the human family.

It is in hope of God's promised fulfillment that we hear the call to justice; it is in hope that we take action. When we act interdependently and in solidarity with creation, we do justice. We serve and keep the earth, trusting its bounty can be sufficient for all, and sustainable.

A. Justice Through Participation

We live within the covenant God makes with all living things, and are in relationship with them. *The principle of participation means they are entitled to be heard and to have their interests considered when decisions are made.*

Creation must be given voice, present generations and those to come. We must listen to the people who fish the sea, harvest the forest, till the soil, and mine the earth, as well as to those who advance the conservation, protection, and preservation of the environment.

We recognize numerous obstacles to participation. People often lack the political or economic power to participate fully. They are bombarded with manipulated information, and are prey to the pressures of special interests. The interests of the rest of creation are inadequately represented in human decisions.

We pray, therefore, that our church may be a place where differing groups can be brought together, tough issues considered, and a common good pursued.

B. Justice Through Solidarity

Creation depends on the Creator, and is interdependent within itself. *The principle of solidarity means that we stand together as God's creation.*

We are called to acknowledge this interdependence with other creatures and to act locally and globally on behalf of all creation. Furthermore, solidarity also asks us to stand with the victims of fire, floods, earthquakes, storms, and other natural disasters.

We recognize, however, the many ways we have broken ranks with creation. The land and its inhabitants are often disenfranchised by the rich and powerful. The degradation of the environment occurs where people have little or no voice in decisions -- because of racial, gender, or economic discrimination. This degradation aggravates their situation and swells the numbers of those trapped in urban or rural poverty.

We pray, therefore, for the humility and wisdom to stand with and for creation, and the fortitude to support advocates whose efforts are made at personal risk.

C. Justice Through Sufficiency

The earth and its fullness belong to the Lord. No person or group has absolute claim to the earth or its products. *The principle of sufficiency means meeting the basic needs of all humanity and all creation.*

In a world of finite resources, for all to have enough means that those with more than enough will have to change their patterns of acquisition and consumption. Sufficiency charges us to work with each other and the environment to meet needs without causing undue burdens elsewhere.

Sufficiency also urges us to care for arable land so that sufficient food and fiber continue to be available to meet human needs. We affirm, therefore, the many stewards of the land who have been and are conserving the good earth that the Lord has given us.

We recognize many forces that run counter to sufficiency. We often seek personal fulfillment in acquisition. We anchor our political and economic structures in greed and unequal distribution of goods and services. Predictably, many are left without resources for a decent and dignified life.

We pray, therefore, for the strength to change our personal and public lives, to the end that there may be enough.

D. Justice Through Sustainability

The sabbath and jubilee laws of the Hebrew tradition remind us that we may not press creation relentlessly in an effort to maximize productivity (Exod 20:8-11; Lev 25). *The principle of sustainability means providing an acceptable quality of life for present generations without compromising that of future generations.*

Protection of species and their habitats, preservation of clean land and water, reduction of wastes, care of the land--these are priorities. But production of basic goods and services, equitable distribution, accessible markets, stabilization of population, quality education, full employment--these are priorities as well.

We recognize the obstacles to sustainability. Neither economic growth that ignores environmental cost nor conservation of nature that ignores human cost is sustainable. Both will result in injustice and, eventually, environmental degradation. We know that a

healthy economy can exist only within a healthy environment, but that it is difficult to promote both in our decisions.

The principle of sustainability summons our church, in its global work with poor people, to pursue sustainable development strategies. It summons our church to support U.S. farmers who are turning to sustainable methods, and to encourage industries to produce sustainably. It summons each of us, in every aspect of our lives, to behave in ways that are consistent with the long-term sustainability of our planet.

We pray, therefore, for the creativity and dedication to live more gently with the earth.

V. COMMITMENTS OF THIS CHURCH

We of the Evangelical Lutheran Church in America answer the call to justice and commit ourselves to its principles--participation, solidarity, sufficiency, and sustainability. In applying the principles to specific situations, we face decisions made difficult by human limitation and sin. We act, not because we are certain of the outcome but because we are confident of our salvation in Christ.

Human behavior may change through economic incentive, guilt about the past, or fear about the future. But as people of biblical faith, who live together in trust and hope, our primary motivation is the call to be God's caregivers and to do justice.

We celebrate the vision of hope and justice for creation, and dedicate ourselves anew. We will act out of the conviction that, as the Holy Spirit renews our minds and hearts, we also must reform our habits and social structures.

A. As Individual Christians

As members of this church, we commit ourselves to personal life styles that contribute to the health of the environment. Many organizations provide materials to guide us in examining possibilities and making changes appropriate to our circumstances.

We challenge ourselves, particularly the economically secure, to tithe environmentally. Tithers would reduce their burden on the earth's bounty by producing ten percent less in waste, consuming ten percent less in non-renewable resources, and contributing the savings to earthcare efforts. Environmental tithing also entails giving time to learn about environmental problems and to work with others toward solutions.

B. As a Worshipping and Learning Community

1. *The Congregation as a Creation Awareness Center* Each congregation should see itself as a center for exploring scriptural and theological foundations for caring for creation.

Awareness can be furthered by many already in our midst, for example: Native people, who often have a special understanding of human intimacy with the earth; scientists, engineers, and technicians, who help us to live by the wisdom of God in creation; experts

in conservation and protection of the environment; and those who tend the land and sea. We also will learn from people suffering the severe impact of environmental degradation.

2. *Creation Emphases in the Church Year* Congregations have various opportunities during the year to focus on creation. Among these are Thanksgiving, harvest festivals, and blessings of fields, waters, and plants and animals. Many congregations observe Earth Day or Soil and Water Stewardship Week. As a church body, we designate the Second Sunday after Pentecost as Stewardship of Creation Sunday, with appropriate readings (as a development of the traditional Rogationtide).

3. *Education and Communication* This church will encourage those who develop liturgical, preaching, and educational materials that celebrate God's creation. Expanded curricula, for use in the many contexts of Christian education, will draw upon existing materials. We will promote reporting on the environment by church publications, and encourage coverage of this church's environmental concerns in public media.

4. *Programs Throughout this Church* This church commends the environmental education taking place through synodical and regional efforts; camps and outdoor ministries; colleges, seminaries, and continuing education events; and the churchwide Hunger Program. We especially commend this church's Department for Environmental Stewardship in the Division for Church in Society, for its network of caregivers, its advice to church members and institutions on innovative caregiving, and its materials for use in environmental auditing.

C. As a Committed Community

As congregations and other expressions of this church, we will seek to incorporate the principles of sufficiency and sustainability in our life. We will advocate the environmental tithe, and we will take other measures that work to limit consumption and reduce wastes. We will, in our budgeting and investment of church funds, demonstrate our care for creation. We will undertake environmental audits and follow through with checkups to ensure our continued commitment.

D. As a Community of Moral Deliberation

As congregations and other expressions of this church, we will model the principle of participation. We will welcome the interaction of differing views and experiences in our discussion of environmental issues such as:

- nuclear and toxic waste dumps;
- logging in ancient growth forests;
- personal habits in food consumption;
- farming practices;
- treatment of animals in livestock production, laboratory research, and hunting;
- land-use planning; and
- global food, development, and population questions.

We will examine how environmental damage is influenced by racism, sexism, and classism, and how the environmental crisis in turn exacerbates racial, gender, and class discrimination. We will include in our deliberation people who feel and suffer with issues, whose economic security is at stake, or who have expertise in the natural and social sciences.

We will play a role in bringing together parties in conflict, not only members of this church but also members of society at large. This church's widespread presence and credibility provide us a unique opportunity to mediate, to resolve conflict, and to move toward consensus.

E. As an Advocate

The principles of participation, solidarity, sufficiency, and sustainability will shape our advocacy--in neighborhoods and regions, nationally and internationally. Our advocacy will continue in partnership, ecumenically and with others who share our concern for the environment.

Advocacy on behalf of creation is most compelling when done by informed individuals or local groups. We will encourage their communication with governments and private entities, attendance at public hearings, selective buying and investing, and voting.

We will support those designated by this church to advocate at state, national, and international levels. We will stand with those among us whose personal struggles for justice put them in lonely and vulnerable positions.

1. Private Sector This church will engage in dialogue with corporations on how to promote justice for creation. We will converse with business leadership regarding the health of workers, consumers, and the environment. We will invite the insights and concerns of business leadership regarding responsible environmental actions. We will urge businesses to implement comprehensive environmental principles.

Government can use both regulations and market incentives to seek sustainability. We will foster genuine cooperation between the private and public sector in developing them.

2. Public Sector This church will favor proposals and actions that address environmental issues in a manner consistent with the principles of participation, solidarity, sufficiency, and sustainability.

These proposals and actions will address: excessive consumption and human population pressures; international development, trade, and debt; ozone depletion; and climate change. They will seek: to protect species and their habitats; to protect and assure proper use of marine species; and to protect portions of the planet that are held in common, including the oceans and the atmosphere.

This church will support proposals and actions to protect and restore, in the United States and Caribbean, the quality of:

- natural and human habitats, including seas, wetlands, forests, wilderness, and urban areas;
- air, with special concern for inhabitants of urban areas;
- water, especially drinking water, groundwater, polluted runoff, and industrial and municipal waste; and
- soil, with special attention to land use, toxic waste disposal, wind and water erosion, and preservation of farmland amid urban development.

This church will seek public policies that allow people to participate fully in decisions affecting their own health and livelihood. We will be in solidarity with people who directly face environmental hazards from toxic materials, whether in industry, agriculture, or the home. We will insist on an equitable sharing of the costs of maintaining a healthy environment.

This church will advance international acceptance of the principles of participation, solidarity, sufficiency, and sustainability, and encourage the United Nations in its caregiving role. We will collaborate with partners in the global church community, and learn from them in our commitment to care for God's creation.

Claiming the Promise

Given the power of sin and evil in this world, as well as the complexity of environmental problems, we know we can find no "quick fix"--whether technological, economic, or spiritual. A sustainable environment requires a sustained effort from everyone.

The prospect of doing too little too late leads many people to despair. But as people of faith, captives of hope, and vehicles of God's promise, we face the crisis.

We claim the promise of "a new heaven and a new earth" (Rev 21:1), and join in the offertory prayer (*Lutheran Book of Worship*, page 109): "Blessed are you, O Lord our God, maker of all things. Through your goodness you have blessed us with these gifts. With them we offer ourselves to your service and dedicate our lives to the care and redemption of all that you have made, for the sake of him who gave himself for us, Jesus Christ our Lord. Amen."

Attachment H**United Church of Christ
Resolution on Global Warming**

Mr. Gantt reminded the delegates of the amendment to the Resolution "Global Warming" which had been proposed Monday afternoon. He stated that initially there was confusion regarding where the substitute paragraph would go, and that is why it was not considered a friendly amendment on Monday. Since then, clarification had been made, and the Committee was prepared to accept the substitute paragraph as a friendly amendment. Mr. Gantt restated the amendment to replace the sixth "WHEREAS" with the following: "WHEREAS, such gases released into the atmosphere absorb some of the out-going infrared radiation from the surface of the earth causing the atmosphere to warm." The amendment was accepted as friendly.

Moderator Hood called for the vote:

99-GS-74 VOTED: The Twenty-second General Synod adopts the Resolution "Global Warming" as amended.

WHEREAS, General Synod has voted broad

WHEREAS, the Bible is clear in its call to us to be multiply" (Genesis 9:1);

WHEREAS, the industrialized nations are the main producers of gases that cause global warming and the United States, with only 4% of the world's population, still emits 22% of these gases;

WHEREAS, 2,500 scientists of the United Nations Intergovernmental Panel on Climate Change have concluded that these human-made gases are causing the earth's temperature to rise and these scientists project an increase of 2-6 degrees Fahrenheit during our children's lifetimes;

WHEREAS, such gases released into the atmosphere absorb some of the out-going infrared radiation from the surface of the earth causing the atmosphere to warm;

WHEREAS, such gases released into the atmosphere block the natural reflection of the sun's radiation from the earth back into space and thus cause a "greenhouse effect" just as our cars heat up when left in the sun with windows closed;

WHEREAS, the continued release of greenhouse gases will cause devastating effects on agriculture and natural ecosystems, the flooding of coastal regions and island nations, increased volatility of weather patterns with severe heat waves and storms, migration of tropical insects, diseases, deforestation, desertification and displacement of human populations; and

WHEREAS, 160 nations agreed to a binding treaty to reduce greenhouse gases in December 1997 in Kyoto, Japan;

THEREFORE, BE IT RESOLVED that the Twenty- request: second General Synod of the United Church of Christ:

recognizes the dangers of global warming and our biblical mandate as stewards of God's creation to be diligent in our efforts to decrease the emission of greenhouse gases;

affirms the greater responsibility of industrial nations and especially the United States to reduce greenhouse gas emissions;

encourages local churches, Conferences and national agencies to engage in efforts to educate and advocate for ratification of the Kyoto Climate Change Treaty and to address their own lifestyles (institutional and personal) to assure the minimum production of wastes that threaten the environment;

urges all members of the United Church of Christ to contact their U.S. Senators affirming the need to ratify this treaty as a first step in meeting the threat of global warming;

urges governmental representatives to support legislation that regulates and reduces pollution and provides for alternatives to the burning of fossil fuels; and

calls on the Office for Church in Society and the United Church Board for World Ministries and its successors to keep the global warming issue as a high priority in their educational and advocacy efforts. Funding for this action will be made in accordance the overall mandates of the affected agencies and the funds available.

Attachment I

Excerpts from United Methodist Church policy on Global Warming and Energy

Resolution #5 – Energy Policy Statement, 2004 Book of Resolutions

The decisions that humans are now making will either enhance or degrade the quality of life on the planet. We have entered an era of greater energy interdependence. As the world confronts global issues such as climate change, energy inequity, and pollution, energy-related problems will require international solutions based upon the values of justice and sustainability.

The Scripture that provides the motive for our action in the present energy crisis also lays the foundation for the values that we seek to realize. These values underlying the policies we advocate are justice and sustainability.

1. Justice. Ever since the first covenant between God and Israel, and especially since the eighth-century prophets, the people of God have understood that they bear a special concern for justice.

"Let justice roll down like waters,

and righteousness like an everflowing stream" (Amos 5:24)

is a cry echoed in hundreds of contexts throughout the Old and New Testaments. Biblical righteousness includes a special concern for the least and the last: the poor, the captive, the oppressed (Luke 4:18; Isaiah 61:1-2). Energy policies that Christians can support, then, will seek to actualize the multifaceted biblical vision of justice. They will be policies that close rather than widen the gap dividing wealth and poverty, rich nations and poor. They will be measures that liberate rather than oppress. They will be programs that distribute fairly the benefits, burdens, and hazards of energy production and consumption, taking into consideration those not yet born as well as the living. They will thus be strategies that give priority to meeting basic human needs such as air, water, food, clothing, and shelter.

2. Sustainability. Only recently have we humans come to recognize that creation entails limits to the resources entrusted to us as stewards of the earth. In particular, we have come up against limits to the non-renewable fuels available for our consumption and limits to our environment's capacity to absorb poisonous wastes. These double limits mean that humans can betray their stewardship either by using up resources faster than they can be replaced or by releasing wastes in excess of the planet's capacity to absorb them. We now know that humans have the capacity to destroy human life and perhaps even life itself on this planet, and to do so in a very short period of time. Energy policy decisions, therefore, must be measured by sustainability as a criterion in addition to justice. In terms of energy policy, sustainability means energy use that will not: (a) deplete the earth's resources in such a way that our descendants will not be able to continue human society at the level that is adequate for a good quality of life, and (b) pollute the environment to such an extent that human life cannot be sustained in the

future. These guidelines for sustainability must include considerations of quality of life as well as mere biological continuance.

We enjoy a highly sophisticated, industrialized world. It is not a realistic option for us to return to a world where people read by candlelight and heat with wood. Also, we should be aware of the tragic effects that steadily increasing energy costs will have, especially upon the aged and poor members of our society. All options available to the rich nations are not open to peoples in other parts of the world; hence, we should endeavor to develop just and equitable energy policies.

We support full cooperation of all nations in efforts to ensure equitable distribution of necessary energy supplies, the control of global warming, and rapid development and deployment of appropriate technologies based on renewable energy resources such as solar, wind, and water energy generation.

Resolution #6 – US Energy Policy and United Methodist Responsibility, 2004 Book of Resolutions

U.S. Energy Policy and United Methodist Responsibility Resolved:

1. Energy policy in the U.S. must be based on sound scientific and ethical principles of respect for and justice within the World Community, focusing not on expanding supply through large scale projects but on managing the demand and developing renewable, alternative sources of energy. Specifically, the U.S. must:

- move beyond its dependence on high carbon fossil fuels that produce emissions leading to climate change,
- ratify the Kyoto Protocol under the UN Framework Convention on Climate Change,
- concentrate on reducing carbon dioxide emissions within the U.S. and not rely on mechanisms such as emission trading with other countries to meet our targets for emission reductions under international agreements,
- reduce our reliance on nuclear power, a technology for which there are still unresolved problems such as the safe disposal or safe storage of high level waste of nuclear reactors,
- manage demand through a high priority on conservation and energy efficiency,
- increase significantly research and development into such renewable energy sources as solar, wind, biomass, etc.,
- support development and utilization of appropriate technologies for small-scale, decentralized energy systems,
- support expansion of the infrastructure needed for public transportation and carpooling, and
- provide necessary support for individuals, families, and communities adversely affected by a transition away from fossil fuels, nuclear power, and large-scale hydro in order to allow for alternative economic development, retraining, relocation, etc.

2. Members of local United Methodist churches are urged to show leadership as stewards of God's creation and take concrete actions to:

- educate our congregants on energy production and usage in relation to global warming,
- conduct an energy audit of our homes, church facilities, and camp structures to identify sources of energy waste and the potential financial savings of energy-related improvements,
- make energy improvements to our homes, church facilities, and camp structures,
- replace light bulbs with compact fluorescent bulbs,
- expand our use of public transportation, carpooling, and teleconferencing to reduce fossil fuel consumption,
- choose a cleaner vehicle that is the least polluting and most efficient,
- keep our vehicle's engine tuned and tires properly inflated,
- study the consequences of our consumer choices and take action to lessen our impact on the environment, and use our votes by telling our elected officials that we need laws that support the most important solutions to climate change: cleaner cars and cleaner power plants.

Resolution #7- Environmental Justice for a Sustainable Future, 2004 Book of Resolutions

The United Methodist Church will strive for a global sense of community to help achieve social, economic, and ecological justice for all of creation.

We will focus on the conversion to sustainable practices in the following areas:

Atmosphere

- Support measures calling for the reduction of carbon dioxide, methane, nitrogen oxides, and sulfur dioxide, which contribute to acid rain and global climate change.
- Enforce agreements banning the use of chlorofluorocarbons (CFCs) to stop the depletion of the ozone layer.
- Support ratification and enforcement of international frameworks, such as Kyoto Protocol, that seek to reduce global greenhouse gas emissions.
- Support the cleanup of environmental problems through economic incentive, appropriate enforcement measures, and sanctions against those causing pollution.

Resolution #10 – Environmental Stewardship, 2004 Book of Resolutions

We believe clean air is a basic right and necessity for all life. We must clean up and prevent air pollution, which threatens the health of our families and the survival of all life on the planet.

To ensure that we protect future generations and our natural environment from the harmful effects of air pollution and leave a legacy of clean air:

We advocate the adoption and strict enforcement of adequate standards (health-based air quality standards to protect vulnerable populations such as children, the elderly, and people with asthma) to control outdoor air pollutants such as vehicle and industrial smokestack emissions.

We urge all United Methodists to car pool, use mass transit, drive fuel efficient cars, and find other ways of reducing vehicle and industrial emissions.

We must give special attention to the long-term effects of air pollution, such as the depletion of the ozone layer, global warming, and acid rain; we support international and bilateral efforts to eliminate the cause of these problems.

We advocate that all large polluters, specifically power plants, refineries and chemical manufacturers, irrespective of age or fuel use, meet standards based on the least polluting process in each industrial sector.

We advocate the adoption and strict enforcement of adequate standards to control indoor air pollutants, such as chemical fumes from gas stoves and furnaces, pesticides, cleaning materials, formaldehyde, candles, paint, photocopy machines, radon and carpets, as well as particulates such as dust, mold, and asbestos fibers.

We advocate prohibiting smoking and providing adequate fresh air ventilation in all indoor facilities.

Attachment J

Excerpts from the Presbyterian Church USA

Restoring Creation for Ecology and Justice, 1990**Call to Restore the Creation**

Creation cries out in this time of ecological crisis.

- Abuse of nature and injustice to people place the future in grave jeopardy.
- Population triples in this century.
- Biological systems suffer diminished capacity to renew themselves.
- Finite minerals are mined and pumped as if inexhaustible.
- Peasants are forced onto marginal lands, and soil erodes.
- The rich-poor gap grows wider.
- Wastes and poisons exceed nature's capacity to absorb them.
- Greenhouse gases pose threat of global warming.

The church has powerful reason for engagement in restoring God's creation:

- God's works in creation are too wonderful, too ancient, too beautiful, too good to be desecrated.
- Restoring creation is God's own work in our time, in which God comes both to judge and to restore.
- Human life and well-being depend upon the flourishing of other life and the integrity of the life-supporting processes that God has ordained.
- The love of neighbor, particularly "the least" of Christ's brothers and sisters, requires action to stop the poisoning, the erosion, the wastefulness that are causing suffering and death.
- The future of our children and their children and all who come after is at stake.
- In this critical time of transition of a new era, God's new doing may be discerned as a call to earth-keeping, to justice, and to community.

Therefore, the 202nd General Assembly affirms that:

- Response to God's call requires a new faithfulness, for which guidance may be found in norms that illuminate the contemporary meaning of God's steadfast love for the world.
- Earth-keeping today means insisting on sustainability--the ongoing capacity of natural and social systems to thrive together--which requires human beings to practice wise, humble, responsible stewardship, after the model of servanthood that we have in Jesus.
- Justice today requires participation, the inclusion of all members of the human family in obtaining and enjoying the Creator's gifts for sustenance.
- Justice also means sufficiency, a standard upholding the claim of all to have enough--to be met through equitable sharing and organized efforts to achieve that end.
- Community in our time requires the nurture of solidarity, leading to steadfastness in standing with companions, victims, and allies, and to the realization of the church's potential as a community of support for adventurous faithfulness.

5. Area Five: Overcoming Atmospheric Instability -- Global Warming and Ozone Depletion

A. Ecumenical Participation and International Participation

1. The Presbyterian Church (U.S.A.) declares its serious concern, in concert with ecumenical partners, that the global atmospheric warming trend (the greenhouse effect) represents one of the most serious global environmental challenges to the health, security, and stability of human life and natural ecosystems . . .

B. Policies on Global Warming

1. The United States, as consumer of nearly a quarter of the world's energy, must take the lead in reducing its own combustion of fossil fuels and shifting to renewable sources of energy which do not contribute to the atmospheric buildup of carbon dioxide.
3. The United States should work through the United Nations and appropriate diplomatic channels to reach firm international agreements for steady and substantial reduction of the gases causing climate change, and for halting deforestation and promoting reforestation. . . .
8. The U.S. Environmental Protection Agency should act promptly to strengthen fuel economy and emission standards for automobiles, buses, and trucks by mandating and consistently enforcing a schedule of energy efficiency improvements, leading to a substantially higher standard of efficiency with a few years. . . .
9. Comparable standard-setting and incentive-generating measures should be advanced by the U.S. Bureau of Standards with respect to efficiency improvements in lighting, heating, air-conditioning, appliances, building construction, the weatherization of existing buildings, and the cogeneration of heat and electricity (with legislation as necessary where the bureau's powers do not apply). . . .
10. Public Policy should encourage alternatives to private automobiles. Alternatives include municipal mass transit, railroads, bicycles, and walking.

Attachment K

GENERAL BOARD RESOLUTIONS

Church of the Brethren General Board

Resolution on Global Warming and Atmospheric Degradation (1991)

WHEREAS our vastly increased use of fossil fuels is substantially increasing the atmospheric concentrations of the greenhouse gases, thereby enhancing the strong possibility of catastrophic warming of the earth's surface, and

WHEREAS the negative consequences of the greenhouse effect are likely to intensify human suffering especially in the developing countries, and

WHEREAS the Annual Conference statement "Creation: Called to Care" challenges us to take seriously our role as stewards of the earth, and to work for the renewal of creation, and

WHEREAS the General Board is committed to study and action on issues of justice, peace, and integrity of creation

THEREFORE BE IT RESOLVED that the Church of the Brethren General Board, meeting in Elgin, Illinois on October 19-22, 1991 commits itself and urges Brethren congregations, institutions and members to:

Reaffirm our belief

· That we are called by God to live in harmony with all of creation, and that our covenantal relationship to care for the creation requires us to be aware of present and impending threats to our environment and to take action to preserve the integrity of creation.

Join together

- In the search for ways to live together in harmony with God's creation;
- In addressing the causes and dealing with the consequences of atmospheric destruction locally and globally; and
- In praying for the strength to reduce consumption and reject the myths of unlimited resources and economic growth.

Work together through global, local, and personal efforts to safeguard the world's reliance on fossil fuels, and by

· Increasing awareness of the negative ecological consequences of continuing reliance on fossil fuels, and by expanding ongoing educational efforts that lead to action;

- Encouraging the building and renovating of our homes and church facilities and camp buildings to be energy efficient and initiating new programs of energy conservation and awareness, including alternatives to fossil fuels;
- Striving to eliminate the use of products that contain ozone-depleting Chlorofluorocarbons (CFCs);
- Using public transportation, carpooling, and telephone conferencing in order to reduce fossil fuel consumption;
- Becoming ecologically aware consumers by using diets and products that consume less energy in production, transportation, packaging, and use;
- Devoting maximum effort to the separation and recycling of household goods, while also reducing waste and toxic materials;
- Encouraging office energy audits and recycling programs (particularly paper and paper products).

Pledge ourselves to address the causes and reverse the consequences of global warming by

- advocating the passage of legislation, at all appropriate levels, that reduce carbon dioxide output and set reduction targets for other greenhouse gases;
- supporting research and development of energy alternatives to fossil fuels. And supporting the passage of mandatory higher fuel efficiency for new vehicles and the phasing out of older, less efficient vehicles;
- supporting the expansion and promotion of rail transportation and other systems of mass transit, including subsidies for public transportation;
- combating forest destruction domestically and internationally through programs of preservation and reforestation and through responsible consumption of wood and wood products;
- engaging with corporations in dialogue and shareholder resolutions on such issues as reduction of carbon dioxide and other greenhouse gases, phasing out of CFCs increased energy efficiency and fuel conservation, environmental cost accounting and other issues affecting global warming;
- calling for the adoption to limit the production of greenhouse gases worldwide;
- working to implement fair trade and economic relationships so that forms of development that minimize global warming are available to all nations.

FURTHER the General Board commits itself to;

- support and participate in national and international networks of religious bodies and other non-governmental organizations addressing the greenhouse effect; and

· continue through its program staff, within the context of a theology based on caring for the earth, and educational effort to acquaint the members of the Church of the Brethren with the nature, causes, and consequences of the greenhouse effect, including suggestions for individual and collective action to help address the problem. This will include the promotion of the use of the General Board's study resource, *Creation in Crisis: Responding to God's Covenant*, in all congregations. We will elicit the cooperation of District Executive as agents within each district to work directly with pastors to reach the membership of the church.

This resolution was adopted by the Church of the Brethren General Board at its meetings in Elgin, Illinois on October 21, 1991. For further information contact Shantilal P. Bhagat, 1451 Dundee Avenue, Elgin, IL 60120, 1-800-323-8039.

Trade-Offs in Allocating Allowances for CO₂ Emissions

Overview

In light of scientific evidence about the potential damages from climate change, the Congress is considering legislation that would impose a "cap-and-trade" program to reduce U.S. emissions of greenhouse gases, including carbon dioxide (CO₂) from the burning of coal, oil, and natural gas. The merit of a cap-and-trade program is that, like a tax on CO₂ emissions, it could motivate businesses and households to reduce emissions in the least costly way. Such programs have been used successfully in the United States to limit the cost of reducing emissions of other air pollutants, such as lead in gasoline and nitrogen oxides and sulfur dioxide from electricity generators.

Under a cap-and-trade program for carbon dioxide emissions, policymakers would set a limit on the total amount of CO₂ that could be emitted in a given period—the "cap"—and would issue rights, or allowances, corresponding to that level of emissions. Entities that were subject to the cap (such as coal mines, oil importers, refineries, or electric utilities, depending on the proposal) would be required to hold allowances for their CO₂ emissions. After the allowances were initially distributed, entities would be free to buy and sell them—the "trade" part of the program—and the price of allowances would adjust to reflect the cost of meeting the emission cap.

This brief examines how policymakers' decisions about allocating the allowances would affect the total cost of the policy to the U.S. economy, as well as the distribution of that cost among households in their various roles as workers, consumers, and investors. Although cap-and-trade programs could cover all greenhouse gases, this brief focuses on a program for CO₂ emissions.

By capping those emissions, policymakers would create a new commodity: the right to emit carbon dioxide. The emission allowances (each of which would represent the right to emit, say, 1 ton of CO₂) would have substantial value—perhaps totaling tens of billions or even hundreds of billions of dollars per year. Who received that value would depend on how the allowances were allocated.

One option would be to have the government capture their value by selling the emission allowances, as it does for licenses to use the electromagnetic spectrum. Another possibility would be to give the allowances to energy producers or some energy users at no charge—the approach that the U.S. government adopted in the sulfur dioxide program and that the European Union has used since 2005 in its cap-and-trade program for CO₂ emissions.

Regardless of how the allowances were distributed, most of the cost of meeting a cap on CO₂ emissions would be borne by consumers, who would face persistently higher prices for products such as electricity and gasoline. Those price increases would be regressive in that poorer households would bear a larger burden relative to their income than wealthier households would. In addition, workers and investors in parts of the energy sector—such as the coal industry—and in various energy-intensive industries would be likely to experience losses as the economy adjusted to the emission cap and production of those industries' goods declined. Such losses would probably be limited to current workers and investors. Job losses in those industries would be likely to impose a fairly large burden on a relatively small number of households;

This brief was prepared by Terry Dinan and is based on various CBO publications, including *Shifting the Cost Burden of a Carbon Cap-and-Trade Program* (July 2003), *An Evaluation of Cap-and-Trade Programs for Reducing U.S. Carbon Emissions* (June 2001), and *Who Gains and Who Pays Under Carbon-Allowance Trading? The Distributional Effects of Alternative Policy Designs* (June 2000). Those and other reports about policy choices associated with climate change are available on CBO's Web site at www.cbo.gov/publications/collections/climatechange.cfm.

Peter R. Orszag
Director

Table 1.
**Annual Increase in Households’
 Costs from a 15 Percent Cut in
 Carbon Dioxide Emissions**

	Average for Income Quintile				
	Lowest	Second	Middle	Fourth	Highest
Cost Increase in 2000 Dollars	560	730	960	1,240	1,800
Cost Increase as a Percentage of Income ^a	3.3	2.9	2.8	2.7	1.7

Source: Congressional Budget Office.

Note: These numbers reflect data on each quintile’s cash consumption and estimates of cash income. (A quintile contains one-fifth of U.S. households arrayed by income.) Because of data limitations, the numbers should be viewed as illustrative and broadly supportive of the conclusions in this analysis rather than as precise estimates.

CBO assumed that the full cost of cutting emissions would be passed along to consumers in the form of higher prices and that the price increase for a given product would be proportional to the amount of carbon dioxide emitted from the fossil fuels used in its production.

a. The cost increases are equivalent to percentage declines in households’ after-tax income.

investors’ losses, by contrast, would tend to impose a smaller burden on a much larger number of households (because, typically, investors hold diversified portfolios).

In allocating allowances, policymakers would face a trade-off between reducing the overall cost of the emission cap to the economy or reducing specific sectors’ or households’ economic burdens. Selling the allowances and using the proceeds either to cut taxes on earnings from labor or capital or to decrease the budget deficit would strengthen the economy and substantially lessen the total economic cost of the cap-and-trade policy. Depending on the stringency of the cap and the type of tax cut, such an approach could reduce the economywide cost by roughly 50 percent, or perhaps substantially more, some researchers suggest. However, it would not significantly mitigate the costs imposed on certain firms or workers or on low-income households.

An alternative approach of giving away allowances (or the proceeds from selling allowances) to certain parties would

lower their costs, but at the expense of missing the opportunity to greatly reduce the total cost to the economy. Because most of the cost of the cap would ultimately be borne by consumers, giving away nearly all of the allowances to affected energy producers would mean that the value of the allowances they received would far exceed the costs they would bear. As a result, that allocation strategy would increase producers’ profits without lessening consumers’ costs. In essence, such a strategy would transfer income from energy consumers—among whom lower-income households would bear disproportionately large burdens—to shareholders of energy companies, who are disproportionately higher-income households.

In the face of those trade-offs, policymakers would not have to distribute all of the allowances in the same way. For instance, they could give a limited amount to producers for free and sell the rest. The free distribution could be phased out over time, since existing shareholders would incur losses but future shareholders would not.

Where Would Costs Be Felt Under a Cap-and-Trade Program?

A cap on U.S. carbon dioxide emissions would impose costs on the economy by restricting the use of fossil fuels—particularly coal, which has the highest carbon content. Profits and employment would decline for some existing fossil-fuel suppliers. In addition, the restriction would raise fossil-fuel prices and increase production costs for firms that rely heavily on those fuels, creating an incentive for them to decrease their use of fossil fuels. Consumers, in turn, would face higher prices for energy and for goods and services that require substantial amounts of energy to produce, which would give them an incentive to reduce their consumption as well.

Besides imposing costs on the economy, a cap-and-trade program would transfer income from some people to others. The right to emit CO₂ would become valuable, with the value depending on how low the cap on total emissions was set and how costly regulated entities found it to reduce their emissions. A review of the existing literature and of the range of CO₂ policies now being debated suggests that the value of emission allowances might total between \$50 billion and \$300 billion per year (in 2007 dollars) by 2020. The actual value would depend on various factors, including the stringency of the cap, the possibility of offsetting CO₂ emissions through carbon

sequestration or international trading, and other features of the specific policy selected.¹

If policymakers chose to sell allowances, such as through an auction, the government would capture that value. If they opted to give allowances away to firms that produce or use energy, recipients could sell them for income or use the allowances themselves. Obtaining allowances (or taking steps to reduce emissions) would become a cost of doing business for firms that were subject to the cap. However, those firms would not ultimately bear the bulk of the cost of the allowances: The ultimate distribution of that cost would be determined by market forces.²

Consumers Would Be Likely to Bear Most of the Cost Burden

Researchers conclude that much or all of the allowance cost would be passed on to consumers in the form of higher prices.³ Those price increases would disproportionately affect people at the bottom of the income scale. For example, the Congressional Budget Office (CBO) estimated that the price rises resulting from a 15 percent cut in CO₂ emissions would cost the average household in the lowest one-fifth (quintile) of the income distribution about 3.3 percent of its average income. By comparison, a household in the top quintile would pay about 1.7 percent of its average income (see Table 1).⁴ That regressivity occurs because lower-income households tend to spend a larger fraction of their income than wealthier households do and because energy products account for a bigger share of their spending. The price increases resulting from a cap on CO₂ emissions would persist as long as the cap remained in place, affecting both current and future consumers.

1. "Sequestration" refers to the capture and long-term storage of CO₂ emissions. For example, emissions could be captured from smokestacks and stored in the ground (geological sequestration) or absorbed by and stored within trees (biological sequestration).

2. The distribution of costs would be largely similar whether the requirement to hold emission allowances was placed "upstream" (on fossil-fuel suppliers) or "downstream" (on users). See Congressional Budget Office, *Issues in the Design of a Cap-and-Trade Program for Carbon Emissions* (November 25, 2003).

3. A survey of economic models suggests that if a cap was announced 10 years in advance, consumers would initially bear between 94 percent and 96 percent of the allowance costs. See Mark Lasky, *The Economic Costs of Reducing Emissions of Greenhouse Gases: A Survey of Economic Models*, CBO Technical Paper 2004-4 (May 2003).

Producers and Workers Would Bear

Transitional Costs

As some parts of the energy sector and various energy-intensive industries adjusted to a decline in demand for their goods, current workers and investors in those industries would experience costs in the form of lower wages, job losses, and reduced stock values. Over time, as workers and investors left those industries, wages and stock values would tend to return to their initial levels. Thus, investors and workers who entered those industries after the policy took effect (or was anticipated) would not experience such losses. Policymakers could limit the costs facing current investors and workers by announcing the emission cap well in advance or by phasing the policy in gradually, giving people more time to adapt.

Producers' Losses. Over the long term, producers in industries with high CO₂ emissions would adjust to lower levels of demand by leaving the industry or by expanding less. In the near term, however, expectations about earnings on existing capital in those sectors would fall, resulting in losses to shareholders and owners. One study concluded that a cap that cut carbon emissions by 23 percent would lower stock values by 54 percent for companies in the coal sector, by 20 percent for firms in the oil and natural gas sector, and by roughly 4 percent for electric and natural gas utilities.⁵

Although those declines are large in percentage terms, in dollar terms they are modest compared with the total value of the allowances and with the total allowance costs that would be borne by consumers (discussed below). Furthermore, stock losses in affected industries would tend to be widely dispersed among investors, because shareholders typically have diversified portfolios.

4. See Congressional Budget Office, *Who Gains and Who Pays Under Carbon-Allowance Trading? The Distributional Effects of Alternative Policy Designs* (June 2000). That analysis assumed that all of the costs of the cap would be passed on to consumers in the form of higher prices. The degree of regressivity would be smaller if some of the costs were absorbed by shareholders in affected industries or if the costs were compared with lifetime measures of households' consumption and income rather than with annual measures.

5. See Lawrence H. Goulder, *Mitigating the Adverse Impacts of CO₂ Abatement Policies on Energy-Intensive Industries*, Discussion Paper 02-22 (Washington, D.C.: Resources for the Future, March 2002), Table 3, available at www.rff.org/rff/documents/rff-dp-02-22.pdf.

Workers' Losses. Any policy that reduced U.S. emissions of carbon dioxide would inevitably create costs for existing workers. Job losses could occur throughout the economy but would probably be especially large (in percentage terms) in industries associated with high-carbon fuels. For example, the study cited above estimated that a 23 percent cut in CO₂ emissions would cause U.S. coal production to decline by roughly 40 percent in the long run.⁶ In that case, the unemployment-related costs of a CO₂ cap would fall disproportionately on the approximately 80,000 people who work in the coal-mining industry.⁷ Unlike the costs borne by producers, which would be spread among investors, the costs borne by existing workers would probably be concentrated on relatively few households and, by extension, their communities.

Pressure on the Federal Budget Would Increase as Well

A cap-and-trade program for CO₂ emissions would tend to increase government spending and decrease revenues. Like other consumers, the government would face higher prices for energy and other carbon-intensive goods and services. In addition, by leading to a decline in the production of such goods and services, the cap would cause a decline in the taxes collected on corporate profits. If the government wanted to provide the same level of services without increasing the budget deficit, it would have to either raise taxes or use part of the value of the allowances to cover the changes in federal outlays and revenues.

Selling Allowances Could Significantly Reduce Overall Costs

Selling emission allowances could raise sizable revenues that lawmakers could use for various purposes, some of which would lower the cap's total cost to the economy. For instance, the government could use the revenues to reduce existing taxes that dampen economic activity—primarily taxes on labor, capital, or personal income, such

as payroll taxes and individual or corporate income taxes. Research indicates that a CO₂ cap would worsen the negative effects of those taxes: The higher prices caused by the cap would lower real (inflation-adjusted) wages and real returns on capital, indirectly raising marginal tax rates on those sources of income. Using the allowance value to reduce existing taxes could help mitigate that adverse effect of the cap.

The decision about whether to sell the allowances and use the proceeds in ways that would benefit the economy could have a major impact. For example, one study estimated that a 23 percent cut in CO₂ emissions could cost the economy nearly twice as much if allowances were given away than if they were sold and the revenues used to cut taxes.⁸ Another study found that the economywide cost of reducing emissions by 10 percent would vary by a factor of three, depending on how the allowance value was used.⁹ Some researchers even suggest that relatively modest cuts in CO₂ emissions could provide net gains to the economy (in addition to the benefits from emitting less carbon dioxide) if the allowances were sold and the revenues used to reduce individual income taxes.¹⁰

Using the proceeds from allowance sales to reduce the economic cost of cutting emissions would have to compete with other aims. For example, policymakers might want to use the revenues to compensate various producers, workers, or consumers for some of the costs they would incur because of the program or devote part of the revenues to funding research and development (R&D) on technologies that could help curb the growth of CO₂ emissions.¹¹

6. Goulder, *Mitigating the Adverse Impacts of CO₂ Abatement Policies on Energy-Intensive Industries*, Table 2.

7. That figure, which is for employment in the industry in 2005, comes from Department of Energy, Energy Information Administration, *Annual Coal Report 2005* (October 2006), Table 18, available at www.eia.doe.gov/cneaf/coal/page/sacr/table18.html. Although many of those workers would eventually find employment elsewhere, some might not, and some might need to take lower-paying jobs.

8. See Goulder, *Mitigating the Adverse Impacts of CO₂ Abatement Policies on Energy-Intensive Industries*.

9. See Ian W.H. Parry, "Fiscal Interactions and the Case for Carbon Taxes," in Dieter Helm, ed., *Climate Change Policy* (New York: Oxford University Press, 2005), Figure 3. The less stringent the cap, the larger would be the economic consequences of the decision about how to use the allowance value.

10. See Ian W.H. Parry and Antonio M. Bento, "Tax Deductions, Environmental Policy, and the 'Double Dividend' Hypothesis," *Journal of Environmental Economics and Management*, vol. 39, no. 1 (January 2000), pp. 67-95. That conclusion takes into account the distortions that individual income taxes make in people's decisions about consumption, working, and investing.

11. Decisions about what level of R&D funding would be economically efficient rest on available information about the costs and expected payoffs of such funding and need not be tied to the specific amount of revenues raised by selling CO₂ allowances.

Distributing Allowances for Free Could Compensate Some Parties

Proposals to cap carbon dioxide emissions have typically included provisions to give most of the allowances to producers in the energy sector and in energy-intensive industries, as the U.S. government has done in its cap-and-trade program for sulfur dioxide and the European Union has done in its program for CO₂ emissions. Free allocation is meant to compensate shareholders in those companies for any declines in stock value they might experience because of the cap. However, available evidence indicates that only a small fraction of the CO₂ allowances would be needed to provide such compensation under a U.S. cap-and-trade program. Researchers generally conclude that less than 15 percent of the allowance value would be necessary to offset net losses in stock values in both "upstream" industries (such as suppliers of coal, natural gas, and petroleum) and energy-intensive "downstream" industries (such as electricity generators, petroleum refiners, and metal and machinery manufacturers). The reason is that the cost of holding the allowances would generally be reflected in the prices that producers charged, regardless of whether those producers had to buy the allowances or were given them for free.¹²

A common misconception is that freely distributing emission allowances to producers would prevent consumer prices from rising as a result of the cap. Although producers would not bear out-of-pocket costs for allowances they were given, using those allowances would create an "opportunity cost" for them because it would mean forgoing the income that they could earn by selling the allowances. Producers would pass that opportunity cost on to their customers in the same way that they would pass along actual expenses.¹³ That result was borne out in the cap-and-trade programs for sulfur dioxide in the United States and for CO₂ in Europe, where

12. See, for example, Goulder, *Mitigating the Adverse Impacts of CO₂ Abatement Policies on Energy-Intensive Industries*; and Anne E. Smith, Martin T. Ross, and W. David Montgomery, *Implications of Trading Implementation Design for Equity-Efficiency Trade-Offs in Carbon Permit Allocations*, working paper (Boston: Charles River Associates, December 2002). The estimate of less than 15 percent assumes that firms would receive compensation in the form of a permanent stream of free allowances. Smith, Ross, and Montgomery demonstrate that the share would have to be much larger in the initial years of a cap-and-trade program if firms were to be compensated for their losses over a shorter period.

consumer prices rose even though producers were given allowances for free.

Thus, giving away allowances could yield windfall profits for the producers that received them by effectively transferring income from consumers to firms' owners and shareholders. The study of the hypothetical 23 percent cut in CO₂ emissions concluded, for example, that if all of the allowances were distributed for free to producers in the oil, natural gas, and coal sectors, stock values would double for oil and gas producers and increase more than sevenfold for coal producers, compared with projected values in the absence of a cap.¹⁴

In addition, some firms in the energy sector would benefit from a cap-and-trade program regardless of how emission allowances were allocated. For example, electricity generators that use nuclear energy or hydropower could see their profits rise as a result of the program because they would benefit from higher electricity prices but would not face higher production costs. The compensation estimate described above—less than 15 percent of the total allowance value—represents net changes in stock values for key sectors because of the cap, including both losses and gains by firms in those sectors. If policymakers wished to offset the losses experienced by individual firms in a sector without taking into account offsetting gains by other firms, additional compensation would be necessary.¹⁵ However, estimating firm-level losses would be considerably more difficult than estimating the overall change in stock values for a sector as a whole.

13. One exception is if allowances were given to electricity generators whose rates were set by regulators. In that case, regulators might prevent generators from passing the opportunity cost of holding an allowance along to consumers. For a discussion of that issue, see Congressional Budget Office, *Shifting the Cost Burden of a Carbon Cap-and-Trade Program* (July 2003).

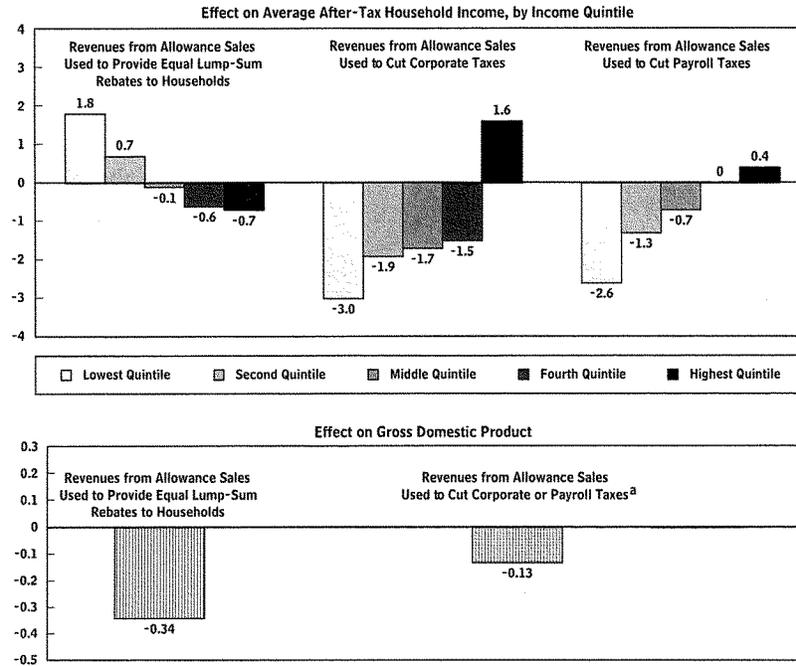
14. See Goulder, *Mitigating the Adverse Impacts of CO₂ Abatement Policies on Energy-Intensive Industries*, Table 3.

15. A study that examined a proposed regional cap on greenhouse-gas emissions from electricity generators in the northeastern United States concluded that the total profits of generators affected by the policy would actually rise. Thus, sector-level measures would suggest no need for compensation. But the study also concluded that fully compensating the firms that would experience losses (ignoring the firms that would earn higher profits because of the cap) would require roughly one-third of the total value of the allowances. See Karen Palmer, Dallas Burtraw, and Danny Kahn, "Simple Rules for Targeting CO₂ Allowance Allocations to Compensate Firms," *Climate Policy*, vol. 6, no. 4 (2006), pp. 477-493.

Figure 1.

Effects on Household Income and GDP from a 15 Percent Cut in CO₂ Emissions in 2010, with Allowances Sold and the Revenues Used in Alternative Ways

(Percentage change)

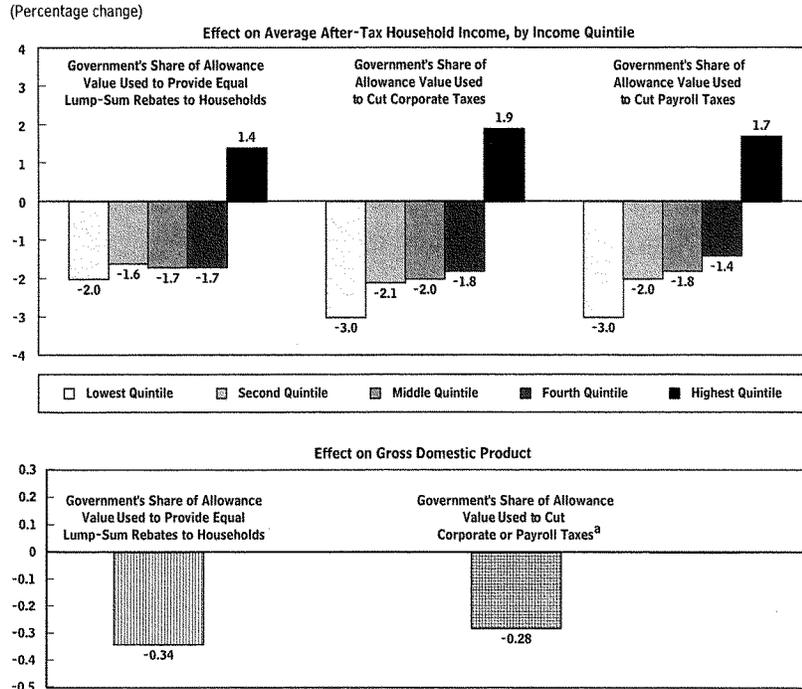


Sources: Congressional Budget Office (top panel); Terry M. Dinan and Diane Lim Rogers (bottom panel), "Distributional Effects of Carbon Allowance Trading: How Government Decisions Determine Winners and Losers," *National Tax Journal*, vol. 55, no. 2 (June 2002).

Note: The policy examined in this figure is a cap-and-trade program designed to reduce carbon dioxide (CO₂) emissions by 15 percent in 2010. In the top panel, the program's costs are shown as decreases in household income, measured as a percentage of after-tax income before the policy change. Those numbers reflect data on each quintile's cash consumption and estimates of cash income. (A quintile contains one-fifth of U.S. households arrayed by income.) Because of data limitations, those numbers should be viewed as illustrative and broadly supportive of the conclusions in this analysis rather than as precise estimates.

a. This estimate by Dinan and Rogers does not distinguish between the gains in economic efficiency associated with reducing corporate taxes and the gains associated with reducing payroll taxes. It implicitly assumes that capital and labor respond similarly to changes in the taxes on them and that increases in marginal tax rates on capital and labor have similar costs to the economy.

Figure 2.
Effects on Household Income and GDP from a 15 Percent Cut in CO₂ Emissions in 2010, with Allowances Given Away and the Government's Share of Their Value Used in Alternative Ways



Sources: Congressional Budget Office (top panel); Terry M. Dinan and Diane Lim Rogers (bottom panel), "Distributional Effects of Carbon Allowance Trading: How Government Decisions Determine Winners and Losers," *National Tax Journal*, vol. 55, no. 2 (June 2002).

Note: The policy examined in this figure is a cap-and-trade program designed to reduce carbon dioxide (CO₂) emissions by 15 percent in 2010. The government is assumed to distribute emission allowances for free but to regain some of their value by taxing the additional corporate profits resulting from free distribution. In the top panel, the program's costs are shown as decreases in household income, measured as a percentage of after-tax income before the policy change. Those numbers reflect data on each quintile's cash consumption and estimates of cash income. (A quintile contains one-fifth of U.S. households arrayed by income.) Because of data limitations, those numbers should be viewed as illustrative and broadly supportive of the conclusions in this analysis rather than precise estimates.

a. This estimate by Dinan and Rogers does not distinguish between the gains in economic efficiency associated with reducing corporate taxes and the gains associated with reducing payroll taxes. It implicitly assumes that capital and labor respond similarly to changes in the taxes on them and that increases in marginal tax rates on capital and labor have similar costs to the economy.

Fairness and Efficiency Implications of Different Allocation Strategies

Policymakers' decisions about how to allocate allowances could either offset or intensify the regressive effects of the price increases caused by a cap (shown in Table 1), as well as alter the cap's total cost to the economy. CBO has examined the ultimate distributional effects of a cap-and-trade program that would reduce U.S. CO₂ emissions by 15 percent in 2010, including the impact of the initial price increases and the allowance allocation.¹⁶ That analysis considered a few illustrative ways in which policymakers might allocate allowances and use any revenues they received because of the program. (The results of the analysis, which are described below, focus solely on the cost of the cap-and-trade mechanism and how the value of the allowances is allocated; they do not incorporate the potential benefits of reducing emissions and thus mitigating the economic and environmental costs associated with global climate change.)

In one scenario, CBO assumed that policymakers would sell the allowances and use the resulting revenues to pay all households an equal lump-sum rebate. Such a strategy would increase average income for households in the lowest quintile by 1.8 percent in 2010, CBO estimated, while decreasing average income for households in the highest quintile by 0.7 percent (see the top panel of Figure 1 on page 6). However, because it would not use any of the allowance value to lower existing tax rates, that approach would not reduce the net economic cost of the CO₂ cap. In a follow-up paper based on CBO's analysis, researchers concluded that such a strategy would decrease gross domestic product (GDP) in 2010 by more than 0.3 percent (see the bottom panel of Figure 1).¹⁷

In contrast, if the government sold allowances and used the revenues to cut corporate taxes, the program would have a more regressive effect than the cap-induced price increases alone, lowering the average income of households in the bottom quintile by 3.0 percent but raising the average income of households in the top quintile by

1.6 percent. However, such a strategy would reduce the loss in GDP by roughly 62 percent compared with devoting the revenues to lump-sum rebates, researchers estimate. Using the revenues to cut payroll taxes rather than corporate taxes would be less regressive, but researchers suggest that it could produce a similar reduction in the economywide cost of the program.

Freely distributing all of the allowances to producers would be likely to increase profits and ultimately benefit shareholders, although the government would regain part of the allowance value through taxes on higher profits. Giving away all of the allowances and using the government's regained share of their value to reduce corporate tax rates would be the most regressive of the strategies that CBO examined. In that scenario, average household income would fall by 3.0 percent for the lowest quintile and rise by 1.9 percent for the highest quintile (see the top panel of Figure 2 on page 7). The free-distribution strategy would be regressive even if the government used its portion of the allowance value to make lump-sum payments to households. That combination of policies would also reduce GDP by more than 0.3 percent in 2010, researchers suggest (see the bottom panel of Figure 2). That net cost would be 18 percent less, however, if the government used its share of the allowance value to cut corporate or payroll taxes.¹⁸

Those examples show some of the trade-offs that policymakers would face in deciding how to allocate emission allowances. Strategies that reduced net economic costs would often disproportionately benefit higher-income households, whereas the costs of the cap would tend to fall disproportionately on lower-income households. Giving allowances to energy producers could generate windfall profits and would forgo using the allowance value to offset the regressivity of the cap-induced price increases, provide compensation for dislocated workers, or reduce total costs to the economy. If policymakers opted to give some of the allowances to producers to compensate them for lower returns on existing capital, such allocations could be phased out over time, because producers' losses (unlike those of consumers) would mostly be transitional.

16. Congressional Budget Office, *Who Gains and Who Pays Under Carbon-Allowance Trading?*

17. Terry M. Dinan and Diane Lim Rogers, "Distributional Effects of Carbon Allowance Trading: How Government Decisions Determine Winners and Losers," *National Tax Journal*, vol. 55, no. 2 (June 2002).

18. A more recent study reached conclusions that were consistent with CBO's analysis. See Ian W.H. Parry, "Are Emissions Permits Regressive?" *Journal of Environmental Economics and Management*, vol. 47, no. 2 (March 2004), pp. 364-387.