

MOUNT N E B O P A P E R S

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→ What Is the Most Important Environmental Task Facing American Christians Today?

Introduction

People are called to wise stewardship of the Earth that God created. Today, many environmental concerns clamor for attention and investment. Some Christian leaders point to possible climate change as the greatest threat facing the planet, proposing multi-trillion dollar efforts to prevent predicted global warming. Others prefer to concentrate on addressing more immediate problems such as air and water pollution, toxic and nontoxic solid wastes, contamination of land and waterways by agricultural chemicals and wastes, deforestation, and habitat and species loss. How do we prioritize these challenges? What is the most important environmental task facing American Christians today?

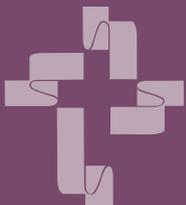
Executive Summary

The dominion mandate to Adam and Eve at the creation makes human responsibility for creation stewardship inescapable. Neither our fall into sin nor the redeeming work of Christ eliminates that responsibility. Rather, the fall complicates it, as the Earth too suffers the consequences of human sin. But redemption elevates environmental stewardship, making it part of the hope-filled task of the redeemed in spreading the kingdom of Christ.

The creation teaches us to praise God. And it shows us God's wisdom and power in establishing complex, inter-connected, and resilient systems sheltering humanity and other creatures. Yet those systems and creatures are vulnerable to harm when humans abuse their dominion. With time, study, and experience, the Church has grown in its understanding of these truths.



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It is encouraging to see many U.S. Christians embracing creation care. But we must undertake that task with discernment. Unfortunately, many contemporary church statements on the environment fail that test.

It is important to understand, for example, the “environmental transition” by which rising wealth enables societies to solve environmental problems. This historical lesson—that economic growth, lifting the poor out of their poverty, is in the long run beneficial and not harmful to the environment—should offer us guidance and confidence as we address current environmental problems. Among other things, it points to the fact that economic development is the most important step toward improved environmental stewardship.

This paper focuses on the need for improved prioritizing of environmental concerns in the creation care movement. Regarding each problem, Christians should be asking: How serious and how certain are the risks to humans and other species? How well do we understand the causes of the damage? How available and effective are the technologies that might prevent that damage? How do the likely benefits compare to the costs of addressing the problem, especially the “opportunity cost” of consuming funds and energies that could have been put to other uses?

Applying such criteria, this paper tentatively suggests, would yield priorities that differ markedly from those evident in much public discourse among Christians and non-Christians alike. The highest priority would go to straightforward, achievable challenges like providing clean water to the world’s poorest people. By contrast, expensive and untested measures attempting to prevent possible future global warming would receive a much lower priority.

Biblical Foundations

Psalm 148: Creation Praises God

There is a kind of praise, the worship that is “in spirit and in truth,” as Jesus described it, that can be rendered only by rational creatures—men and angels. But there is also a kind of praise, simply by being what God designed them to be, that non-rational creatures can render and indeed always do. So a psalmist felt no awkwardness in calling on them to praise God:

*Praise the LORD! ...
Praise Him, sun and moon;*

*Praise Him, all stars of light!
Praise Him, highest heavens,
And the waters that are above the heavens! ...
Praise the LORD from the Earth,
Sea monsters and all deeps;
Fire and hail, snow and clouds;
Stormy wind, fulfilling His word;
Mountains and all hills;
Fruit trees and all cedars;
Beasts and all cattle;
Creeping things and winged fowl.
Psalm 148:1, 3-4, 7-10*

Psalm 19 and Job 38-41: Creation Reveals God

“The heavens are telling of the glory of God; and their expanse is declaring the work of His hands. Day to day pours forth speech, and night to night reveals knowledge” (Psalm 19:1-2).¹ Just what, though, does creation reveal about the Creator? His greatness, His glory, surely. But greatness and glory in what? The simplest, briefest summary comes in Romans 1:20: “His invisible attributes, His eternal power and divine nature.”

The Book of Job contains a dramatic illustration of how God evokes human praise through creation. After he had harangued God because of what he considered his own unjust suffering, Job suffered the onslaught of God’s challenges to him. God ironically demanded that Job explain to Him various aspects of creation—a task Job found impossible (Job 38:2-11). When God finished His long rebuke, spanning chapters 38-41, Job replied:

*I know that You can do all things,
And that no purpose of Yours can be thwarted.
“Who is this that hides counsel without knowledge?”
Therefore I have declared that which I did not understand,
Things too wonderful for me, which I did not know.
“Hear, now, and I will speak;
I will ask You, and You instruct me.”
I have heard of You by the hearing of the ear;
But now my eye sees You;
Therefore I retract,
And I repent in dust and ashes.
Job 42:2-6*

¹ This and all subsequent Bible quotations are from the New American Standard Bible.

The Mystery of Irreducible Complexity

God's wisdom and power shine in the complexity of design in creation. We see the evidence from the *invisible* micro level of the irreducibly complex molecular machines of proteins described in biochemist Michael Behe's *Darwin's Black Box: The Biochemical Challenge to Evolution*; to the *visible* middle level of our everyday lives in which we observe complex social and ecological interactions among people, plants, and animals; to the *invisible* macro level with the incomprehensibly complex fluid dynamics of the ocean/atmosphere climate system described in *Taken By Storm: The Troubled Science, Policy and Politics of Global Warming*, by applied mathematician Christopher Essex and economist Ross McKittrick.¹

Reading *Taken By Storm's* brilliant discussion of climate as a turbulent fluid system, we realize that there is as much "chaos" and unpredictability at the macro level of climate as there is at the micro level of quantum physics. Essex and McKittrick explain that "[t]o do the fluid dynamics correctly ... requires, in addition to the basic ([mathematically] impossible) turbulence problem, tracking [chaotically moving] filaments in detail within the flow." But both of those are impossible not because we lack computing or observing power but because many of the equations are simply unsolvable in principle. Even if we had quadrillions of tiny temperature sensors evenly distributed through all the atmosphere and oceans and each reporting its temperature every millisecond to a computer of infinite capacity and speed, it would still be impossible for that computer to make credible projections of future climate.

The authors' summation—"We can't begin to do this ..."—should remind us of Job's confession of his pitiful ignorance in the face of God's wonders of creation (Job 38). It should move us to praise the wisdom and power of the God who designed things that not only exceed our present knowledge but also, by their very nature, cannot possibly be known by finite minds, yet are entirely under His sovereign control.²

1 Christopher Essex and Ross McKittrick, *Taken By Storm: The Trouble Science, Policy and Politics of Global Warming* (Toronto: Key Porter Books, 2002), chapter 3, "Climate Theory Versus Models and Metaphors."

2 See R. C. Sproul, *Not a Chance: The Myth of Chance in Modern Science and Cosmology* (Grand Rapids: Baker Academic, 1999).

As we think about creation stewardship, then, the first thing we must keep in mind is the doctrine of God—particularly, that an infinitely wise, infinitely powerful Creator made and sustains the universe and every part of it. This doctrine does not mean we have no responsibility for stewarding the creation. But it does mean that the design of all things reflects the wisdom of God, and the sustaining of all things reflects the power of God. These truths are relevant to creation stewardship.

Genesis 1 and Psalm 24: Humanity the Crown of Creation

In Genesis 1 God repeatedly declared "good" each new day's creations. But the crown of creation was humanity. It was not till after He had made humanity that He looked at all that He had made and declared it "very good." Created things derive their worth not from their usefulness to humans but from God's sovereign evaluation of them. Nevertheless, their intrinsic worth does not make them immune to use by other creatures. After making man and woman, God said to them, "Behold, I

have given you every plant yielding seed that is on the surface of all the earth, and every tree which has fruit yielding seed; it shall be food for you; and to every beast of the earth and to every bird of the sky and to every thing that moves on the earth which has life, I have given every green plant for food."²

Neither does the intrinsic worth make them immune to human rule. God made human beings in the image of God and granted them dominion "over the fish of the sea and over the birds of the sky and over the cattle and over all the Earth, and over every creeping thing that creeps on the earth." This "cultural mandate" in Genesis 1 bids humans, "Be fruitful and multiply, and fill the Earth, and subdue it."

The crown of humanity is Jesus Christ, whom the letter to the Hebrews describes as the "heir of all things, through whom also [God] made the world[,] ... the radiance of His glory and the exact representation of His nature," who "upholds all things by the word of His power." Because of man's fall into sin, "we do not yet see all things subjected to him. But we do see Him who was

2 Genesis 1:4, 10, 12, 18, 21, 25, 31, 29-30.

made for a little while lower than the angels, namely, Jesus, because of the suffering of death crowned with glory and honor, so that by the grace of God He might taste death for everyone.”³

What does it mean for human beings to be the image of God? The Genesis 1 passage presents four principal aspects of this image: wisdom, righteousness, creativity, and dominion. The creation narrative indicates all of these: God *creates* and *orders* the heavens and the Earth by His *authoritative word* and passes *moral judgment* on all His works. These four characteristics of the image of God ought all to be employed in fulfilling the vocation God gave us: to rule over the Earth.⁴

Psalms 24:1 declares, “The earth is the LORD’s, and all it contains.” Another psalm teaches that God has entrusted the Earth to human stewardship: “The heavens are the heavens of the LORD, but the earth He has given to the sons of men” (Psalm 115:16).

In this dominion people are accountable to God. We must reflect God’s own creative work and dominion, conducting ours in cooperative fellowship as the Father, Son, and Spirit all were involved in the work of creation. Humankind is called to beget life after our own image and multiply to fill the Earth, subduing it and ruling over all the creatures in it. We are to cultivate and guard the garden and eventually turn all the Earth into garden.⁵

Genesis 3 and Romans 8: Human Rebellion and Redemption Affect All of Creation

Rather than acting as a responsible steward, mankind rebelled against God. Every aspect of the image of God suffered. What had been a sound mind full of the light of truth, full of the God who is the Truth, became unsound and darkened by falsehood, futile, dark, and ignorant. What had been a clear conscience, untainted by sin, became fouled with the stench of guilt and fear. The once living soul died, becoming mere dust again. He who had been alive in righteousness and holiness became “dead in . . . trespasses and sins.” The companion and servant of God became the companion and servant of Satan. The child of God became a child of wrath. His once fertile and creative brilliance collapsed into “unfruitful deeds of darkness.” Sin brought God’s judgment

not only on human beings but also on the whole Earth. The Apostle Paul writes of how “the whole creation groans and suffers the pains of childbirth together until now,” as with humankind it awaits God’s redemption.⁶

1 Corinthians 15 and Revelation 21: Resurrection and New Creation

But God had from eternity past a plan for redemption through Christ Jesus, the “last Adam.” In Christ’s life, He exercised a wise, righteous, and life-giving dominion over the Earth itself (calming a storm), over plant and animal life, and even over human life (healing the sick and raising the dead). By His death and resurrection He saved us from God’s wrath, reconciled us to God, gave us the gift of righteousness, and restored us to life. Now those who are His are being restored in knowledge, righteousness, and holiness.⁷

The effects of the atoning death, victorious resurrection, and triumphant ascension of Christ, then, sweep over all of creation. They include people, animals, plants, and even the ground itself. They include the restoration of the image of God in the redeemed and the restoration of knowledge, holiness, and creativity in working out the cultural mandate. This new impetus for the cultural mandate flows especially through the redeemed but also, by common grace, even through many who are not redeemed. Their mandate includes human multiplication, subduing and ruling the Earth, transforming the wilderness by cultivation into a garden, and guarding that garden against harm. It is significant that Revelation 21 presents the new creation not as a wilderness or even as a garden but as a garden city. This city does not rise Babel-like from human endeavor but descends out of heaven.

As the authors of *Earthkeeping in the Nineties* put it, “redeemed men and women are to be ‘fellow heirs’ with Christ—Christ, the sustaining *logos* of the world, in whom all things consist. The idea that humanity—redeemed humanity—is to share in that ‘creatorly’ task is clearly the implication of Romans 8:19. . . .”⁸ That passage in Paul’s letter to the Romans draws the connection

3 Genesis 1:26, 28; cf. Psalms 8:4-8; Hebrews 1:2-3; 2:8-9.

4 Genesis 1:26, 28.

5 Genesis 2:16-17; 1:1-3; Revelation 22:1-5.

6 Genesis 3:1-17; Romans 1:21; Ephesians 4:17-18; Titus 1:15; Genesis 2:7, 17; 3:19; Ephesians 2:1-3; 5:11.; Romans 8:22-23.

7 1 Corinthians 15:45; Colossians 2:3; Colossians 3:10; 1 John 2:2; 1 Corinthians 15:45; Mark 4:37-39; 5:21-43; Matthew 14:13-21; Romans 5:9-11, 19, 21; Ephesians 4:24.

8 Loren Wilkinson, ed., *Earthkeeping in the Nineties: Stewardship of Creation*, rev. ed. (Grand Rapids: Eerdmans, 1991), 108.

between the liberation of humankind and the liberation of creation: “For the anxious longing of the creation waits eagerly for the revealing of the sons of God. For the creation was subjected to futility, not willingly, but because of Him who subjected it, in hope that the creation itself also will be set free from its slavery to corruption into the freedom of the glory of the children of God. (Romans 8:19-21).

Genesis 1:26-28: The Dominion Mandate

The dominion mandate, then, did not cease with the coming of either sin or redemption. It continued, and all people exercise it all the time—some wisely, righteously, and fruitfully, some foolishly, wickedly, and barrenly. In response to abuses some critics have blamed biblical teaching for environmental degradation and called for repudiation of the doctrine of human dominion over nature. Yet it is not dominion *per se* but selfish or foolish dominion that leads to environmental abuse. Christians, who seek to be faithful to the Bible, cannot simply abandon its doctrine of dominion.

Some seek to soften the biblical doctrine of dominion by redefining it, in the process replacing rule with service. They often use Genesis 2:15 (the mandate to “cultivate and keep” the garden) to reinterpret or replace 1:28 (the mandate to fill, subdue, and rule the Earth). Yet while dominion is not exploitation, Genesis 2:15 does not say the same things as 1:28. Garden and Earth differ, and the Hebrew words for *subdue* and *rule* have very different meanings from those for *cultivate* and *guard*. Further, the frequent claim that the Hebrew for *cultivate* properly means *to serve*—implying that the mandate in 2:15 is for mankind to serve the garden and, by extension, the Earth—is mistaken.⁹

The dominion mandate, then, must be neither repudiated nor softened. Properly understood, it gives human beings legitimate authority to subdue and rule the Earth, progressively transforming it into a garden, indeed a garden city, to serve their needs and the glory of God. Both the dominion mandate and man’s creation in the image of God imply human priority over other created things. As Jesus remarked in the Sermon on the Mount, people are of greater importance to God than birds or flowers (Matthew 6:26-30). This principle

⁹ Francis Brown, S. R. Driver, and Charles A. Briggs, eds., *A Hebrew and English Lexicon of the Old Testament*, trans. Edward Robinson (Oxford: Clarendon Press, [1907] 1978), 461, 712-13, 921-2, and 1,036.

Stretching Scripture Too Far

An example of the misuse of Scripture to score points in contemporary environmental debates is what seems to have happened lately in regard to Revelation 11:18. In that passage from John’s apocalyptic vision, the elders around the throne of God in heaven to thank Him that the time has come for Him “to destroy those who destroy the earth.” Some have cited this passage as condemnation of those who disagree with their view of global warming.

Yet the verse is part of highly figurative apocalyptic literature that is notoriously difficult to interpret. The context suggests that the earth designates God’s people, not the planet, and that their destruction was by persecution, not by environmental degradation.

One particularly important principle is that the commandments of God, not human tradition, should define sin (Mark 7:8-9; 1 John 3:4). In environmentalism, there are abundant accusations of sin that lack basis in biblical law. Consequently, the authors and over 1,500 signers of *The Cornwall Declaration on Environmental Stewardship* agreed, “We aspire to a world in which objective moral principles—not personal prejudices—guide moral action.”¹

¹ G. K. Beale, *The Book of Revelation: A Commentary on the Greek Text, New International Greek New Testament Commentary* (Grand Rapids: Eerdmans, 1999), 615; *The Cornwall Declaration on Environmental Stewardship*, online at http://www.cornwallalliance.org/docs/Cornwall_Declaration.pdf.

points to a biblical environmental ethic that puts human needs before others.

Biblical Law: Dominion Is Not License to Abuse

Yet this principle does not imply human autonomy in dominion. The moral law of God—revealed in the two great commandments to love God and neighbor, the golden rule of doing to others as we would have them do to us, the Ten Commandments,¹⁰ and all the moral statutes, ordinances, and precepts sprinkled throughout Scripture—defines righteous dominion. There is no excuse for tyranny, which violates that law. Some specific laws of Scripture have direct relevance to

¹⁰ Matthew 22:37-39; 7:12; Exodus 20:1-17.

creation stewardship. Consider several examples from the Old Testament.

While people are free to harness animals to perform tasks for them, they must ensure that the animals' needs are met while they labor. The law of Moses contains the prohibition: "You shall not muzzle an ox [preventing it from eating] while it is treading out the grain" (Deuteronomy 25:4). We may infer from this passage a general duty to guard animals.

Yet such laws aim principally at human, not animal, welfare. The Apostle Paul, in quoting this verse, asked, "God is not concerned about oxen, is He? Or is He speaking altogether for our sake? Yes, for our sake..." (1 Corinthians 9:3-11). Paul pointed out that the principle was that someone laboring for others should have a share of the production. While that principle entails making sure a laboring animal is properly fed, its primary point is that a laboring *person* should benefit from his labors.

Similarly, when God instructed the Israelites not to destroy fruit trees while besieging a city, He permitted destroying other trees to make siege works. The fruit trees were to be spared because from them the Israelites could eat. The command's focus, then, was on preservation of trees not for their own sake but for people's sake—not for their intrinsic value, but for their value to people.

Likewise, the focus of an ordinance to help a donkey struggling under an excessive load is more on doing justice to the neighbor who owns the donkey than on care for the animal. The provision that the Israelites' domestic animals should rest on the Sabbath seems intended mostly to ensure that those who worked the animals should be free to rest on the Sabbath. Yet human benefit from such laws was not exclusive. Israel learned this lesson when God ejected it from the Promised Land so that the land could enjoy the 70 years of sabbatical rest the people had failed to observe.¹¹

Clearly, care must be taken in both interpreting and applying biblical laws to creation stewardship. They tell us that we should care for all that God created: the Earth and the various plant and animal species that dwell in it. But the Scriptures do not tell us which are the most urgent environmental problems for our society today. They do not prescribe precise solutions for those problems. So we must not make biblical texts into clubs with which to strike those who disagree with our assessments of particular environmental problems and their solutions.

11 1 Timothy 5:18; Deuteronomy 5:14; 20:19-20; Exodus 23:5-6; Leviticus 25:3-4; 26:34, 43; 2 Chronicles 36:21; Mark 2:27.

Wisdom from Church History and Tradition

Environmental stewardship has not been a main topic of Christian—or indeed any other—thought until recent generations. Pre-modern teaching on creation by Christian thinkers includes significant tensions. Some lends itself to criticism by modern ecologists as anti-ecological, stripping nature of sacred character and viewing it as mere backdrop for the drama of human salvation and raw materials for human economic production. Other teaching emphasizes nature as God's self-revelation, as itself praising God, and as deserving admiration and care.

An early representative of the latter thought was Irenaeus of Lyons (ca. A.D. 130-200). In contrast with widespread gnostic thought of his day, Irenaeus believed that the material creation was itself good. While the current plight of creation, dominated by the devil and sinful people, will pass, its essence will be renewed and the just will receive the Earth as an inheritance at the resurrection. Therefore, Irenaeus affirmed, human flesh is "not destitute [of participation] in the constructive wisdom and power of God" but will itself be renewed in the resurrection.¹²

An early representative of the more negative view of the material world was Origen (ca. A.D. 185-254). He speculated that when rational souls (*logikoi*, men and angels) sinned, they fell from heaven, by varying degrees. God made the world as a sort of safety net for fallen souls, keeping them from falling all the way into nonbeing. For Origen the material world was a place of probation whence souls could attempt to climb back up to union with the divine, as they repudiated and left behind that material world.¹³

St. Augustine of Hippo (A.D. 354-430) had a much more positive view of creation. Augustine admitted that our limited knowledge and experience prevents humans from understanding how everything God created fits together into a beautiful, harmonious whole. Nevertheless, he urged belief in the beauty and harmony of creation, "lest in the vanity of human rashness we presume to find any fault with the work of so great an Artificer." Even things that we find inconvenient or harmful to ourselves—even the "eternal fire" of hell—are part of this beauty and "with respect to their own nature ... are glorifying to their Artificer."¹⁴

12 Irenaeus, *Against Heresies*, 5.36.1, 5.32.2, 5.3.2-3.

13 Origen, *de Principiis*, 5.6.2.

14 Augustine, *City of God*, 12.4, 5.

The medieval mystic Hildegard von Bingen (1098-1179) reported a vision in which God said: “I, the highest and fiery power, have kindled every spark of life. . . . I remain hidden in every kind of reality as a fiery power.” Hildegard described human beings as illumined with the “living breath of the spirit.” The Word of God, in her account, “awakened all creation by the resonance of God’s voice.” God “called creation to himself;” “led all creatures to the light;” and “committed himself to all creation.”

Many people consider St. Francis of Assisi (1182-1226) the “patron saint of environmentalism.” His *Canticle of the Sun* has been an inspiration for many modern environmentalists. David Kinsley calls him “the most unambiguous example in medieval Christianity of the affirmation and embrace of nature.”¹⁵ His early biographer Celano wrote that when Francis found an abundance of flowers, he preached to them and invited them to praise the Lord as though they were endowed with reason. In the same way he exhorted with the sincerest purity cornfields and vineyards, stones and forests and all the beautiful things of the fields, fountains of water and the green things of the gardens, earth and fire, air and wind, to love God and serve him willingly. Finally, he called all creatures “brother” and in a most extraordinary manner, a manner never experienced by others, he discerned the secrets of creatures with his sensitive heart.¹⁶

It is not certain, however, that Francis spoke more than metaphorically when he called creatures “brother” and “sister.” Yet his *Canticle of the Sun* rivals some of the Psalms in the poetic grandeur of its appreciation for the natural world:

*Most High, omnipotent, good Lord,
All praise, glory, honor, and blessing are yours.
To you alone, Most High, do they belong,
And no man is worthy to pronounce your name.
Be praised, my Lord, with all your creatures,
Especially Sir Brother Sun,
Who brings the day, and you give light to us through
him.
How handsome he is, how radiant, with great
splendor!
Of you, Most High, he bears the likeness.
Be praised, my Lord, for Sister Moon and the Stars.*

*In heaven you have formed them, bright, and
precious, and beautiful.
Be praised, my Lord, for Brother Wind,
And for Air, for Cloud, and Clear, and all weather,
By which you give your creatures nourishment.
Be praised, my Lord, for Sister Water,
She is very useful, and humble, and precious, and
pure.
Be praised, my Lord, for Brother Fire,
By whom you light up the night.
How handsome he is, how happy, how powerful and
strong!
Be praised, my Lord, for our Sister, Mother Earth,
Who nourishes and governs us,
And produces various fruits with many-colored
flowers and herbs.
Praise and bless the Lord,
And give thanks and serve him with great humility.¹⁷*

Even in this great poem, however, Francis recognized that the intrinsic value of creatures coexists with their utility value. God gives “light to us” through “Brother Sun,” and by air and cloud and fruits and flowers and herbs God gives “creatures nourishment.”

The great medieval theologian Thomas Aquinas (1225-1274) had a highly anthropocentric and hierarchical view of earthly creation. “As we observe,” he wrote, “. . . imperfect beings serve the needs of more noble beings; plants draw their nutriment from the earth, animals feed on plants, and these in turn serve man’s use. We conclude, then, that lifeless beings exist for living beings, plants for animals, and the latter for man. . . . The whole of material nature exists for man, inasmuch as he is a rational animal.” But the usefulness of earth, plants, and animals to man was not solely material but also spiritual, “helping him to know God, inasmuch as man sees the invisible things of God by the things that are made.”¹⁸

The two great reformers Martin Luther (1483-1546) and John Calvin (1509-1564) both also wrote things relevant to creation stewardship. Many of Luther’s comments about nature present it as an arena in which we suffer God’s chastening, meant to lead us to repentance and faith in Christ. “God’s wrath,” he wrote, “. . . appears

15 David Kinsley, “Christianity as Ecologically Harmful” and “Christianity as Ecologically Responsible,” in *This Sacred Earth: Religion, Nature, Environment*, ed. Roger S. Gottlieb (New York: Routledge, 1996), 104-24, at 121.

16 Cited in Kinsley, 122.

17 Cited in Roger Sorrell, *St. Francis of Assisi and Nature* (Oxford: Oxford University Press, 1988), 68.

18 Cited in H. Paul Santmire, *The Travail of Nature: The Ambiguous Ecological Promise of Christian Theology* (Philadelphia: Fortress Press, 1985), 91-2.

on the earth in all creatures. . . . And what of thorns, thistles, water, fire, caterpillars, flies, fleas, and bed-bugs? Collectively and individually, are not all of them messengers who preach to us concerning sin and God's wrath?"

Yet Luther could also write that "night and day alternate for the purpose of refreshing our bodies by rest. The sun shines that work may be done."¹⁹ He did not consider the creation itself evil, even though it was destined to be dissolved in judgment because of man's sin and then recreated. The German reformer interpreted the "vanity" to which Paul said God had subjected the creation (Romans 8:20) not as its own corruption and decay but as its being required still to serve people's needs despite their being sinful and unworthy. "For instance," Luther wrote,

the blessed sun, most glorious of created things, serves the small minority of the godly, but where it shines on one godly man it must shine on thousands and thousands of knaves, such as enemies of God, blasphemers, persecutors, with whom the world is filled. . . . To these it must minister in all their ungodliness and wickedness, permitting its pure and glorious influence to benefit the most unworthy, most shameful and abandoned profligates. According to the apostle, this subjection is truly painful, and were the sun a rational creature obeying its own volition rather than the decree of the Lord God who has subjected it to vanity against its will, it might deny every one of these wicked wretches even the least ray of light; that it is compelled to minister to them is its cross and pain, by reason of which it sighs and groans.

Calvin taught that "man was created to be a spectator of the created world, and that he was endowed with eyes for the purpose of his being led to God Himself, the Author of the world, by contemplating so magnificent an image." Yet he also taught that humanity's fall into sin blinded people to the creation's testimony. Romans 1:20, he said, shows that "the manifestation of God by which He makes His glory known among His creatures is sufficiently clear as far as its own light is concerned. It is, however, inadequate on account of our blindness. But we are not so blind that we can plead ignorance without being convicted of perversity."²⁰ Calvin affirmed

human dominion over the Earth as taught in Genesis 1 and added that part of "the end for which all things were created" was "that none of the conveniences and necessities of life might be wanting to men," which showed "the paternal solicitude of God for man."²¹

Modern Christians developing our own understanding of creation care can gain inspiration and insight from the past. But we must be careful not to read into past teachings more than is there. Awe and respect for nature, gratitude to God for it, and a desire to care for creation are all excellent motivations. But they resolve no debates about the reality or extent of environmental problems and answer no policy questions.

Further, it can be anachronistic to expect thinkers before the start of the Industrial Revolution to answer current questions about environmental stewardship. Most did not confront problems comparable to ours. For them and for everyone before the Industrial Revolution, "nature" was not an idyllic place from which to escape the stresses of urban life. Instead it was primarily a harsh surrounding from which one needed protection. Human impact on nature was minimal by comparison with modern economies.

Yet even then, people sometimes exaggerated human impact on the environment. For example, the Church Father Tertullian lamented how the weight of sinful humanity was oppressing the Earth. Writing around A.D.200 (when world population was probably under 500 million), Tertullian saw a grim future as humanity pressed up against supposedly fixed limits to the resources available:

Everything has been visited, everything known, everything exploited. Now pleasant estates obliterate the famous wilderness areas of the past. Plowed fields have replaced forests, domesticated animals have dispersed wild life. Beaches are plowed, mountains smoothed and swamps drained. There are as many cities as, in former years, there were dwellings. Islands do not frighten, nor cliffs deter. Everywhere there are buildings, everywhere people, everywhere communities, everywhere life. . . . Proof [of this crowding] is the density of human beings. We weigh upon the world; its resources hardly suffice to support us. As our needs grow larger, so do our protests, that already nature does not sustain

19 Cited in Kinsley, "Christianity as Ecologically . . .," 111-112.

20 John Calvin, *The Epistles of Paul the Apostle to the Romans and to the Thessalonians*, trans. Ross Mackenzie, ed. David W. Torrance and Thomas F. Torrance (Calvin's Commentaries, 12 vols.; Grand Rapids: Eerdmans, 1973), 8:31.

21 John Calvin, *Commentaries on the First Book of Moses Called Genesis*, trans. John King (Calvin's Commentaries, 22 vols.; Grand Rapids: Baker, 1984), 1.1.96.

us. In truth, plague, famine, wars and earthquakes must be regarded as a blessing to civilization, since they prune away the luxuriant growth of the human race.²²

To put it rather simply, if we go to history and tradition, we may well find helpful insights on our general attitude toward Creator and creation. But we shall be disappointed if from them we expect much help measuring and responding to specific environmental problems today.

Nevertheless, Christians reflecting on the Scriptures and their own situations have carried forward some of the biblical themes sketched above: the unique place of humans in creation; creation as source and motive for praise to God; and the effects of sin and redemption on both humankind and the rest of creation.

Putting Environmental Challenges in Context

The goal of this paper is to explore how to set priorities for creation care. As we address this question, we move off the firmer ground of biblical and traditional teachings. We enter into the less certain ground of prudential judgments about current conditions, likely future trends, and possible policy responses to those trends.

We must consider a range of possible answers to our question, “What is the most important environmental task facing American Christians today?” But first, in order to prioritize environmental problems and their solutions, we need historical perspective on the relationship between human action and environmental quality. We will need accurate information about present conditions, long-term trends, and their underlying causes.

Some Long-term Trends in Environmental Quality

A look at a cancer patient shortly after the fifth of six chemotherapy or radiation treatments would give many observers the strong impression that she is about to die. In reality, she might be in full remission and have many years of healthy life ahead. Such a misunderstanding is the risk of a snapshot. It does not tell us where we are going or where we have been. And, therefore, it can foster faulty judgments.

A tendency to ignore long-term trends and their underlying causes is particularly prevalent in much environmental writing and activism. It is behind the commonly used formula “I=PAT”—that is, environmental Impact = Population x Affluence x Technology. The assumption behind the equation is that increases in population, affluence, and technology invariably produce proportionate damage to the environment. A significant body of scholarly work falsifies the assumption and reaches two very important, contrary conclusions. First, most long-term environmental trends in developed economies are toward great improvement. Second, though developing economies may be experiencing widespread environmental deterioration, that trend should reverse as they continue to develop.

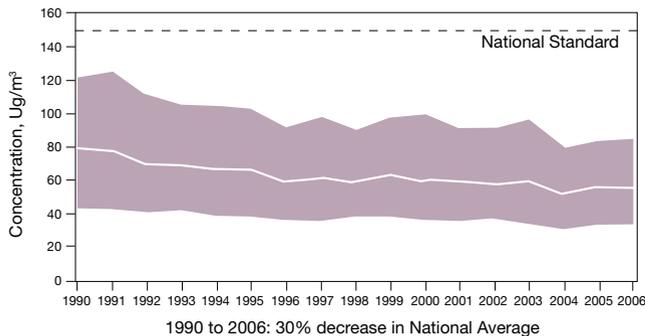
For nearly every measure of material well-being, whether for humanity or for the natural environment, long-term trends and prospects for the future are encouraging, especially in developed economies. Although local and temporary exceptions deserve corrective action, nonetheless the empirically measured past changes and present conditions and the credibly projected future conditions are improving. This generalization holds true whether we look at air quality, water quality, toxic or non-toxic solid waste, resource supplies (mineral, vegetable, or animal), farmland quality, forestation, wilderness preservation, or almost any other indicator of environmental quality.

Air quality in the United States illustrates this positive trend well. As the accompanying figures provided by the Environmental Protection Agency show, concentrations of all major air pollutants have fallen significantly since 1980. Most were falling for about a decade before then as well, and some longer. All have remained well below the national standard since the early 1980s.

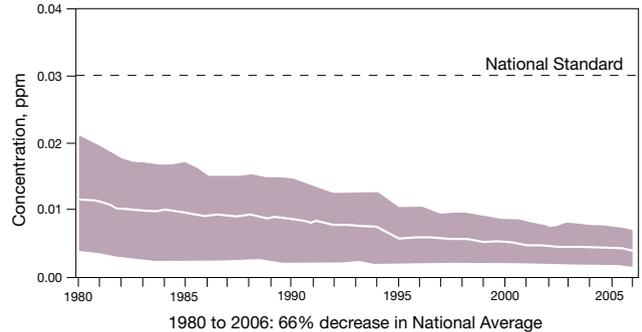
On a worldwide scale, forestation is another example. Despite widespread contrary perceptions, global forest area has remained largely stable since World War II, even gaining slightly, from about 30 percent to about 31 percent of global land area between 1950 and 1994. Again, despite popular perceptions to the contrary, the extent of Amazon rainforests fell by only about 10 percent from 1978 through 1998, and the rate of decline has slowed as farmers have become wealthier and so have found it easier to afford fertilizers rather than slash-and-burn more land for their crops. This pattern reflects what happened earlier in the more developed countries, in which deforestation largely ceased around 1900 and

22 Tertullian, *Opera II: Opera monastica*, cited in Susan Power Bratton, *Six Billion & More: Human Population Regulation and Christian Ethics* (Louisville, KY: Westminster/John Knox Press, 1992), 76.

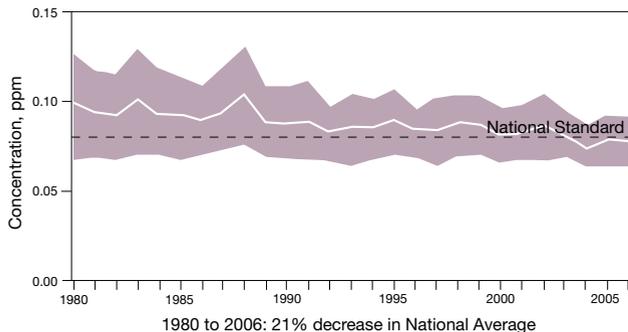
PM10 Air Quality, 1990–2006
(Based on Annual 2nd Maximum 24-hour Average)
National Trend based on 391 Sites



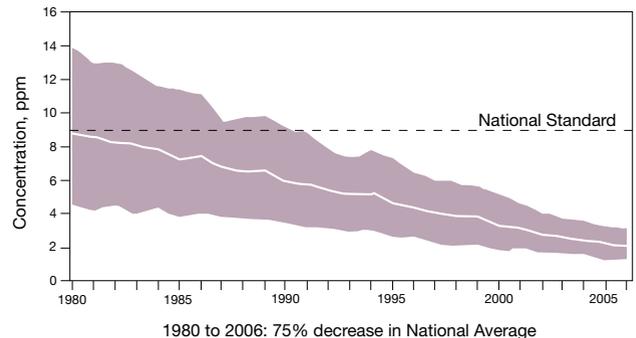
SO₂ Air Quality, 1980–2006
(Based on Annual Arithmetic Average)
National Trend based on 154 Sites



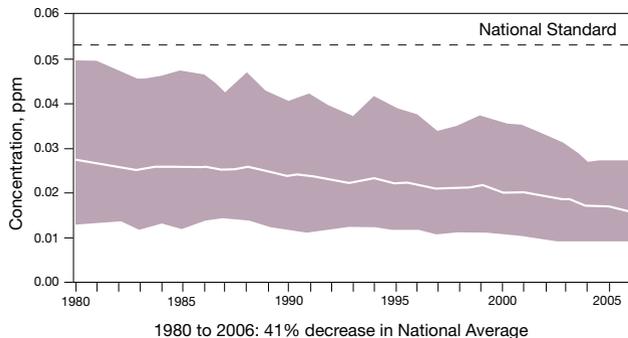
Ozone Air Quality, 1980–2006
(Based on Annual 4th Maximum 8-hour Average)
National Trend Based on 275 Sites



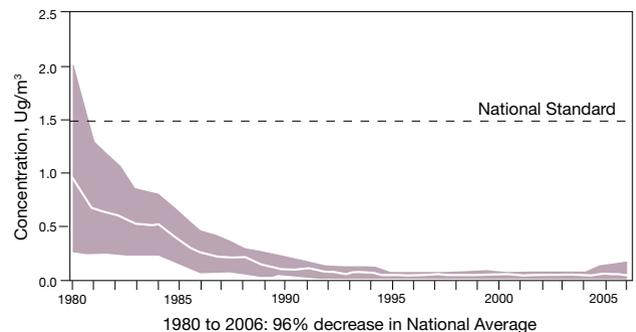
CO Air Quality, 1980–2006
(Based on Annual 2nd Maximum 8-hour Average)
National Trend based on 144 Sites



NO₂ Air Quality, 1980–2006
(Based on Annual Arithmetic Average)
National Trend based on 87 Sites



Lead Air Quality, 1980–2006
(Based on Annual Maximum Quarterly Average)
National Trend based on 15 Sites



forested area has grown since then.²³ There is every reason to expect deforestation in currently poor countries to cease and reverse as those countries become wealthier—just as it has done elsewhere.

Not even biodiversity is an exception. Empirical field studies fail to support claims of very rapid species

extinction based on some mathematical models. While some *models* suggest an extinction rate in the neighborhood of 10 to 100 percent over the next 50 years, *empirical field studies* suggest a rate of around 0.7 percent (about 1/14 to 1/140 the rate claimed by the models) over the same period.²⁴ And slowing, stopping, or reversing

23 Bjorn Lomborg, *The Skeptical Environmentalist* (Cambridge: Cambridge University Press, 2001), chapter 10, “Forests—are we losing them?”

24 Julian L. Simon and Aaron Wildavsky, “Disappearing Species and the Absence of Data,” in *The Resourceful Earth*, edited by Julian L. Simon and Herman Kahn (Oxford: Basil Blackwell, 1984);

UN Global Forest Cover Estimates

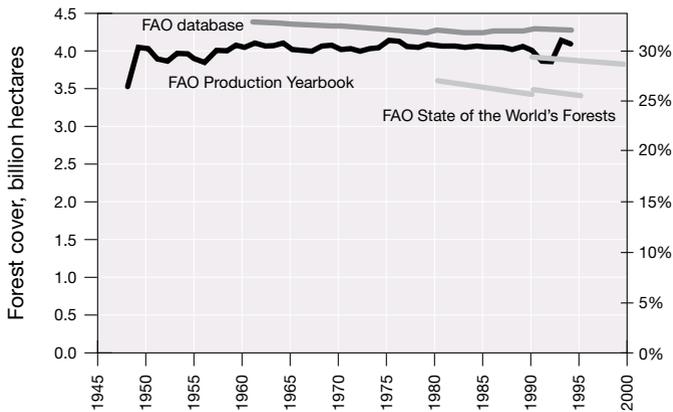


Figure 60 Different UN global forest cover estimates, of forest and woodland, 1948–94 and 1961–94, the more restrictive closed forest for 1980–95 and the new unified forest definition 1990–2000, all from FAO. Source: FAO Production Yearbooks 1949–95, FAO 2000, 1995a, 1997c, 2001c:34. Data availability is poor but by far the best available. (Lomborg, *The Skeptical Environmentalist*, fig. 60, p. 111)

Remaining Forest in the Amazon, 1978-1999

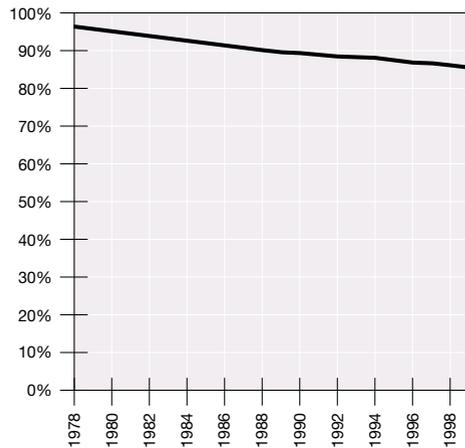


Figure 61 Remaining forest in the Amazon, which accounts for one third of the world’s tropical forest, 1978–99. Source: INPE 2000:7; Brown and Brown 1992:121. (Lomborg, *The Skeptical Environmentalist*, fig. 61, p. 115)

of deforestation in that period, which we have seen is likely, could easily reduce even that rate a great deal.

The most important measure of human material well-being—life expectancy—shows tremendous improvement over the last century, with no slowing of progress in sight. Life expectancy at birth worldwide in 1900 was about 30 years. In 1950 it was about 46.5 years. By 1998, life expectancy had more than doubled, to about 67 years. It is projected to be about 73 years by 2025.²⁵ Life expectancy is important not only in itself but also as a proxy measure of overall environmental quality. The “environment” is principally “where humans live”—and thus rising life expectancy suggests improvement in the overall environment.

Significantly, improvements in human well-being occur not only with rising wealth but also over time even for those whose wealth is not growing—so long as others around them are getting wealthier. Why? Because over time new technologies and the products they produce become more affordable, increasingly reaching

the poor. Consequently, from 1975 to 2002 people with under \$1 (constant) daily income experienced large improvements in safe drinking water, food supply, infant mortality, life expectancy, the rate of child labor, and even college enrollment.²⁶

Indeed, improvements in well-being are most marked among the poorest of the poor. Infant mortality and child labor fall very rapidly, and life expectancy, access to safe water, and food supply rise very rapidly, with even the slightest increase in income at the low end of the scale. The same kind of improvements benefit the poor over time without rising income. By contrast, the rate of improvement slows at higher income levels.²⁷

Such trends toward improvement are consistent throughout economically developed nations, especially those with political freedom and responsive government. In less developed countries and countries with less responsive government, the trends often run in the opposite direction, which implies the need to promote both development and political freedom. But the consistent finding of environmental history is that pollution emissions tend to fall and environmental quality to improve as economies surpass certain levels of development. This is why continued economic development is so important to both environmental stewardship and

T. C. Whitmore and J. A. Sayer, eds., *Tropical Deforestation and Species Extinction* (London: Chapman and Hall, 1992); Simon and Wildavsky, “Species Loss Revisited,” in *The State of Humanity*, edited by Simon (Oxford: Blackwell, 1995); Lomborg, *Skeptical Environmentalist*, chapter 23; United Nations Development Program, *Human Development Report 1995*, online at www.undp.org/hdro/95.htm.

25 Lomborg, *Skeptical Environmentalist*, 50; World Health Organization, *World Health Report, 1998*, online at http://www.who.int/whr/1998/media_centre/50facts/en/.

26 Indur M. Goklany, *The Improving State of the World: Why We’re Living Longer, Healthier, More Comfortable Lives on a Cleaner Planet* (Washington: Cato Institute, 2007), 81.

27 Goklany, *Improving State of the Planet*, 79.

the world's poor.

Economic Development and Environmental Quality

Many people find an improving environment coupled with rising population and affluence counter-intuitive. With more people and more wealth and therefore more demand for consumption, it would seem obvious that resource supplies must decline while pollution emissions must rise. The obvious increases of pollution in countries like China and India seem to be counterexamples to the overall trend just described. Curiously enough, the inferences are mistaken, though for different reasons.

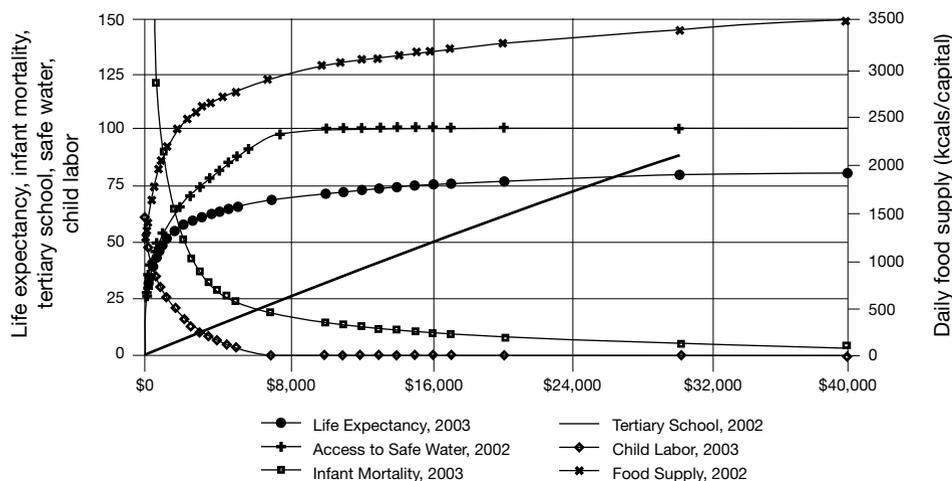
The Image of God and Human Productivity

First, human nature explains a surprising truth about resource supplies. Growing population would deplete resources if people were more like amoebas or even deer than like God. They would then be simply consumers, not producers. But because they are in the image of God the Creator, people are not simply consumers. They are also producers. On the average they produce more than they consume, thus leaving the world with more resources after they die than when they were born.

People produce this surplus in a variety of ways: by finding new sources for current resources, or more efficient extraction and refining methods for old resources, or more efficient ways of using current resources, or new ways to get the same or better services from different resources, or more ways to recycle resources, or ways to turn what once was waste into resources. Whatever the ways, people keep multiplying resources even faster than population growth and increasing wealth raise demand for them.

This is why long-term inflation-adjusted price trends for extractive resources (mineral, plant, and animal) are downward both absolutely and, even more important, by comparison with wages.²⁸ Rather than

Human Well-Being vs. Wealth, Early 2000s



(Goklany, *The Improving State of the World*, p. 79)

getting more difficult to afford, as they would if they were becoming increasingly scarce, these resources are getting easier to afford. Because price is the measure of scarcity, falling prices signal rising supplies. In other words, as people apply their God-given and education-improved intelligence to the world around them, they multiply resources.

The Environmental Transition

Second, a different dynamic explains a surprising truth about pollution. Environmental and developmental economists have recognized increasingly in the last few decades what has come to be called the *environmental transition*, or the pollution transition.²⁹ In early stages of economic development, changing from subsistence agriculture to an industrial economy, pollution emissions tend to rise, although the benefits of increasing wealth to health and longevity clearly outweigh the harm from the pollution. However, as people become wealthier, they develop and can afford lower-emission production technologies and the costly cleanup of past pollution. Thus in the United States for instance, emission and concentration levels of most pollutants peaked

29 Indur M. Goklany, "Richer is Cleaner: Long-Term Trends in Global Air Quality," in *The True State of the Planet*, edited by Ronald Bailey (New York: Free Press, 1995), 339-77; Goklany, *Improving State of the World*, chapter 5, "Competing Views Regarding Affluence, Technology, and the Environment"; and Jack M. Hollander, *The Real Environmental Crisis: Why Poverty, Not Affluence, Is the Environment's Number One Enemy* (Berkeley: University of California Press, 2003).

28 Goklany, *Improving State of the Planet*, 99.

SO₂ Pollution and GDP

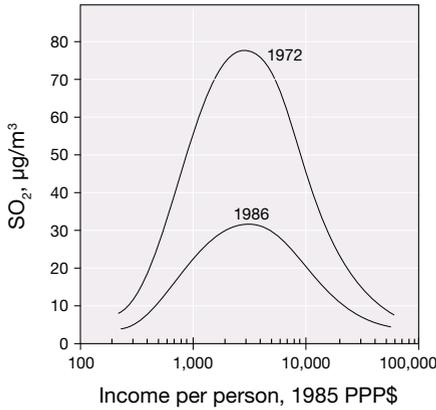


Figure 97 The connection between GDP per capita and SO₂ pollution in 47 cities in 31 countries, 1972 and 1986. Source: World Bank 1992:41, Shafik 1994:764. (Lomborg, *The Skeptical Environmentalist*, p. 177)

Particle Pollution and GDP

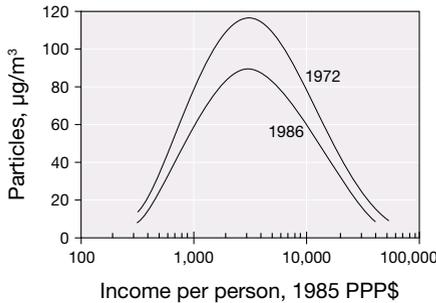


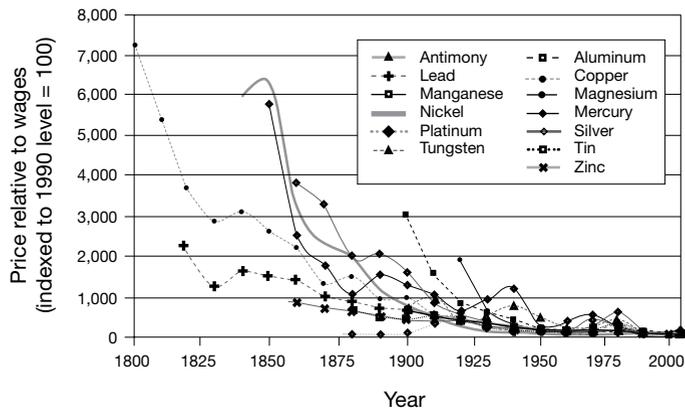
Figure 96 The connection between GDP per capita and particle pollution in 48 cities in 31 countries, 1972 and 1986. Source: World Bank 1992:41, Shafik 1994:764. (Lomborg, *The Skeptical Environmentalist*, p. 177)

and began declining in the 1950s through 1970s and are today far lower than they were even a century ago, when our population was about a fourth what it is now.³⁰

The environmental transition reflects what we saw above about improvements in basic measures of human well-being. Because of advances in technology, those improvements can occur at lower economic levels as time goes by. Analogously, the peak and decline of emissions can occur at lower and lower economic thresholds over time.

Emissions rise, peak, and decline at different rates and different levels of economic development in different countries. Why? For a variety of reasons. It is more costly

Price of Various Metals Relative to Wages, 1800–2005



(Goklany, *The Improving State of the World*, p. 99)

to reduce some emissions than others. Some emissions are more harmful than others and thus prompt spending for reduction earlier. Emission-reducing technological developments take place at different times. Some political systems are more sensitive to public pressure for emissions reduction than others. But regardless of the length (in time) or height (in severity) of the emissions curve, its basic bell shape remains similar.

What is true of the environmental transition in general also applies to specific pollutants. Consider two concrete examples. A study of 47 cities in 31 countries by the World Bank found that pollution peaks for particulate matter and sulfur dioxide reached in 1986 were much lower than those reached in 1972—by about 28 and 58 percent, respectively. Why the difference? It might have been partly because growing recognition of the risks from those pollutants motivated people and their governments to expend more to reduce them. But it seems likely that it was also at least partly because changing technologies made reductions more affordable.³¹

Once the costs of *developing* the requisite technologies have been borne by one economy, the costs of *producing* and *applying* them fall rapidly, making their use increasingly affordable to poorer economies. For this reason, countries that begin economic development later can experience lower pollution peaks and more rapid improvements. To put it simply, they can clean up faster than countries that preceded them. Their environmental transition can start when they are poorer, finish faster, and end when they are poorer than the environ-

30 Goklany, *Improving State of the World*, 105.

31 Lomborg, *Skeptical Environmentalist*, 177.

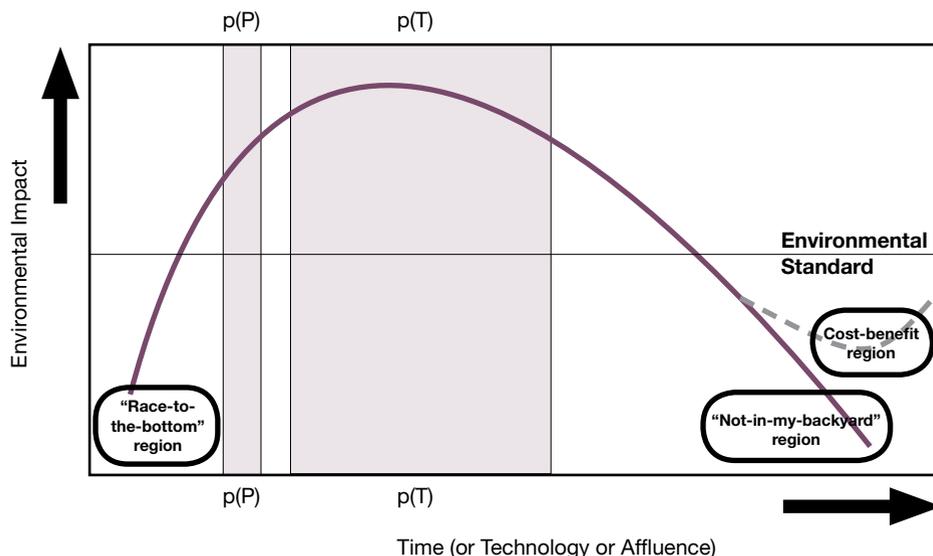
mental transitions of early bloomers—except that there seems to be no end in sight for how much pollution can fall if we are willing to spend enough to keep reducing it.

It is tempting to think, “Well, if a later start means a lower peak and faster improvement, then why shouldn’t countries just put off economic development indefinitely? Wouldn’t that prevent the rise of emissions in the first place? And wouldn’t that be a good thing?” But that approach neglects the benefits to health, life, and other aspects of human well-being that come from the economic activities of which pollution is a byproduct. Historically, health and longevity have improved even while pollution rose because the benefits of the polluting activity have outweighed the costs. So there is no advantage to intentionally delaying the start or continuance of economic development. A later start or slower growth may mean lower pollution peaks and a shorter environmental transition, but it will also mean prolonging higher rates of disease, death, and other problems.

Whatever the variations, the fundamental principle remains the same: growing wealth makes a clean, healthful environment increasingly affordable. So long as people are worried about putting food on the table, clothes on the back, and a roof over the head, they are likely to care little about, and spend less on, abating air and water pollution, habitat destruction, and other environmental problems.

Pollution, then, need not increase but may decrease with growing population and wealth. But the environmental transition is not automatic. Its occurrence “assumes that a mechanism exists to convert the desire for a better quality of life into action,” as Indur M. Goklany explains. “Clearly, the stronger that mechanism, the greater the likelihood that we should see a transition. A corollary is that transitions are more likely to occur in

The Environmental Transition



Notes: p(P) = period of perception; p(T) = period of transition; “Not-in-my-backyard” region (environmental impact enters this region if benefits far exceed costs to beneficiaries); cost-benefit region (where benefits and costs have to be more carefully balanced). (Goklany, *The Improving State of the World*, p. 105)

democracies.”³²

The better environmental record of more democratic nations is clear from research by the Blacksmith Institute, a nonprofit organization working to identify and solve environmental problems. The institute compiled a list of the ten most polluted locations on Earth. Most are in countries with very unresponsive governments, and none of the worst eight is in an advanced, well-established democracy.³³

1. Chernobyl, Ukraine
2. Dzerzhinsk, Russia
3. Haina, Dominican Republic
4. Kabwe, Zambia
5. La Oroya, Peru
6. Linfen, China
7. Maiuu Suu, Kyrgyzstan
8. Norilsk, Russia
9. Ranipet, India
10. Rudnaya Pristan/Dalnegorsk, Russia

The important links between economic growth and responsive, democratic government, on the one hand, and environmental quality on the other are reasons why

³² Goklany, *Improving State of the World*, 110.

³³ Larry West, “The Top Ten Worst Polluted Places on Earth,” About.com: Environmental Issues, online at http://environment.about.com/od/pollution/a/top_10_polluted.htm.

Why So Many Myths?

If the positive environmental trends described here are even partly true, it appears that a great deal of environmental information is really misinformation. Why is that? An extended answer is impossible here,¹ but some basic points can be made.

First, many environmental advocacy organizations publish claims of environmental problems without adequate fact checking. Some observers have pointed out that the advocacy groups have a clear economic incentive for doing so. Donors are more likely to give, and give more, if they think the organization can help solve an urgent crisis.

Yet critics should not be too quick to point the finger. There can be economic incentives for understating risks, too—like a company’s avoiding costly efforts to reduce pollution emissions. Further, spokesmen for each side may think it necessary, in response to what they consider irresponsible exaggerating or minimizing of problems, to trumpet their messages more stridently than they otherwise might.

Second, many people accept environmental advocacy groups’ claims uncritically, despite the Apostle Paul’s admonition that we must “[t]est all things, hold fast what is good” (1 Thessalonians 5:21). Underlying this problem is the sheer difficulty of finding reliable, empirical data on many environmental issues. Even when raw data are reasonably accurate, they often are not put into perspective.

Third, pessimism about rising population, scarce resources, and environmental damage seems almost a natural human attitude. That attitude seems to explain, at least in part, why an international survey of people’s attitudes about the environment found that most thought their own local environments were much better than the average for their nations, and the average for their nations much better than for the world. It is, of course, a mathematical impossibility for everyone to be above average. But the psychological illusion is common, as all the folks from Lake Wobegon can testify.²

Fourth, government funding of scientific research can have perverse consequences. Politicians want to be re-elected. Consequently, they want to be seen as addressing problems—the bigger and more urgent, the better. As a result, they are far more likely to fund research premised on claims of impending disasters that need to be averted. Scientific researchers know this political imperative and so understand that the likelihood of their research being funded hinges partly on the perception that they will be addressing some great threat.

Fifth, as Ben Wattenberg pointed out in *The Good News Is, the Bad News is Wrong*, journalists have a saying: “Bad news is good news. Good news is no news.” For whatever reason, most news consumers find news of disasters or impending disasters exciting. They are more likely to read or watch a bad-news story than a good-news story. This consumer preference gives the media a vested interest in featuring bad news over good news. Consequently, the public’s perception of reality is skewed toward disaster and crisis.

1 For more on why there is so much misinformation about environmental harm, see Lomborg, *Skeptical Environmentalist*, chapter 2, and Michael Crichton, “Aliens Cause Global Warming” (the title is satirical), 2003 Michelin Lecture at the California Institute of Technology, online at <http://www.crichton-official.com/speech-alienscauseglobalwarming.html>.

2 Riley E. Dunlap, George H. Gallup, and Alec M. Gallup, “Of Global Concern: Results of the Planetary Survey,” *Environment* 35(9) (1993): 7-39, cited in Lomborg, *Skeptical Environmentalist*, 34-5.

Christians concerned to promote creation care should also be concerned to promote both economic development (with the market economy that generates it) and the spread of democratic, constitutional government.

What about Global Warming?

One environmental problem has occupied enormous public attention recently: man-made (anthropogenic) global warming. The hypothesis is that human emissions of greenhouse gases such as carbon dioxide are causing unnatural increases in global temperature.

The basic case for this hypothesis is widely recognized. Surface measurements appear to show an increase in global average temperature since the mid-nineteenth century of about 0.6° to 0.7° C (about 1° to 1.25° F). During the same period, the concentration of atmospheric carbon dioxide appears to have increased from a pre-industrial level of about 270 parts per million to about 380, and it is thought that human activity is the principal cause of this increase.

Carbon dioxide absorbs infrared (heat) radiation bouncing back from Earth’s surface that would otherwise escape into space. The effect, like that of a blanket

Evangelicals Debate Global Warming

The debate over climate change has been particularly sharp among U.S. evangelical Protestants. During 2005, a group led by the Evangelical Environmental Network (EEN) worked to promote belief in catastrophic man-made global warming and support for mandatory carbon emissions reductions.

Late that year, the Cornwall Alliance for the Stewardship of Creation (then known as Interfaith Stewardship Alliance) made its public debut with the release of “An Examination of the Scientific, Ethical, and Theological Implications of Climate Change Policy,” co-authored by climatologist Dr. Roy Spencer, energy policy analyst and environmental scholar Paul Driesen, and theologian/ethicist Dr. E. Calvin Beisner. The alliance argued that climate change has been largely natural, that it was not likely to have catastrophic consequences, and that the best response was economic development that would allow the poor to adapt better to any climate changes.

In late 2005 and early 2006, the EEN and National Association of Evangelicals (NAE) Vice President for Governmental Affairs Richard Cizik sought to gain endorsement by the NAE for a statement on global warming. The Cornwall Alliance joined with other evangelical leaders to petition the NAE not to endorse such a statement because of scientific uncertainties and the lack of evangelical consensus. In January 2006, the NAE responded with a letter saying, in part:

Recognizing the ongoing debate regarding the causes and origins of global warming, and understanding the lack of consensus among the evangelical community on this issue, the NAE Executive Committee, while affirming our love for the Creator and His creation, directs the NAE staff to stand by and not exceed in any fashion our approved and adopted statements concerning the environment contained within the Evangelical Call to Civic Responsibility.

Significantly, the NAE’s Call to Civil Responsibility had said nothing about climate change.

Undaunted, supporters of the global warming statement launched a new organization, the Evangelical Climate Initiative (ECI). In February 2006 they released “Climate Change: An Evangelical Call to Action,” endorsed by 86 college presidents, mission leaders, pastors, and other leaders. The document claimed that

around the Earth, is to raise its temperature. The rising temperature affects climate and weather, causing uneven changes in precipitation patterns. Rising temperature could also change the distribution of suitable habitats for plant and animal species and shrink polar ice caps and mountain glaciers, allowing their water to collect in the oceans and thus raising sea level.

Thus man-made global warming is said to threaten catastrophic impacts in the form of rising sea levels, more and stronger hurricanes and other severe weather events, droughts, floods, crop failures, species extinctions, and the spread of tropical diseases.

This grim scenario seems to be in tension with what we have said above about the environmental transition. The global warming hypothesis seems to imply that since growing population and affluence result in more use of fossil fuels, which are the most important source of man-made carbon dioxide, there would be no environmental transition in this case. Climate impact would presumably continue to grow right along with population, affluence, and technology. This issue de-

serves careful consideration, particularly because global warming is touted as the greatest threat ever to face humanity.

How do we evaluate man-made global warming as a problem competing with others for limited resources for its solution? We must begin by looking at the popular conception that the extent, causes, and likely results of global warming have been established by overwhelming scientific evidence and are embraced by an overwhelming scientific consensus. Is either of these assertions accurate?

Scientific Consensus?

A study published in *Science* in 2004 examined a large database of refereed publications from 1993 through 2003 relating to climate change. The author claimed that none of these papers rejected what she called “the scientific consensus” that “[m]ost of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations” (IPCC,

- “[C]limate change is happening and is being caused mainly by human activities, especially the burning of fossil fuels.”
- “Even small rises in global temperatures” will likely cause catastrophic natural disasters, diseases, and crop failures. “Millions of people could die in this century because of climate change, most of them our poorest global neighbors.”
- It is urgent “to find ways now to begin to reduce the carbon dioxide emissions from the burning of fossil fuels.” The United States should “pass and implement national legislation requiring sufficient economy-wide reductions in carbon dioxide emissions through cost, effective, market-based mechanisms such as a cap-and-trade program.”

Convinced that this “Call to Action” was mistaken, leaders of the Cornwall Alliance produced “A Call to Truth, Prudence, and Protection of the Poor: An Evangelical Response to Global Warming.” Released in July 2006, the “Call to Truth” was co-authored by Spencer, Driessen, Beisner, and environmental economist Dr. Ross McKittrick. A point-by-point refutation of the “Call to Action,” it cited extensive evidence that natural causes could outweigh human CO₂ emissions as causes of recent global warming. The “Call to Truth” was endorsed by 132 leaders, including many scientists and economists with relevant expertise, as well as theologians, pastors, and other Christian leaders.¹

In 2006 and 2007, Cornwall published papers and newsletters citing additional scientific developments that called into question the alarmist view of global warming.² Throughout this time, without publishing any supporting evidence, the ECI has continued to promote its view on climate change. Also, in apparent disregard of the instructions of the NAE Executive Committee in its January 2005 letter, Cizik has become one of the country’s most outspoken proponents of global warming alarm, often appearing to speak officially for the NAE.

1 The Cornwall Alliance’s “Call to Truth” is online at http://www.cornwallalliance.org/docs/Call_to_Truth.pdf, with a list of signers (now over 170) at http://www.cornwallalliance.org/docs/Open_Letter.pdf. The ECI’s “Call to Action” is online at <http://christiansandclimate.org/statement>, with its signers listed at <http://christiansandclimate.org/signatories>.

2 E. Calvin Beisner, “Important Developments on Global Warming in 2006,” online September 21, 2007 at www.interfaithstewardship.org/pdf/Global-WarmingSummary2006.pdf; E. Calvin Beisner, “Global Warming: Why Evangelicals Should Not Be Alarmed,” *Reformed Perspective* 21(11) (September, 2007): 24-7; online at <http://www.cornwallalliance.org/docs/Global-Warming-Why-evangelicals-should-not-be-alarmed.pdf>.

2001). But another scholar, attempting to replicate the results, discovered serious flaws in the study’s method and concluded that no such consensus existed in the refereed literature. A new study of the same database, this time covering the period 2004 through early 2007, found that the proportion of scientific papers endorsing the “consensus” had fallen, while the proportion rejecting it had risen. This result suggested “a significant movement of scientific opinion *away from* the apparently unanimous consensus which [the author of the 2004 study] had found ... from 1993 to 2003.”³⁴

A 2003 survey of climate scientists asked, “To what extent do you agree or disagree that climate change is mostly the result of anthropogenic [man-made] causes?” Of the 530 valid responses, 9.4 percent strongly

agreed, while 9.7 percent strongly disagreed. A much more extensive survey reported in 2007 found little support for the claim of consensus and concluded, “[T]he matter is far from being settled in the scientific arena.” These results suggest that among climatologists consensus is not strong that climate change is mostly caused by human activities.³⁵

In late 2007 one hundred prominent scientists, most working in fields dealing with climate change, signed an open letter to U.N. Secretary General Ban Ki-Moon saying that climate change is largely natural, that it cannot be stopped by human action, and that adaptation is a better response than attempting to prevent climate change. A week later, a report of the U.S. Senate Committee on Environment and Public Works

34 Naomi Oreskes, “The scientific consensus on climate change,” *Science*, vol. 306, issue 5702 (December 3, 2004), 1686, online at <http://www.sciencemag.org/cgi/content/full/306/5702/1686>; Benny J. Peiser, *Letter to Science*, January 4, 2005, submission ID: 56001, online at www.staff.livjm.ac.uk/spsbpeis/Scienceletter.htm; Klaus-Martin Schulte, “Scientific Consensus on Climate Change?” prepublication draft for *Energy and Environment*.

35 Letter from Dennis Bray to *Science* magazine, December 22, 2004, online at <http://www.staff.livjm.ac.uk/spsbpeis/Scienceletter.htm>; D. Bray and H. von Storch, *The Perspectives of Climate Scientists on Global Change* (GKSS Forschungszentrum, 2007), online at http://dvsun3.gkss.de/BERICHTE/GKSS_Berichte_2007/GKSS_2007_11.pdf.

listed over 400 prominent scientists who disputed man-made global warming, many of them involved in the United Nations' Intergovernmental Panel on Climate Change (IPCC).³⁶

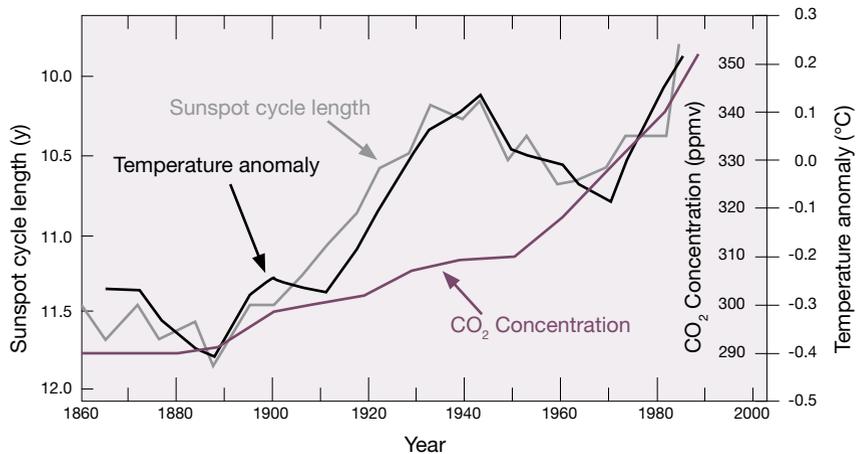
Conflicting Scientific Evidence

Why has support for the alleged "consensus" view declined so? Primarily, it appears, because of recent studies either reducing the apparent role of human contributions or magnifying the apparent role of non-human contributors to climate change. The IPCC, a body of scientists focusing mainly on the human impact on climate, has now issued four major reports (1992, 1995, 2001, and 2007). The panel's latest report reduced its estimate of global temperature response to doubled CO₂ by 25 percent, its estimate of the human contribution to energy absorption (and consequently warming) in the atmosphere by 35 percent, and its projection of sea level rise by as much as 50 percent.

The most important evidence for the "consensus" view is the apparent correlation between rising atmospheric carbon dioxide and rising global temperature. However, correlation does not prove causation. As the figure below shows, the fit between carbon dioxide and temperature is not good, while that between sunspot cycle length and temperature is very good, suggesting that CO₂ is not driving temperature but solar variance may be.³⁷ Most of the temperature rise occurred before 1940, while most of the CO₂ rise occurred later.

The apparent rapid post-1980 increase has been challenged by recent research showing that scientists' adjustments of surface temperature data (to eliminate false warming trends created by urban spread and changed locations and equipment of weather stations)

Causes of Climate Change



were too small. The implication is that "the estimated 1980-2002 global average temperature trend over land" should be reduced "by about half."³⁸ Further, while CO₂ concentration has continued to rise, there has been no statistically significant change in global temperature since 1998.

All of these things and more make it increasingly difficult to argue that rising carbon dioxide is driving temperature change. It appears instead that a number of factors, including cyclical increases and decreases in solar energy and solar wind output, major ocean/atmosphere circulation cycles, and others contribute to cyclical warming and cooling of the Earth. Further, it is likely that Earth has been recovering from the Little Ice Age (ca. 1350-1850) and that current temperature remains below that of the Medieval Warm Period (ca. 900-1350) when Vikings colonized Greenland and raised grapes, only to be driven out by advancing glaciers as the Little Ice Age began.

In short, there is good reason to doubt the popular claim that human action is driving catastrophic climate change. We might suspect instead that recent and foreseeable climate changes are cyclical, largely natural, well within the bounds of historic variability, and neither already nor likely to become catastrophic.

Global Warming and the Environmental Transition

36 Open Letter to the Secretary-General of the United Nations, December 13, 2007, online at http://scienceandpublicpolicy.org/images/stories/papers/reprint/UN_open_letter.pdf; "U.S. Senate Report: Over 400 Prominent Scientists Disputed Man-Made Global Warming in 2007," online at <http://epw.senate.gov/public/index.cfm?FuseAction=MinoritySenateReport>.

37 Figure, "Causes of Climate Change," from Fris-Christensen & Lassen, 1991, *Science* 254 #5032, adapted by Tim Patterson, online at <http://friendsofscience.org/>.

38 Ross McKittrick and Patrick Michaels, "Quantifying the influence of anthropogenic surface processes and inhomogeneities on gridded global climate data," *Journal of Geophysical Research*, vol. 112, DS24S09, doi:10.1029/2007JD008465, 2007, online at <http://www.uoguelph.ca/~rmckitri/research/jgr07/M&M.JGRDec07.pdf>. For a non-technical explanation of the research and its implications by co-author McKittrick, see <http://www.uoguelph.ca/~rmckitri/research/jgr07/M&M.JGR07-background.pdf>.

Suppose, however, that large-scale man-made global warming were real. Would it be a counterexample to the hypothesis of an environmental transition? Surprisingly, no. It fits the environmental transition hypothesis exactly. Should it prove advisable to reduce greenhouse gas emissions, the societies better able to achieve such reductions will be the more economically developed ones.

This realization is reflected in the major international agreement to date that aims at “stabilization of greenhouse gas concentrations in the atmosphere.” The 1997 Kyoto Protocol of the U.N. Framework Convention on Climate Change has been ratified by more than 170 nations (the United States *not* among them), but it binds only a few dozen advanced industrial economies. The protocol does not require developing countries such as India and China to limit their CO₂ emissions. And such governments have made clear that they would reject any attempt to impose emissions caps on them.

Indeed, mandatory reductions in emissions would be harmful to the world’s poorer nations. At their present lower stages of economic development, achieving such reductions would unacceptably hinder necessary improvements in the health and life of their citizens. Such countries could also be hurt by a global economic slowdown if the industrial nations constricted their economies with severe new regulations or taxes designed to meet ambitious CO₂ emissions goals.

A Path to Prudent Policy

In the final analysis, wise creation care requires rational means of decision making. Sound policy must be based on sound theology, ethics, science, and economics. So far we have focused on theological and scientific issues. It is time to turn to ethical and economic issues. We must evaluate competing creation stewardship proposals and decide how to spend our limited funds addressing various environmental problems.

Strategy for Identifying Prudent Response to Risk

A major challenge is to evaluate prevention versus adaptation as alternative responses to a perceived risk. A helpful approach applies sequential decision theory.³⁹

It begins with a hypothesis. In this case, the supposition is that human activity is causing global temperatures to rise enough to cause catastrophic consequences, and therefore we ought to try to prevent or reduce future warming. There are two possible responses to this hypothesis: acceptance (in this case meaning that we try to prevent global warming) or rejection (in this case meaning that we do not try to prevent climate change but prepare to adapt if it should occur).

Those advocating mandatory carbon emissions reductions must prove each of four points:

1. that human activity is a major cause of global warming;
2. that the warming is catastrophic;
3. that a global carbon-reduction policy is achievable; and
4. that investing resources in such a policy would have a higher benefit/cost ratio than the alternative strategy of adaptation.

If one or more of those conditions fails, adaptation is the preferable strategy.

As the discussions above suggest, the first and second conditions are subject to considerable doubt. The failure of the signatories to the Kyoto Protocol to achieve even the modest mandated carbon dioxide emission reductions suggests that the third condition may also fail. And extensive economic analysis (especially by the Copenhagen Consensus Center, which we shall discuss below), indicates that the costs of trying to reduce future temperatures by restricting CO₂ emissions will far outweigh the benefits, while other problems can be solved through actions the benefits of which outweigh their costs. This makes it very likely that the fourth fails as well. So adaptation is probably preferable to prevention as our response to climate change.

The crucial role of economic development is apparent in this analysis. Put simply, wealth enables people to adapt to and defend themselves against a wide variety of material problems. That is why we see such disparate impacts from hurricanes, earthquakes, and similar natural disasters around the world. These events cause higher *monetary* losses in wealthier than poorer locations. But the toll in *human life and health* is, by

³⁹ The discussion that follows draws from my earlier discussion in Roy W. Spencer, Paul K. Driessen, and E. Calvin Beisner, “An Examination of the Scientific, Ethical, and Theological Implications

of Climate Change Policy,” online at http://www.interfaithstewardship.org/pdf/ISA_Climate_Change.pdf.

contrast, vastly higher in the poorer locations.

To apply this simple insight again to climate change, it is easy to answer the question, “Are you more likely to experience significant risk to your life and health from either greater warmth or greater cold if you are wealthy, or if you are poor?” Wealth enables us to adapt to many conditions—hotter, colder, wetter, drier, windier, etc. But *if* the attempt to hold down future temperatures through carbon emissions reductions were effective, it would protect us from only one condition: warmer weather. And the cost of that protection might be the diversion of resources from economic development that also would have protected us from many other conditions.

Severe cold kills far more people (e.g., in Europe, about 1.5 million per year) than severe heat (about 200,000), and climate history assures us that cycles of warming and cooling will continue. Consequently, pursuing economic growth to enable adaptation, whether to warmer or colder temperatures, is probably preferable to pursuing carbon dioxide emission reductions to prevent warming.

Setting Priorities for Creation Care

Our discussion so far strongly suggests that preventing global warming should not be Christians’ most important environmental task. But if it is not, what should be our top priority? **What is the most important environmental task facing American Christians today?**

Many problems face mankind in the early 21st century. Environmental problems are not the only ones. Indeed, in most Americans’ opinions, they are not the most important. A recent poll shows Americans ranking environmental problems 13th on a list of 22 problems. Terrorism, health care, the economy, unemployment, family values, education, the federal budget deficit, foreign policy, crime, Social Security, drugs, and taxes are all ranked higher. It is important, even as we attempt to prioritize environmental problems, that we remember that many other problems face us, too. When it comes to allocating limited funds to addressing problems, those funds should be directed to the problems on which they can do the most good.

Asked two years ago which was the most important *environmental* problem they faced, more Americans mentioned water pollution than any other. Other problems mentioned were, in order, destruction of ecosystems, toxic waste, overpopulation, ozone deple-

tion, global warming, urban sprawl, smog, endangered species, and acid rain. Asked which environmental problems they worried about “a great deal,” more mentioned pollution of drinking water than any other. This was followed by river-and-lake pollution, toxic contamination, water shortages, air pollution, species extinction, deforestation, the ozone layer, global warming, and acid rain.⁴⁰

Experts, however, rank environmental and other problems very differently from the general public. Regarding each option, they ask:

1. What is the damage being done to humans and other species?
2. How firm is the evidence for this damage? Are the negative environmental impacts serious, well-documented, and ongoing? Or are they mixed, theoretical, and largely future?
3. How well do we understand the mechanisms that cause the damage? Can we pinpoint the specific activities that have the most negative impact?
4. Do we currently have the technology to prevent or remedy the damage, in a reasonable time and at a reasonable cost? Or is the technology still just a concept on the drawing board? Might it turn out to be prohibitively expensive?
5. Will the benefits of solving the problem substantially outweigh the costs? In particular, can we justify the “opportunity cost” of consuming funds and energies that could have been put to other uses?

With regard to the last point, consider first the cost of fighting global warming by reducing CO₂ emissions. Full compliance with the Kyoto Protocol by all nations of the world (which will certainly not happen) would cost at least \$180 billion per year (about 0.5 percent of global gross product) throughout the 21st century. It would reduce temperature in the year 2100 by at most about 0.3° F—a statistical artifact too little to detect and of no measurable significance to life.

Various economic analyses indicate that a \$1 per ton tax on CO₂ would yield about a 2 percent reduction in emissions at a worldwide cost of over \$11 billion (not

40 Steven F. Hayward, *The Index of Leading Environmental Indicators 2006*, 11th ed. (San Francisco: Pacific Research Institute, and Washington: American Enterprise Institute, 2006), 10-11.

from the tax, which presumably gets spent on public goods, but from the more expensive fuels and processes needed to achieve the reduction). Every additional dollar of tax per ton would reduce emissions less (because easier, cheaper reductions would be followed by harder, more costly ones). A \$30 tax would reduce emissions by about 40 percent at a worldwide cost of almost \$7 trillion. Achieving the 80 percent reduction now commonly mooted would surely cost many times more.

What would these massive expenditures buy us? The best estimates are that each ton of CO₂ emitted into the atmosphere will, on the assumption that the common hypothesis about CO₂-driven global warming is true, do damage valued most likely at about \$2 and almost certainly under \$14. So every dollar of tax above \$14 per ton would certainly, and above \$2 per ton would probably, be wasted. Therefore the optimal tax would seem to be about \$2. A lower tax would, assuming man-made warming is true, allow damage that could be averted at a positive benefit/cost ratio; a higher tax would make us poorer and thus more vulnerable to disease and other threats to well-being. Thus Bjørn Lomborg writes:

All major peer-reviewed economic models agree that little emissions reduction is justified. A central conclusion from a meeting of all economic modelers was: "Current assessments determine that the 'optimal' policy calls for a relatively modest level of control of CO₂." If we try to stabilize emissions, it turns out that for the first 170 years the costs are greater than the benefits. Even when the benefits catch up in the late twenty-second century, there is still a payback time before the total benefits outweigh the total costs, around 2250. Thus, as one academic paper points out, "the costs associated with an emissions stabilization program are relatively large for current generations and continue to increase over the next 100 years. The first generation to actually benefit from the stabilization program is born early during the 24th century." If our desire is to help the many generations that come before then, along with the world's poor, cutting emissions is not the best way.⁴¹

From an ethical standpoint, the implication of those last three sentences is crucial. The population of the 24th century will be much wealthier than that of this or the next two or three generations. Yet an emissions-

reduction policy to fight global warming would take wealth from earlier, poorer generations to benefit later, wealthier generations. It is in effect a steeply regressive tax on the poor to benefit the rich.

A carbon emissions-reduction policy to fight global warming, then, seems unlikely to be advisable. Some reductions in atmospheric concentration of CO₂ might be achieved by other means, e.g., by planting more trees. Some people speculate about reducing solar energy input by placing thousands of huge mirrors into low orbit to reduce global temperature. But none of these proposals has been subjected to as extensive study as carbon emission reductions, and their overall contribution to climate change control appears likely to be comparatively small.

The Copenhagen Consensus

Probably the most sophisticated attempt to weigh risks facing humanity and determine which offer the best opportunities for solution is by the Copenhagen Consensus Center at the Copenhagen Business School. The question, "What is the most important environmental problem facing American Christians today?" really amounts to: "If we are to spend some money on various environmental problems, where will that money do the most good?" To answer a somewhat broader question, the center commissioned papers by world-class experts on challenges facing humanity. For each paper, it commissioned responses from two additional experts who disagreed in significant ways with the primary author. It grouped the challenges into ten categories:

1. Climate change
2. Communicable diseases
3. Conflicts
4. Education
5. Financial instability
6. Governance and corruption
7. Malnutrition and hunger
8. Migration
9. Sanitation and access to clean water
10. Subsidies and trade barriers

In each category, the center considered three or four opportunities for action. Finally, it submitted the resulting papers to a panel of eight world-class economists, including four Nobel laureates. The panel compared the risks and benefits that could be expected

41 Data in the preceding paragraph come from Bjørn Lomborg, *Cool It: The Skeptical Environmentalist's Guide to Global Warming* (New York: Alfred A. Knopf, 2007), 21-38; the extracted quote is from pages 37-8.

from pursuing the various opportunities for action. It then ranked the opportunities, listing them under four categories. “Very good” meant that the likely benefits of pursuing this course of action far exceeded the costs. “Good” meant that the benefits substantially exceeded the costs. “Fair” meant that the benefit-cost ratio was more even. And “bad” meant that the costs would greatly exceed the benefits. The results were:

Very Good

1. Communicable diseases: control of HIV/AIDS
2. Malnutrition and hunger: providing micronutrients (e.g., vitamins and minerals)
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 tax on carbon emissions
16. Climate change: enforcing the Kyoto Protocol limits on carbon emissions

17. Climate change: value-at-risk tax on carbon emissions

Of the 17 opportunities, the 3 worst all had to do with attempting to reduce global warming by cutting carbon emissions.⁴²

Not all the problems the Copenhagen Consensus considered were environmental. The greatest opportunities for achieving real results in environmental spending, though, appear to be in addressing communicable diseases, sanitation, and water. Every year, diarrheal diseases kill about 2.7 million people. Almost all of these are poor and lacking pure drinking water. About another 3.7 million deaths are due to lower respiratory infections. Again, these are mostly among the poor. Lacking electricity, they must burn wood and dung for cooking and heating. The resulting indoor smoke causes chronic infections. Those without electricity must also live without refrigeration. So they must either expend much time and energy obtaining fresh food each day, or eat spoiled food and risk illness, or throw the food away and risk hunger. Malaria kills between 1.5 and 2 million persons annually and debilitates millions more—again, almost entirely among the poor.⁴³

For each of these problems, the damage is severe and well documented. It is current and ongoing, not future and hypothetical. We understand precisely how the damage is produced: how poor sanitation causes diarrheal diseases, how indoor smoke causes lower respiratory infections. We already have the technologies available, at reasonable cost, to solve these problems. And, as the Copenhagen Consensus suggests, the benefits of applying those solutions would substantially exceed the costs. Securing clean water for the world’s poor and reducing their exposure to indoor air pollution certainly meet our criteria for prioritizing environmental challenges. If we are seeking the most important environmental task facing U.S. Christians, these two challenges would seem to be better candidates than preventing global warming.

In a more basic sense, however, the challenge is economic development for the world’s poor. It is development that would allow them most effectively to obtain

42 Bjørn Lomborg, ed., *Global Crises, Global Solutions: Copenhagen Consensus 2004* (Cambridge: Cambridge University Press, 2004), 606-44.

43 World Health Organization, *World Health Report 1998*, online at http://www.who.int/whr/1998/media_centre/press_release/en/index2.html.

Climate Science and Doxology

On August 9, 2007, climatologist Roy W. Spencer and three co-authors published in the *Journal of Geophysical Research* an article with the typically opaque scientific title “Cloud and radiation budget changes associated with tropical intraseasonal oscillations.”¹ That intimidating title masked the fascinating finding that high-altitude cirrus clouds in the tropics diminish rather than increase with rising surface temperatures. Thus these clouds act as a negative (counter-balancing) rather than a positive (reinforcing) feedback on climate change.

The clouds’ response to rising temperature is somewhat like that of the iris of the eye. The brighter the light to which the eye is exposed, the more the iris grows, shrinking the pupil to protect the retina from discomfort and damage. The dimmer the light, the more the iris shrinks, enlarging the pupil to increase vision. Spencer *et al.*’s article thus lends support to a theory by another climatologist, Richard Lindzen, that the atmosphere acts like an iris to modulate surface temperatures.²

Both of these articles have stunning implications for the ongoing debate about global warming. Perhaps more important, though, they should prompt Christians to praise God for the way in which the earth, like the human body, is “fearfully and wonderfully made” (Psalm 139:14). In some senses this planet, like the eye, may be fragile. But it may also, by God’s wise design, be more resilient than many fearful environmentalists may imagine.

It is the same principle that enables many tethers on a trampoline to give the whole a load capacity that no one tether would have by itself. Even when some tethers break, the whole system continues to work well. In the case of the earth, however, the “broken tethers” tend to restore themselves, as can be seen in the growth of forests today on land that was covered by two-mile thick ice sheets during the last ice age.³

- 1 R. W. Spencer, W. D. Braswell, J. R. Christy, and J. Hnilo (2007), “Cloud and radiation budget changes associated with tropical intraseasonal oscillations,” *Geophysical Research Letters*, 34, L15707, doi:10.1029/2007GL029698, abstract online at <http://www.agu.org/pubs/crossref/2007/2007GL029698.shtml>.
- 2 Richard S. Lindzen, Ming-Dah Chou, and Arthur H. Hou, “Does the Earth Have an Adaptive Infrared Iris?” *Bulletin of the American Meteorological Society* 82:3 (March 2001), 417-32.
- 3 See Gregg Easterbrook, *A Moment on the Earth: The Coming Age of Environmental Optimism* (New York: Viking, 1995), chapters 4, 6, 8, and 10.

clean water and clean air. Development would provide, for example, the electricity to power water pumps and stoves and furnaces. It would allow people to protect themselves from all kinds of risks, environmental and otherwise.

To get some sense of how important economic development is in reducing premature death, consider these facts. Seven of the top ten causes of death in low-income countries are not among the top ten in high-income countries. These killers of the poor include: lower respiratory infection, HIV/AIDS, conditions imperiling newborn children, diarrheal diseases, tuberculosis, malaria, and road accidents.⁴⁴ Together, they claim nearly 12 million lives every year. They also debilitate many millions more, hindering them from working and caring for their families. Of these killers, all but the last are attributable in large part to the poor environmental conditions associated with low income.

To put it briefly and simply: the greatest threat to

the environment is poverty. It is also the greatest threat to human material well-being. Poverty drives high per-capita and per-unit-of-production pollution emission rates and low pollution-cleanup rates. These contribute to high rates of human disease and death, as well as the waste of resources, deforestation, and loss of habitat for other species. The implication is clear:

Economic development is the most important environmental task facing American Christians today.

Second to that is the task of getting reliable information and thinking biblically and rationally about environmental stewardship.

Churches’ Voices Today

Oldline Protestants

Over the past generation many church bodies have engaged environmental concerns.

44 Alan D. Lopez, et al., ed., *Global Burden of Disease and Risk Factors* (Washington, D.C., and Oxford, UK: World Bank, 2006), 70; online at <http://files.dcp2.org/pdf/GBD/GBD.pdf>.

Hands On: Gospel, Economic Development, and Creation Care Come Together in Uganda

In Uganda, an east African land of 28 million people, including 2 million orphaned children, the average person subsists on income of less than a dollar a day. Roughly 85 percent of the people live in rural areas, and of them roughly 44 percent lack safe drinking water and 59 percent lack basic sanitation. Because of deficient generating capacity throughout the nation, the few rural villages that sometimes have electricity lack it most of the time.

Poverty in Uganda has tragic human consequences. About 7.9 out of every 100 children born die in infancy, and another 5.7 before their fifth birthdays—about 13 and 57 *times* the respective U.S. rates.¹ In Uganda, malaria kills about 350,000 people every year and sickens millions; in the United States—essentially none.

Much of the disease and premature death in Uganda stems from environmental degradation that is itself rooted in poverty as people struggle just to get enough food to stay alive, unable to pay much attention to the environmental impact of their activities. Despite lavish global funding and attention being directed toward poverty in Africa, nagging concerns remain as to whether international programs of poverty alleviation, economic development, and environmental protection are achieving long-term success or having maximum impact—particularly in the lives of ordinary citizens in rural areas.

But a new effort coordinated by the Africa Christian Training Institute (ACTI) to build model programs in selected rural Ugandan villages, using new principles and applications for Gospel-oriented development, holds great promise for linking economic development, poverty relief, and creation stewardship.

Dr. Henry Krabbendam, theologian and professor of biblical studies at Covenant College in Georgia for over 30 years, heads ACTI. He has been involved in Uganda for 23 years preaching and training evangelists, church planters, and pastors.

ACTI is pursuing some unique approaches:

First, the project is being advanced as a Gospel manifestation. ACTI first takes the Gospel into poor, rural villages, and then it works to bring economic development and poverty alleviation programs.

“Anything accomplished apart from Christ only becomes a barrier to the Gospel,” Krabbendam says. Therefore, the Gospel is the first thing to go into a village (through a church or evangelist) and must precede economic development activities.

Second, unlike most NGO projects, which have a short-term relationship focused on only one particular need and then move on to the next village, ACTI builds long-term relationships with selected villages. Thus the project can move from one need, like water or electricity, to the next, like malaria prevention, economic empowerment, or environmental improvement.

Third, with a goal of building self-sustaining and repeatable models, the project will focus on developing “institutions of prosperity” like expanded property rights, entrepreneurial opportunities, and other market-oriented mechanisms that have allowed other countries to prosper. At the same time, it will impart understanding of basic environmental protection measures suitable for villages in the earliest stages of economic development.

Fourth, through the power of the Gospel, ACTI will focus on building a “beehive model” of cooperation and contribution among local, national, and international participants.

Fifth, ACTI will instruct local people in biblical “principles of prosperity.” Elements including hard work, time management, pride of ownership, self-sacrifice, and productive workforce relationships will be stressed through community education and practical application.

The Gospel is key to all five of these approaches. What the people of Uganda need more than anything else is what only the Gospel of Jesus Christ can give them—as Krabbendam puts it, a new heart through regeneration, a new record through justification, and new power for godly living through sanctification. The Gospel brings liberation from sin’s bondage, vindication from its guilt, and holy, obedient conduct, blessed by God, instead of sin’s cursed rebellion.

1 Figures are for 2005 and are from UNICEF, Uganda statistics online at http://www.unicef.org/infobycountry/uganda_statistics.html, United States statistics online at http://www.unicef.org/infobycountry/usa_statistics.html.

The largest volume of discourse comes out of the oldline Protestant community. “God’s Earth is Sacred,” a 2005 statement from 16 theologians convened by the NCC, declared dramatically, “In this most critical moment in Earth’s history, we are convinced that the central moral imperative of our time is the care for Earth as God’s creation.”⁴⁵

Oldline church bodies take an almost uniformly grim view of the environmental situation. As early as 1970, the American Baptist Churches warned:

The rapidly increasing pressure of world population, coupled with massive technological capabilities, constitute an unprecedented threat to the survival of life and beauty on this planet. The quality of our air and water is visibly deteriorating. Indiscriminate use of pesticides threatens to annihilate whole species of animal life and to jeopardize vital links in the food chain. The freedom to enjoy wilderness areas and uncluttered landscapes is rapidly becoming a memory.⁴⁶

It is exceedingly rare to find any acknowledgment of improvements in environmental conditions.

Many of these statements portray nature’s resources as severely limited. A 2000 United Methodist resolution contended that “land degradation, deforestation, species extinction, water degradation, global toxification,” and other examples of rising pollution “are signs that we are pressing against the finite limits God has set for creation.”⁴⁷

Chief among these “finite limits” is a supposedly fixed “carrying capacity” of human population on the Earth. Most of the oldline statements convey a certainty that the carrying capacity has already been exceeded, or soon will be. A 1972 Presbyterian Church (U.S.A.) (PCUSA) statement pleaded with humankind: “Do not multiply—the earth is filled.” It called upon “the civil community to take such actions as will stabilize population size.”⁴⁸

The oldline churches seem ambivalent about the Genesis 1 dominion mandate. A United Methodist resolution, readopted in 2004, lamented, “Misinterpretation of ‘subdue’ and ‘dominion’ has been used to justify much of the nature-destroying aspects of modern civilization.” The resolution did not explain what a correct interpretation of the passage would be.⁴⁹

A 1993 Evangelical Lutheran Church in America (ELCA) policy statement attempted to reverse the common understanding of “dominion.” Instead of seeing humans as entrusted to rule over the Earth, the ELCA would put them in a subordinate position: “According to Genesis 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....”⁵⁰

“Modern civilization” also seems to evoke mixed feelings. “Efforts to improve living standards are themselves beginning to threaten the health of the global economy,” the American Baptist Churches warned in 1989. They complained about “our enslavement to modern industrial images of civilization.”⁵¹

Oldline denominations seem to be opposed to every form of energy that is currently feasible, affordable, and capable of supplying the baseline electric power for a modern economy. A United Methodist policy statement, readopted in 2000, registered environmental objections against coal, petroleum, hydroelectric, and nuclear power. It offered only two options for replacing all these available power sources: research into “renewable energy sources, especially solar energy,” and “strenuous efforts to conserve energy.”⁵²

The suspicion of modern material progress often extends to a generalized hostility toward the free-market system that drives that progress. When a 2002 World Council of Churches (WCC) paper listed the many “environmental impacts of economic globalization,” they were all negative: “transnational corporations moving

Chapter 6, “The Created Order,” section on “Population,” online at [http://index.pcusa.org/NXT/gateway.dll/socialpolicy/chapter00000.htm?fn=default.htm\\$=templates\\$3.0](http://index.pcusa.org/NXT/gateway.dll/socialpolicy/chapter00000.htm?fn=default.htm$=templates$3.0).

45 “God’s Earth is Sacred: An Open Letter to Church and Society in the United States,” February 14, 2005, online at <http://www.nccusa.org/news/godsearthissacred.html>. Emphasis in original.

46 American Baptist Churches, “Resolution on Environmental Concerns,” adopted 1970, modified 1988 and 1995, online at <http://www.abc-usa.org/Resources/resol/environ.htm>.

47 *The Book of Resolutions of the United Methodist Church 2004* (Nashville, TN: United Methodist Publishing House, 2004), 69.

48 Presbyterian Church (U.S.A.) Advisory Committee on Social Witness Policy, *Presbyterian Social Witness Policy Compilation*,

49 *Book of Resolutions of the United Methodist Church*, 84.

50 “Caring for Creation: Vision, Hope, and Justice,” adopted by the Evangelical Lutheran Church in America Churchwide Assembly, August 28, 1993, online at <http://www.elca.org/socialstatements/environment/>.

51 “American Baptist Policy Statement on Ecology: An Ecological Situational Analysis,” adopted by the General Board of the American Baptist Churches, June 1989, online at <http://www.abc-usa.org/Resources/resol/ecology.htm>.

52 *Book of Resolutions of the United Methodist Church*, 77-82.

operations to developing countries to avoid the stricter environmental regulations of their home country; free trade agreements which restrict the capacity of national governments to adopt environmental legislation; destruction of southern rainforests to provide exotic timber for northern consumers and to create pasture land for beef for northern hamburgers.”⁵³

These oldline statements do not name the system that they would prefer to replace free-market capitalism. Instead they tend to enumerate a set of abstract ethical standards—for example, “sustainability,” “sufficiency,” “justice,” “solidarity,” and “participation.” These standards are typically not connected closely to any basis in Scripture or traditional church doctrine. Poorly defined, they leave many unanswered questions. For instance: Does “sustainability” envision a static economic system that uses the same technologies generation after generation? What income level satisfies the standard of “sufficiency”? Does “justice” demand an absolute equality of wealth?

The oldline statements repeatedly hold up indigenous peoples, traditionally characterized by animist religions and hunting-and-gathering economies, as models of right relationships with the Earth. A 2000 WCC consultation recommended “explor[ing] indigenous wisdom and other models of development far more eco-sustainable than what is being endorsed as well as imposed through unequal treaties by big and powerful developed countries.”⁵⁴ But it does not appear that the WCC really believes that animism is the spiritual answer for the 21st century, or hunting and gathering the economic answer.

So what is the answer, according to the WCC and related oldline bodies? There are some common threads in their recommendations. Although they mention some voluntary individual and church actions that might benefit the environment, the focus is on government-mandated solutions. The oldline statements reverberate with demands for “strict laws and tough regulations.”⁵⁵ Both the PCUSA and the United Methodist

Church have endorsed the “precautionary principle,” which would require that new economic projects be halted unless it can be proven that they would not have adverse environmental consequences.

The NCC, WCC, and United Methodists have all declared water to be a “human right.” According to a 2005 WCC statement, “Just as the biblical Jubilee declared that land belonged, in the final analysis, to God and not to any particular individual, so water should be part of the global commons and a social good.”⁵⁶

A 2005 WCC paper asserted: “Water should remain a public trust and not a commodity. The government and communities should manage its protection, consumption and distribution.” It denounced any private enterprise that would derive profit from the sale of water.⁵⁷ Of course, the same line of reasoning could be employed to insist that any natural resource must be taken out of private hands and controlled exclusively by the state.

Regarding climate change, the oldline churches seem to accept the entire global warming hypothesis and agenda without hesitation. A 2007 United Church of Christ resolution warned that “the window of opportunity to avoid catastrophic climate change is rapidly diminishing.” It supported “mandatory measures that reduce the absolute amount of greenhouse gas emissions.”⁵⁸ A 2007 ELCA issue brief specified that “we must reduce our emissions of carbon dioxide by 80 percent by the middle of this century.”⁵⁹

A WCC statement at the December 2007 UN Climate Conference in Bali reiterated the endorsement of many oldline churches for the Kyoto Protocol, as “an important first step toward a just and sustainable global

“Water: The Key to Sustaining Life: An Open Statement to Governing Bodies and Concerned Citizens,” undated, online at <http://www.ncccojustice.org/waterltr.htm>.

53 David G. Hallman, “Globalization and climate change,” online at <http://www.oikoumene.org/en/resources/documents/wcc-programmes/justice-diakonia-and-responsibility-for-creation/climate-change-water/02-globalization-and-climate-change.html>.

54 “Search for better tomorrow: Report of a consultation on ‘the Earth is Our Home’: A religious response to climate change in Asia, July 10-15, Bangalore, India,” online at <http://www.oikoumene.org/en/resources/documents/wcc-programmes/justice-diakonia-and-responsibility-for-creation/climate-change-water/15-07-00-search-for-better-tomorrow.html>.

55 National Council of Churches of Christ Eco-Justice Programs,

56 “Waters of life: An invitation to participate in the Ecumenical Water Network,” online at <http://www.oikoumene.org/en/resources/documents/wcc-programmes/justice-diakonia-and-responsibility-for-creation/climate-change-water/13-05-05-waters-of-life.html>.

57 Rogate R. Mshana, “Water, the source of life: Preservation, responsible management and equitable distribution: the ecumenical perspective,” online at <http://www.oikoumene.org/en/resources/documents/wcc-programmes/justice-diakonia-and-responsibility-for-creation/climate-change-water/05-water-preservation-responsible-management-equitable-distribution.html>.

58 United Church of Christ General Synod, “A Resolution on Climate Change,” adopted June 25, 2007, online at <http://www.ucc.org/synod/resolutions/climate-change-final.pdf>.

59 Evangelical Lutheran Church in America, “Issue Brief: Global Warming,” November 2007, online at <http://www.elca.org/advocacy/publicchurch/publicchurch08-warming.pdf>.

climate policy regime.” But the WCC added, “Much more radical reductions [in carbon dioxide emissions] are urgently needed.”⁶⁰

Eastern Orthodox

Most Eastern Orthodox churches belong to the WCC and NCC, and thus to some extent are represented by the council’s statements. But the Orthodox take a somewhat different approach in their own direct statements on the environment.

The most prominent voice in this quarter of the Christian community has been Bartholomew I, the Ecumenical Patriarch of Constantinople. Often called “the green patriarch,” Bartholomew has spoken and written frequently on the environment. He seems to agree with the assessment of his liberal Protestant allies: that environmental degradation, including global warming, is getting worse and threatens to become catastrophic.

Yet Bartholomew’s speeches and letters do not devote much attention to specific claims about environmental damage or specific policy prescriptions for remedying that damage. Instead he characteristically looks at environmental crisis as a parable of salvation history. “Climate change is much more than an issue of environmental preservation,” the patriarch told a WCC working group in 2005. “Insofar as human-induced, it is a profoundly moral and spiritual problem.” He stressed “the primacy of the need for a change deep within people’s hearts.”⁶¹

In the face of environmental abuses, Bartholomew’s tendency is not to blame western capitalism so much as a deeper depravity of all humankind. A 2006 patriarchal encyclical explained:

Unfortunately, man refused to comply with God’s directives regarding the measured use of natural resources according to his needs, nor did he preserve and protect the world entrusted to him, and thus he estranged himself from the governing grace of

God. As a result, man acts toward his surrounding environment in rapacious and destructive ways, as a ruler rather than a steward, disrupting the natural harmony and balance that are from God. Nature in turn has reacted to man’s abuse in unbalanced ways, inflicting upon humanity a series of natural catastrophes. Recent unusual temperature fluctuations, hurricanes, earthquakes, storms, the pollutions of rivers and seas and numerous other occurrences that hurt both the environment and man are the results of human actions....⁶²

Roman Catholics

Roman Catholic authorities have shared many of the environmental concerns expressed by their Orthodox and Protestant counterparts, but with significant variations in emphasis. They have generally taken a more positive view of human technology. A Vatican-issued Compendium of the Social Doctrine of the Church clarified, “In this regard, the Magisterium has repeatedly emphasized that the Catholic Church is in no way opposed to progress, rather she considers ‘science and technology are a wonderful product of a God-given human creativity, since they have provided us with wonderful possibilities, and we all gratefully benefit from them.’”⁶³

The Vatican document rejected “the utilitarian reduction of nature to a mere object to be manipulated and exploited.” It attributed this attitude to “scientism and technocratic ideologies” distorted by “man’s pretension of exercising unconditional dominion over things, heedless of any moral considerations....” Proper moral considerations, according to the compendium, rest upon the understanding that the Earth has “its own requisites and a prior God-given purpose, which man can indeed develop but must not betray.”⁶⁴

60 “This far and no further: Act fast and act now! Statement from the World Council of Churches,” December 14, 2007, online at <http://www.oikoumene.org/en/resources/documents/wcc-programmes/justice-diakonia-and-responsibility-for-creation/climate-change-water/14-12-07-statement-to-cop13-un-climate-conference-bali.html>.

61 “Message by His All Holiness Ecumenical Patriarch Bartholomew for the WCC working group on climate change,” August 12, 2005, online at <http://www.oikoumene.org/en/resources/documents/wcc-programmes/justice-diakonia-and-responsibility-for-creation/climate-change-water/12-08-05-on-climate-change.html>.

62 “Encyclical of Ecumenical Patriarch Bartholomew for the day of the protection of natural environment,” September 1, 2006, online at <http://www.oikoumene.org/en/resources/documents/wcc-programmes/justice-diakonia-and-responsibility-for-creation/climate-change-water/01-09-06-encyclical-of-ecumenical-patriarch-bartholomew.html>.

63 *Compendium of the Social Doctrine of the Church* (Rome: Pontifical Council for Justice and Peace, 2004), ¶457, online at http://www.vatican.va/roman_curia/pontifical_councils/justpeace/documents/rc_pc_justpeace_doc_20060526_compendio-dott-soc_en.html. The quote is from remarks of Pope John Paul II at a meeting with scientists in Hiroshima, Japan, February 25, 1981.

64 *Compendium*, ¶460, 461, 463. The last quote is from Pope John Paul II’s encyclical *Centesimus Annus* (1991), ¶37, online at http://www.vatican.va/edocs/ENG0214/_P6.HTM.

On the other hand, the Vatican indicated: “A correct understanding of the environment . . . must not absolutize nature and place it above the dignity of the human person himself. In this latter case, one can go so far as to divinize nature or the earth, as can readily be seen in certain ecological movements. . . .”⁶⁵

The compendium quoted Pope John Paul II’s expression of hope for a morally disciplined technology:

If humanity today succeeds in combining the new scientific capacities with a strong ethical dimension, it will certainly be able to promote the environment as a home and a resource for man and for all men, and will be able to eliminate the causes of pollution and to guarantee adequate conditions of hygiene and health for small groups as well as for vast human settlements. Technology that pollutes can also cleanse, production that amasses can also distribute justly, on condition that the ethic of respect for life and human dignity, for the rights of today’s generations and those to come, prevails.⁶⁶

A 1991 pastoral letter from the U.S. Catholic bishops refused to prioritize environmental protection above the needs of the poor. “Christian love forbids choosing between people and the planet,” they said. “It urges us to work for an equitable and sustainable future in which all peoples can share in the bounty of the earth and in which the earth itself is protected from predatory use.”⁶⁷

In a 2001 pastoral letter on climate change, the U.S. bishops recognized that “the United States has made significant environmental gains over the last several decades.” They praised “[t]he United States’ history of economic freedom, technological innovation, and entrepreneurship.” With property rights and the profit motive married to a sense of social responsibility, the bishops saw opportunities to reduce both poverty and pollution:

Developing countries have a right to economic development that can help lift people out of dire poverty. Wealthier industrialized nations have the resources, know-how, and entrepreneurship to

produce more efficient cars and cleaner industries. These countries need to share these emerging technologies with the less-developed countries and assume more of the financial responsibility that would enable poorer countries to afford them.⁶⁸

Both the Vatican and the U.S. bishops have cautioned against using environmental problems as a justification for population control. “Regrettably, advantaged groups often seem more intent on curbing Third-World births than on restraining the even more voracious consumerism of the developed world,” the 1991 pastoral letter complained. “We believe this compounds injustice and increases disrespect for the life of the weakest among us.”⁶⁹

The Catholic authorities have been modest about their own expertise on environmental questions, and restrained in judging the particulars of environmental policy. “As bishops, we are not scientists or public policymakers,” the U.S. bishops admitted in their 2001 letter. “We enter this debate not to embrace a particular treaty, nor to urge particular technical solutions, but to call for a different kind of national discussion.” They sought a discussion that was less partisan, more careful in its use of science, and more attentive to the interests of the poor.

The bishops noted that “debate continues about the extent and impact of this [global] warming” and “some uncertainty remains.” Yet they “accept[ed] the consensus findings of so many scientists and the conclusions of the Intergovernmental Panel on Climate Change.” Global warming “could be quite serious,” according to the bishops, and “it seems prudent not only to continue to research and monitor this phenomenon, but to take steps now to mitigate possible negative effects in the future.” They voiced hope that international negotiations “can lead to just and effective progress.” But the bishops refrained from evaluating the merits of the Kyoto Protocol or other proposed treaties.

Evangelical Protestants

Until recently there has been much less consideration of environmental issues in the evangelical

65 *Compendium*, ¶463.

66 *Compendium*, ¶465, quoting John Paul II’s address to a convention on “The Environment and Health,” March 24, 1997.

67 United States Conference of Catholic Bishops, “Renewing the Earth: An Invitation to Reflection and Action on Environment in Light of Catholic Social Teaching,” adopted November 14, 1991, III.G, online at <http://www.usccb.org/sdwp/ejp/bishopsstatement.shtml>.

68 United States Conference of Catholic Bishops, “Global Climate Change: A Plea for Dialogue, Prudence, and the Common Good,” adopted June 15, 2001, online at <http://www.usccb.org/sdwp/international/globalclimate.shtml>.

69 “Renewing the Earth,” III.H.

community. Even now, we find a very thin policy base in official statements of evangelical church bodies.

The National Association of Evangelicals' (NAE) 2004 "Call to Civic Responsibility" listed "We labor to protect God's creation" as the seventh among its "Principles of Christian Political Engagement." The NAE document affirmed that "God-given dominion is a sacred responsibility to steward the earth and not a license to abuse the creation of which we are a part." It elaborated, "This implies the principle of sustainability: our uses of the Earth must be designed to conserve and renew the Earth rather than to deplete or destroy it."

"Because clean air, pure water, and adequate resources are crucial for public health and civic order," the NAE statement said, "government has an obligation to protect its citizens from the effects of environmental degradation." But it did not describe more particularly the kind of legislation it favored. "Because natural systems are extremely complex, human actions can have unexpected side effects," the NAE observed. "We must therefore approach our stewardship of creation with humility and caution." The document made no mention of climate change.⁷⁰

The Southern Baptist Convention (SBC) passed a similarly brief "Resolution on Environmental Stewardship" in 1990. The resolution noted, "We [humans] 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)." It directed "that individuals, churches, and other Baptist groups be encouraged to make an environmentally responsible ethic a part of our lifestyle and evangelistic witness."⁷¹

More controversial was a 2006 SBC resolution "On Environmentalism and Evangelicals." Unlike any of the other church statements so far surveyed, this 2006 resolution directly attacked the environmental movement. It objected, "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." Moreover, the Southern

Baptists warned, "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."⁷²

A 2007 SBC resolution "reject[ed] government-mandated reductions in greenhouse gas emissions." It contended that "many scientists reject the idea of catastrophic human-induced global warming." The 2007 resolution warned that CO₂ regulatory schemes could be "very dangerous, since attempts to meet the goal [of a maximum acceptable global temperature] 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."⁷³

Blest Be the Ties that Bind: Matters of Ready Consensus among Christians

Despite all the matters on which Christians can and do disagree about creation care, there are matters on which we can all agree.

All should join together in praising God for the beauty and goodness of His creation and its testimony to His wisdom, power, and goodness.

All should appreciate the connection, in God's providential plan, between the fate of humankind and the fate of the creation. All should grieve the brokenness that afflicts the creation as the result of human sin. And all should look toward the hope of God's redemption in Jesus Christ, liberating both humans and the entire creation from their bondage to sin and death.

All should accept our human responsibility as God's stewards on the Earth, called to rule and care for it to His glory. All should understand that this dominion does not mean autonomy. We will have to render an account for our stewardship, under the strict standards of God's moral law.

All should be committed, as stewards under that moral law, to caring for the rest of God's creatures, protecting them from senseless harm. God created them and pronounced them "good." He cares for them, and we as His image bearers should follow His pattern. Yet

70 National Association of Evangelicals, "For the Health of the Nation: An Evangelical Call to Civic Responsibility," adopted October 7, 2004, online at http://www.nae.net/images/civic_responsibility2.pdf.

71 Southern Baptist Convention, "Resolution on Environmental Stewardship," June 1990, online at <http://www.sbc.net/resolutions/amResolution.asp?ID=485>.

72 Southern Baptist Convention, "On Environmentalism and Evangelicals," June 2006, online at <http://www.sbc.net/resolutions/amResolution.asp?ID=1159>.

73 Southern Baptist Convention, "On Global Warming," June 2007, online at <http://www.sbcannualmeeting.net/sbc07/resolutions/sb-cresolution-06.asp?ID=6>.

we should follow God's pattern fully, not only caring for other creatures but also caring *more* for human beings.

All should be committed, in particular, to protecting the most vulnerable people among us. In large measure this means the poor, whose very poverty makes them vulnerable to malnutrition, disease, hunger, and premature death. While Scripture forbids partiality either for or against the poor, still it often associates help for the poor with justice, because the poor are particularly vulnerable to injustice.⁷⁴

This concern entails looking carefully at the potential for various environmental hazards to harm the poor more than others. It also involves being watchful for the potential that environmental policy itself might have unintended consequences that harm the poor—as when environmental regulations or energy taxes raise their cost of living or slow economic development that could lift them out of poverty.

Finally, as we weigh the benefits and costs of different policy options for addressing different environmental problems, all should be committed to honesty. That is, we should strive to tell the truth as best we understand it. We must study diligently various sides of controversial issues, remembering that “[t]he first to plead his case seems right, until another comes and examines him” (Proverbs 18:17).

Matters on Which There Should Be Consensus

There are also matters on which there ought to be widespread agreement among orthodox Christians. As the church statements cited above illustrate, there is not currently a consensus on these points. But we believe that the weight of biblical teaching and historical experience is so strong that it cannot credibly be denied:

- Economic development is a good to be pursued (wisely and responsibly) rather than an evil to be restrained. It is the key to alleviating poverty and its attendant ills, including environmental ills.
- Our environmental ideal is not wilderness but rather a garden—or even a city—where nature is used wisely for the benefit of humankind and for the greater glory of God.
- Creative humans enhance and improve what they have been given in nature.

- The environment and the economy are not zero-sum games in which consumers fight for fixed resources. Creative people can enhance, improve, and multiply what they have been given in nature.
- In view of the fall, we must avoid utopian expectations that all problems can be vanquished in the next generation by government fiat. Human sin and its consequences are intractable realities. There will be benefit-cost trade-offs in any policy that we adopt. It is foolish to imagine that we can have perfectly “clean” technologies without unintended side-effects.
- We must avoid the panic of excessive alarmism about the imminent destruction of the planet. Instead we must take a sober and balanced view of the environmental problems that confront us and trust God to give us the means to be responsible stewards if we are attentive and faithful. The resilience of natural systems and the historical record of the environmental transition also offer some reasons for encouragement.

Where the Churches Must Not Bind

One of the Apostle Paul's sternest admonitions was against being taken captive by human traditions masquerading as laws of God. Jesus condemned putting human tradition in the place of God's law and making it the standard by which to judge sin and righteousness. The law of God, and nothing less, is the standard of righteousness.⁷⁵

One of the characteristics of good human law is that it is stable. The stability of divine law is symbolized in its having been written by the finger of God on tablets of stone “The secret things belong to the LORD our God, but the things revealed belong to us and to our sons forever, that we may observe all the words of this law” (Deuteronomy 29:29).

But the natural and human sciences are a very different realm. Ongoing developments in our understanding of ecology, in technology, and in economic conditions result in constantly changing judgments of “best practices” in creation stewardship. For example, the evangelical authors of *Earthkeeping in the Nine-*

74 Exodus 23:3, 6; Leviticus 19:16; Psalm 72:2, 4, 83:3; 140:12; Proverbs 29:14, 31:9

75 Colossians 2:1-4, 8, 18-23; Matthew 15:1-6.

ties pointed out the changing costs and benefits, both financial and environmental, of paper recycling. These made it difficult to judge whether recycling was a best practice. At the time, they wrote, “the use of recycled paper appear[ed] to be only slightly more stewardly than the use of virgin materials.”⁷⁶

The comparative economics and ecology of recycling versus making paper from newly logged trees are vastly simpler than the economics and ecology of such enormously complex systems as Earth’s atmosphere and the various habitats that shelter global biodiversity. Significant revisions of our understanding of these matters occur over and over. For instance, famed climatologist James Hansen of NASA changed his view from warning of an ice age starting around 2020 to warning of catastrophic global warming. But famed geochemist Claude Allegre went from being one of the earliest to warn of man-made global warming to being one of the chief critics of the theory.⁷⁷ Such rapidly evolving understanding implies that much that we consider understanding at any given time may later turn out to be misunderstanding.

This characteristic of science stands in stark contrast with the stability of biblical law. It is an important reason why Christians should not presume to make current science or economics the basis for judgments of sin. While government regulation often must be adopted on the basis of shifting science, theological and ecclesiastical judgments of sin and righteousness should be based only on the unchanging standard of God’s moral law revealed in Scripture. Only that can bind the conscience. Pronouncements that individuals or churches have a moral obligation to support one or another policy regarding creation care, therefore, are fraught with the danger of substituting changing human standards for the abiding standard of divine law.

Pastors, other religious leaders, and ecclesiastical bodies should exercise great caution in making pronouncements about environmental issues. Particularly, they should refrain from calling sin what cannot be shown to be sin from the unchanging law of God in Scripture. Thus they will avoid make binding pronouncements on questions like these:

1. How do we assess different factors that might be causing global warming?
2. What is the likely extent of future global warming? Will its effects be catastrophic or manageable?
3. Is prevention or adaptation a better strategy?
4. If we seek to prevent global warming, is the Kyoto Protocol (or any other regulatory scheme) too strict, too lax, or just about right?
5. Is global warming our top environmental problem, the issue of the age, or is it a misguided panic?
6. Should U.S. energy policy give greater emphasis to fossil fuels, nuclear power, or solar power? What is the best mix of conserving current energy supplies versus expanding energy supplies?

On none of these questions does the Church have the expertise or the authority to proclaim, “Thus says the Lord.” It should leave these matters open for debate among well-intentioned Christians who agree about their environmental responsibilities while disagreeing about the best means of fulfilling them.

Some Tentative Theses for Further Study

Aside from the biblical teachings on which Christians have or should have consensus, and the scientific and policy questions on which consensus is not possible (or even necessarily desirable at this point), there are also matters that fall into a middle ground. These are matters on which there are no plain biblical directives. Nevertheless, reason and experience point strongly in one direction, we believe. Perhaps further study and the passage of time might yield an informal consensus, although not a binding doctrine.

With that hope, we submit these tentative theses for discussion in the U.S. Christian community:

1. Providing pure drinking water to the poor and protecting them from indoor air pollution may be the most important environmental tasks for today.
2. Preventing predicted global warming is probably near the bottom of the list of environmental challenges.
3. In responding to possible climate changes, adaptation is probably a better strategy than

⁷⁶ Wilkinson, ed., *Earthkeeping in the Nineties*, 381-2.
⁷⁷ John McCaslin, “Cold Yet?”, *The Washington Times*, September 19, 2007, online at <http://www.washingtontimes.com/article/20070919/NATION02/109190067>; Lawrence Solomon, “Allegre’s Second Thoughts,” *Financial Post*, March 2, 2007, online at <http://www.canada.com/nationalpost/news/story.html?id=2f4cc62e-5b0d-4b59-8705-fc28f14da388&k=76391>.

- prevention.
4. Over and above specific environmental challenges, overcoming poverty through economic development is the best long-term strategy for improving the environment.
 5. The environmental transition is already well advanced in the developed countries, and we should be grateful rather than alarmed at the growth of our economies.
 6. The environmental transition is feasible in developing countries, especially with just and accountable governments that allow economic and political freedom to their peoples and thereby reap the benefits of free trade.
 7. By contrast, the empowerment of unaccountable international regulatory bureaucracies that rob the sovereignty of more accountable democratic national governments would not be a step in the right direction.

Resources for Further Study

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Websites

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www.copenhagenconsensus.com

Cornwall Alliance for the Stewardship of Creation:
www.cornwallalliance.org

Evangelical Climate Initiative,
www.christiansandclimate.org

Evangelical Environmental Network,
www.creationcare.org

